Johannes Glückler · Matthias Garschagen
Robert Panitz
Editors

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Placing the Future

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Knowledge and Space

This series explores the relationship between geography and the creation, use, and reproduction of knowledge. The volumes cover a broad range of topics, including: clashes of knowledge; milieus of creativity; geographies of science; cultural memories; knowledge and the economy; learning organizations; knowledge and power; ethnic and cultural dimensions of knowledge; knowledge and action; mobilities of knowledge; knowledge and networks; knowledge and institutions; geographies of the university; geographies of schooling; knowledge for governance; space, place and educational settings; knowledge and civil society; professions and proficiency; and knowledge and digital technology. These topics are analyzed and discussed by scholars from a range of disciplines, schools of thought, and academic cultures.

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Chapter 1
Placing the Future: Understanding Space in the Making of Tomorrow

Johannes Glückler, Matthias Garschagen, and Robert Panitz

Making Space for the Future

The human condition is intrinsically entwined with the future. From planning our daily errands to charting long-term societal development, navigating life requires a constant dance with the unknown. Yet the unknown future is not simply *out there*—it is humanity that builds its future from the past and present through actions, which are reasoned and legitimized by expectations of the future (Anderson, 2010; Appadurai, 2013). Whereas scholars of the social sciences and humanities have developed valuable theories and rigorous methods to scrutinize the causes, processes, and patterns of the past, they have had much less to say about the future and how to grapple with either its inherent uncertainty or its intricate relationship with the present. Humanity has learned to know in hindsight, yet faces the challenge of navigating the infinite space of possibility found in the future and shaping it in desired ways. Revisiting Ken Robinson's (2006) interrogation "Do Schools Kill Creativity?" one may once again acknowledge the overwhelming challenge of preparing for the future:

> It is education that's meant to take us into this future that we can't grasp. If you think of it, children starting school this year will be retiring in [2085]. Nobody has a clue despite all the expertise … what the world will look like in five years' time. And yet we are meant to be educating them for it. So the unpredictability I think is extraordinary. (Robinson, 2006)

With this 20th volume in the long-term series *Knowledge and Space*, we engage with this uncertain sphere and focus on the challenges facing humans as we step into tomorrow. Our current era, characterized by the knowledge economy, knowledge

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society, and a growing emphasis on evidence-based policy, stands in a fascinating tension with the future's inherent uncertainties. Here, knowledge is power, and the ability to analyze data and predict trends is key to navigating complex challenges. Yet utilizing the very tools that empower us—advanced technology, vast datasets, and sophisticated models—often means struggling to capture the full spectrum of possibilities that lie ahead. These developments, however, have also catalyzed controversy over desired ways of living, who defines progress for the future, and how to even know said future in the face of unavoidable uncertainty. Controversies now swirl around how to tackle climate change, environmental sustainability, social inclusion, economic prosperity, and peaceful coexistence in a post-pandemic world (Jeffrey & Dyson, 2021; Yeung, 2023; Eckhardt & Glückler, 2025), how to transit to a sustainable future (Westaway, 2009) in the Anthropocene (Castree, 2014)—and how to anticipate the many unforeseen issues sure to take shape in the coming decades. Disruptive innovations, unforeseen events, and the sheer complexity of social systems can quickly render even the most meticulously crafted forecasts obsolete.

It is the purpose of this book to go beyond conventional practices of forecasting, and to include practices of envisioning and enacting the future. In addition, and in the face of growing awareness and engagement with futuring, we call for the inclusion of space and place in future thinking and future making. For a long time, future studies and the geography of knowledge have seemed like largely disconnected realms of scholarship. Yet the recent literature in geography reflects an emergent call for futuring and future thinking (e.g., Anderson, 2010; Anderson & Adey, 2012; Harrison, Galland, & Tewdwr-Jones, 2021; Jeffrey & Dyson, 2021), most succinctly articulated in Gong's (2024) appeal that *futures should matter more*. In parallel, an increasing number of researchers are suggesting integrating perspectives across disciplines and fields into the geographies of futures (Bergman, Engwall, Gunnarsson-Östling, & Johannesson, 2014; Bunnell, Ng, & Yeo, 2023). Following such calls and the tradition of the *Knowledge and Space* series (Glückler, Wagner, & Jungkunz, 2025), this book brings together perspectives from various disciplines and fields to stimulate interdisciplinary exchange not only on futuring, but especially on its implications for knowledge and space.

From Planning to Futuring

The future has always been built into concepts and practices of planning (Mintzberg, 1981), a human technique that has emerged as way of *normalizing the future* (Connell, 2009). Planning enacts the future; it provides the framework and roadmap to translate future visions into concrete actions. It helps allocate resources, establish regulations, and guide development in a way that aligns with desired outcomes. Regarding corporate planning and strategy development, business firms have long adopted and used foresight techniques and scenario analysis. More than 70% of US Fortune 100 companies had already adopted methods of multiple scenario analysis

by 1981 (Linneman & Klein, 1983). In 2008, more than 80% of corporate planners from 152 European companies reported the use of foresight techniques (Daheim & Uerz, 2008). In fact, dealing with uncertainties about the future is a key aspect of social, economic, and political activities, especially in the event of the unexpected. Consider the case of Brexit. Despite being unanticipated, the 2016 referendum led to a *Leave* vote, and a phase of uncertainty, including several UK elections and a large number of renegotiations between British and European representatives. During this period, financial service firms had to prepare for new regulations, including investments into new locations, processes, and personnel (Glückler & Wójcik, 2023; Panitz & Glückler, 2022a, 2022b). The lack of a vision for the future can create an emotional and social burden that limits options in future making (Pimlott-Wilson, 2017).

The urban and regional planning of the built environment has particularly dictated the constraints and opportunities for future social behavior, regarding housing, mobility, work and leisure, and social interactions in public spaces (Friedmann, 1971). Yet planning can fulfill different duties. Those planning may be merely responsive to accommodate past changes, as sometimes happens in cities where, for instance, informal settlements become legalized post-hoc in written plans. Planners may also anticipate and adapt to expected, likely future trends and developments, as when adapting communities to rising sea levels or other climate hazards (Garschagen, Doshi, Moure, James, & Shekhar, 2021). Finally, planning may serve to transform the present in ways that make it possible to enact desired alternative futures. Increasingly, planners have adopted forward-looking techniques to anticipate possible and desired futures as well as to imagine alternative futures (Ratcliffe & Krawczyk, 2011).

Despite their similarities, there is a difference between planning and futuring. Whereas planning is about setting and achieving specific goals in a structured manner, futuring is about exploring and preparing for various possible futures. Both are complementary practices that can be used together to create a comprehensive strategy for navigating the future. Although future thinking has been left somewhat at the margin of mainstream disciplinary problem solving, scholars have begun to seek open and inclusive efforts to imagine and envision desirable (and possible) futures (Bjork-James, Checker, & Edelman, 2022). Challenges lie ahead, opportunities are looming, uncertainties need to be captured. Taking the negative impact of global challenges—such as climate change (Garschagen et al., 2021)—together with the uncertain impact of technological opportunities—such as artificial intelligence (Glückler and Panitz, 2024)—today's society, policymakers, and planners are beginning to understand that by simply extrapolating the past into the future they will fail to adapt to the threats, and equally fail to prepare for the opportunities. Contemporary public discourse reflects societal concerns about climate change, threats to biodiversity, human extinction, poverty, social exclusion, and so forth. And although claims about sustainability transitions (Köhler et al., 2019; Truffer et al., 2022), development policy, and inclusive governance (Gutiérrez & Glückler, 2022; Hendriks, 2010) have inspired contemporary thinking, there seems to be less

conscious conversation about constructive and alternative social, economic, regional, and planetary futures (Braun, 2015).

Studying this tension, one cannot escape the necessity of a nuanced approach to futuring. Although knowledge and data are undoubtedly valuable tools, they should not be seen as a substitute for critical thinking, ethical considerations, and the value of human imagination. Futuring, in its most effective form, is not about achieving complete control over a future that is simply out there, needing only to be decoded and tamed. Rather, it is about shaping the future in desired ways and about learning to navigate the complexities of the irreducible unknown through resilience and a sense of possibility—and in contemporary place and space.

Placing the Future

Those engaging in contemporary future research have widely neglected the role of geography and space in building knowledge about likely futures and in shaping imagination and normative alignment to collectively enact desirable futures. Yet it is important to acknowledge that social practices of futuring are not equally distributed across space. Although the future may seem like an abstract concept, some geographical places hold more privileged positions than others in shaping and disseminating dominant narratives of the future. Think tanks or knowledge-intensive business services (Miles, 2025) that may wield significant influence in crafting influential visions of technological advancement or economic growth often concentrate in major cities. Similarly, powerful international organizations often set agendas and frame future possibilities based on their specific priorities. Just think about the selection of venues for large cultural or sportive events, such as the Olympic Games or major exhibitions. Such selections often set the chosen places' agendas for many years and reconfigure economic and social settings (Glynn, 2008; Grabher & Thiel, 2015). Acknowledging this uneven distribution of futuring power means accepting the need for a more inclusive and geographically diverse approach. By incorporating the perspectives of marginalized communities and regions into the futuring process, the dominance of singular narratives—such as "technowashing" social, political, and environmental challenges through technology-centered narratives about the future (Koch, 2024)—can be challenged and a richer tapestry of future possibilities achieved.

A more inclusive view on futuring includes different political practices that shape the contemporary geographies and behaviors of people. Jeffrey and Dyson (2021) distinguish two types of political practices: anticipatory and prefigurative. Whereas those engaged in anticipatory politics respond to questions of "how the future will be," those of prefigurative politics include alternative norms, or, in its extreme, seek to build a utopian future of a better world even if the probability of said future's realization is rather low. Because prefigurative actors are often uncertain about the appropriate near-term future, they establish improvised practices to shape the world. However, it is the institutionalization process of new improvised practices that leads

to the gradual attainment of a real-world impact (Jeffrey & Dyson, 2021), as existing practices are delegitimized and new ones legitimized (Glückler & Eckhardt, 2022). Consequently, prefigurative politics are common for activists and social movements that seek to change the world with a new vision of the future.

The general lesson taught by the many contributors to this volume is that knowledge is place-dependent, and sometimes overly "sticky to place" (Asheim & Isaksen, 2002; Markusen, 1996; von Hippel, 1994). Geography is a condition for, and context of, the serendipity to adopt existing and create new knowledge. Human understanding requires social exchange, collective meaning-making, and interactive learning across thought collectives (Punstein & Glückler, 2020) and communities. Geographical place and aspirational futures of variably scaled communities are crucial for sparking new ideas, combining knowledge, and creating innovation—all guided by and having true impacts on the future. This volume's contributors will illustrate, on the one hand, that collective decisions to invest and enact the future forcefully transform places and regions as well as the relations between them. Yet, on the other hand, the making of the future itself has a place. Places are crucial for where people meet to breed and spread visions of tomorrow and to mobilize shared commitment and resources to take action. And as ideas about alternative futures gain traction and spread to other places, so do these futures become performative on present places. Through its historical evolution, economic development has favored different places. The evolution of capitalism, for instance, has created new hotspots with every new Kondratieff wave (Dicken, 2007), with early industrialization beginning in Great Britain and moving on to mainland Europe, North America, and Japan, and now to East Asia.

Places—be they dense metropolitan centers, sparse peripheral regions, or distributed online communities—are not simply passive backdrops. They are dynamic contexts for shaping our understanding of the future, both in terms of knowledge and imagination. Places inform the knowledge we accumulate, house our visions of the future, and offer the very stage for their enactment. The authors of this book delve into the intricate relationship between place, space, and the performativity of the future—how the future becomes a tangible reality within a specific location.

As Hayek reminds us, knowledge is not given to anyone in its totality (Hayek, 1945), but has always been divided between people and places. As a consequence, and as previous contributors to this series have discussed in great detail, the local *milieu of creativity* (Meusburger, Funke, & Wunder, 2009) and its members' ability to generate, share, and use knowledge depends on the geographical context of educational institutions, including *schools* (Jahnke, Kramer, & Meusburger, 2019) and *universities* (Meusburger, Heffernan, & Suarsana, 2018), its *cultures* (Meusburger, Freytag, & Suarsana, 2016), *networks* (Glückler, Lazega, & Hammer, 2017), *institutions* (Glückler, Suddaby, & Lenz, 2018), *governance* (Glückler, Herrigel, & Handke, 2020), as well as the interplay of its agency, including the *sciences* (Meusburger, Livingstone, & Jüns, 2010), the *professions* (Glückler, Winch, & Punstein, 2023), the *economy* (Meusburger, Glückler, & el Meskioui, 2013), or the *civil society* (Glückler, Meyer, & Suarsana, 2022).

Within their separate chapters, this volume's authors explore these dynamics across disciplines, geographies, and schools of thought. An engagement with the future includes the practices of knowing (or calculating) the future, envisioning (or imagining) the future, and enacting (or performing) the future (Anderson, 2010). Although knowing the future is associated with the enumeration of possible futures,—for example via trend analysis, modeling, or data mining—imagining future leads to the imaginary construction of a set of plausible or preferable futures by using techniques such as scenario planning or foresight. Performing futures involves a kind of theater with which one creates specific spaces where people behave as if a specific futuristic vision were present. These types of engagement are often combined: Scenario analysis in the context of climate change research, for instance, is heavily driven by imagining alternative futures (e.g., those involving energy transitions), while in parallel calculating and modeling these imagined futures' effects and the feasibilities (IPCC, 2023). Similarly, practitioners of urban planning, for example, often combine approaches to calculate future trends and imagine alternative urban development models with approaches to enact the future, for example, through serious games used for simulating concrete decision-making processes and the political feasibility of the proposed alternative development models (Greiving, Kruse, Othmer, Fleischhauer, & Fuchs, 2023). Overall, the practices of futuring play a key role in informing policies and measures in the present, following the logics of cautioning for the future, preempting the future, or preparing for the future (Anderson, 2010).

In recognition of the multifaceted nature of futuring, this book is structured in three distinct, yet interconnected, parts. The authors of Part One, *Knowing the Future*, delve into the theoretical underpinnings of futuring, exploring the various methodologies and frameworks that can equip us to analyze current trends and anticipate potential future scenarios. Those of Part Two, *Envisioning the Future*, probe the power of imagination and creativity in shaping desirable futures. They explore various techniques for envisioning alternative futures, fostering collective vision, and navigating the complexities of creating a shared roadmap for a preferred future. Finally, the contributors of Part Three, *Enacting the Future*, bridge the gap between vision and action. They explore strategies for translating future aspirations into concrete steps and initiatives, fostering a culture of innovation and change, and equipping ourselves with the tools to navigate the complexities of shaping a more desirable future. Finally, this 20th volume, which is the last in a long-term series of international symposia on the multiplex relationship between knowledge and space, closes with an epilogue. Its writers present findings from a survey of almost 300 scholars who participated in the symposia over the course of 20 years to draw lessons for the future of academic conferencing.

Knowing the Future

Part I, *Knowing the Future*, inquires into the nature and role of knowledge in anticipating and understanding the future. By using different sets of methods, it is possible to anticipate likely futures and to seize emerging opportunities. In a series of contributions, these authors discuss methods of futuring, including scenarios (Wright, 2025) and guiding images (Hines, 2025), and elaborate on the need for future consciousness (Heinonen, 2025) to overcome denial of future threats, such as the climate catastrophe (Barker, 2025).

In Chapter 2, George Wright discusses several methodologies of how to anticipate the future, including judgmental probability forecasting, judgmental adjustments to time series forecasting, the Delphi method, and the intuitive logics method of developing scenarios. In particular, he elaborates on the use of scenarios in a practical case example, as well as a range of judgment methods as alternative ways of forecasting and anticipating the future. With his analysis, he demonstrates that whereas judgmental probability forecasting, adjustments to time series, and Delphi are appropriate techniques for the forecasting of single quantities, or outcomes, scenario thinking, by contrast, produces broad-brush anticipations of the future that are narrative-based and closely linked to the underpinning formulation and evaluation of strategy and decisions.

In order to identify preferable futures, in Chapter 3, Andy Hines suggests that futurists must play an important role in aiding the development of positive guiding images of the future for society as a whole. He argues that whereas prior research evidences that the successful societies in the past were guided by such images, many society's of today, and over the last several decades, have lacked such an image. He uses his chapter to step into that gap by exploring how to develop useful knowledge about a place that does not yet exist—the future. Of course, ideas about the future are alive in the present, but how might they be developed to provide a guide or map to potential futures? Andy Hines describes how a futurist's method was adapted to explore this question of developing guiding images of the future. He includes the development of a specific technique to analyze potential images, and brings the process to life by highlighting research findings that resulted in three guiding images. It is hoped that readers will enjoy the interplay between the development of an approach to exploring the placeness of the future with resulting tangible findings.

In Chapter 4, Sirkka Heinonen engages with "Futures Consciousness as Vaccination against Misplaced Futures" by asking how futures can be studied and how to avoid the general pitfalls that people face when they want to study futures. She answers these questions by presenting futures studies' ontological and epistemological premises and stating how to avoid basic challenges and mistakes. As a proof of concept, she presents four different geospatial scenarios. Each represents a different kind of possible future, based on who utilizes geospatial data and the society's level of centralization. However, the main agenda in developing futures consciousness must consist of more than merely presenting possible scenarios. Based on the concept of futures resilience, scholars must also present *preferable* futures—one of

which is called the Digital Meanings Society. Here, users find that spaces and places are filled with meaningful experience.

In Chapter 5, "Anaesthetic Worlds of Denial: 'Sleepwalking' through Climate Catastrophe," Kezia Barker asks how we understand the un/responsiveness of lay publics to knowledge of catastrophic futures, and what the spatial inflections of these un/responses are. She reviews research that probes our ambivalent engagement with catastrophic climate futures as, through varied forms of denial and delay, we *sleepwalk* into catastrophe. She considers the significance of *sleeping* and *awakening* as descriptors of individual and collective cognitive, political, and affective responses to future crisis. She demonstrates how using these metaphors expresses the spatial multiplicities or overlapping co-presence of catastrophe and normality as forms of *un/reality*. This has wider implications for understanding environmental controversies and the links between cognition, emotion, and agency in the patterning of responses to environmental futures.

Envisioning the Future

Futuring—the practice of exploring and shaping potential futures—is heavily grounded in imaginaries and visions. The authors of Part II, *Envisioning the Future*, delve into concepts and imaginaries, showcasing the spectrum of possibilities. They offer a range of contributions in which they discuss concepts and imaginaries of the future, including utopias of the future (Simon, 2025), utopian urban live styles (Ringel, 2025), present conflicts and imaginaries of future food networks (Sánchez-Hernández, 2025), and the prospects of a post-growth-oriented future (Schulz, 2025). Pink (2025) and Tutton (2025) continue to show that envisioning can be a useful scientific practice, calling for a new type of social research, one whose practitioners participate in the active constitution of futures. These authors ponder post-growth futures, a concept that pushes us to imagine entirely new economic and societal models. By exploring these diverse imaginaries, futuring allows us to not only consider the range of possibilities that lie ahead, but also to shape them through informed decisions and proactive planning.

In Chapter 6, Zoltàn Boldiszar Simon reflects on what he calls utopias of extinction. In the last decades, conceptions of the future have gradually moved from visions of societal betterment toward prospects of societal collapse and human extinction. What happens to utopian thought under such conditions? What happens to utopia when the future transforms into a wasteland of apocalyptic and post-apocalyptic imaginaries? Contrary to expectations, utopian thinking does not vanish. Based on the contention that if humans are the malaise of the world, then human non-existence may constitute "betterment," contemporary utopian thought has begun to appropriate dystopian imaginaries and contemplate even the prospect of human extinction in utopian terms. Imaginaries of utopian future without humans are truly challenging, oddly self-contradictory, and, in many respects, deeply perplexing. Simon zooms in on the most prominent utopian imaginaries of end

times—collapsology, ahumanism, and the Voluntary Human Extinction Movement—and offers a profound analysis of the politics of extinction utopianism.

In Chapter 7, Felix Ringel explores where (and how) to find the future. As the future does not exist (yet), one could argue that it cannot have a place either. Yet the scholars of any social science must still account for the fact that there are futures all around. Indeed, in most contexts references to the future abound. Felix Ringel starts by claiming that social scientists have for too long disregarded these futures and approached their objects of inquiry with a perspective from the past (Ringel, 2025). Based on long-term ethnographic fieldwork in two post-industrial European cities, he lays out a presentist approach to the study of the future and its localities in order to analytically put past and future on an equal footing. For a social anthropologist, the aim is to take relations to the future seriously, and explore how the yet-to-come is imagined in, and affects, the present. Where then, in spatial and epistemic terms, do we find the future, and how?

In Chapter 8, "Envisioning Alternative Economic Futures through the Lens of Food," José Luis Sánchez-Hernández builds on the human necessity that no social or economic future is possible without food. It is therefore imperative to imagine food scenarios. Drawing on current literature about the politics and narratives of the Anthropocene, he discusses four possible scenarios: the business-as-usual scenario, the tech-food scenario, the bio-regional scenario, and the eco-global scenario. Although a hybrid food future is the most likely perspective, he scrutinizes the bioregional scenario. Its adherents reject the current hegemony of large companies in the food supply chain. Instead, conscious individuals and committed communities have developed a vast array of economic arrangements, such as *alternative food networks*, which prefigure the sustainable, localized, and fair agrifood system they wish for everyone and everywhere. Sánchez-Hernández defines and outlines these alternative food networks before discussing how their members perform the future today, and how they tackle the internal contradictions and external constraints posed by the hegemonic food system.

In Chapter 9, Christian Schulz starts by observing that post-growth/degrowth debates are marked by an increasing uptake in research on regional (economic) development. Against this backdrop, he discusses their ontological, conceptual, and methodological implications for economic geography. Schulz first situates growth criticism in the broader context of social and spatial inequalities, food crises, climate change, and environmental justice, before assessing its potential ramifications on prevailing theories, models, and methodological perspectives. Taking selected key concepts and terms as illustrative examples, he examines how economic geographers can conceptually engage with the challenges of a socio-ecological transition and the prospects of a post-growth-oriented future.

In Chapter 10, "Trusted Emplaced Futures," Sarah Pink considers how scholars might engage with an increasingly urgent situation of global uncertainties characterized by the climate crisis, pandemic, and increasing technological automation by working towards trusted, emplaced futures. She proposes that such an engagement requires more than a business-as-usual analysis,—it requires a dramatic shift. This involves acknowledging uncertainty as a generative facet of place and understanding

what is familiar and trusted in the everyday as fundamental to trusted futures, ones where those living them may feel confident in the circumstances, environments, and relationships in which they find themselves. Sarah Pink (2025) discusses concepts of place, futures, and uncertainty, how the concept of trust can be engaged to express and analyze experiential dimensions of futures and draws on examples from recent ethnographic futures research. Going forward, she calls for new social science research—one whose practitioners engage with the conceptual, methodological, and practical requirements necessary to participate in constituting futures alongside other disciplines and stakeholders.

In Chapter 11, Richard Tutton focuses on the "the space between futures." With the resurgence of sociological interest in futures since the turn of the century, scholars argue that sociologists should both analyze how other social actors imagine futures and become active in their own forms of *future making*. To that end, his chapter is an experiment in writing about the future, on in which he recognizes the value of speculative fiction or science fiction for sociological analyses and engagements with futurity, and is inspired by work of Afrofuturist scholars. Its point of departure is the 2020 film *Tenet*, written and directed by Christopher Nolan. Informed by his viewing of the film and ideas in sociology of futures, Tutton attempts to use his narrative to adopt the standpoint of a future people—a people who invented a process of unfuturing—who are seeking to undo the damage caused to their present lives by the actions of past generations. Tutton thus wields the speculative narrative as a social science method of future-making, one with which he both confronts others' stories and visions of the future and infuses ideas from the sociology of futures, especially ideas about responsibility and action.

Enacting the Future

This volume would be incomplete without an acknowledgement of the practice of futuring through enactment. Moving beyond practices of knowing and imagining, to emphasize enactment is to emphasize the performative nature of shaping the future. The authors of Part III, *Enacting the Future*, focus on how to build futures by designing (Mazé, 2025), performing (Oomen, Hoffmann, & Hajer, 2025), advising (Miles, 2025), and governing (Bland, 2025) them into the present.

Across these chapters, the focus shifts from passively awaiting the materialization of desired outcomes to actively embodying them in the present. Daily actions, large or small, become building blocks on the path towards an envisioned future. This may involve the creation of a community garden in a local park, a project that not only fosters social interaction but also embodies the principles of a more sustainable, desirable food system. Similarly, advocating for policies that reflect a vision of a more equitable society becomes an enactment of that future within the framework of present possibilities. By integrating these future-oriented actions into the fabric of our daily routines and local spaces, we bridge the gap between vision and reality as well as between the future and the present. This process of enactment transforms our

aspirations from distant dreams into tangible realities, performing the future into existence one deliberate step at a time. Through this performative approach, spaces become more than mere backdrops for the future—they become active participants in its creation.

In Chapter 12, Ramia Mazé engages with the emerging field that lies between futures studies and design disciplines. Because practitioners of design have historically been preoccupied with objects, materials, and space—rather than with time and the future—an emergent field such as *design futures* may at first seem contradictory. Through outlining some of the concerns and practices in the fields of communication, experience, and interaction design, and by pointing at several practical design examples, Mazé explores some of the ways in which temporality and futurity have entered into design. She argues that futurity is one of many ways to expose and explore design's heterogeneous nature, to inquire about which knowledges (as well as whose) are at stake within the wider *design turn*. By recognizing the multiple and different knowledge foundations in design, she reveals new possibilities for broadening and deepening this emergent field between futures studies and design.

In Chapter 13, "Techniques of Futuring: How Imagined Futures Become Socially Performative," Jeroen Oomen, Jesse Hoffman, and Maarten Hajer focus on the politics of the future—that is, the social processes and practices that allow particular imagined futures to become socially performative. Acknowledging that the performativity of imagined futures is well understood, the authors suggest that researchers have as yet failed to fully explain how particular visions come about and why they become performative. Proposing a dramaturgical analysis, Oomen et al. (2025) fill this gap by exploring how imagined futures become socially performative. They identify the leading social–theoretical work on the future and conceptualize the relationship of the imagination of the future with social practices and the performance of reality. Finally, they provide a theoretical framework to explain how images of the future become performative.

In Chapter 14, "Outsourcing the Future," Ian Miles elaborates on the role of Knowledge-Intensive Business Services (KIBS) in conceiving, facing, and moving toward the future. He argues that businesses and policymakers have become heavily reliant on inputs from KIBS, who provide strategic advice and support in confronting complex and changing environments and the challenges that these create for *business as usual*. KIBS often explicitly provide appraisals of forces shaping the future—drivers, trends, wild cards, and so forth—and many large consultancies and design and engineering firms will publish some of their key conclusions as to future prospects, risks, and scenarios for wide audiences. Some KIBS specialize in such futures work, and some of these collaborate with clients in analyzing alternative futures. Furthermore, most KIBS will be working (though less explicitly) with assumptions about future markets, regulations, and technologies when assisting with the design, implementation, and integration of organizational and technical solutions to their clients' problems. KIBS' roles in bringing expertise to bear on futures thinking has been as yet little examined. Miles raises questions about the

quality of these future-oriented services, and the extent to which their use may embed particular narratives into business and policy thinking.

In Chapter 15, "Futures Governance: The Case of Outer Space Technology," Jessica Bland turns her attention to common public calls for technological progress to mitigate catastrophic or existential risks to humanity, as well as to the assumption that the investors and creators of these technologies will also envision and govern how they are used. Bland argues that, on the contrary, singular innovations and technocratic governance are rarely a match for the complex systems that will be used to create and deescalate global catastrophe. She applies examples from space technology to argue that it is possible to allow technology to have an important role in that future, without advocating for technology as a universal solution, or that those with technical know-how should lead the frontier of human development. What is needed is developing governance whose actors do more work to reflect the complexity of the planet about which they make decisions. It also involves confronting the immaturity of human decision-making, and avoiding the colonizing behaviors that have reappeared in today's space entrepreneurs. She ends her chapter by sketching how to develop policy to make space technology better serve sustainable development goals; in doing so, she illustrates a model of governance that rests on more inclusive participation in imagining and realizing futures.

Epilogue: A Reflection on 20 Years of Knowledge and Space

In their epilogue to this volume, and the entire book series, Johannes Glückler, Linda Wagner, and Klara Jungkunz dedicate Chapter 16 to taking a look back on two decades of twenty Knowledge and Space academic symposia, generously funded by the Klaus Tschira Foundation between 2005 and 2025. Glückler et al. (2025) illustrate that the symposia have been a temporary place, which created exceptional opportunity for interdisciplinary exchange and, consequently, for envisioning and enacting ideas about the future. They report the findings of a comprehensive survey conducted with almost 300 international scholars who participated in the symposia and published their contributions in the corresponding Springer book series Knowledge and Space since 2005. In light of ongoing debates about the benefits of academic conferences, their study offers several lessons for the future of conferencing. Their findings underscore the virtue of the unique event design, accentuating how a small but diverse group of experts, discussion without a large audience, and ample time for discussion facilitates in-depth exchange and cross-fertilization of ideas. Moreover, the survey demonstrates how this long-term project has helped build an international network of scholars centered on the intersection of geography and knowledge. Finally, the findings suggest that the consistent interdisciplinarity of Knowledge and Space has significantly increased awareness in other social sciences and the humanities of the critical role of geography in the creation, reproduction, and use of knowledge.

Conclusions and Outlook

In conclusion, we have used this chapter to argue that futuring is not a luxury, but a necessity in navigating the twenty-first century's complexities. To participate in it is to contribute to an increasing scientific interest in engaging with the future, in solidifying approaches for doing so, and in offering perspectives particularly from the field of human and economic geography, as well as other social sciences and the humanities. By engaging in proactive future thinking, we can move beyond mere prediction and harness the power of collective imagination to create a future that is not only possible, but desirable. The future is not predetermined; it is a space waiting to be shaped. Through futuring, we can equip ourselves with the tools and collective vision to chart a course towards a more desirable tomorrow. Looking ahead, we have suggested that the emerging field of futuring should pay particular attention to three cross-cutting considerations that are of utmost relevance—but which seem to be under-emphasized in current scholarship:

First, there is a need to engage more thoroughly with alternative models of sustainable development in and for the future, cutting across ecological, economic, social, and institutional domains. Although those in the social sciences and humanities have made great contributions to analyzing the deficiencies of current models of economic and social development, academia has been less deeply involved in providing imaginations and assessments of alternative futures—especially when it comes to transformative (that is, truly different) models, repeatedly called for when critiquing allegedly broken systems of the past and present. Such alternative futures require envisioning in ambitious, actually transformative, and even utopian ways. Moreover, these visions will require assessment in terms of their implications, feasibility, and ramifications—that are already unfolding, for example, due to path dependencies of the past. Yet they must also be performed, tested, and enacted through steps starting in the present.

Second, futuring requires transdisciplinary approaches, in which academia convenes with other knowledge communities (including epistemic cultures, epistemic communities, communities of practice, or thought collectives (Glückler, Punstein, & Winch, 2023) in the civic and public realms of society) around boundary objects (such as visions, scenarios, utopias, and resilience) to find a workable common language for contributing expertise collectively. Futuring has become an increasingly important topic across many knowledge domains, yet epistemological, ontological, and methodological divides, which have emerged through decades of analyzing the past and the present, appear to have also transcended into the engagement with the future. Yet with the future being intricately uncertain, epistemic divides that hinder collaboration seem increasingly wasteful. Those shaping the future and navigating its irreducible uncertainty in the twenty-first century will benefit from diverse insights and new ways of knowing, envisioning, and enacting the future.

Third, the future is now, and it has a place. Social practices of knowing, envisioning, and enacting desired futures are rooted and embedded in localized

institutional contexts (Glückler & Bathelt, 2017), each with different sets of symbols, meanings, norms, beliefs, interests, and resources. It is here, at the verge to the future, where this series' last volume links back to its very beginning, when Peter Meusburger explained the motivation to start this interdisciplinary dialogue: "[S]patial disparities of knowledge, professional skills, and technology can be traced back to early human history. [Since then, none of the many technological] inventions has ever abolished spatial disparities of knowledge between the centers and the peripheries" (Meusburger, 2008, pp. 1–2). It was this critical role of space in the unequal creation and reproduction of knowledge that motivated the *Knowledge and Space* series in 2005, and it is geography—spatial context, density, distance, disparity, and scale—that will continue to be a crucial dimension for the different ways in which humanity senses, prepares for, and steps into the future.

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Part I
Knowing the Future

Chapter 2
Using Judgement to Anticipate the Future

George Wright

General Background: Judgmental Forecasting Approaches

Our visions and expectations of the future shape our actions in the present—as such, our anticipations can be viewed as "performative." But those expectations may be wrong. As I shall demonstrate, those utilizing judgmental forecasting are focused on evaluating the quality of single-variable focused predictions, whereas those implementing scenario thinking, introduced in the subsequent section, accept that such predictions may err and, by contrast, advocate the anticipation of a variety of plausible futures. In short, I will discuss the use and validity of judgment in anticipating the future, and through critical evaluation demonstrate the need for scenario thinking.

First, I would like to introduce the topic of judgmental forecasting. Researchers have, so far, mainly focused on judgmental probability forecasting, addressing questions like: "Will the Chinese military set foot on Taiwanese soil before the end of 2025?" Obviously, this potential event is set in the future—as it is 2024 today. Anyone tackling the query will not know the true answer but could include a confidence assessment in their response. They might, for example, say: "I'm 90% sure that the Chinese military will not set foot in Taiwan before the end of 2025." If a judgmental probability forecaster made ten such assessments of events—in other words, suggested that each of 10 events had a 90% chance of occurring—then nine out of those ten events should happen, if the judgmental probability forecaster was "well calibrated." Similarly, if the judgmental probability forecaster made 10 judgmental forecasts with 50% confidence, then five of the 10 events so assessed should occur. Researchers have done much work in this field over the last 30 or so years. Initially, the questions they posed to forecasters were "almanac" rather than

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forecasting questions, such as: "Which is longer, the Suez Canal or the Panama Canal?" The experimenters used such almanac questions because, with immediate access to the true answer, it was easier to evaluate the judgmental probabilities. A main early finding of this research was that judgmental probability forecasters were overconfident—that is, their subjective confidence assessments were too high. For example, for all events assessed as having 100% chance of occurring, less than 100% did so (or less than 100% of the answers to the almanac questions were correct). This area of research is still quite active; Tetlock and Gardner (2015) provide a recent reference.

The second topic of interest to researchers in judgmental forecasting has been that of time-series forecasting. Here, statistical models can produce projections of future demand—say for a particular product, based on historical performance of its sales. Researchers often use regression-type methods that allow for subtleties such as seasonality. For example, imagine you were trying to forecast the sales of a breakfast cereal. Imagine further that this breakfast cereal is best served with warm milk, rather than cold milk. You can perhaps suspect that the breakfast cereal will sell more packets in winter than summer, and that historic sales records have captured this seasonality. Researchers in judgmental adjustments to time-series forecasts have evaluated the quality of judgmental interventions to historic time series data sets to "adjust" the statistical forecasts. Among other aspects, they have studied whether knowing the substantive nature of the time series—for example, that of a breakfast cereal—helps the human forecaster make a valid adjustment to the history-based statistical model. This area of research is also still highly active, with the recent reference to this activity provided by Lawrence, Goodwin, O'Connor, and Önkal (2006).

The final judgmental forecasting method I would like to discuss is the Delphi method's application to aid group-based judgmental forecasting. The Delphi method is a structured one. First, an individual participant makes an individual numerical assessment—about a future quantity, or a future date, or of a subjective probability of an event happening in the future. Next, the participant is shown the numerical judgments of all other participants, often with the linked rationales attached. At a minimum, they are given the median and numerical range of these other responses. Finally, the focal participant is given the option of revising their original estimate. This revision process is anonymous. In this way, a Delphi participant can revise their original estimate without "losing face"—in other words, no other participants know of their change of mind. Research on the Delphi method and its underlying process has been quite extensive, and its conductors have shown that the quality of the Delphi yield—that is, the mean of the revised estimates—is a more accurate judgmental forecast than the simple average of the original judgmental estimates. A recent reference to the Delphi method and its underpinning research base is Belton, MacDonald, Wright, and Hamlin (2019).

It is worth saying a little about the origins of these three types of judgmental forecasting approaches. I will first consider judgmental probability forecasting, which is focused on the individual forecaster and the quality of the individual's judgment. This research has its roots in decision theory and decision analysis, in which analysts calculate optimal decisions on the basis of (i) subjective probability

assessments of future events, (ii) the subjective valuation of the outcome of both those events, and (iii) actions that are possible in the future. Those utilizing subjective expected utility theory—which underpins decision analysis—combine subjective probabilities and the outcome valuations to specify and recommend an optimal decision. By contrast, the focus on judgmental interventions to adjust time series forecasts has its roots in observations of forecasting practice—in other words, observations of what people normally do when presented with time series forecasts. Finally, the Delphi method—which is, as I noted, a group-based judgmental aggregation method—originated in the Cold War: It was originally devised and used to forecast the impact of technology on warfare.

To summarize, those using judgmental probability forecasting, judgmental adjustments the time-series, and the Delphi method all focus on a quantitative estimation. This quantity may be a probability, a sales forecast, or a more general quantity—like a date. Importantly, note that researchers of both judgmental probability forecasting and time-series adjustments have concentrated on short-term forecasting—say 2 or 3 years into the future. As such, they can verify the outcome and thus evaluate the quality of the judgmental assessments. In summary, when individuals are asked to make judgmental assessments, they seem happy to do so. Numerical assessments of subjective probability are, naturally, infrequent in everyday life—people tend to use verbal phrases like "very likely," "probable," or "extremely unlikely," not probability numbers. Again, there exists a stream of research on matching judgmental assessment modes to individuals' interests and capabilities (see Juanchich, Sirota, & Bonnefon, 2019).

One other issue that I would like to raise is that many important judgmental forecasts are for unique events, such as my earlier reference to the Chinese military and Taiwan. Here, there will be no existing database of repetitive, identical—or, at least, very similar—forecasts with previous outcome data attached. This situation is quite different from situations where repetitive forecasts are made. In weather forecasting, for example, the forecaster may predict rain each day and will then, daily, receive outcome data on whether it did or did not rain. In this latter situation, it is possible to improve forecasting accuracy by considering the outcome data. For example, if the weather forecaster predicted rain on 10 days with 100% confidence, then, as discussed earlier, it should rain on each of the 10 days—if the forecaster was well-calibrated. Feedback from the actual weather outcomes, when time has elapsed for them to occur (or not), will reveal if the weather forecaster was instead overconfident or underconfident—when measured over a group of identical confidence assessments for weather events. They can then adjust their subsequent forecasts based on the feedback received. The opaquer issue of improving the quality of unique, rather than repetitive, judgmental probability forecasts is discussed in Tetlock and Gardner (2015).

In short, researchers have conducted many experimental studies of judgmental probability forecasting and the judgmental adjustment of time series forecasts, most focusing on the degree of bias in the judgmental assessment. With the just-discussed judgmental probability forecasting, for example, the possibility of outcome verification ensures the possibility of measuring the underconfidence, overconfidence, or

accuracy in the probabilities assigned. Analogously, with judgmental adjustments to time series forecasts, researchers can also measure and evaluate the validity of the judgmental adjustment of the time series as the forecasted date passes. All this is because most empirical validation researchers have focused on judgmental forecasts within a short time-horizon—of weeks rather than years. Analogously, with the group-based Delphi method, if the forecasts are short term, outcome validation is also possible. But, in fact, most studies of Delphi have been longer term. See Parente and Anderson-Parente (2011) for a review of issues to do with validating long-term judgmental forecasts.

Scenario Thinking

In contrast to judgmental forecasting, scenario thinking is qualitative and not at all focused on outcome verification. Researchers often phrase this as scenario thinking being about "anticipation" of the future, rather than forecasting the future. This is because scenarios are pen pictures of plausible futures. In most scenario development exercises, participants construct more than one scenario. As such, there is no single judgment of a probable future. The scenarios are often built in a group-based context by a team of interested individuals, utilizing their joint judgment of "driving forces" in the broad contextual environment: Political driving forces, economic driving forces, social driving forces, technological driving forces, environmental driving forces, and legal driving forces are all likely to be considered. The team will see most of these driving forces, such as the outcome of a political election, as uncertainties, but judge some, such as demographics, as more predetermined.

Each pen picture—the storyline within a particular scenario—has a causal sequence, how the occurrence of one event leads on to another. The causal storyline will likely be a mixture of the interaction of the political, the economic, the social, etc. In other words, the storyline's plausibility rests on the story-based causality it contains. The causality is the story.[1]

Scenario thinking offers a way for an organization to face up to the threats and opportunities of the future, and their potential organizational impact. For example, Panitz and Glückler (2022) discuss this issue in the context of organizational geographic relocation decisions, and Rickards, Wiseman, Edwards, and Biggs (2014) tackle it in regards to climate change adaptation.

Scenario thinking contains key components to promote the effective exchange of opinions and beliefs within a management team as they develop their scenario storylines, often during a two-day workshop activity, facilitated by a scenario expert.

[1] Analogously, arguments and rationales that often accompany numerical predictions made with the Delphi method add plausibility to the numerical estimates. Note that particular numerical estimates which are seen as more plausible than other numerical estimates are more likely to promote opinion change in the Delphi participants (see Belton et al. 2019).

The construction of multiple futures holds the space for participants to air their differing opinions about what is to come, and provides a forum for debating, questioning, and synthesizing complementary, contrasting, and conflicting viewpoints.

Essentially, those holding scenario interventions construct multiple frames of future states of the external world, only some of which may be well-aligned with an organization's current strategy, major investments, or priorities. Scenario thinking can facilitate "vigilance" in strategic thinking—in that participants think alternative futures through and subsequently evaluate current, and future, strategic options against them. The process of scenario thinking enhances the evaluation and integration of group-derived judgments, and promotes contingency planning for the unfolding of both favorable and unfavorable futures.

Scenario thinking promotes:

- *Early contingency action*: Just as the new purchaser of a car becomes sensitive to the variety of models of that make on the road, the scenario thinker becomes sensitive to a scenario starting to unfold and become reality. Such sensitivity can lead to early contingency action to counter an unfavorable future.
- *Early recognition of opportunities*: New organizational opportunities can be quickly grasped as soon as favorable scenarios begin to unfold.

The typical outcomes of the scenario process include:

- Confirmation either that the business's overall strategy is sound, or that new, underpinning strengths need to be added to create more *robustness*. (Robustness implies that a strategy performs well in each scenario).
- Confirmation either that lower-level business choices are sound, or that new, alternative options are more robust.
- Recognition that none of the business options are robust and contingency planning against unfavorable futures is therefore necessary.
- Sensitivity to the "early warning" elements that are precursors of both desirable and unfavorable futures—so-called "horizon scanning."

The *intuitive logics scenario method* (the one most used in practice) contains components to promote alternative views about the nature of the future, as well as challenge potentially inappropriate confidence—both in a single "best-guess" future and in a single, tried-and-trusted strategy.

As I have noted, scenario building is commonly a team-based activity. Those who must make the important organizational decisions should also be those who create the scenarios. This means that an organization's senior members are commonly involved in the scenario development. The facilitators direct and manage the process of scenario construction, utilizing the expertise of participants within the host organization. This reliance on expertise internal to the host organization has its limitations, but scenario thinking is a learning experience rather than a desk-based exercise to be conducted by external experts. The true expertise lies in the heads of the individuals who are grappling with a strategic issue, rather than in the hands of external consultants.

The key learning from undertaking the scenario method is derived from interaction between those involved. Each participant engages in their own analysis of the future. More importantly, participants engage *actively*: sharing their analysis with others, explaining their reasons for thinking as they do, and listening to and engaging with other members in order to understand *their* rationale. This sharing of ideas is *not* directed at developing some shared understanding and a single viewpoint on the future. Rather, it is about opening strategic conversation around differences of opinion, values, beliefs, and priorities. This active involvement is crucial to a successful outcome, whereby the involved and affected participants "own" not only the scenarios that they develop, but also the analytic process and strategic implications of their analysis. For more detail on the basics of the Intuitive Logics scenario development method, see Cairns and Wright (2018). I will next detail the approach and outcomes of an exemplar scenario development activity, conducted within a healthcare context in one EU country.

Scenario Development at a National Healthcare Provider

Methodological Description

As a first stage, my team and I conducted 16 preliminary individual interviews with healthcare executives, to scope the key issues of concern. We used open-ended questioning, focused on subjects such as "key challenges ahead" or "key decisions ahead," to elicit individuals' viewpoints. Each interview took about one hour.

At the second stage, the healthcare team identified trends and uncertainties at the technological, social, economic, legal, environmental, and political levels that will shape the unfolding future—analyzing the interaction of these driving forces. This process took a half-day of group activity. From this analysis, we then developed the scenarios over a period of a day and a half. I detail the outcomes of this second stage—the four scenarios—below.

Within the third stage, we identified and detailed "early warning" events within the unfolding scenario storylines that are critical for understanding how healthcare will develop in the EU country. We recommended monitoring for the occurrence of these events—so called "horizon scanning." See Rowe, Wright, and Derbyshire (2016) for more details on this issue.

Details of a step-by-step method of building scenarios by the Intuitive Logics development method is given in Chapter 2 of Cairns and Wright (2018). Chapter 9 of the same book gives the detail of several case studies of organizational scenario development and use, and the necessary time allocations needed for successful scenario development activities.

Certainties About the Future

Six clusters of driving forces emerged from the scenario development workshop that participants viewed as "in the pipeline" or relatively certain to occur. They therefore form part of each of the four scenarios that I will outline shortly.

Examining the first cluster, "Change in Demographics," reveals that the focal country's age profile is changing—with a higher proportion in the older age band. This change means that the number of people with the chronic diseases of aging—including psychological as well as medical conditions—will also increase. The older, internet-savvy population will seek out improved (and often personalized) treatments, as well as pre-emptive screening. Preventative health interventions and medical advances will also enable treatment/amelioration of the complex chronic conditions of old age. However, healthcare workers will need to have a more comprehensive general understanding of these more prevalent complexities.

The second cluster, "Complexity Across Sectors," links to the demographic change. Studying it shows how collaboration across healthcare sectors (e.g., municipality, hospitals, and general practice) will provide "health for all" by a smooth patient transition between healthcare professionals, underpinned by a long-term vision of coordinated actions.

The third cluster, "Workforce Diversity and Flexibility," links strongly to the above, and studying it reveals how the multi-disciplinarity required of the health workforce raises the importance of generalists relative to specialist workers. But, at the same time, the healthcare workforce is changing, with more workers employed where healthcare is not seen as a single career choice. The workforce is becoming more diverse with respect to gender and educational background. As its makeup changes, the demand for flexible working conditions and a better work/life balance, too, increase.

The content of the fourth cluster, "Extent of Technology and Data Application," complements the content of the three clusters above. Increases of general technology and data applications in healthcare improve treatment efficiency and effectiveness as well as outcome monitoring, leading overall to better patient care.

The contents of the fifth cluster, "Environmental Changes," mean that recycling, energy use, and pollution become benchmarks for sustainability in healthcare provision.

A final certainty is captured in the sixth cluster, "Future Global Health Crises," studying which reveals the need for the healthcare system to be resilient to future, as-yet-unknown, diseases and pandemics—a sensitivity enhanced by the recent Covid-19 crisis.

Taking all the above into account, one can conclude that the extent of collaboration in healthcare provision, underpinned by technology applications and data analysis, will provide the basis for the development of greater multidisciplinary and effectiveness in a healthcare workforce that is both more diverse and less focused on healthcare as a career, and is now caring for patients who are older and have more complex conditions to treat.

Uncertainties About the Future

Two major uncertainties about the future emerged for the workshop.

The first is captured in the cluster "Change of Mental Models." As patient-led demand for more personalized and targeted health interventions increase, some may opt for private healthcare if they judge the general health provision to fall short of being cutting edge. Those with information and access may seek privately funded health check-ups, "better" treatments, and also pursue healthy lifestyles—whereas others may be either excluded from this private provision or, perhaps, be less-interested in science-based treatments and cures. In short, the key uncertainty is whether or not the national healthcare system's users are polarizing into a more demanding elite and the general population.

The second major uncertainty is described in the cluster "Meaning and Culture." As the healthcare workforce becomes more diverse, less one-job-for-life orientated and so more transient, its members may, or may not, be motivated by holding a role as a health-service worker. If the work pressure is high, efficiency monitoring pervasive, and the vocational element truly lost, then strikes and burnout may become more prevalent. Clearly, the healthcare system's leadership will be challenged to communicate the importance and meaning of healthcare work. Linked to this leadership theme, studying the contents of the cluster "Political Leadership" reveals the importance of the priority given to healthcare—in terms of an economic efficiency drive and possible underpinning organizational changes to achieve this—coupled with growing demand for healthcare provision.

Four skeleton scenarios which permutate the two major uncertainties emerge:

Scenario 1: Polarization of Healthcare Systems

Citizens are polarized in terms of their healthcare preferences and use of the healthcare system, coupled with lack of vocational spirit in most of the healthcare workforce. Here, the citizens' preference for private health provision may accelerate.

In this scenario, citizens increasingly use the internet to find out more about the illnesses that affect them and so many become more demanding patients asking for (what they view as) the best possible treatments. Many also use health check-up services provided by companies. This focus can lead to the identification of "false positives" in those who have become known as the "worried well." Generally, society is increasingly divided between these "knowledgeable elite"—who also tend to adopt heathy lifestyles—and those who are less concerned with what science can offer and continue with poor health behaviors, such as smoking, drinking alcohol, and not exercising.

The increasingly diverse workforce of the health service is less motivated by an inherent desire to work in an occupation that many, especially the young, no longer see as a vocational calling. The Covid-19 pandemic focused most people's attention on achieving a better work/life balance, and healthcare workers are no exception to

this new consciousness. Workforce disputes and strikes over pay and working conditions become more commonplace, as in many other industries and sectors. Increasing government and municipal striving for efficiency and cost-cutting lead lower morale. The health service leaders are seldom heard in the media and seem to have little influence. More workers, especially the younger ones, are leaving than joining the workforce, but those who stay appreciate the relative security of their jobs. Overall, existing institutional knowledge and know-how is being lost by the constant flux of workers in some areas of healthcare, and fresh health-based knowledge of pandemic management underpins new training and skills requirements amongst healthcare professionals. At the same time, administrative tasks are becoming automated and so act to relieve the pressure on those dealing with patients face to face.

Scenario 2: Slow Decline of the National Healthcare System

Most citizens are still users of the focal country's healthcare system, coupled with a lack of vocational sprit in most of the healthcare workforce. This is a negative scenario that will result in greater staff turnover and strikes.

In this scenario, most citizens are happy with what the health service offers, in terms of medicines and treatments. Although economic restrictions mean that the Danes do not always have access to the latest, often expensive, cutting-edge developments, the health service provision is seen as "good enough" for purpose. Citizens are making gradually healthier lifestyle choices but progress, as ever, is slow.

The increasingly diverse workforce of the health service is less motivated by an inherent desire to work in an occupation that many, especially the young, no longer see as a vocational calling. The Covid-19 pandemic focused most people's attention on achieving a better work/life balance, and healthcare workers are no exception to this new consciousness. Workforce disputes and strikes over pay and working conditions become more commonplace, as in many other industries and sectors. Increasing government and municipal striving for efficiency and cost-cutting lower morale. The health service leaders are seldom heard in the media and seem to have little influence. More workers, especially the younger ones, are leaving than joining the workforce, but those who stay appreciate the relative security of their jobs. Overall, existing institutional knowledge and know-how is being lost by the constant flux of workers in some areas of healthcare, and fresh health-based knowledge of pandemic management underpins new training and skills requirements amongst healthcare professionals. At the same time, administrative tasks are becoming automated and so act to relieve the pressure on those dealing face-to-face with patients.

Scenario 3: Two Complementary Healthcare Systems

Citizens are polarized in terms of their healthcare preferences and use of the healthcare system, coupled with a sustained vocational spirit in most of the healthcare workforce. This scenario is a positive one, economically, as the health service caters to less of the population. If current staffing levels do not fall in response to the lessened demand, then this, coupled with leadership's communication of the importance of the healthcare role to the changing workforce, should result in less employee turnover.

In this scenario, citizens increasingly use the internet to learn more about the illnesses that affect them and so many become more demanding patients asking for (what they view as) the best possible treatments. Many also use health check-up services provided by companies. This focus can lead to the identification of "false positives" in those who have become known as the "worried well." Generally, society is increasingly divided between these "knowledgeable elite"—who also tend to adopt heathy lifestyles—and those who are less concerned with what science can offer and continue with poor health behaviors, such as smoking, drinking alcohol, and not exercising.

At the same time, the health service leaders are vocal in the media about the importance of "improving our health" as a nation and politicians are prioritizing health issues. Work in the health service is still seen as a vocational calling that is vital to society. Disputes over pay and conditions—especially given the focus on efficiency and cost-cutting—persist, but the healthcare workforce generally feel they are doing something positive for society. More workers stay in the workforce than leave to work in different sectors. Healthcare workers appreciate the relative security of their jobs. But the stress and stains are still evident in those workers who have made their commitment. Fresh health-based knowledge of pandemic management underpins new training and skills requirements amongst healthcare professionals. But administrative tasks are becoming automated and so act to relieve the pressure on those dealing with patients face to face.

Scenario 4: A Healthy National Healthcare System

Most citizens are still users of the focal country's healthcare system, coupled with a sustained vocational sprit in most of the healthcare workforce. This scenario is positive, but it is reliant on how well leadership can communicate the importance of the healthcare role to the changing workforce.

In this scenario, most citizens are happy with what the health service offers, in terms of medicines and treatments. Although economic restrictions mean that the Danes do not always have access to the latest, often expensive, cutting-edge developments, the health service provision is seen as "good enough" for purpose. Citizens are gradually making healthier lifestyle choices but progress, as ever, is slow.

At the same time, health service leaders are vocal in the media about the importance of "improving our health" as a nation, and politicians are prioritizing health issues. Work in the health service is still seen as a vocational calling that is vital to society. Disputes over pay and conditions—especially given the focus on efficiency and cost-cutting—persist, but the healthcare workforce generally feel they are doing something positive for society. More workers stay in the workforce than leave to work in different sectors. Healthcare workers appreciate the relative security of their jobs. But the stress and stains are still evident in those workers who have made their commitment. Fresh health-based knowledge of pandemic management underpins new training and skills requirements amongst healthcare professionals. But administrative tasks are becoming automated and so act to relieve the pressure on those dealing with patients face to face.

What Next, After Scenario Development?

Having developed the scenarios, the next step is to use them to inform and develop strategy. Before this can happen, the scenario development team—which, as discussed, ideally includes the host organization's senior decision makers—should confirm that each of the developed scenarios represents a plausible future. If they do, the next step is to reflect on the implications for action. In my case example, the client organization was the national provider of healthcare in the country—in the UK, this would be the equivalent of the free-at-point-of-access National Health Service. What would be the position of national healthcare provision under each of the scenarios? Are some scenarios more positive than others for the client organization? Are some more negative?

In any negative scenario, what are the client's available actions? Should they take action now to respond early to the scenario's implications? In any positive scenarios, are there opportunities for the client organization? Is said organization's current "success formula" well-suited to each of the four scenarios—in other words, is it robust against the range of plausible futures? If not, what capabilities need to be added to the organization's current competencies and strengths? Questions such as these will prompt a strategic conversation amongst an organization's leaders.

Discussion

From the outlines above, the differences and similarities between judgmental forecasting (including judgmental probability forecasting, judgmental adjustments to the outputs of time series models, and the group-based Delphi technique) and scenario thinking are clear and distinguishable. Judgmental forecasting is concerned with quantitative single-point forecasts and its quality can, in principle, be evaluated. By contrast, scenario thinking is focused on enhancing anticipation of the future in a broad-brush way—in other words, on providing an overview of what the future will

be like. Such future description, if deemed plausible, will prompt strategic conversations about how to prepare, or at least react, if a particular positive or negative future unfolds as reality. Underpinning both judgmental forecasting and scenario thinking are judgmental rationales. These are not usually elucidated in detail in judgmental forecasting applications, but they are elucidated in detail when scenarios are developed, as I have shown. Interestingly, several authors have recently written about the ubiquity of such "narrative thinking" in anticipating the future:

> Narratives play a central role in human responses to uncertainty and unexpected events and, as in the broader social sciences, there has been a significant 'narrative turn' in futures and foresight research and practice . . . Underpinning this narrative turn is the recognition that narrative is a primary mode of knowing. (Fenton-O'Creevy & Tuckett, 2021)

> Narrative is the formal name for a temporal/causal organization of events leading from the past to the present. The usefulness of this organization lies in its ability to leverage causality to extend the narrative past and present into the future. Thus, the future is the events that will be caused by present events, which were themselves caused by past events. The extension may prove incorrect, but at least it provides a reasonable glimpse of the unknowable future, unknowable because it has yet to happen. (Beach, 2021)

Why are humans narrative thinkers? Recently, the concept of "allostasis" has gained ground as an explanatory mechanism in physiological psychology. Here, the brain anticipates the body's needs and prepares to satisfy them before they arise, thereby maintaining internal homeostasis. For example, if, at night, you hear a noise that might indicate an intruder in your house, you will generate an influx of adrenaline and other stress hormones that speed up your metabolism, block potential pain, and increase your mental acuity. Scenario thinking can be seen as analogous to allostasis—which is perhaps why organizational decision makers are so quick to adopt it. Without scenario interventions, organizations often show "strategic inertia" in that they tend to follow previously successful strategies without re-evaluating them against changing business environments. Bryson, Grime, Murthy, and Wright (2016) examine the prevalence of "business-as-usual" thinking in organizations and the use of scenario thinking to overcome this organizational limitation.

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Chapter 3
A Technique for Guiding Images: Imagining the Future After Capitalism

Andy Hines

About 50 years ago, Polak (1973) raised a concern about the lack of positive images of the future. Forty years later, the author took up his own challenge by focusing specifically on identifying images for a successor system to the prevailing neoliberal capitalist one. A key insight from Polak's (1973) work was that working towards an image provides a sense of purpose that inspires the people—absent that image, there is a sense of being lost. The latter is arguably the case today.

But how does one develop such images? Is it simply imagination? People do occasionally simply speculate about their future. Futurists, of course, imagine the future on a regular basis to aid their clients, and have developed a whole discipline of concepts, methods, and tools to do so. There are different type of futures and different timeframes. Sometimes a futurist imagines a particular driving force, say artificial intelligence, in a particular domain, say work. Perhaps the most common type of image that futurists create are scenarios, or stories about a domain or aspect of the future. There are many techniques for creating these images—my colleagues and I identified 23 scenario techniques in previous work (Bishop, Hines, & Collins, 2007).

The focus of this paper is to imagine Polakian images, referred to as "guiding images." This type of image provides a positive directional guide for a society to work towards. It creates a conceptual space, set in the future—one that is desirable for a society, thus providing the motivation to develop the knowledge and plans to get there. In effect, it is a map to a virtual geography set in the future. It is interesting to note that despite all the techniques for creating scenario images, I found no clear guidance on how to craft a guiding image.

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In this paper, I will thus describe a technique I developed to create guiding images for the future, in this case focused on the future after capitalism. I first shared these ideas at the 2022 Knowledge and Space Symposium on "Placing the Future" in Heidelberg, Germany. The particular relevance, as one thinks about the role of knowledge in a place, is how to develop useful knowledge about a place that does not yet exist—the future. Of course, ideas about the future are alive in the present, but how might they be developed to provide a guide or map to potential futures?

Some Definitions

There is a definitional distinction worth noting. Some readers may wonder why I do not call these guiding images utopias, or perhaps visions. Dictionary definitions make little distinction between the three, as noted in Table 3.1.

Polak (1973) used "image," so that was the default. But there is a case to be made for "vision"in the sense suggested by the popular Three Horizons framework (Curry & Hodgson, 2008), which refers to longer-term third horizons concepts as visions. Sharpe (2013) describes the third horizon vision as an ideal to be worked towards, which is quite similar to the guiding image notion. The position here is that vision is most commonly used in reference to organizational futures as an aspirational guide to be achieved.

It is also fair to suggest that guiding images could be referred to as utopias. Polak (1973) himself talked about eschatological and utopic images of the future, the former brought about by God and the latter by humans. Utopias are a useful device for how things could be better in the future. They are typically specific stories of a specific place, which is not my intent here. The other challenge with "utopia"is that it tends to be rejected as unrealistic or foolish—notwithstanding the excellent work of Wright (2010) and Bregman (2017) in demonstrating utopias'practical application.

Thus, "guiding image"best captured my intent of developing ideals as positive aspirations. I am using "guiding" as a sense of direction or a fluid target rather than as a grand or detailed plan, or definitive answer.

Table 3.1 Definitional considerations

Image	Vision	Utopia
A mental representation; idea; conception	A vivid, imaginative conception or anticipation	Any visionary system of political or social perfection

Note. Source: Design by author

Framework Foresight Approach

Polak (1973) challenged humanity to develop these guiding images. He provided some general principles, but not a specific method for doing so. I used Framework Foresight as a starting point, and will here show how I adapted it to produce the guiding images.

Most futurists have a particular method that they use as their basic approach, which they then tailor to their respective specific challenge. The University of Houston Foresight program developed such a method—or perhaps meta-method is more accurate—that uses a modular approach for project work (Hines, 2020; Hines & Bishop, 2013). It was developed originally to teach foresight, but the developers found it was useful in sponsored client work as well. Since 2014, the Houston Foresight program has carried out about two dozen client projects using this method, and students and alums have been using it in their practices as well. Evaluating its overall effectiveness is beyond this paper's scope; for my purposes, it is enough to note its common use. It should also be noted that the approach aligns with the Association of Professional Futurists'(APF) six foresight competencies—in fact, I have specifically named the six steps of the method in Table 3.2 below for these six competencies (Hines, Gary, Daheim, & van der Laan, 2017a). I use this table to summarize the key steps of the FF method, and highlight in bold the modifications I have made for the development of guiding images. I will describe the steps and modifications in more detail after the table.

Framework Foresight's developers observed that project work involves two major phases: mapping and influencing the futures. The logic is that with mapping, one lays out the potential landscape of useful and plausible futures. Armed with this map, one then identifies what one can influence or do about it—which future(s) to move toward, and which to avoid. Put more simply, to explore the future, one first draws a map, and then decides which direction to take.

The most significant modification I made to the mapping phase of creating the futures was focusing on "projections" as the key research input. A significant number of books have directly or indirectly related to the *After Capitalism* topic—a book about the future of a topic fits as a "projection." As a key objective of this work was to synthesize already existing ideas, this became the key input. Projections are the broadest type of input, as they typically include trends, issues, and plans. Accordingly, I reviewed more than a hundred books, analyzing 52 in detail and reviewing 28 with the image analysis template (see Appendix) I developed for this project.

In general, as my key purpose was to identify the guiding images themselves, I treated the influencing phase much more lightly than in a typical project. I only briefly discuss preliminary implications. Similarly, prescribing "how to" would include designing and adapting, which is a substantial endeavor necessitating a separate undertaking. Practically speaking, if the guiding images prove useful, a follow-on work on "how to" will be worth the effort. Frankly, first things first—I'll

Table 3.2 Framework Foresight (FF) method

Phase	Activity	Description	Deliverable
Mapping the futures	**Framing**	Scoping the project, defining the focal question, and mapping the domain	Domain description & domain map
	Scanning	Finding, collecting, and analyzing signals of change Identifying specific types of information about the future (trends issues, plans, projections) **Focus on "projections": Review relevant books/works using a common image analysis template** Information synthesized into a set of key drivers	Scanning library **Image analysis templates (developed for this project)** Drivers
	Futuring	Identifying a baseline and alternative futures using archetypes (Baseline, Collapse, New Equilibrium, and Transformation)	Archetype futures aligned on Three Horizons framework **Emphasis was on developing transformation images – ended up with three**
Influencing the futures	**Visioning** (Implications Analysis)	Identifying important and provocative implications of scenarios	**Light implications analysis as the "how to" is beyond scope of this work; address some key questions**
	Designing & Adapting (Conclusion)	Identifying options for action and implementing a strategic approach and ongoing monitoring	**Lighter treatment; evaluate guiding images against key criteria**

Note. Source: Design by author

see how our guiding images do. Below is an expanded treatment of the steps I followed in creating the guiding images.

Framing

In my method, I begin by identifying the domain or topic to be explored—in this case, the future after capitalism. I frame capitalism as more than just an economic system, but effectively as an operating one affecting all aspects of civilized life it touches. Figure 3.1 illustrates the timeframe, which I organized using the Three Horizons framework briefly mentioned above (Curry & Hodgson, 2008; Sharpe, 2013).

- Horizon One (H1) is typically the baseline future of continuity, which is most often set as the next 3–5 years but can last longer.

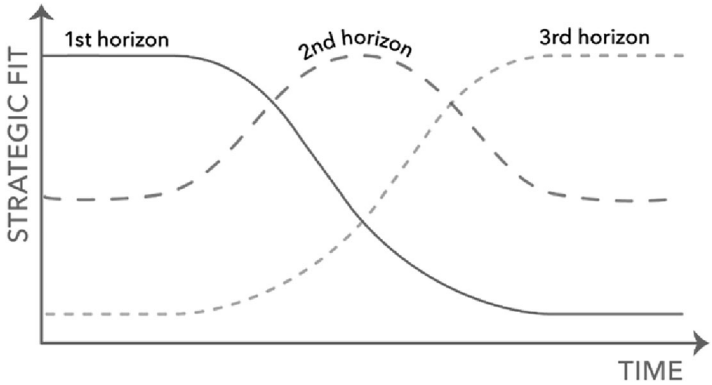

Fig. 3.1 The Three Horizons framework. Source: Design by author

- Horizon Two (H2) is the transition zone of disruptions to the baseline. It is typically set 10 years out, but may be shorter or (more often) longer.
- Horizon Three (H3) is anything beyond H2; it is the realm of the next new system.

I have set the timeframe as 2040–2050. Most projects are set closer to the present. They are typically intended to help clients understand the transitions ahead in H2. Occasionally, the project is set to focus on describing the transformation to a new system of H3. For instance, with our Houston Foresight Program did a project on the *Future of Work* to 2050 for NASA's Langley Research Center (Hines, Romero, Morgan, Paap, & Palubicki, 2017b). The project team looked out to 2050 because the client wanted to be sure to stretch the organization to think well beyond the baseline. That work, other client work over the years, and the research for this book all influenced my choice to set the H3 transformation at 20–30 years from now.

In Figure 3.2, I show a visual domain map, organizing the categories and sub-categories to guide the exploration of the domain. In this case, I organized the map using the Three Horizons framework. With the "Signals" category, I captured the key signals of change in the first horizon. I further organized it using the STEEP acronym (social, technological, economic, environmental, and political). With the "Transitions" category, I captured changes primarily describing the second horizon. Finally, with the "Images" category I captured signals related to what eventually became the three guiding images. It is important to note that the map shown below is perhaps the 20th iteration. As I learned more during scanning, I updated it continually. The three image sub-categories, for instance, emerged several years after the scanning began. This iteration is not always necessary in typical project work carried out over much shorter times spans, amounting to 3 months on average. But as I carried my work here out over a decade, capturing the iterations seemed useful to accurately convey the learning.

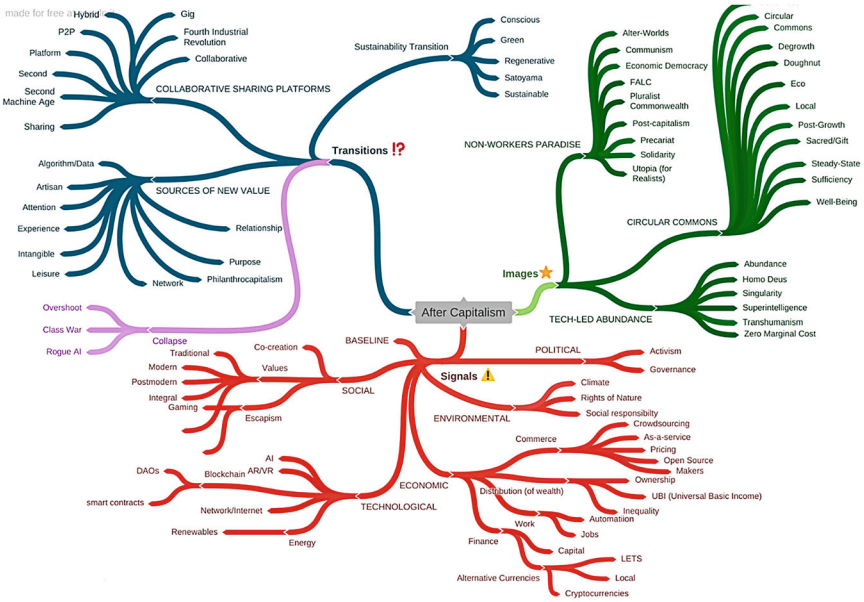

Fig. 3.2 Domain map. Source: Design by author

Scanning

Scanning is the search for signals of change. The search is guided by the domain map, which helps to organize the search for individual scan hits, whether a blog post, online article, journal publication, or video. It is useful to think of the domain map as a jumping off point to search for signals of change. The scan hits are collected in a cloud-based library. As of this writing, there are more than 700 scan hits in the *After Capitalism* scanning library.

As noted above, the other stream of research in the scanning step is the search for specific types of information about the future. In this case, I primarily relied on projections. I reviewed dozens of works—mostly books and some reports—touching on aspects of *After Capitalism*. Ultimately, I selected twenty-eight works for analysis with the image analysis template shown below. This is a template crafted specifically for this project. It was significantly influenced by the ideas and materials from a summer elective class offered by Houston Foresight in 2016 called "Images of the Future," developed and taught by Dr. Wendy Schultz. Schultz (2016) did a tremendous job in developing this class and presented several analytic frameworks for understanding and evaluating images. In Table 3.3, I show the starter template and the questions it comprises.

In Table 3.4, I show an example of a filled-out template using the Degrowth concept.

Table 3.3 Image analysis template

Category	Description	
Author	Who proposed it and why (purpose)	
Time horizon	Stated, implied, or unclear	
Scope	Global/regional/national or affluent/emerging/poor	
Key drivers	Bold relevant ones	Other
	Shifting values, technology acceleration, inequality, automation, stagnation, climate and carrying capacity, ineffective left	
Key ideas	The most important ideas put forth by the concept	
Ideal or guiding values	Something akin to an organizing principle/motivation, i.e., create a more just or fair society	
Emotional, aesthetic, and spiritual aspects	Is it appealing or compelling?	
Personal	How are individuals affected by this future? Who's bearing the most costs, who's accruing the benefits?	
Pathway or plan	Rough sense of steps for achieving	

Note. Source: Design by author

Table 3.4 Image analysis template for *degrowth*

Degrowth Kallis, G., Demaria, F., & D'Alisa, G. (2015). Introduction: Degrowth. In D'Alisa, G., Demaria, F., & Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*, 1st Ed. NY: Routledge	
Author	Giorgos Kallis, Federico Demaria, & Giacomo D'Alisa; Kallis, a professor at the Institute of Environmental Science and Technology, Barcelona; he has written four books on Degrowth, including the 2019 Limits
Time horizon	Unclear
Scope	Talk about the French origins of the concept Notes a frequent criticism of the degrowth is that it is applicable only to the overdeveloped economies of the Global North. The poorer countries of the Global South still need to grow; *Degrowth* in the North will liberate ecological space for growth in the South.
Key drivers	**Shifting values**, Technology acceleration, Inequality, Automation, Stagnation**, Climate and carrying capacity**, Ineffective left
Key ideas	Largely European movement seeking to abolish economic growth as a social objective and favoring grassroots practices such as eco-communities, co-ops, local currencies, barter, commons, etc. A degrowth, or décroissance, movement took off in France in 2002 and has spread to other parts of Europe since. It suggests economic growth will eventually exhaust recourse and calls for abolishing it as a social objective Degrowth ideas new welfare institutions to decouple paid employment from growth, unconditional basic income, and for the State to take back the control of the creation of new of money from private banks (public money). But no consensus on how to do this) Advocates grassroots principles similar to communing: these grassroots practices share five features:

(continued)

Table 3.4 (continued)

Degrowth Kallis, G., Demaria, F., & D'Alisa, G. (2015). Introduction: Degrowth. In D'Alisa, G., Demaria, F., & Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*, 1st Ed. NY: Routledge	
	First, there is a shift from production for exchange to production for use Second, there is a substitution of wage labor with voluntary activity, meaning a decommodification and de-professionalization of labor Third, they follow a logic whereby the circulation of goods is set in motion, at least partly by an exchange of reciprocal 'gifts' rather than in search of profit (see anti-utilitarianism) Fourth, unlike capitalist enterprise, they do not have a built-in dynamic to accumulate and expand Fifth, they are outcomes of processes of 'commoning'; they are new forms of commons
Ideal or guiding values	Décroissance (French for degrowth), began as a movement of activists believing sustainable development is an oxymoron Abolishment of economic growth as a social objective
Emotional, aesthetic, and spiritual aspects	The foundational theses of degrowth are that growth is uneconomic and unjust, that it is ecologically unsustainable and that it will never be enough; need to be more radical
Personal	'Sharing', 'simplicity', 'conviviality', 'care' and the 'commons' are primary significations of what this society might look like
Pathway or plan	Very little on this: one could imagine a scenario under which political forces come democratically in power and enforce resource caps and social minima (e.g., job guarantees for the unemployed), restricting the operation of capitalism

Note. Source: Design by author

Observations on Using the Template

It should be noted that the *author* category may not list the original or only author of a concept. In researching the broad *After Capitalism* space, I typically captured the first work on a topic that caught my eye. I did not attempt to definitely identify every relevant work in every topic area. I did note and sometimes review additional works, and added them to an annotated bibliography posted on a website accompanying the forthcoming book on the topic.

The *time horizons* were only specified in a few instances. On the one hand, it is understandable that authors were reluctant to put numbers to a long-term image. So doing can imply precision where none exists and set up a false expectation among readers. On the other hand, it is not unreasonable to provide at least a range—or to acknowledge and discuss the lack of timeframe. Most commonly, this subject was simply not discussed.

The *scope* was similarly vague. This is again understandable, but a deeper discussion of the surrounding uncertainty would have been helpful. The Degrowth example provided here is a good illustration of how I hoped this category would be used—taking the question on directly. Most did not.

I derived the seven *key drivers* from my research and explain them in the section below this one. For the template, I made a judgment about which seemed central to my concept.

The *key ideas* section was a challenging one: How does one boil down very rich works into a handful of bullets and paragraphs? It was helpful to have that brevity and roughly the same size, as it facilitated conceptual comparisons.

In a mild surprise, the *ideal and guiding values* were relatively easy to discern. Most of the authors were very passionate on the topic and tended to be crystal clear on why they were doing the work.

Upon reflection, it is not clear that a separate section was needed for *emotional, aesthetic, and spiritual aspects*, as this could be captured in the values section above.

The *personal* category, similar to time horizon and scope, was often neglected. The authors were typically, and understandably, most often writing from a macro-social perspective, so did not pay as much attention to what it might be like for individuals to live in these futures.

I touched on the *pathway or plan* only lightly, since I have here focused on the images them-selves, rather than how to specifically achieve them. Nonetheless, many of the works' authors did offer very useful advice. It may be that in today's context there is so much emphasis on bottom-line practicality that big picture thinking without a to-do list is ignored or does not get published.

Drivers

I have synthesized the scanning and research into a set of drivers, which are defined as thematic clusters of related scan hits and research inputs that are key influencers of change in the domain. I offer this precise definition because in my experience the foresight field tends to neglect such clarity, and there is a lot of fuzzy thinking about what a driver is. I suggest that drivers are the bridge between scanning and research and the alternative futures to be described below. I subsequently use them as the key ingredients or building blocks for constructing the alternative futures.

I once again used the popular futurist STEEP framework of social, technological, economic, environmental, and political categories, this time to help select and organize the drivers. The purpose is to ensure a balanced consideration of the domain, that is, avoiding either too much or too little focus on a particular category. I list these drivers in Table 3.5, noting the STEEP category they represent.

Futuring

Several years ago, I developed a modified version of Dator's (2009) four futures archetype approach (2020). This is now referred to as the Houston Archetype Technique (HAT). An archetype is a "typical pattern of change." My principal tweak to his approach was to genericize his archetype scenarios of the future of

Table 3.5 Seven drivers

STEEP category	Driver	Description
Social	Shifting values	Values are shifting from traditional (follow the rules) and modern (achieve) to postmodern (search for meaning) and integral (make a difference)
Technology	Technology acceleration	Technological capabilities continue to increase rapidly, often exponentially, in a wide range of sectors
Economic	Inequality	Growing economic inequality is threatening the social order
Economic (work)	Automation	Automation, driven by AI, is increasingly replacing jobs
Economic	Stagnation	Economic growth is slowing in part due to inability to pay
Environmental	Climate and carrying capacity	Climate change and humanity's growing ecological footprint are threatening the ecosystem
Political	Ineffective left	The far left continues to be ineffective in catalyzing change

Note. Source: Design by author

the world by extracting their underlying patterns of change. This way, the archetypes can be applied to explore the future of any domain to outline typical patterns of change.

In Table 3.6, I explain the patterns for each archetype, include their respective *After Capitalism* concepts, and note the archetype's original conception from Dator, who first proposed and developed them. The guiding images developed in this work bear some resemblance to Dator's versions (2009, 2014); he reviewed existing images of the future and found that they sort into one of four generic alternative futures: grow, collapse, discipline, or transformation.

A significant difference is that using the HAT adds the New Equilibrium archetype of challenge-and-response. Dator also specified two types of transformations; although the HAT includes two versions of transformation as well, these do not have to follow a "discipline" or "high-tech" pathway. The fourth column lists the alternative futures developed for *After Capitalism.*

The HAT starts with the set of drivers and projects their outcomes in each of the four archetypes to create the descriptions of the alternative futures.

A second innovation is that the HAT then maps these archetypes onto the Three Horizons framework, as show in Figure 3.3 below. For the HAT, it is assumed that the domain begins in the Baseline in H1, moves through H2 either via Collapse or New Equilibrium, and finally reaches Transformation in H3. Although the technique's typical suggestion is two versions of transformation, that is not a required number, but rather depends on the nature of the data and the project team's judgment.

The logic of the unfolding or development of the domain using Three Horizons is as follows:

- The H1 Baseline eventually begins to decline.
- The domain subsequently moves into H2, either via Collapse or New Equilibrium.

Table 3.6 Describing the archetypes

Houston archetype	Dator's archetypes	Pattern of change	*After capitalism*
Baseline	Continued growth	The present trends and forces within the domain continue without any major disruptions or surprises. The domain continues along its current trajectory.	*Neoliberal capitalism*
Collapse	Collapse	The domain "breaks" or falls into a state of dysfunction. The established way of doing things no longer works, and the "health" of the domain declines.	*Ecosystem collapse* *Bad AI* *Class war*
New equilibrium		The domain is confronted with a major challenge to how it has been operating and is forced to adapt and comprise in order to "save itself" and keep its basic structure intact.	*Sustainability transition* *Collaborative sharing platforms* *New sources of value*
Transformation	Discipline & Tech transformation	Entails fundamental change to the domain. The rules of the game are "scrapped" and new ways of doing things emerge.	*Circular commons* *Non-workers paradise* *Tech-led abundance*

Note. Source: Design by author

- When the H2 transition is complete, the domain moves into H3 Transformation and is renewed (new system with new rules).

For this project, I created multiple versions for each archetype shown in Figure 3.4 below, with the exception of the Baseline, since it describes the present system. There are three versions each of Collapse, New Equilibrium, and Transformation. The key focus and bulk of my research and analysis lay on the three guiding images in H3. The three guiding images are:

- *Circular Commons*. Expands the concept of sustainability to embrace circular principles as part of a social, political, and economic commons.
- *Non-Worker's Paradise*. A play on the attributed-to-Marxist idea of a worker's paradise; in the *After Capitalism* world, we are not working in paid jobs as a means of sustenance.

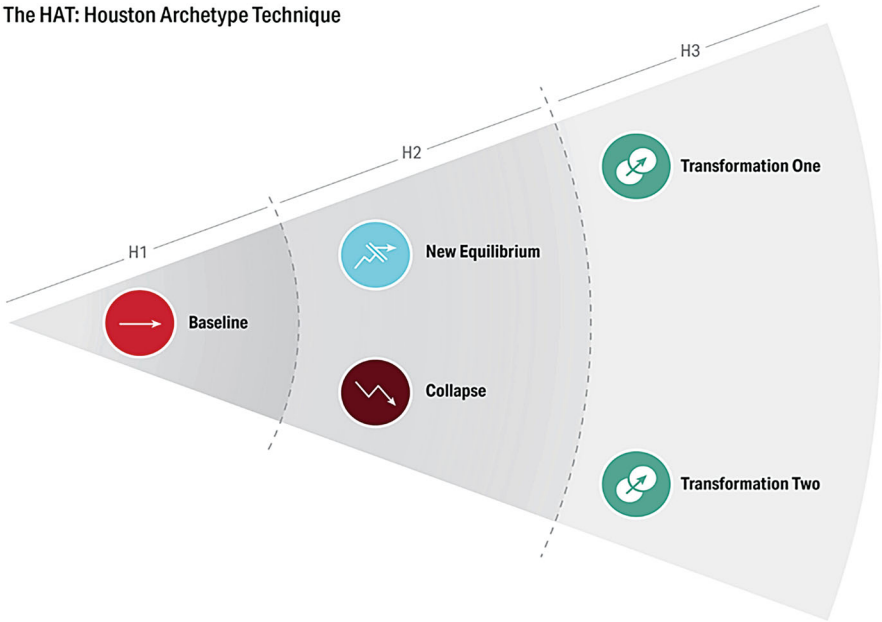

Fig. 3.3 Houston Archetype Technique. Source: Design by author & D. Worrell

- Tech-Led Abundance. Technological progress drives and leads to an abundance of wealth that fixes the core distribution problem of capitalism.

Since my focus here is a methodological one, this brief introduction of the images will have to suffice.

Influencing the Future: Visioning, Designing and Adapting

Visioning is about connecting the futures to the client's needs. In the case of guiding images, this is client is human civilization. Visioning starts by identifying each scenario's implications or impact. Since I have here focused on the identification of the guiding images, I treated the implications differently than in a typical project, more in line with discussion questions typical of an academic research paper:

- What lessons might be learned from the history of capitalism for its future?
- What might be learned by utopias?
- Can the transition to A*fter Capitalism* happen in just one country, or must it be global?

I concluded this section with some ideas on the timing of the pathway to the guiding images.

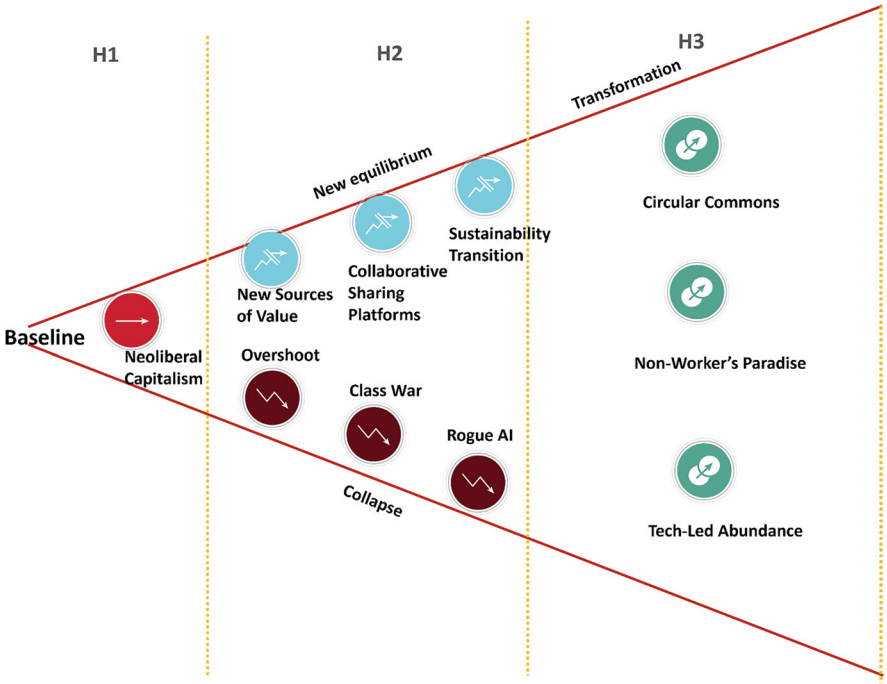

Fig. 3.4 After Capitalism on the HAT. Source: Design by author & D. Worrell

The *Designing* and *Adapting* steps are about taking action based on the implications. They involve designing a proactive approach to the future and identifying actions to take in the short-, medium-, and long-term. I reserve this how-to labor for follow-up work.

One activity of relevance to the focus on method here is the use of an evaluation test for the guiding images. Bregman (2017) identified three typical "attacks" on the credibility of utopias:

- futility (it's not possible),
- danger (the risks are too great),
- and perversity (it will degenerate into dystopia).

I used these attacks as a way to test the three guiding images'credibility and provide some insight on how they might be strengthened. In simpler terms, I identified what aspect or aspects critics may be most likely to raise questions about, shown in Table 3.7 below.

Of the three, I judge that the *Circular Commons* image appears the least developed—presented to a representative sample audience, it would probably generate the most skepticism about realizability. The circular aspect has some "brand recognition" in that has been popularized in recent years, but the commons approach to resource management is less well-known and understood. The *Non-Worker's*

Table 3.7 Testing the images

	Circular commons	Non-worker's paradise	Tech-led abundance
Futility (it's not possible)	**X**		
Danger (the risks are too great)			**X**
Perversity (it will degenerate into dystopia)		**X**	

Note. Source: Design by author

Paradise has perhaps outstripped the futility point. UBI trials are increasing and topic discussion has advanced from the fringe to the mainstream. Nonetheless, horizon scanning revealed a fair bit of skepticism that a post-work future would not lead to people becoming lazy if they did not have jobs. It would seem that *Tech-Led Abundance* pretty clearly presents the greatest risks in the form of runaway AI, genetic manipulation, or macro-engineering gone awry.

Conclusion

In this paper, I have illustrated the development of a technique for identifying long-term, positive guiding images of the future and used it to create such images for the future after capitalism. The particular relevance to this volume on Placing the Future is to offer a way to think about our place in the future. In particular, how might we craft a desirable or preferable vision of that place? There are ideas in the present about potential futures. There are also techniques for exploring alternative futures. My contribution is describing a technique focused specifically on crafting guiding images that provides a felt sense of what desirable futures might look like.

I have scaffolded this technique on the basic foresight methodology of Framework Foresight. Although any foresight project may involve tweaking or innovating from a core method, in this case, the end goal, guiding images, presented a unique challenge: There existed no clear established precedent for how to develop them, though excellent guidance was provided by Polak (1973) and Schultz (2016).

I laid the groundwork by defining terms and noting the distinctions between images, visions, and utopias. This was followed by noting the particular nature of guiding images.

I then described each step of the Framework Foresight, noting wherever I was introducing innovations or additions. I hope that upon reflection the reader will appreciate the depth and rigor that went into the development of these guiding images. Although I described the images only briefly, I intend the detailed description of their derivation to provide support for their potential utility in offering alternatives to today's declining capitalist system.

A few words are in order about the After Capitalism future.

I developed the guiding images for those looking for alternatives to the current capitalist system. It has been said that it is easier to imagine the end of the world than the end of capitalism. Here, I find otherwise: Dozens of ideas exist about the future after capitalism, which I have synthesized into the three images only briefly mentioned here.

Any attempt to change an existing way of doing things will face challenges. As a futurist, I believe transformational change starts with having a sense of where one wants to go. A compelling image of a better future helps to provide the motivation for the difficult work ahead in making it happen.

As the problems of the present intensify, the search for alternatives is likely to gain momentum. The three guiding images lightly introduced here are the result of years of research and are supported by major works and literally hundreds of citations. I produced them based upon a well-respected foresight method that I adapted for the specific purpose of developing guiding images.

The journey is likely to be a long one. Futurists know that change is resisted by default, and the degree of transformational change suggested here is sure to encounter significant resistance. The conservative estimate is 20–30 years into the future, but seen in the large context of the capitalist system that has dominated the last few centuries, this is perhaps a reasonable timespan.

On a final note, a key reason for sharing this technique is to encourage others to create guiding images of their own. I do not intend to suggest that these three images are the right or only ones, but rather offer them as a starting point for discussion. Our collective future may depend on it.

Appendix: The After Capitalism (AC) Transformation Concepts

#	AC concept	Source	Brief description
Transformational A concepts			
Circular commons			
1	Betterness	Haque (2011)	Adopt a positive paradigm that enables human potential by challenging business to do better by focusing beyond the bottom line to considering real human welfare
2	Circular	Ellen MacArthur Foundation (2013)	Today's goods are tomorrow's resources, which forms a virtuous cycle of durables designed for re-use, and consumables made of compostable materials that can be returned to the earth
3	Commons 1	Bollier (2014)	Adopt a common approach in which the many manage resources that could in turn be a vehicle for political emancipation and societal transformation

(continued)

#	AC concept	Source	Brief description
4	Commons 2	De Angelis (2017)	A highly local model in which people self-organize socially and politically within communities to pool and govern resources in common
5	Degrowth	Kallis, Demaria, & D'Alisa (2015)	Seeks to eliminate economic growth as a social objective and favors grassroots practices such as eco-communities, co-ops, local currencies, barter, commons, etc
6	Doughnut	Raworth (2017)	Suggests a social foundation of well-being that no one should fall below and an ecological ceiling of planetary pressure that should not be exceeded
7	Eco	Scharmer & Kaufer (2013)	Advocates a switch from current ego-centric approaches leading toward planetary disaster to eco-centric ones that emphasize the well-being of the whole
8	Local	Balle (n.d.)	*Business Alliance for Local Living Economies* promotes a global system of human-scale, interconnected local living economies
9	Post-growth	Jackson (2009)	Emphasizes strengthening ecologically and socially sustainable practices given the physical limits of the earth
10	Sacred/gift	Eisenstein (2011)	Suggests shrinking the formal economy and shifting money away from being a store of value to primarily a medium of exchange, including the adoption of negative interest to discourage rentier approaches
11	Steady-state	Daly (2010)	An economy characterized by relatively stable size that leaves room for nature and provides high levels of human wellbeing
12	Sufficiency	Alexander (2012)	A degrowth approach that aims for a world in which everyone's basic needs are modestly but sufficiently met, in an ecologically sustainable, highly localized, and socially equitable manner
13	Wellbeing	Fioramonti (2016)	Argues for shifting away from GDP as a performance assessment tool to more holistic measures
Non-worker's paradise			
14	Alter-worlds	Shaw & Waterstone (2020)	Looks to leverage movements springing up outside or on the margins of the system such as temporary and permanent autonomous zones, workers' councils, etc., which offer potential for a post-capitalist politics
15	Communism	Frase (2016)	A vision of communism illustrated by four scenarios based on uncertainties of scarcity/abundance and inequality, with automation as a prerequisite
16	Economic democracy	Schweickart (2011)	A socialist approach with market and democratic features centered on three key concepts of worker self-management, a market for enterprises, and social control of investment

(continued)

#	AC concept	Source	Brief description
17	FALC, fully automated luxury communism	Bastani (2019)	Advocates a shift towards worker-owned production, a state-financed transition to renewable energy, and universal services that is aided by technological progress and placed beyond commodity exchange and profit
18	Pluralist commonwealth	Alperovitz & Dubb (2013)	Advocates an evolutionary reconstruction path based on democratization of wealth, community as a guiding theme, decentralizationm and substantial democratic planning to achieve economic, democracy-building, and ecological goals.
19	Post-capitalism	Mason (2015) and Srnicek & Williams (2016)	Makes the case for *Neoliberal Capitalism* declining and the need to design a transition and create a "new hegemony" vision of an abundance future
20	Precariat	Standing (2014)	Describes a "new proletariat" social class as a key element driving change to the future
21	Solidarity	Loh & Jimenez (2017)	Social justice movement among lower-income people of color seeking to go beyond socialism and communism by shifting consciousness, building political power, and creating economic alternatives
22	Utopia (for realists)	Bregman (2017)	Suggests that reduction of work is a political ideal; makes the case for universal basic income and the need for a massive redistribution of wealth
Tech-led abundance			
23	Abundance	Diamandis & Kotler (2012)	Technological progress is such that within a generation, goods and services once reserved for the wealthy few will be available to any and all who need them
24	Homo Deus	Harari (2017)	Biology and robotics are enabling the upgrading of humans into new species via any of three paths: biological engineering, cyborg engineering, and the engineering of non-organic beings
25	Singularity	Kurzweil (2005)	Exponential technological change leads to machine intelligence surpassing humans and to the eventual eradication of any clear distinction between humans and machines
26	Super-intelligence	Bostrom (2014)	Explores paths to beyond-human superintelligence, the strategic choices available to it, and what can be done to shape the initial conditions
27	Transhumanism	More (2013)	An intellectual and cultural movement seeking to improve the human condition through technological development, including eliminating aging and enhancing human intellectual, physical, and psychological capacities
28	Zero marginal cost	Rifkin (2014)	Massive economies of scale provided by digitization push the cost of reproducing information to zero, thus enabling abundance

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Chapter 4
Futures Consciousness as Vaccination Against Misplaced Futures

Sirkka Heinonen

Future! What are you? Where are you? I'd like to get to know you—can we meet? When and where? Such questions may seem either philosophical or funny, depending on the listener's viewpoints and background. Nevertheless, they pertain to a core human interest: We have always thought about the future, in the shorter or longer term, from a narrower or wider perspective. Today, after millennia of various futures thinking and predictions, the universities of a few countries have included futures research as an academic discipline.[1] Futures research, also called "futures studies," has its origin in the innate human desire to address the future. We have moved from prophecies and planning into a scientific field of anticipation and foresight, with its theoretical frameworks, methodologies, regular conferences, and peer-reviewed journals.

In this section, I give an introduction on the origin and nature of futures thinking and related phenomena, positioning them with a view to the book's main topic of "placing the future." For this purpose, I define and describe concepts such as futures literacy, futures consciousness, and futures resilience. I also present futures studies as a discipline in relation to the related fields of foresight and anticipation. In the second section, I then examine the five pitfalls of misplacing futures and how futures consciousness is a vaccination against them. In the third section, I present the convolution of people, places, and purposes by giving four geospatial scenarios on possible futures. Finally, in the fourth section I discuss the potential of Digital Meanings Society as a preferred future where futures resilience is the vessel to navigate in the hybrid world of physical/virtual/digital spaces.

[1] Notably in Finland and the USA (Texas and Hawaii). Finland also has a national foresight system working as a dynamic process (Heinonen, 2023a; Heinonen et al., 2023a; Heinonen & Pouru-Mikkola, 2024).

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In this chapter, I introduce and reflect on the modes of futures literacy and the various ways of developing futures consciousness, based on futures research. Futures literacy means using the future in the present-day context. Futures consciousness means systematically developing the futures thinking and anticipation capacities that arise from futures literacy. Futures resilience is emerging as a key element within futures literacy. Those using it fearlessly embrace, and not shy away from the risks and uncertainties. These concepts comprise the future's front pillars.

With so many influences and drivers at play, the pathways to the future are serpentine. We need roadmaps to navigate to the future, ideally co-created to make a better world for all species. The future's temporal nature means that it is the younger generations who are making it. Their voices should be heard concerning what kind of habitats for the future are to be constructed. Simulacra of futures can be constructed in the present to be experienced and immersed in, for example, in the physical form of four rooms according to four depicted scenarios. This is to demonstrate possible futures in order to help decision-making and choices for futures strategies, that is, resolutions on preferred futures and concrete steps towards them. Researchers of futures studies traditionally position the future in the Futures Cone, delineating the location and borders for possible, probable, and preferred futures. However, a more appropriate location would be in a Futures Sphere, introduced in this chapter.

Finally, I present a new theoretical framework for society, a Digital Meaning Society that serves as a hub where people, places, and purposes meet. When plunging into the virtual geography and space of the Metaverse, digitalization should be an enabling tool while serious efforts should first be made to crystallize meaningful activities for humans, human/technology/nature interfaces, and the planet. This is a prerequisite for having a future.

Perennial Human Interest in Futures

Human beings have always been interested in thinking about the future. In Ancient Greece and Rome—and long before that in Mesopotamia—they mainly conducted this search through astronomy. The Greeks established an oracle tradition in Delphi, where statesmen consulted the oracle before making any strategic decisions. It was a political institution, based on the oracle's interpretations of divine insight. This tradition lives on in the name of an expert survey method for foresight—the Delphi technique (Linstone & Turoff, 1975). Another historical example is Egypt, where anticipating the flooding of the Nile was vital for agricultural purposes (Schwartz, 1996). In religions and cultures worldwide, prophecies of the coming world and events abound. In the modern world, scholars have, however, now moved the interest in futures from prophecies and divination into a scientific field of anticipation and foresight, with its theoretical frameworks, methodologies, regular conferences and peer-review journals. This was started in the USA of 1950s, when scholars developed the scenario method for making manuscripts of the future in strategic and

military-oriented studies (Bell, 1997). Ossip K. Flechtheim, a German lawyer, writer, and political scholar, coined the term "futurology" as a systematic and critical treatment of questions about the future as early as 1943. He set this new field's foundations and ambitious goals as (1) preventing wars and guaranteeing peace; (2) preventing famine and poverty; (3) preventing oppression; (4) enhancing democracy; (5) ending the extortion of nature and enhancing its conservation; (6) fighting against alienation; and (7) creating the new *homo humanus* (Flechtheim, 1972). These objectives are still valid, as reflected in the 15 Global Challenges by the Millennium Project (Glenn, Florescu, & The Millenium Project Team, 2017), a global think tank on co-creative futures, as well as in Sustainable Development Goals by the United Nations. Flechtheim's seventh goal is missing from these two modern frameworks, but perhaps it is exactly what should be revived to make the other goals more attainable. A similar attempt for enhancing humans was made by a Japanese scholar, Yoneji Masuda, in the 1970s.

The main ontological question concerning the future is obvious: Does the future exist? It is one dimension of the continuum of time, but in what *ways* does it exist? Psychologically, the future exists in our thinking and intentions. In analogy to Claude Lévi-Strauss's statement (1964) on myths' often-unconscious influence on our cognition—"myths think in us"—I wish to claim that "futures think in us." We have explicit intentions of exploring the future in our mind and thoughts. We also have an unconscious bond to tomorrow's unfolding, influenced by our assumptions as well as other's views on the future. Accordingly, the future is not merely a physical quantity: It is the land of dreams, hopes, and fears (De Jouvenel, 2004). Here it assumes a spatial property, it is located. An extreme case or niche of such locational future is a utopia, which is literally a place that does not exist (Simon, 2025; see Chapter 6). Recently, a debate has emerged concerning this position of the future—the future has become endangered. For the first time in history, humans face the possibility that the whole of humankind could become annihilated. The future has become a target for existential risks. Toby Ord (2020) reminds us that it takes only one existential risk to be realized for the extinction of humankind to take place.

The epistemological key question for futures studies is: Can one gain any knowledge about the future? And if yes, what kind of knowledge would that be, and how can it be acquired through futures signals? Because the future has not yet happened, one can neither predict it nor gain any exact data or knowledge about it. What one can gain, however, is approximated insights. This is called *foresight knowledge*. Evidence is based on the seeds of the future that are already present in today's societies. Through horizon scanning of the changing world, one can identify so-called futures signals that point to various developments. They can be strengthening the trajectories of present directions of development, or they can be signaling discontinuities and emerging disruptions of society, in economy, politics, environment, culture, and technology. Such horizon scanning should therefore cover both visible or strong futures signals, such as mega-trends, or trends and "invisible" signals such as weak signals and black swans. Weak signals form a category of futures studies that is ambiguous, often overlooked and requiring peripheral vision (Day & Schoemaker, 2006; Hiltunen, 2010). However, weak signals can be

powerful drivers of change if they start to strengthen. A weak signal is the first sign of an emerging phenomenon that may or may not grow stronger. A black swan is a sudden, unexpected event that dramatically impacts society (Taleb, 2007).

Humanity is living in an increasingly turbulent and fuzzy world. Futures scholars have labeled it a VUCA world, where volatility (=V), uncertainty (=U), complexity (=C), and ambiguity (=A) are dominating characteristics (see, e.g., Kaivo-oja and Lauraeus, 2018). These four elements compel us, as humans, to struggle to make sense of the changes happening around us. In such a world, it is therefore even more important to develop foresight capacity into *futures literacy* (Miller, 2018). Futures literacy means the skill to imagine, identify, and use futures. With it, one masters the various ways the futures are used in the present, that is, one uses futures for today's decision-making. It should also be deepened in the form of exploration of improbable and uncertain trajectories and as proactive preparation for futures. We should not, however, panic or become paralyzed in confronting the challenges of the VUCA world. On the contrary, we should boldly embrace change and uncertainty. If we want to survive, we must trace the trajectories of the unknown land of futures. One can even ask: "Is uncertainty the key to understanding futures?" Learning to embrace and live with uncertainty instead of attempting to evade it is a key to futures resilience (Heinonen, 2022; Karjalainen, Heinonen, & Taylor, 2022a; Karjalainen, Mwagiru, Salminen, & Heinonen, 2022b). By building foresight capacity to achieve futures literacy, we will confront the ultimate challenge and opportunity of futures resilience**.** *Futures resilience* is the capacity to survive emerging challenges, obstacles, risks, and crises, to emerge from them relatively unharmed, to learn from them and then renew one's activities.

General futures thinking can be deepened into systematic futures thinking and futures literacy through futures studies education. The concept of futures literacy heads for developing further into futures consciousness, which is also based on futures research. Futures consciousness means systematically developing one's futures thinking and anticipation capacities that arise from futures literacy. Futures resilience can thus be acquired as an ultimate and strategic goal of futures mindset. Futures resilience was a key topic studied in the RESCUE Project (Real Estate in Sustainable Crisis Management in Urban Environment),[2] whose authors, of which I am one, anticipated several crises and "rehearsed" their impacts in futures workshops. The three-year project (2021–2023) was coordinated by Aalto University, partnered with the University of Turku and University of Tampere, and funded by the Research Council of Finland. The urban environment is full of places, whether built, green, blue, or digital. They are more or less vulnerable to various crises that may take place. The project's authors aimed to study and look for policies, strategies, technologies, solutions, and applications that would enhance these places'crisis resilience (Toivonen, Rashidfarokhi, & Kyrö, 2021; Toivonen, Heinonen, Verma, Cataño-Rosa, & Wilkinson, 2024). An interesting approach was to organize "futures

[2]About the project, see more at https://www.rescue-finland.com/ and at https://www.utu.fi/en/university/turku-schoolof-economics/finland-futures-research-centre/research/rescue.

cliniques" (Heinonen & Ruotsalainen, 2013), where participants with very different backgrounds—representatives of companies, academia, public administration, NGOs, art, media and citizens—were invited to immerse themselves in an imagined crisis in a real physical place within the urban fabric. In one case, participants probed this on site in the Helsinki shopping mall TRIPLA, which is a major intersection of business, housing, and mobility (railway station). The crisis chosen for this exercise was a total electronic black-out. Interestingly enough, the small groups came up with creative solutions for how to cope. Furthermore, different groups saw the place itself rather differently—some perceived it as a trap, others as a safe place and fortress against the crisis (Heinonen et al., 2024). We also experimented with introducing a polycrisis—a combination of more than one crisis hitting one place at the same time (Heinonen et al., 2023b).

Five Pitfalls of Misplacing Futures and Futures Consciousness as a Vaccination

In which space are we placing the future? My claim is that there are five grave pitfalls of misplacing futures. Through futures consciousness, one can avoid such stumbling blocks and become immune to falling for misplaced futures. Firstly, the future is frequently placed somewhere "out there"—far ahead on the horizon—even though the future is present here and now, in our mind, imagination, and aspirations. Paradoxically, the present is "thick" with the future (Poli, 2011). Secondly, the future is not placed in any one specific place or location—it is ubiquitous, that is, in many places, in many manifestations, in many contexts, existing as several alternatives, even parallel futures. The future is consequently omnipresent. Accordingly, it is not a utopia that does not exist anywhere. Roy Amara (1981) has also developed three key principles of futures studies to illustrate the plurality of futures. His first principle is that futures cannot be predicted—they can just be anticipated. His second principle is that there are several futures. His third principle is that we, as humans, can have an impact on the future.

Thirdly, a pitfall of misplacing the future can occur from too narrow or too straightforward looking. The future is not positioned linearly or automatically, nor determined. It can have unexpected trajectories, influenced by our vision and action. The pathways to the future are twining under various influences and drivers, and we as humans need roadmaps to navigate to the future. My claim is that in anticipation processes we need to increasingly address he "un-futures" that merit closer inspection. These un-futures—that is, the unlikely, unexpected, uncertain, uncommon, unknown, unspoken, unthinkable, and undesirable—help us address and rethink often ignored, hidden, forgotten, or forbidden futures (Heinonen et al., 2022). For example, the topic of euthanasia has been unthinkable, or at least very uncommon, in societies where the practice of ending a patient's life, or ending their suffering, poses a serious ethical dilemma. However, this stance has been alleviated when the rights

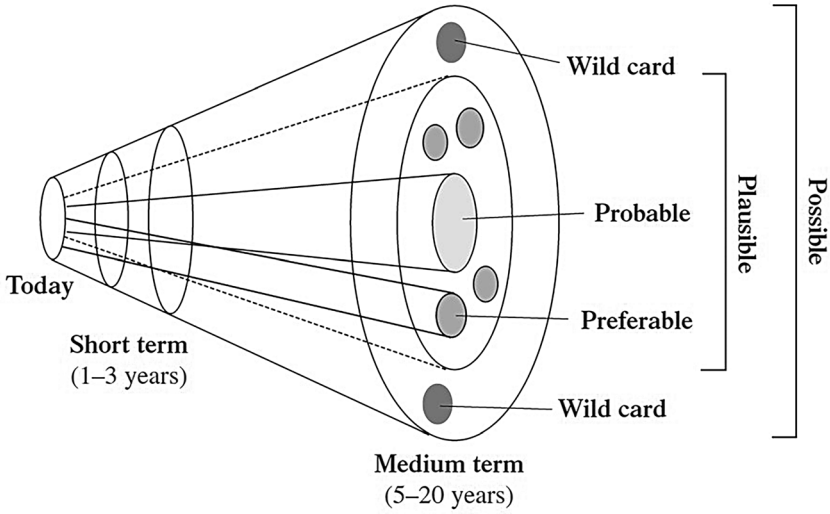

Fig. 4.1 The Futures Cone. Adapted from Bezold and Hancock (1993, p. P). Copyright 1993 by WHO. Adapted with permission

of a suffering patient are accentuated. In the future, euthanasia may become a norm—literally, it means "good death." Another example is full unemployment. There may exist mechanisms in the future—such as universal basic income—through which unemployment may not be undesirable. Of course, this is an extreme future image and definitely not shared by all, but it has been claimed (see Dator in Ch. 2.9, in Heinonen et al., 2023c).

Fourthly, the future is not a place. Rather, I propose that it could be conceived as a collectivized person embodied in futures space— an agent-based social construction, ideally co-created to cater for a better world for all species. Amara's (1981) above-mentioned third principle is that future can be affected. As such, he emphasizes the role of actors—shedding light on their agency to make futures happen. The future's temporal nature means that young generations are making the future. Their voices should be heard concerning what kind of habitats for the future are to be constructed. Simulacra of futures can be constructed in the present that participants can experience and immerse themselves in, for example, in the physical form of four rooms according to four depicted scenarios. This is to demonstrate possible futures in order to help decision-making and choices for futures strategies, that is, resolutions on preferred futures and concrete steps towards them. Fifthly, the scholars of futures studies traditionally position the future in the futures cone, delineating the location and borders for possible, probable, and preferred futures as Figure 4.1 depicts (Bezold & Hancock, 1993; Voros, 2003, 2017).

The futures cone has different variations (Gall, Vallet, & Yannou, 2022), but it is basically opening up towards futures and comprising the potential of various kinds of futures—possible, probable, and preferred ones. The area covered by probable futures inside the cone is more narrow than that of possible ones. A preferred future

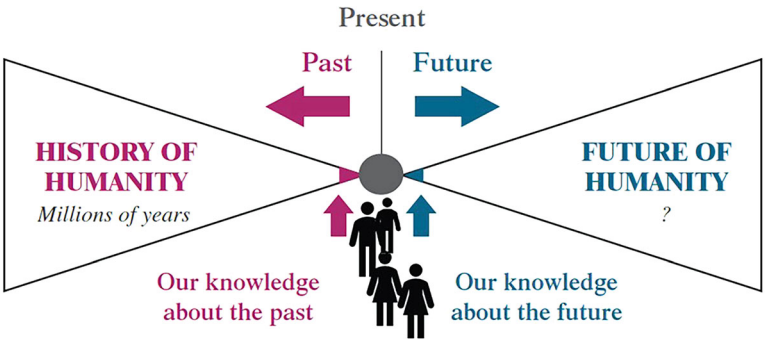

Fig. 4.2 Juxtaposition of the futures cone and history cone. Source: Design by author

can overlap with some possible futures and a probable one, or be beyond both of them. The futures cone is useful in demonstrating such difference in futures. However, an even more appropriate location for futures would be in juxtaposition with the history cone as illustrated in Figure 4.2.

Furthermore, addressing futures within a big picture means taking history into consideration. This could be illustrated through a cone looking backwards to history. History and future are like mirrors of time in space, thus closely connected. Moreover, in history, there is a special niche of past futures. This means studying futures images and views that past actors in history have had. For example, in my dissertation (Heinonen, 2000) I reflected on what kind of approaches to future and progress prevailed in the ancient world. Greek philosophers represented two competing schools of thought as regards the future of humankind. Some followed the model of historical decay, viewing the future as the remnants of what was once an original Golden Age. The Ancient Greek poet Hesiod, one of the best-known authors of this line of thought, described this past as a paradise-like place where people lived a lavish and happy life. This myth of the lost Golden Age can be associated with a biological view of history, one where the earth ages and eventually dies like human beings. Such chronological primitivism contained the idea of ancient humans having lived more happily than contemporary ones. The second model for perceiving the future world to unfold was that of cultural progress. Promoters of this school of thought, especially favored by the Epicureans, believed humanity has arisen from primitive beginnings and was continuing to develop for the better. The idea of progress has strengthened throughout the centuries and is the foundation for the modern obsession with logic of economic growth. The third model of thinking was that of cyclic development. In particular, the Stoics perceived the development of the world to consist of successive periods of decay, which after their full cycle start the process anew. This cyclic model may also comprise both of the above two models within a cycle. Thus, a cycle always ends in a natural catastrophe (world fire) and then starts a new cycle, where the process is iterated.

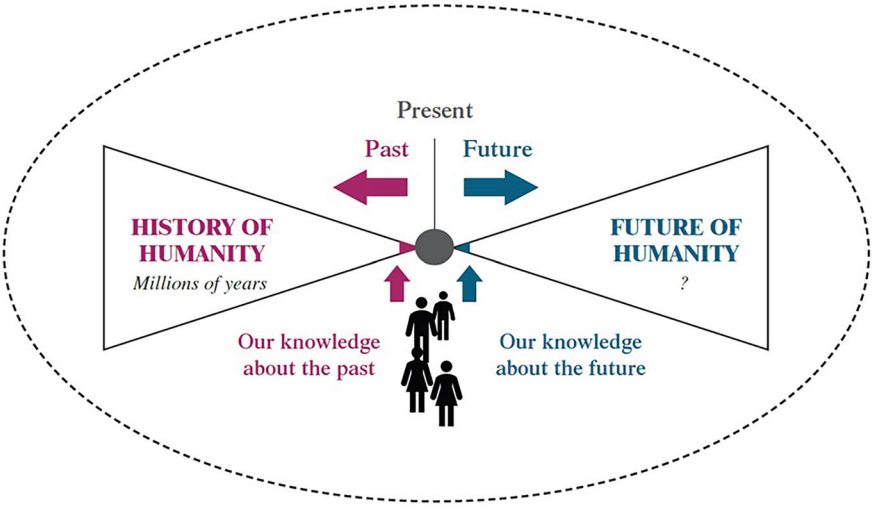

Fig. 4.3 Futures sphere—comprising the futures and history cone. Source: Design by author

Another lens to past futures is to look at what forecasts and predictions have been made and how wrong they have turned out be. Of the myriad possible examples, it suffices to remember that Ken Olsen, founder of Digital Equipment Corporation, is said to have predicted in 1977 that there is no reason anyone would want a computer in their home. The list of false predictions is endless, but its value is limited to entertainment. The point of futures studies is not to predict anyway, but to anticipate what might be possible within certain premises. Besides, there are several examples of forward-looking visionaries in history, such as Jules Verne and Leonardo da Vinci, who sketched a prototype for a submarine and an airplane. Further, it is interesting to reflect upon whether humanity has learned from past futures. An example is given by the Covid-19 pandemic. Futures researchers frequently spoke of the possible outbreak of a global pandemic, in seminars, workshops, and reports. Yet their warnings received no serious attention. However, humanity should be capable of learning from history—if we do not learn early enough from anticipation, then ultimately the crises themselves may do the trick (Karjalainen et al., 2022a, b).

The two cones as illustrated in Figure 4.2—the futures cone and history cone—could be fused into a sphere comprising all aspects of time, that is, past, present, and the future as embedded in Figure 4.3.

A similar extended representation of the futures cone has been proposed by Christophilopoulos (2021), who expanded this kind of approach into the "cones of everything," emphasizing the alternativity of all-directional time conceptions (see Fig. 4.4).

In fact, the futures sphere as represented in Figure 4.4 could be propelled into a plethora of futures cones and history cones (see Fig. 4.5). In other words, the future of humanity could consist of not just one futures cone, but several alternative or

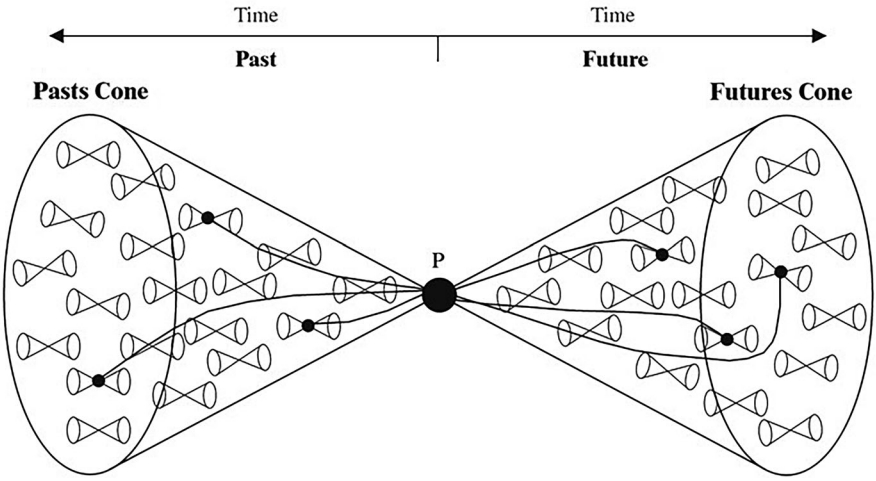

Fig. 4.4 The cones of everything. Reprinted from Christophilopoulos (2021, p. 87). Copyright 2021 by Journal of Futures studies. Reprinted with permission

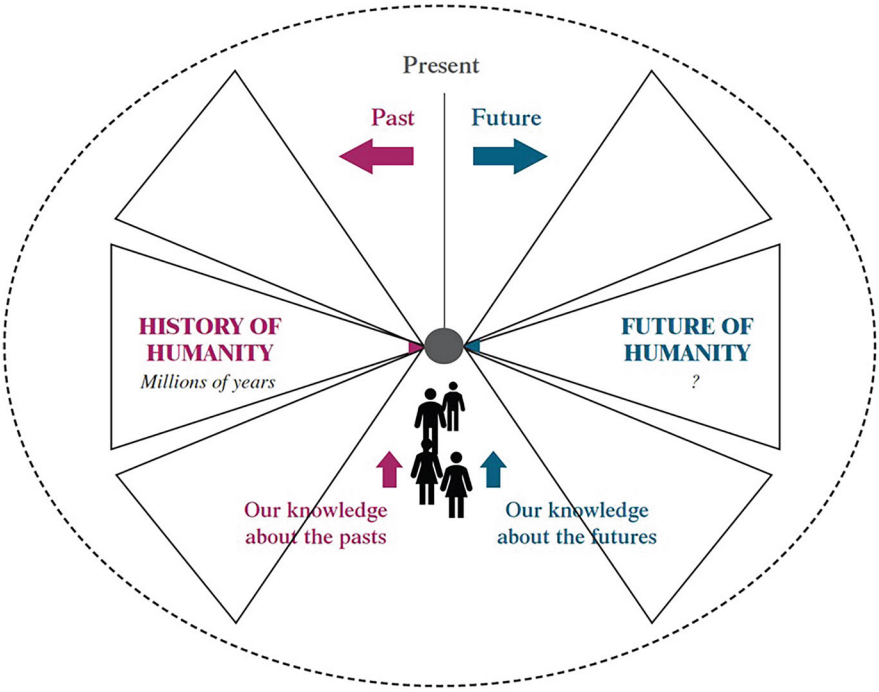

Fig. 4.5 Futures spheres covering several futures cones and history cones. Source: Design by author

parallel cones. Likewise, the history cone would cover alternative and parallel history narratives, past futures, as well as contrafactual histories (What if Napoleon had won the Battle of Waterloo? What if the World Trade Center towers were not destroyed in the 9/11 attack?).

Four Geospatial Scenarios on Possible Futures as Convolution of People, Places and Purposes

In this section, I present a set of four geospatial scenarios as a nexus of people, places, and purposes. They can be viewed as futures manuscripts from among the possible futures in a futures cone. People, places, and purposes will be convoluted in digital futures, as rapidly evolving and emerging technologies such as artificial intelligence (AI), big data, pattern/face/voice recognition (cf. Volume 19 Knowledge and Digital Technology), and the planned Metaverse affect the functionality, security, and resilience of geospatial infrastructures. Diamandis and Kotler (2020) emphasize that the only constant is change, and the pace of change is accelerating geospatial data from fertile soil for such innovations and new models for action. Geographic information will be used in almost all technological developments. How can this big wave of geographic information be managed, and what kind of societal regulation is needed? A first step towards searching for innovation is exploring what kind of digital futures may be forming. Such exploration can be conducted through scenario thinking and scenario construction (Wright, 2025; see Chapter 2). This is where a core question comes in: How will the convolution of people, places, and purposes redefine the concept of space and social interaction in digital futures? People are moveable actors—they no longer live in only one place. Because travel is easy, they can visit more and more places—digital and virtual alike. Hybrid spaces are also being formed (Heinonen, 2022; Karjalainen et al., 2022a, b). People now have various personae, real-world and virtual, and such delocalized existence will only expand (Diamandis & Kotler, 2020). Physical geography is convoluted with its technology-enabled counterpart—virtual geography. Batty (1997) thoroughly discusses how the concept of place and space expands through the addition of virtual dimensions. Place and space can be not only physical, digital, and virtual, but also psychological, cognitive, and even philosophical concepts.

For the first time in Finland, a government report on futures perspectives of geospatial data policy and the impact of technologies on geographic infrastructure was made by the Geospatial Research Institute (FGI) in 2017 (Ministry of Agriculture and Forestry, 2018). I contributed to this report, in which my colleagues and I constructed four scenarios for the use of geographic information and its role in society, aiming to support the government policy report on geospatial information (Muhli, Koskinen, Heinonen, Ruotsalainen, & Parkkinen, 2017). We constructed the scenarios by applying futures studies methodology, such as futures-oriented literature survey, two multi-stakeholder futures workshops, Delphi survey, futures

Table 4.1 Four societal scenarios of geospatial data

Centralised	Scenario C **Some Brother Is Watching You** Geospatial data and other data are used to monitor, control, and psychologically manipulate people. Global (opinion-leading) power is vested in new nationalist movements that deny the legacy of individual freedoms and liberalism.	Scenario A **Fine-Tuned Machinery** Geospatial data is used above all to enhance the efficieny of the state, businesses and citizens. Power lies with states and companies. Citizens are the targets for services rather than active players.
SOCIETY (economy, power, technology, culture, etc.)		
Decentralised	Scenario B **Geospatial Data Paradise of Prosumerists** Geospatial data are used primarily for the self-organisation of citizens and various entertainment and leisure services. By using new technologies, civil society has risen into a dominant role in society.	Scenario D **Gated Gardens** People are very alert about their own data. So, the collection of geospatial data produced by citizens, like all other data, has become significantly more difficult. People do disclose their data, but only to carefully selected actors and often for a fee.
	Open ← **DATA** → Closed	

Note. Source: Design by author

wheels, futures tables, and explorative scenario building. We managed to develop and organize a plausible vision of how societal activities relate to the geospatial data infrastructure, meaning that the geographic information infrastructure can be used to cater to the changing needs of users. Scenarios are intended to support decision-making: They are not predictions, but tools and food for foresight processes and deliberating futures with all relevant stakeholders (see, e.g., Dammers, van't Klooster, & de Wit, 2019; Bell, 1997). On the basis of such futures deliberation, preferred futures are chosen as objectives for societal transformation, aided by new technologies and digitalization. Scenarios stimulate strategic thinking, but fundamentally they are also learning and knowledge-creation platforms (Heinonen, 2018, 2021).

The four scenarios of geospatial data and infrastructures were embedded in the context of societal transformation. The two axes on which they were built are: the data being open or closed, and the use of data being more centralized or decentralized. The scenarios were entitled as 1) "Fine-Tuned Machinery," 2) "Geospatial Data Paradise of Prosumers," 3) "Some Brother Is Watching You," and 4) "Gated Gardens." (see Table 4.1). The timeframe chosen was 10 years—extending from 2017 to 2027.

Data's transparency and closedness is defined by how much of said data—produced by the public sector, businesses, and citizens—is publicly and freely

available and applicable. The axis transparency-closedness also applies to geospatial data. In the scenario "Geospatial Data Paradise of Prosumers," data is open, as power has increasingly shifted to citizens, and these welcome openness and data sharing. In the scenario "Some Brother Is Watching You," data is open in the "Wild West" spirit: Controlling data has proven difficult because varying degrees of cybercrime are common, citizens are indifferent or powerless in managing their own data, and both governments and large corporations want as much data as possible. In the scenario "Fine-Tuned Machinery," data is mainly owned and produced by companies and the public sector. The data of public administration organizations can be largely open, and companies can also open their data to others to promote their business, but corporate data is, for the most part, closed. Geospatial data generated by citizens is largely the property of global companies. In the "Gated Gardens" scenario, data is mostly closed, because citizens are extremely cautious about what data is passed on to whom and when.

Studying society's fragmentation and concentration, in turn, can give a sense of whether an open civil society and vibrant ecosystems for small and medium-sized enterprises will be strengthened in the future, or whether there will be more centralized state- and enterprise-led development.

The development and application of geospatial data influences along what path a society will develop. In the scenario "Geospatial Data Paradise of Prosumers," citizens and workers self-organize both in their leisure time and in their working lives. As a result, culture, economy, and power have become increasingly decentralized—a unified culture has become obsolete and been replaced by different communities and networks. In the "Gated Gardens" scenario, society is fragmented because people control their own data. Data is used to provide well-personalized services, and citizens protect their privacy. Both strengthen the social position of citizens. In the scenario "Some Brother Is Watching You," society is concentrated, as states and large corporations have applied control mechanisms to consolidate their positions, and various totalitarian tendencies have intensified. In the scenario "Fine-Tuned Machinery," society is concentrated, as citizens are reluctant to participate and expect the state and large companies to take care of the development and production of services. Both governments and companies are streamlining their operations to the top, and consequently closely control their data.

It should be noted that these scenarios are exaggerated "ideal types." They are neither mutually exclusive nor forecasts, but a mapping of a landscape of possible futures. Most likely, the development of social and geospatial data will be a combination of these scenarios—and of a number of other, as yet unknown, trends and phenomena. However, studying ideal types and extreme ends (states of the scenario axes) helps make the different development options more clearly visible. Yet one must bear in mind that scenarios are not predictions, but manuscripts to alternative possible futures. For this reason, they also contain many features that seem unlikely from the current perspective. But it is often precisely those development trajectories that are surprising and previously seemed unlikely that are changing the world the most (Heinonen, Karjalainen, Ruotsalainen, & Steinmüller, 2017; Heinonen & Karjalainen, 2019a, b).

The scenarios are based on current empiricism: They are a projection of trends and weak signals observed in the present time into the future. Secondly, it is worth noting that although I have used these scenarios to describe the year 2027, signs of them exist in the present world. Efficiency and productivity already feature as dominant values in society today (Scenario A). Citizens are increasingly organizing new technologies themselves—such as Restaurant Days organized by the townspeople, or by popular movements behind politicians such as Donald Trump and Emmanuel Macron—and value experientiality and meaningfulness not only in leisure time but also at work (Scenario B). Different groups of hackers, mobile devices that collect different data continuously and spontaneously, mass data collection by the US National Security Agency (NSA), and the new intelligence powers planned for the Finnish security police are weak signals of a society where surveillance and espionage is much more needed. Data, in turn, is really becoming the "new oil," fueling data companies like Google, Tesla and the S Group, which, together with the growing longing for privacy, could lead to the end of the open data era (Scenario D).

Furthermore and paradoxically, centralization and decentralization may happen simultaneously, in different ways and as different manifestations. Data is much more transparent than it was just a few years ago, but it is also piling up for a few players as more and more people trade, and incidences of cybercrime have made users more aware of the vulnerabilities of their "data lives." The third consideration that opens up the scenarios is that Scenarios A and B are so-called continuity scenarios. They rest on the assumption that current strong trends (efficiency, citizen activation, openness, experientialism) will continue in the future. Scenarios C and D, on the other hand, are discontinuity scenarios. They rest on the assumption that a surprising event has disrupted and steered development away from previously predicted routes. Scenario C has moved away from transparency towards a ubiquitous control society. In Scenario D, on the other hand, the data economy has grown so significantly that society has shifted from open data to data ownership. Data ownership and management is the knowledge society's currency.

Digital Meanings Society

Societal development evolves through different stages—humans moved from a hunter-gatherer society to an agricultural society, then to an industrialized society, and now to the current information or knowledge society (Webster, 1995). As a preferred future, the next phase could open up avenues towards the potential of a Digital Meanings Society. Futures researchers define the next societal phase in various terms—some speak of an eco-society, a digi-society, a dream society, or an experience society. In this section, I propose a Digital Meanings Society, where futures resilience is the vessel to navigate the hybrid world of physical/virtual/digital spaces. People are looking for meaningful activities, and digitalization is an enabler in that aspiration.

My ultimate goal, then, could be to probe what a Digital Meanings Society, where places and spaces are used with meaningful experiences, would look like (Heinonen, 2020, 2022). Places matter—and places can be evaluated according to the purposes and meanings attached to them. Geospatial data and information on various locations may help in this kind of futures exploration and learning—how one can use geospatial data to be proactively prepared for crises, to respond to them, and eventually rise out of them to renew society as crisis resilient. The full potential of places is revealed when they are perceived as complex hybrid entities of physical structures, digital elements, and (last but not least) related information and data, creating various experiences and meanings from using them. At the micro-level, people are seeing this development in their workplaces, where physical spaces and digitalized solutions collide. Possible futures of these solutions are studied in the research project T-winning Spaces 2035. People live in places, i.e., in cities or other communities. In the research project RESCUE (Real Estate in Sustainable Crisis Management in Urban Environments), we aimed at strengthening the preparedness and futures resilience of cities and communities in facing crises.

The scenarios of geospatial data as described above may provide elements and ideas for necessary policies, ones either modifying the present regulations or creating new practices and policies. I accordingly evaluate these scenarios as to their resilience against crises in society (Heinonen, 2023b). They opened up avenues for a medium-term future of societal developments of 10 years, that is, for 2027. I expect legislation and public administration to support preferred trajectories of development. A key question is how and to what purposes data in general, and geospatial data especially, is being gathered, refined, applied, governed, and controlled. Another relevant question is how the geospatial data can be used to boost national security and crisis resilience. To evaluate the scenarios' capacities for crisis resilience, I have chosen two major crises and "bombarded" each scenario with them. The first crisis is the Covid-19 pandemic. The second crisis is heavy cyberterrorism, shuttering society as a whole. How the four scenarios as presented above can resist or survive these crises (resilience as good, moderate, or poor) is an example of testing scenarios. Such evaluation can be repeated with a view to some other looming crises as rehearsal of futures. An everyday life analogue for such future crisis evaluation is browsing travel brochures before actually travelling to a location, as a kind of preview for the visit.

In the following, I discuss how the four scenarios as presented above can resist or survive these crises (resilience as good, moderate, or poor), as concrete examples of assessing futures resilience. First, I study the scenarios' crisis resilience in the case of the pandemic. In Scenario A, "Fine-Tuned Machinery," the state and companies hold the power of using geospatial data efficiently, to serve citizens who remain passive objects rather than active players. During the pandemic, the government sets the strategy of efficiently tracking those infected. Accordingly, it can rapidly introduce geospatial data for identifying and informing those infected or vulnerable to infection. In this sense, Scenario A's crisis resilience towards the pandemic is good. If, however, those applying top-down measures are efficient but fail to pay attention to people's social wellbeing, the resulting resilience is moderate. In Scenario

B,"Geospatial Data Paradise of Prosumers," the civil society is empowered and citizens self-organize the generation, use, and sharing of geospatial data. They get access to all geospatial data about where infection is spreading most heavily, testing is being conducted, and vaccinations given. Here, citizen resilience is good unless misinformation or disinformation intrudes into the use of geospatial data. The resilience then weakens, even to the level of being "poor."

In Scenario C "Some Brother Is Watching You," geospatial data is mainly used for controlling and manipulating people. Resilience is therefore poor, especially because extreme movements may come to dominate and distort the use of geospatial data. However, the high emphasis on controlling developments can create good resilience in terms of a swift recovery from the pandemic, as such control naturally applies to constraining the pandemic's spread. In Scenario D "Gated Gardens," people are very strict about their privacy and do not easily reveal data concerning their private lives. This makes it difficult for the authorities to monitor the situation of the pandemic and its trajectories. Resilience against the pandemic may thus be regarded as poor. It is also weak as applied to the overall situation and equality. Some people can afford expensive treatments and isolation contexts, but the majority have to cope on their own. Pandemic resilience may be good only for a very limited, exclusive group.

Secondly, the scenarios can be used to judge crisis resilience in case of cyberterrorism. In Scenario A, "Fine-Tuned Machinery," the state and companies can jointly combat cyberterrorism. Citizens are at the mercy of cyberterrorist attacks. A lack of information and skills makes their resilience poor. However, companies see this as an opportunity to provide the people with products and services against the negative impacts of cyberterrorism. Governments can also support financially such activity. Therefore, the overall resilience may be esteemed as good. In Scenario B "Geospatial Data Paradise of Prosumers," the citizens are self-organized and highly skilled in the combat against cyberterrorist attacks. They provide peer-to-peer assistance to relatives and neighbors who need help due to less skilled capacities for self defense. Thus, the people's resilience against cyberterrorism is good. As the government may not be able to keep pace with the citizens' defensive activities, the public level of resilience against cyberterrorism may be only moderate.

In Scenario C, "Some Brother Is Watching You," geospatial data is controlling people, but also controlling all kinds of activities, including cyberterrorism plans. Therefore, the resilience is good. However, the resilience can be considered as only moderate in cases where the control is taken by extreme groups who become blinded by their own activity and fail to recognize planned incidences of cyberterrorism. In Scenario D, "Gated Gardens," the resilience against cyberterrorism is poor, as the state lacks an overall picture of activities in the digital sphere. The digitally literate and skilled hackers' resilience is good. In their own private bubbles, they are well equipped to defend themselves against cyberattacks.

With the above brief comparisons of the resilience of four scenarios to the pandemic and against a cyberattack, I have clearly shown that there are variations in the level and harboring of resilience. I do not presume that any scenario has

exclusively positive or negative impacts—each has different future conditions, and must be tested for vulnerabilities.

My ultimate goal is to probe what a Digital Meanings Society, where places and spaces are used with meaningful experiences, would look like. Places can be evaluated according to the purposes and meanings attached to them. I have based this idea of a Digital Meanings Society on an emerging movement, where the search for meanings and identity is increasingly embedded in all products, services, and practices (Heinonen, 2016, 2020)—even reaching the geospatial sphere. Halal (2021) proposes that, due to the mega-crises in which humanity is now, humans are finally moving towards an age of consciousness where responsibility is embedded in all businesses and use of technology. The sense of responsibility only emerges after learning from multiple crises and shocks (Heinonen, 2022). This would mean a plethora of opportunities for developing cities as resilient against crises, using all the potential of the geospatial data and infrastructure. The meaningfulness of visiting and "consuming" places, physical or virtual/digital, is the user end value and a preferred vision for geospatial information, one intertwining people, places, and purposes in a crisis-resilient portrayal for 2037. This does not happen automatically: It requires consensus and shared attempts by all stakeholders in society.

Digital Meanings Society is an ideal mental location for people to conduct meaningful activities. Yet it is no automation and remains hypothetical unless access is created for all people on the planet—a goal that first requires overcoming major global challenges. As anyone can guess, this is a tall order.

Conclusion

I have used this chapter to delve into futures studies, and into how this discipline could be applied to study the futures of geospatial data. To provide concrete examples, I presented four scenarios—all very different, but all possible and plausible. The main variables of these scenarios were the degrees of their data openness and the centralization of the society into which they were embedded. My aim in presenting them was to demonstrate how to utilize the current empiricism to explore the futures. Furthermore, I revealed how implications can radically shift when the main actor changes (be it the state, corporations, or citizens). However, I also noted that the constructed scenarios are characterized types and that the realistic image of the future is something of a hybrid. Moreover, I tested and assessed the scenarios' futures resilience in two crises. However, it should be emphasized that studying only *possible* futures may not be enough—we should also strive to imagine those futures that are *preferable*. I described a digital meaning society as one such preferable future.

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Chapter 5
Anaesthetic Worlds of Denial: "Sleepwalking" Through Climate Catastrophe

Kezia Barker

From the Catastrophic Imagination to Living with Catastrophe

> How can we not feel rather ashamed that we have made a situation irreversible because we moved along like sleepwalkers when the alarm sounded? … The sirens have been blaring all along (Latour, 2017, p. 9).

> In order to reawaken and continue within the diminished worlds left to them, people must find a way of comprehending loss without numbing feeling or dwelling only in anger and grief (Buell, 2003, p. 290).

In the dystopian sci-fi film *The Matrix* (Silver, Wachowski, & Wachowski, 1999), humans are held in womb-like sacs in a permanent state of sleep, their world a virtual projection masking the environmentally devastated "desert of the real." This is not only an apocalyptic vision of the future, but symbolic of our relationship to catastrophic climate futures residing in the present. Attending to warnings we are similarly "sleeping" in the face of climate catastrophe, alongside increasingly desperate calls for humanity to "wake up" to this stark reality, in this chapter I pursue climate denialism across epistemological, affective, and ontological registers. "*Un*knowing the future" encapsulates today's practices of ignoring, sidestepping or renegotiating knowledge about climate change, and demands urgent interrogation of how unknowing in a world full of scientific and public knowledge is possible. I advance arguments from the critical social sciences' turn to emotion by linking unknowing to unfeeling, understood as a survival response to contexts of overwhelm and alienation. This, I suggest, underpins the uncanny coexistence of catastrophe and normality experienced as a crisis of reality, captured within the metaphor of "sleepwalking" to depict climate denialism. In the final section I turn to and define

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the aligned concept of "awakening" as a form of rupture prerequisite of personal transformation or collective revolution. Yet awakening frames an instance or distinct moment of climate change politics that is largely ignored. This means we move too quickly from the production of "facts" to the struggle of consensual politics, whilst remaining in a sleepwalking state, in climate denial. I consider if the contemporary meaningfulness of metaphors of sleeping and awakening nevertheless hint at our capacity to still dream about, and make real, transformative responsiveness to catastrophic futures.

These futures, rather than being of utopian promise and progress, are defined by the expectation of the ongoing deterioration of life, as well as of abrupt change, disruption or catastrophe (Anderson, 2010; Horn, 2018; Stengers, 2015; ŽiŽek, 2010). As Horn (2018) describes, this has always been there as the underbelly of, modern visions of progressive futures (we can of course trace a history of apocalyptic thinking and catastrophic imaginations). Whyte (2018) argues powerfully that Indigenous Knowledges narrate historic and ongoing apocalypses inextricably linked to colonialism and capitalist expansion, rather than an imagined catastrophic future to come. As Swyngedouw (2023, p. 22) puts it: "The socio-environmental ruin is already here for many. It is not some distant dystopian promised future mobilized to trigger a response today." Catastrophe and normality have therefore always held a dual, yet unevenly distributed presence in time and space. Latour (2017, p. 13), drawing on understandings of crisis as perturbations from the normal that are temporally bounded, extends this prognosis by arguing: "We are not in a crisis. We can no longer say 'this, too, will pass.' We're going to have to get used to it. It's definitive." The catastrophic imagination and the ongoing condition of living with catastrophe coalesce in the present. Crisis is therefore both routinized and *immanent* and unprecedented and *imminent*; a contradiction Horn (2018) resolves through an understanding of climate change as "the catastrophe without the event." Beck's (1996) characterization of the period is of a "world risk society," in which catastrophic, incalculable and uninsurable risks proliferate out of control and awareness of risk is embedded in public consciousness. Crisis anxiety and a generalized insecurity emerge as a structure of feeling, an affective economy of fear that mediates how life is lived and thought (Anderson, 2014). The future as catastrophe is said to be *folded into the crisis-present* through diverse strategies of anticipation, disrupting linear notions of time (Anderson, 2010).

Yet, if Beck's risk society is so preoccupied with risk why then, Norgaard (2011, p. 34) asks, "is this concern not visible" and led to decisive action? To quote Horn (2018, p. 9):

> Why does the awareness of an impending crisis go hand in hand with a remarkable inability to act, both politically and individually? … We are on high alert while also lame and indecisive, repeatedly conjuring up looming catastrophes and immediately forgetting them.

Baraitser (2017, p. 161), referring to the disaster immanent in capitalism as the "horrifying real," considers how it functions as a signifier hidden in full view, something we know about but simultaneously disavow. These theorists point to how populations in contemporary liberal democracies appear to suffer widespread

and structurally produced cognitive dissonance from crisis realities (Head, 2016; Norgaard, 2011). These are failures to form sufficient attachment to catastrophic futures folded into the present (Anderson, 2010), failures for these folds to adhere. Metaphorical folded time looks less like a neat origami crease than a loose crumple, peeling back at the edges.

In recent years, there has been a proliferation of calls to "wake up" to the reality of climate catastrophe. Latour (2017) interprets the lack of public response to knowledge of the climate crisis through the work of Christopher Clark's "The Sleepwalkers" (Clark, 2013), which considers Europe in 1914 in the build-up to the Great War. Diverse publics and commentators are choosing to name sudden awareness of the extent and imminence of crisis as "waking up" or "awakening," whereas going about "normal" everyday life is sleeping in the face of this reality (Cairns, 2014). These metaphors are increasingly mobilized to describe individual and collective responses particularly to climate emergency but also a range of other entangled environmental, health and political crises. That the semireligious language of awakening is emerging as a meaningful descriptor of present experience across both secular and religious contexts, we might speculate, is attributable to "the near future itself [being] unimaginable outside the framework of science-fiction scenarios or messianic eschatologies" (Danowski & Viveiros de Castro, 2017, p. 12). This suggests we are at a moment of cultural and political unease, as the historian McLoughlin (1978, p. 2) characterizes awakenings to signal, a critical juncture in our belief in "the legitimacy of our norms, the viability of our institutions, and the authority of our leaders."

I was first awakened to the significance of this metaphor through ongoing ethnographic research with preppers in the UK (Barker 2020, 2022), and what interviewees termed their "awakening stories," the justificatory stories of revelation used to explain their journey into prepping. Preppers are a subcultural group who anticipate future disruptive events, from everyday crises to catastrophic social collapse, and respond through mainly individual preparations such as stockpiling food and equipment and developing survival skills. From US roots (Bounds, 2020; Mills, 2018, 2021), prepping has become a global phenomenon, with national prepping cultures in France (Vidal, 2015), Sweden (Rahm, 2013), the UK (Barker, 2020, 2022; Campbell, Sinclair, & Browne, 2019; Kerrane, Kerrane, Bettany, & Rowe, 2021) and South Africa (Senekal, 2014) subject to academic analysis. In a study of US peak-oil preppers, Schneider-Mayerson (2015) describes awakenings as a sudden moment of awareness of environmental crisis:

> Believers described their awareness of oil depletion and environmental crisis in terms that were strikingly similar to those used to describe a religious conversion. They recalled the exact moment it occurred, their emotional response, the dramatic change in thinking, and the reordering of their personal cosmology. Long-term normative assumptions… were questioned and often swept aside. (Schneider-Mayerson, 2015, p. 17)

In a paper considering UK preppers' awakening narratives (Barker, 2022), I argue that these visceral responses are prompted not just by a sudden awareness of the proximity of normal life to catastrophe, but by a shocking realization of the absence

of state or social support in crisis. As the safety fictions inherent in certain key sites fail (including that of the body, home and public space), the individual is exposed to a profound sense of abandonment in crisis.

From this starting point, I have been probing awakening and aligned notions of sleeping to contribute to debates on detachment, denial and truncated agency in public responses to environmental crises. This is related to my concern with a contemporary *crisis of reality* in understanding societal responses to catastrophic futures and specifically the widespread inability to act. Awakening, I argue, becomes significant in explaining why our struggles to reconcile the coexistence of normal life and the climate crisis express a deeply embedded denialism, such that living with climate change, as Norgaard (2011) demonstrates, entails both living in and veiling a double reality. My argument is that rather than talking of catastrophic futures as "folded into the present" as if this happens with ease, we need to connect the future with awakenings to understand how futures manage—or fail—to become real and present, how these folds stick or fail to adhere.

I will structure this argument in three parts. First, I describe how explanations of denial have expanded from a narrow focus on the presence or absence of knowledge, to incorporate the role of emotions. Across the work reviewed in this section, I highlight the spatialization of both denial-as-unknowing and denial-as-unfeeling, which produces the copresence of catastrophe and normality. Second, I extend this spatial lens by focusing on environments of unfeeling, considering landscapes of overwhelm and alienation—from urban contexts and contemporary work environments to climate change itself—that contribute to a geography of unreality. Finally, I return to the metaphor of awakening and consider definitions of rupture and unveiling, and speculate about the need to learn from alternative ontologies of dreaming to realize the concept's political potential.

Geographies of Knowledge: From Information Deficit to Discourses of Delay

> People have opened their eyes, they have seen, *they have known*, and they have forged straight ahead with their eyes shut tight! (Latour, 2017, p. 11, emphasis added)

Denial has typically been defined through a rational prism, of being wrong (believing false knowledge or rejecting truth) or being ignorant (lacking the right knowledge). This form of *epistemological denial* centers individual cognition in explaining denial and inaction in the face of environmental crisis, an "information-deficit model" concerned with the transmission of knowledge or information from science to policy to the public (critiqued by Bulkeley, 2000). Work within the public understanding of science subfield demonstrates how climate change is constructed as knowable only at the global scale through scientific representation, requiring a complex grasp of scientific knowledge across academic fields (Demeritt, 2001). "Knowing" climate change is also complicated in the sense of requiring

foreknowledge, knowledge about the future. Horn (2018, p. 15) argues that this brings with it an "underlying ratio of blindness and insight [. . .] a ratio inherent in all forms of foreknowledge." Climate scientists and communicators are urged to bridge this spatio-temporal distance with the public, to make climate change real to everyday concerns (Lacey, Howden, Cvitanovic, & Colvin, 2018).

More powerful are accounts of epistemological denial where the frame of analysis expands from the individual to societal through attention to the financial and political machinery of the "climate denial industry" (Monbiot, 2006). As Latour (2017) reviews, dominant pressure groups mobilized from the 1990s to cast doubt on the facts of climate change and destroy the authority of the sciences by challenging the notion of consensus and emphasizing uncertainty. Research in this domain has interrogated explicit climate misinformation (Brulle & Norgaard, 2019), media distortion of information through notions of journalistic "balance" (Boykoff & Boykoff, 2004), as well as attention to epistemological insecurity, issues of mistrust in scientists and politicians (Beck, 1996). This privileges the explanatory value of a *geography of knowledge*, defined as the production, circulation or reception of information about climate change, attending to its varied spatial patterning across different publics. Retaining a narrow definition of denial as the explicit ignorance of or rejection of the facts of climate change can, however, reproduce prevailing assumptions regarding an individualized and rational subject (Lamb et al., 2020). Wallace-Wells (2019), for example, draws on this definition in arguing that climate denialism is not an issue beyond the US republican party.

Yet as Latour (2017, p. 9) argues: "We can't say we didn't know. It's just that there are many ways of knowing and not knowing at the same time." The question of what it means to "know" has therefore been opened to analysis, aligning notions of "unknowing" with agnotology, which is distinct from being ignorant or wrong. Rowson (2013, p. 36, as cited in Head, 2016, p. 32) emphasizes this ambiguity in redefining denial as "a range of strategies that straddle the boundary between simultaneous knowing and not knowing." One example of this simultaneous knowing-not-knowing is in the application of the work of British sociologist Stanley Cohen (2001) on forms of "interpretive" and "implicative" denial. The facts of climate change may be accepted, but in ways that negate, alter the meaning or renegotiate impacts (Lamb et al., 2020). The full psychological, political or moral implications that follow may be minimized, such as "transformation denial" of the necessity for profound changes to everyday lives in the West. This produces a shift towards a politics of deferral or delay, distancing and displacement. In an article analyzing "discourses of delay," Lamb et al. (2020) identify discursive strategies of redirecting responsibility, emphasizing non-transformative incremental solutions or highlighting the downsides of mitigating actions.

Across these individual and societal forms of epistemological denial, sleeping in the face of climate change comes to mean inhabiting a state of unconscious or explicit unknowing, bridging cognitive strategies of distancing through postponement, diminishing or renegotiating knowledge. While this confounds the Enlightenment notion that knowledge leads to rational response, denial-as-unknowing is only a partial explanation. Moreover, it does not account for the significant amount

of people who know "enough" about climate change and do care but keep the topic disconnected from everyday political, social and private life, as "this cognitive truth becomes an inconvenient affective truth to manage" (Danowski & Viveiros de Castro, 2017, p. 17; Jacobson, Åkerman, Giusti, & Bhowmik, 2020). As Swyngedouw (2023, p. 18) puts it, more is needed to explain

> …the extraordinary dissonance that prevails between the consensually established and agreed facts of climate change and the need for immediate and urgent action on the one hand, and the plainly disastrously failing attempts to deflect the trajectory of the climate future on the other.

This takes us closer to geographies of affect and emotion, such as the collectively shared rules of emotion that can produce national variations in cultural responses to climate change, and those of social interaction that influence where, when and how difficult topics such as climate change can be discussed.

Geographies of Emotion: Anaesthesia, Unfeeling and Veiling

> How can we begin to list all the nuances of depression that strike [those …] who carefully observe the rapid transformation of the Earth and who have decided that these can neither be ignored nor, alas, be remedied by any radical measures? Sadness, the blues, melancholia, neurasthenia? (Latour, 2017, p. 13)

> [W]e need to deal with at least the possibility of catastrophe. Yet daily life continues more or less unchanged, in varying combinations of struggle and contentment. We are in collective denial. We are grieving. (Head, 2016, p. 1)

Understandings of denial have expanded beyond a rational weighing up of facts, to become a deeply emotional, bodily, affective condition. A range of emotions evoked by the climate crisis have been subject to academic consideration, including how these are socially and culturally structured, are shared and circulate, and intersect with varied capacities to take action. This includes grief (Butler, 2004; Head, 2016), sorrow (Yusoff, 2012), detachment (Ginn, 2014), derangement (Ghosh, 2016) and loss (Whale & Ginn, 2017; Wylie, 2009), boredom and indifference (Anderson, 2021), but also optimism (Berlant, 2011) and even hope (Anderson, 2014; Head, 2016). These emotions operate as forms of affective labor that can perpetuate a widespread appearance of unresponsiveness, indifference and inaction against crisis presents (Head, 2016), through forms of displacement and detachment, muting, dulling, suppression, or a sidestep from "reality." Bissell (2021), in a summary of cultural geography's reworking of "anaesthesia" or "unfeeling" names this a crisis in perception: a lateral movement of stepping outside a situation in space and time which subsequently reduces one's capacity to be affected (see also Yao, 2021).

Unfeeling can be understood as a defense, a form of survival that veils a depth of concern (Yao, 2021). Bissell (2021, p. 341), drawing on Berlant, states that unfeeling "protects the subjects from the suffering that the attachment to life might engender" through a refusal to inhabit depleting circumstances. This encompasses

emotional detachment from the demands of precarious work, but also the shoring up of comfort, the collective "emotion rules" that mitigate feelings of fear and guilt "allowing social life as we know to continue unperturbed" (Kleres & Wettergren, 2017, p. 507). British psychoanalyst Segal (1997, p. 145) expressed it as "a particular form of splitting [. . .]. In this split we retain intellectual knowledge of the reality but divest it of emotional meaning."

As Norgaard details (2011, p. 33), attention to unfeeling undermines any easy conflation of silence or passivity with apathy. Challenging the myth of apathy, Lertzman (2013, p. 117) argues that attention to defensive mechanisms such as denial, projection and splitting, and more nuanced understandings of anxiety, loss, mourning, and grief "bring[s] back into the frame the potential presence of concern, anxiety, worry, fears, desires, aspirations and hopes in how we conceptualize environmental engagement (or its lack)." Baraitser (2017) also cautions against conflating modes of waiting with apathy, reconceptualizing them as small resistances. In a connected vein, Brownlee and Ghiabi (2016) and Billaud (2018, p. 4705) have argued that the notion of a "sleeping society" is problematic as it implies a lack of agency or absence of political being, reinforcing the idea that "political consciousness emerges only during historical trigger events or through specific modes of socialization," overlooking the "ordinary" or "slow activism" of subaltern groups. It implies an absence, something that is lacking or that exists only latently in those supposedly "asleep." The political significance of unfeeling for Berlant (2011) is that it is a potentially *agentive* response to debilitating situations, and can signal disloyalty to regimes of power, constituting a break from dominant models of feeling (Yao, 2021). Unfeeling emerges through this body of work as an active, adaptive, defensive position to situations that are overwhelming and endless. In other words, the appearance of unfeeling is not an absence or non-position that needs no explanation, but an absent-presence that is actively produced and takes work to uphold.

Emotional management as a form of denial extends to the emotional strategies of climate scientists themselves. Head (2016) considers the narratives of Australian climate scientists who recount "protecting the psyche" from unwanted despair, from the possibility of reality "disabling" them and overburdening their family. They do so, Head (2016) argues, by explicitly distancing rationality from emotions in order to maintain efficacy, an approach underpinned by a culturally organized understanding of science as the domain of the disembodied rational man. As Anderson (2021) points out, some events, practices and activities, particularly emergency events, are seen to need unfeeling; requiring a dispassionate subject with the capacity to calculate rather than be overwhelmed by the demands of the scene. The cold hard rational persona of the climate scientist also emerged in response to attempts to discredit them through accusations of hysteria and dread-mongering from the right-wing climate-sceptic coalition (Buell, 2003). This connects to a strong sociocultural pathologization of attention to worst-case or catastrophic scenarios as "doomism," and therefore irrational and hysterical (Barker, 2020). However, the dispassionate subject is no longer seen to be a necessity but in some cases a hinderance for climate action, incompatible with the urgency required: "The degree of numbing of everyday life necessary for individual comfort is at odds with the degree of tension, or even

anxiety, that must accompany the [. . .] awareness necessary for collective survival" (Lifton & Falk, 1982, as cited in Norgaard, 2011, p. 89).

The social rules and ethical obligations that flow from proximal living in a "society of strangers" (Amin, 2012) also require us to "look the other way" to maintain coherence and privacy. These sociocultural systems of attention, perception, and awareness are norms of visibility and veiling that "we internalize as part of our optical socialization, [such that] society essentially controls which thoughts even 'cross' our minds" (Zerubavel, 1997, p. 51, as cited in Norgaard, 2011, p. 212). Unfeeling therefore expands beyond the individualized subject to be produced, co-constituted and embedded in cultural, political-economic, and socio-environmental contexts; *a* "*world* of denials, omissions, evasions, things forgotten, skirted around and suppressed" (Eliasoph, 1998, p. 255 as cited in Norgaard, 2011, p. 59, emphasis added). Brulle and Norgaard (2019) explore the "feeling rules"—norms of conversation and cultural conventions of emotion—which form an affective structure produced as and through the everyday, in ways that mask the cultural work it takes to uphold. Norgaard (2011), for example, argues that the shared Norwegian "habitus" (Bourdieu, 1977) of national identity as environmentally conscious, and a collective imperative towards positivity and optimism, fends off the cultural trauma of acknowledging Norway's contribution to climate catastrophe, leading to socially organized denial.

Through this consideration of denial-as-unfeeling, the metaphors of sleeping and sleepwalking deepen to suggest that shared sociocultural structures of unfeeling such as emotional dulling and compartmentalization operate as survival strategies in the face of climate catastrophe. This discussion has touched on the ways professional identities, sociocultural contexts and even worst-case climate scenarios are understood to be factors in the co-creation of anaesthetic worlds of denial. In the following, I review work that extends concern for the spatiality of emotional denial to environments of overwhelm and alienation, which underpin not just feelings of anaesthesia and detachment, but crucially also of unreality.

Geographies of Un/Reality

The metaphoric condition of sleeping and of the external world as dreamlike or unreal runs through theoretical depictions and explanations for modernity and late modernity, from Foucauldian notions of the role of space in the production of docile and disciplined bodies (Foucault, 1979), to Marxist understandings of alienation and false consciousness (Marx, 1964), to contemporary theorists of liquid modernity (Bauman, 2006) and the overwhelm of everyday precarity (Berlant, 2011; Stengers, 2015). Whilst in the following I consider environments of overwhelm and environmental estrangement consecutively, they are, in places, hard to disentangle. Both work with the politics of anaesthetic social (de)formations involving desensitization, disconnection, and numbness. They do not, however, simply determine affective or emotional reactions of anaesthesia, sleep or detachment. As Bissell (2021) argues,

rather than an inevitable effect of specific environments, anaesthesia demonstrates differential bodily capacities to be affected, and encompasses oscillation between forms of attachment and detachment (Wilson & Anderson, 2020).

Hypnotic Overwhelm: Navigating the Excess of a World in Crisis

Depictions of the modern world as overwhelming in its intensity emerge in Simmel's (1903) diagnosis of "urban modernity disorientation." This describes the cognitive and emotional overload suffered by early twentieth century urban inhabitants as they struggled to process the dizzying intensification of urban sensory bombardment (Berlant, 2011, p. 68–69). This "too-closeness of the world" (Berlant, 2011), or what Lasch (1984, p. 52) describes as the "obliteration of the boundary between the self and its surroundings" produced feelings of the insubstantiality of the world, a reducing sense of solidity, a form of ontological insecurity or precariousness of being, as the future overwhelmed the present.

This depiction of the unreality of modern life encountered as "future shock" is echoed across an array of work in the social sciences exploring affective responses to late modernity. Economic geographers have explored the overwhelming intensity of late modern work environments which, drawing on Foucauldian notions of the disciplinary management of space, produce a certain kind of acquiescent laboring body. The philosopher and psychologist of the future Berardi (2017), argues that changes in the global economy and political system have enrolled bodies into a kind of cognitive automation through the "sensory saturation" of hyperstimulation (Berardi, 2017, as cited in Bissell, 2021). As Bissell (2021, p. 92) writes: "Workers are induced to dull/numb responses to turbulence and overstimulation [. . .] the production of 'automatic' working bodies is contingent on reducing their capacities to be affected by disruptive stimuli." In this example, unfeeling is not a by-product of an environment or situation, but, like the rational emergency planner discussed earlier who must stay calm and composed in an emergency, is a necessity of capitalist work environments. Bissell (2021) suggests that unfeeling in contexts of work precarity signals an emotional "defense against presence." Whilst emotional detachment in response to crisis situations is well explored in survival psychology it is, Berlant (2011, p. 10) reminds us, also part of navigating ordinary crisis: "Crisis is not exceptional to history of consciousness, but a process embedded in the ordinary that unfolds in stories about navigating what's overwhelming." Poverty, precarity and the ongoing demands of work are seen to overwhelm senses or control bodies. This can draw attention, concern or capacity away from the structural reality of wider enfolding catastrophe, as crisis is individualized and the individual reduced to firefighting the everyday.

A connected argument posits that forms of consumerism and technology entice as much as they deplete. Like a hypnotic force, the subject is enthralled by modern

infrastructure, technology and the virtual, distracted through mass consumerism, and overwhelmed by network dependency, autonomization and locked-in dependency on modern technology (Lasch, 1984). For Marxist false consciousness theory, mass culture brainwashes the proletariat into a "zombie humanity" (Krenak, 2020) rendering them unable to see their own exploitation. The argument implies that we are so overwhelmed, bedazzled and distracted by the immersive contexts of modern life and its resulting overstimulation or dulling of our emotions that we lack the emotional bandwidth to attend to the reality of climate crisis.

This argument is extended through claims that environmental overwhelm is an outcome of the coordinates of the climate crisis itself. Earlier accounts pointed to particular forms of climate representation or storylines as responsible for producing feelings of pessimism, futility and overwhelm: the effects of so-called "doom and gloom" narratives (Buell, 2003). These assumptions have had a powerful influence on the subsequent environmental movement, steering climate communication towards an emphasis on optimistic scenarios and achievable actions. Now, however, it is no longer possible to change the story to make it more palatable or optimistic, if it ever was. Theorists such as Morton (2013) and Richardson (2018) attribute overwhelm not to climate representations, but to the reality of climate change itself, which may be too much to ever represent, let alone absorb: "The thing itself—the complex, interlocked phenomenon of global warming—eludes identification" (Richardson, 2018, p. 2). This is captured in Morton's depiction of "hyperobjects" as things that are impossible to properly comprehend or point to in their entirety, that "defy our perception of time and space" (Danowski & Viveiros de Castro, 2017, p. 17) due to exponential complexity, enormity, brutality. The enormity of climate change is a feature of the scale of change it heralds, its system complexity (Richardson, 2018), and what Massumi (2015) calls the "multiplier effects" that continually emerge. This "uncanny and hypercomplex transformation of our life-worlds" (Horn, 2018, p. 14) or "wicked" problem eludes comprehension, as Wallace-Wells describes in embodied, sensuous terms:

> We are being confronted by something so completely outside our collective experience that we don't really see it, even when the evidence is overwhelming… the scope of the climate threat is so large, and its menace so intense, we reflexively avert our eyes, as we would with the sun. (Wallace-Wells, 2019, p. 160)

These authors describe climate crisis in language that evokes notions of the sublime, the awe and terror felt contemplating the historical grandeur of the earth coupled with a sense of divinity and deep time (Wallace-Wells, 2019).

The overwhelming nature of the climate crisis is also a feature of the out-of-joint temporalities it produces and demands, a "deep time of cascading, disorientating change, so deep that it mocks any pretense of permeance on the planet" (Wallace-Wells, 2019, p. 203). Yet as a "catastrophe without an event" (Horn, 2018, p. 55), the out-of-joint time of climate change holds the event simultaneously as something that will happen, is happening, and has happened: a "future-past-present shock," if you will. As Danowski and Viveiros de Castro (2017, p. 13) put it: "We are trapped [. . .] in a generalized becoming-mad of the extensive and intensive quantities that express

the Earth's biogeophysical system." Overall, this "global weirding" leads to the end of the world in the sense of the end of the meaningfulness of the concept of "world" itself: the world as a knowable, containable, definable entity can no longer cohere (Richardson, 2018, p. 4).

Environmental Alienation

Alongside these depictions of environmental overwhelm as an explanation for collective sleepwalking, are environments of alienation, detachment and estrangement. Alienation, the state of feeling estranged or separated from one's milieu, work, products of work or self, has been a strong theme within different branches of the social sciences (Mahbub, 2021). This includes Marxist studies of workers' alienation from products, the production process, labor and fellow workers, explored through cultural geographers' engagements with economic geography and work environments (Bissell, 2021); Weber's (1930/1992) concerns with the opaque, alienating processes of a bureaucratic state, far-flung, large-scale organizations and abstract rationalized social systems (Aupers, 2012); and work inspired by Durkheim (1897/2002) on the alienating characteristics of the nation state undermining social cohesion and the social contract, recently explored by Wilson and Anderson (2020) within processes of attachment and detachment prompted by Brexit.

These themes can be applied to the climate crisis in two key ways. First, there are the explicit, spatio-temporal invocations of perceived distance from climate catastrophe. Bulkeley, Drew, Hobbs, and Head (2018) write about the "elsewhere characteristics" of the Anthropocene and climate change, which has led us to reflexively discount its reality: a *temporal* framing that assured us that the worst outcomes would be arriving long from now; a *spatial* framing that suggested it would impact other places and other people. This spatio-temporal othering of climate change has long been identified as a barrier to generating the sort of public and policy concern needed. With the issue complex itself held at a distance, we (those of us with the luxury to do so) are unable to integrate it into everyday more pressing concerns, or to understand its relevance to our everyday lives via either impacts or our complicity in its production. Norgaard (2011, p. 60) refers to "the active (albeit rarely conscious) organization of information about global warming in such a way that it remains outside the sphere of everyday reality, a 'distant' problem rather than a local political issue." This has been explored in the context of spatio-temporalities of empathy, expressed as a desensitization to the Others' suffering. While othering through distance has been constructed as inevitable, we are reminded that ". . . it can be [. . .] as difficult to ignore a problem as to try to solve it, to curtail feelings of empathy as to extend them [. . .]" (Eliasoph, as cited in Norgaard, 2011, p. 33). As Norgaard (2011) argues, perceptions of what is near and far, relevant and abstract are socially structured. In 2022, the Canadian author Margaret Atwood articulated this veiled proximity in a tweet promoting Wallace-Well's book "The Uninhabitable

Earth": "It's not only the grandkids and the kids: it's you. And not only those in other countries: it's you."

A second relevant area of work explores our alienation or distance from "the natural world." This diverges from an earlier emphasis in critical cultural geography on relations between humans and nonhumans defined by enchantment, intensity and entanglements, attachment and co-becoming (Morris, 2019; Harrison, Pile, & Thrift, 2004), approaches aligned with the "biophilia" hypothesis (Kellert & Wilson, 1995). In contrast, theorists including Wylie (2009) and Ginn (2014) have foregrounded environmental estrangement, detachment, disconnection, and distance from nature. As Bissell (2021) describes, this work draws on a Heideggerian "detached" dwelling, diverging from a dominant dwelling perspective in geography that emphasizes the interrelatedness of people and place through immersion in practice (Harrison, 2007). Environmental detachment or what ecopsychologist Hillman (see Buell, 2003, p. 206) calls our "anesthetization" to our environments or lack of "aesthetic awareness of the world," is seen to accompany and further environmental deterioration. This everyday detachment from the natural world is due not only to our physical separation from nature, but, as Hitchings (2021) demonstrates, to a disinclination to derive benefits following nature's cultural diminishment.

Latour (2017) attributes this indifference to environmental concerns, to the split between Nature and Culture. As Krenak (2020, p. 22) puts it: "For a long time, we have been alienated from the organism to which we belong—the earth. So much so that we began to think of Earth and Humanity as two separate entities." This construction of humankind as an "anti-natural species" or "denaturing force" has both justified the expulsion of humans from "natural" spaces (Cronon, 1996), and driven the exclusion of environmental concerns from Western consciousness. It is this modern sense of separation, Latour (2017, p. 13) argues, which allows us to ignore the end of the world and gives climate catastrophe an unreal quality, whilst in contrast we let "the uncertainties of parliamentary politics [. . .] mobilize our heart and minds."

Hitchings (2021, p. 5) reviews the "extinction of experience" thesis (Pyle, 1993) and aligned concept of "nature deficit disorder," in which this decoupling from the natural world sets up "a vicious circle of increased alienation from ['natural'] experiences [. . .] to which we could be increasingly indifferent." This cycle of growing disaffection and estrangement renders many oblivious to the environmental underpinnings and dependency of their lives on the nonhuman world, such that it seems "uncanny" that a constant water supply depends on nature (Kaika, 2004). This alienation often has a "concrete" spatiality, with urbanization seen as the main culprit. Through the normalization of home comforts such as air conditioning and heating, our tolerance range for what becomes an unsettling and irritating outdoors, increasingly uncomfortable due to heatwaves and cold snaps, has narrowed (Della Bosca, 2023). The notion of "connecting to nature," Hitchings (2021) argues, assumes that to disconnect from the pressures and stresses of modern urban living is not as hard as many seem to find it. As the "unsettling" outdoors has become strange and unfamiliar, a self-perpetuating loop is set in train of diminishing

experience mutually reinforcing diminishing interest: "If many people no longer care about, or see themselves as part of, the wider 'natural world,' humanity could very well be drifting towards a rude awakening" (Hitchings, 2021, p. 5).[1]

Crisis of the Real

Whether overwhelmed through the hypnotic allure of everyday environments of intensity, precarious entrapment or the monstrous reality of climate catastrophe, or alienated and detached from nature and even ourselves: these accounts share the depiction of the meeting between crisis and "the normal" generating a sense of unreality. Through environmental estrangement, Bill McKibben (1989) argues, the natural world is no longer as real to us as the economic world. As ŽiŽek (2010, p. 335) writes: "We may worry as much as we want about global realities, but it is Capital which is the 'Real of our lives.'" The destabilizing knowledge of climate catastrophe is therefore placed outside the sphere of normal life, thought, and the sense of what constitutes reality (Norgaard, 2011, p. 58). As Norgaard (2011, p. 112) argues, the construction of reality is a sociocultural process, and so "[j]ust as social norms of attention create the sense of what is real, they also work to produce the sense of what is not real, what is excluded from the immediate experience of normal reality." This coexistence of a "collectively constructed sense of normal everyday life" (Norgaard, 2011, p. 5) alongside the horrific reality of climate catastrophe is such that we operate in a "double reality," a term Norgaard (2011) coins to describe simultaneously knowing but living as if it were not true. To quote (2011, p. 5): "This is not separation on a plane of reality, but two different coexisting realities," what Lifton and Mitchell (1995) call, "the absurdity of the double life."

The production of normalcy and crisis as coexisting un/realities occurs where the affective sense of urgency around climate change is at odds with the optimistic green structures of sustainability (Buell, 2003). Expressions of intense alarm over imminent tipping points are uncomfortably juxtaposed with reassurances of our capacity to fix things through small and simple everyday changes. In this sense, unfeeling may be conceived of as a disruptive reaction to normative conventions of green optimism as enforced "happiness" (Ahmed, 2017). As Anderson and Wilson (2020) write in the context of Brexit nationalisms: "affective conditions [. . .] may not be smoothly integrated with the apparatuses through which lives are organized and intervened in." As our "normal" becomes ever more saturated with both the threat and impact of climate crisis, however, collective ideology is mobilizing mechanisms of dissimulation and self-deception including the direct will to ignorance: "a general pattern of behavior among threatened human societies is to become more blinkered, rather than more focused on the crisis, as they fail" (ŽiŽek, 2010, p. 327). Shielded in its pathological condition of normalcy by "a thin phantasmagorical veil draped over

[1] With gratitude for the life and work of a friend, Professor Russell Hitchings.

our libidinal attachment to sustaining the existing unsustainable situation" (Swyngedouw, 2023, p. 17) this contemporaneous universe of optimism is inhabited not only by outright sceptics but, Latour (2017, p. 13) argues, by "climate quietests" who, having "disconnected all the alarms, no strident announcement forces them up from the soft pillow of doubt: 'We'll wait and see'".

Norgaard's (2011) citizens, however, live in privileged contexts where crisis is the absence of snow at a ski resort. We need to augment this argument regarding the construction of noncrisis as normative realism, with the insights of scholars arguing for crisis as the ongoing condition of the normal. As Danowski and Viveiros de Castro (2017, p. 12–13) point out: "Each year seems to establish a 'new normal' for climate parameters—which is to say that abnormality has become the norm… [H]ow to speak of deviation from the norm if the norm itself is changing with every new year?" Buell (2003, p. xviii) also argues that crisis has become "domesticated:" "no longer a critical apocalypse ahead, critical environmental problems and constraints help construct society's sense of daily normality [. . .] environmental crisis has become a regular part of the uncertainty in which people nowadays dwell." ŽiŽek (2010) argues that climate catastrophe is at a threshold, tipping from being an "impossible event"—an event that is experienced as real but impossible—to becoming possible and "renormalized," perceived as part of the normal run of things, as already having been possible. Or perhaps this is not simply a "new normal" of crisis, but as Wallace-Wells (2019) suggests, the end of normal. Climate catastrophe therefore adds a unique element to the epistemological, ontological and existential insecurity of late modernity, widely discussed and lamented in the social sciences since the nineteenth century (Aupers, 2012). It redefines "environmental insecurity" through the challenge it poses to the perception of a constant, enduring and meaningful environment, emphasizing the connection of climate crisis to concepts such as sostalgia, grief for loss of nature or landscape, and anticipatory environmental grief.

Returning to the forms of crisis embedded in the present that were sketched at the start of this chapter, this adds a "crisis of the real" to depictions of the sleepwalking society. Denial has become the condition of finding a way to coexist across the double reality of crisis-normal and future-present catastrophe through unfeeling, detachment and anaesthesia; as the everyday has so overwhelmed or alienated that both crisis *and* the normal can take on a sense of unreality. Denial is akin to a survival strategy: we sleep because being awake is too frightening, disturbing or difficult a position to inhabit, absorb or integrate. Or we are lulled to sleep by late modern systems and modes of enrolment, distraction, repetitions, forms of insecurity, political systems or environments of overwhelm, bedazzlement, or alienation. While it does not represent apathy or uncaring, sleeping (whether from privilege, survival or as a mode of waiting) reinforces the uneven distribution of risk by holding crisis at a distance, in another reality, even as it is playing out and impacting lives (Norgaard, 2011).

What is clear, is that this is by no means a blissful slumber, but a fitful, restless and haunted sleep. ŽiŽek (2007, p. 57) argues that the dream is not the place of fantasy but the place where the traumatic Real intrudes and we *avoid* it by waking up and saying "it was all a dream:" "It is not that dreams are for those who cannot

endure reality, reality itself is for those who cannot endure [. . .] their dreams." Or perhaps, as Danowski and Viveiros de Castro (2017, p. 18) lament: "Our nightmares assail us while we are wide awake—though the sensation of being awake might just be one more nightmare among others."

Awakening, to Better Forms of Dreaming?

> [W]e all need to wake up…[W]hereas before it was just us, the Indigenous peoples, who were facing a loss of meaning in our lives, today everyone is at risk, without exception. (Krenak, 2020, p. 47)

> The world is waking up. (Greta Thunberg, United Nations Climate Action Summit, 2019)

I've argued we cannot simply say that anticipatory practices and imaginations "fold the future into the present" unproblematically, as there are significant places where futures fail to fully adhere. This results in some spaces—material, sociocultural, conversational—being enveloped in the horrifying real of experienced and imminent catastrophe and others seemingly defined by the uncanny eeriness of the "normal." We may feel this uncanniness, the "always also there" of catastrophe, in those moments when going about normal everyday life seems so at odds with ongoing catastrophe it takes on a sense of unreality. However, it isn't simply that "the [catastrophic] future is here, it's just unevenly distributed" (a quote often attributed to Gibson), but that the cognitive and affective structures of unfeeling formed in and through environments of overwhelm and alienation, veil this unevenly distributed, double reality of crisis and the normal. My argument is that awakening *unveils* catastrophe's presence and so resolves this apparent failure of catastrophic futures to adhere in the present. Just as "there is no event for the nonengaged objective observer" (ŽiŽek, 2010, p. xiv), it is the awakened who can, as Richardson (2018, p. 3) puts it: "[. . .] feel, bodily, the future in the present," attaining hyperattunement to the spatial multiplicities produced through these catastrophic future-presents.

The awakening narratives I encountered through my research into prepping subcultures express an almost dislocating sense of the real produced when an eventful experience of exposure overlaps with places or situations that hold something of the safe and familiar (Barker, 2022). They capture the uncanny frisson: "the moment at which the known abruptly seems unfamiliar and disturbing, the moment in which a sense of being-at-home in the world is existentially unsettled" (Wylie, 2017, pp. 25–26; Freud, 2003). In the retelling of these diverse awakening narratives, they share the depiction of an affective, psychological and sometimes physiological "jolt" that changes the regime of visibility, sometimes expressed as having your eyes opened or a veil removed, allowing the Real to be newly sensed, perceived and witnessed. This event constitutes a jarring, disjunctive experience of future crisis in the now (Richardson, 2018, p. 1); individual Pauline moments of intense personal "rupture" or "unveiling" that "dislocate the social reality that anchors individual identities and social interactions." Prior self-world relations are undone, and a new

self-world relation entered into; the subjective experience of Latour's (2017, p. 8) characterization of climate catastrophe as "a profound mutation in our relation to the world." The awakening narrative therefore sits somewhere between the negative life-disrupting experience of trauma, and the transformative, heroic narrative of conversion (Robbins, 2019). It expresses the realization of radical uncertainty and vulnerability, alongside the attainment of unique affective attunement and insight, as Naderlew, Mohammad and Safian (2020, p. 172) explicate: "Awakening in Plato's allegory of the Cave is the first step that orients us towards the true knowledge (episteme)."

How should we understand the contemporary work undertaken in evoking this metaphor of awakening in the context of climate catastrophe? Interpreted as a form of rupture alongside revolution and conversion, awakening sits within a broader category of "events" (Robbins, 2019). It attains meaning through differentiation from a cluster of related self-conscious models of eventful change that constitute a life-altering force (Robbins, 2019), including "conversion," "interruption," "enlightenment," "renaissance," "resurgence," "rupture," "cultural trauma" (Brulle & Norgaard, 2019), "revolution," "a snap" (Ahmed, 2017) or "hysteresis" (Bourdieu, 2000); and in tension with opposing concepts, including cognitive dissonance, brainwashing and false consciousness. The characterization of awakening as an "unveiling" associates it with notions of apocalypse as revelation. Not simply the catastrophic end of the world, but, like its original Greek translation as an "unveiling," apocalypse reveals previously unknown truths that will fix the true value of things and their appearance in space. Horn (2018, p. 22) writes: "What is revealed by the apocalypse is the true value and the power of everything and everyone. The end of the world is the unmasking of all things, the manifestation of their true essence." Awakenings could therefore be understood as the subjective experience of apocalypse. To undergo such radical rupture in a way that does not traumatize, Robbins (2019) speculates, suggests that the threat of "non-being" through awakening is controlled through the individual's active engagement in change, enveloping transformation into the self's own life project.

If conversion is seen as an individual experience whereas revolution is collective, awakening bridges the personal-social boundary (Robbins, 2019). The question arises of how the profoundly felt personal experience of awakening and broader social and cultural awakenings relate to one another. Crucially, as Robbins (2019) reflects in a penetrating discussion of notions of rupture, awakenings arise out of conceptual resources shared by the people who experience them: "only cultures that at least conceive of the possibility of rupture, produce ruptures that are culturally meaningful and of real interest to the people involved in them." To be able to name and articulate the experience in a meaningful way to others requires a shared conceptualization of awakening itself. That awakenings are discursively meaningful suggests that our culture may still hold onto the possibility of rupture, despite the widespread lamentation of the end of the future and perpetuity of capitalism (Swyngedouw, 2010). Awakening, and prior to this the cultural possibility of awakening, is the necessary instigator of revolution. This might indicate that, as climate awakenings become an increasingly mobilized descriptor of present

experience, a broader movement of realization of climate catastrophe prefiguring an effective cultural project of radical change retains potential in the present (Robbins, 2019). This takes awakening from a description of a present condition to a potential resource for politics. Just as Christian notions of "interruptions" or "schisms" are personal experience of rupture nevertheless contained within the boundaries of Christian experience (Robbins, 2019), however, awakenings to climate catastrophe risk being contained within capitalisms' instinct of individualizing and financializing preparedness (Barker, 2020).

To summarize; in my contribution to this collection of essays I have considered places and practices implicated in *unknowing* the future through increasingly sophisticated cultures of climate denial, evoked through the language of "sleeping" or "awakening" to this reality. This draws attention to anaesthetic worlds of denial: environments of overwhelm and alienation, cultural and emotional habits, discursive spaces and places; and expands our understanding of the deeply embedded nature of climate denialism across epistemological, affective and ontological registers. The metaphor of sleepwalking encapsulates both *unfeeling* (as survival, privilege or more promisingly, a form of waiting and opposing) and the coexistence of catastrophe and normality, such that living with climate change entails both living in and veiling this double reality.

I have arrived at the point at which "we all need to wake up" (Krenak, 2020, p. 47). Yet awakening frames an instance or distinct moment of climate change politics that is largely ignored in our analyses and politics. We move too quickly from the production of "facts" to the struggle of consensual politics, whilst remaining in a sleepwalking state, in climate denial. This has implications for politics, civil society and academia, for those concerned to mount a response to climate change equal to the catastrophe it heralds and open up arenas of intervention for policy and politics. How do we provoke awakenings by sensitizing without overwhelming, implicating without alienating? How can we make tangible and terrifying those near futures that herald such a break from privileged presents they could be science fiction, without conjuring the genre's unreality? Awakening as a form of apocalyptic rupture prerequisite to revolution or transformation exposes the coexistence of crisis and normality, but pauses on the threshold of imagining and enacting transformative responsiveness to catastrophic futures.

We may find more promising trajectories for true climate revolution not in awakening to catastrophe, but in awakening to and relearning the value and potency of dreaming. Krenak (2020, pp. 64–65) urges us to approach dreaming not "to step outside of reality, relinquish[ing] the practical meaning of life" but to learn from those peoples who approach dreaming "as the transcendental experience in which the human chrysalis cracks open onto unlimited new visions of life […]" Dreaming becomes "a path toward learning, self-knowledge, and awareness of life, and the application of that knowledge in our interaction with the world and other people" (Krenak, 2020, p. 52–53).

> What do you do, after you stop pretending? (Hine, as cited in Danowski & Viveiros de Castro, 2017, p. 79).

> [D]ream other dreams (Stengers, 2015, p. 124).

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Part II
Envisioning the Future

Chapter 6
Utopias of Extinction

Zoltán Boldizsár Simon

Prospects of Self-Authored Human Extinction

Speculations about end-times are most certainly on the rise. It would be fairly easy to see the current fascination as the recurrence of older and more familiar eschatological tropes. Representatives of the human and social sciences are indeed quick to project ready-at-hand interpretive schemes of religious apocalypticism over newer prospects (Mercer & Trothen, 2015; Skrimshire, 2014; Tirosh-Samuelson, 2012). Yet such automated reflexes to historicize novelty by reducing it to the development of old patterns of thought may conceal more than they could ever reveal. For it must be clear that today's most pertinent imaginaries of end-times do not primarily derive from religious apocalyptic visions. Instead, they contemplate the ultimate Earthy prospects of anthropogenic climate change and the capacities of contemporary technoscience: human extinction.

The notions of extinction and apocalypse, as Thomas Moynihan (2020, p. 3) has recently pointed out, are concepts of different kinds: Whereas "religious prophecies concerning apocalypse are designed to reveal the ultimate meaning and morality of things," extinction "reveals precisely nothing," as it concerns "the end of morality and meaning itself." In his discourse-initiating book *The End of the World: The Science and Ethics of Human Extinction* (1996), John Leslie addresses this point most clearly—though not necessarily deliberately. By virtue of titling his book as he did, Leslie equates the end of the world with the end of human existence, most likely without reflecting on the implications of doing so. Either way, the logic behind such equation is precisely what Moynihan indicates, namely, that the departure of the last human also means the departure of the last entity insisting on

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attributing meaning to the world. The end of the world, it seems, is the end of humans—as it appears to humans.

As these preliminary considerations already indicate, the figure of the human plays a pivotal role in imaginaries of end-times. In the technoscientific and ecological imaginaries of today, however, that pivotal role gains new dimensions. Beyond the rather obvious aspect that in human extinction prospects it is the human that goes extinct, the centrality of the human is twofold.

First, recent prospects of human extinction center around the anthropogenic character of end-times. In that regard, the novelty of today's world-endings is that that they are prospects of *self-authored human extinction*. It may very well be that human extinction first became thinkable in the Enlightenment (Moynihan, 2020), but the conceivability of such extinction prospects concerned human extinction due to natural causes. A specifically anthropogenic extinction as the self-eradication of the human lifeform due to planetary-scale human activity was not available to Enlightenment thought; it came to be conceived only with the emergence of qualitatively new technological capacities around the middle of the last century (Simon, 2020, pp. 53–78). It is no accident that risk research differentiates between the category of "natural existential risk" (referring to "risks from nature, such as asteroid impacts, supervolcanic eruptions" and so forth, which humanity has survived "for thousands of years") and "anthropogenic existential risks" (meaning "those arising from human activity," such as the aforementioned prospects), which "we have no track record of" (Bostrom, 2013, pp. 15–16). Or, as Martin Rees (2003, p. 89) phrased it as long as two decades ago: "We are at a greater risk from a massive asteroid than from plane crashes, but the mounting human-induced threats are far more disquieting than any natural hazard."

The second sense in which the human is central to today's imaginaries of end-times spotlights their profoundly anthropocentric character. Seeing the human as both the author and the victim of its own extinction betrays a human-centered viewpoint inasmuch as the demise of the "world" is equated with the self-eradication of one life form. Human activity is driving the ongoing mass extinction of species (the sixth extinction), or, at the largest scale, transformations of the condition of the Earth System—yet it is the anthropocentric prospect of self-harm that seems to have the greatest effect on humans. Rather paradoxically, even the reigning imperative of the human and social sciences to overcome anthropocentrism (e.g., Crist, 2019; Kopnina, Washington, Taylor, & Piccolo, 2018; Probyn-Rapsey, 2018) may have been erected in service of the anthropocentric purpose of sustaining human flourishing. At least, this what the words of Ewa Domańska (2010, p. 121) indicate when, in making the case for post-anthropocentrism, she associates working towards a new kind of humanities with the task of developing "the kind of knowledge cognition and human science that have survival value and might help in the protection and continuation of the species." Plainly put, humans care about being non-anthropocentric, that is, about seeing themselves in a web of planetary life that does justice to all lifeforms, because this is the view that currently enables the maintenance of human existence and the human societal endeavor.

Assessing the merits and shortcomings of anthropocentrisms, however, lies outside this chapter's scope. The emergence of prospects of self-authored human extinction and their conundrums surrounding the human only provide me with the basis for addressing a larger complexity and perplexity. Most people are probably used to thinking of human extinction as something inherently threatening and dreadful. In the first decades of the twenty-first century, however, this does not necessarily seem to be the case. For, if one calls anthropocentrism into question (even on grounds which may themselves be profoundly anthropocentric) one can conceive human extinction as a prospect that is not necessarily catastrophic, or perhaps even a prospect to be welcomed. What is more, seeing human extinction as something desirable is not merely a logical possibility, but, as I shall demonstrate in more detail in the coming pages, a practical view at the fringes of contemporary historical culture.

As soon as one takes seriously the maintenance of the web of planetary life, and as soon as one pairs this with the recognition of the anthropogenic character of planetary degradation, it becomes possible to contemplate the idea that taking the human out of the equation may not be that catastrophic for the rest of planetary life. A similar pattern of thought also occurs in the technoscientific context. As soon as one takes seriously transhumanist aspirations to transcend human limitations, the main concern shifts from human betterment to arriving at an existence that is *better-than-human* (Simon, 2019). And the recognition of such possibilities even paves the way for the emergence of the idea that the human lifeform may be superseded by higher forms of intelligent life in a historical transition.

From possibility and conceivability, however, it takes yet another step to begin arguing for the *desirability* of phasing out or overcoming human existence. In the coming pages of this chapter, I will show how certain streams of contemporary thought are taking this step, and venture into analyzing prospects of anthropogenic climate change and the larger Anthropocene predicament as seen in utopian terms. In the first step of the analysis, I will introduce the category of *extinction utopianism*, referring to the body of societal discourses and practices that view human extinction as a utopian prospect. I will distinguish between weak and strong forms of extinction utopianism and discuss both through a few examples.

Following the conceptual work, I will attempt to better grasp the overall phenomenon of extinction utopianism (weak and strong) by addressing two aspects. The first concerns the emergence of extinction utopias as a new kind of utopian thought. In regard to this, I will sketch the historical conditions of possibilities of how extinction utopianism came about. In doing so, I will discuss new elements of contemporary modalities of end-times as relative to modern fascinations. Concretely, I will illustrate the movement of contemplating end-times from a constellation of ideas in which the idea of the "end of history" was seen together with the continuation of the world to a constellation of ideas in which the "end of the world" is accompanied by the idea that history continues even when the world ends. Zooming in on the relation between historical thinking and utopia, I will argue that as long as there is history—as long as history goes on in one way or another—there is utopia. Finally, arriving at the claim that extinction utopianism is the form of

utopian thought in a historical condition beyond the end of the world, I would like to address the second aspect of the most fundamental workings of extinction utopias. In so doing, I will delve into the politics of extinction utopianism by dissecting the ideas that lie at the heart of its weak and strong forms, respectively: the idea of rebooting the human endeavor, and the idea of post-anthropocentrism.

Extinction Utopianism

This chapter's central thesis is that prospects of self-authored human extinction give way to the emergence of a new form of utopianism, one that I would like to call extinction utopianism. Extinction utopias, as their name entails, conceive of human extinction in utopian terms. The notion of utopia underpinning this brief definition of extinction utopianism is deliberately broad. It follows the definition of utopia offered by Ruth Levitas (1990, p. 8), according to which "utopia is the expression of the desire for a better way of being." With such a broad understanding of utopia, Levitas attempts to bring together various narrower approaches that focus, respectively, on the content, form, or function of utopias. The broad definition allows all three aspects to change over time, which is precisely what happens in the emergence of extinction utopianism as a new modality of utopian thought. As "a desire for a better way of being," extinction utopianism introduces novelties to all aspects of utopian thought.

Measured against humanity's taken-for-granted ways of seeing its own demise as catastrophic and dystopian, the sheer idea of extinction utopia can be deeply paradoxical, bewildering and disturbing. One may ask: Is it even possible—logically, ethically, practically, or in any way whatsoever—to see the end of human existence as utopian? How could human nonexistence appear as a "better way of being"? Whose being? And to whom would it appear so?

Let me begin to approach these questions on a semiautobiographical note. I first came across the possible utopianism of human extinction when reading and commenting on Patrícia Vieira's paper "Utopia and Dystopia in the Age of the Anthropocene" (Vieira, 2020). Vieira focused her analysis on literary imagination, with Margaret Atwood's *MaddAddam* trilogy at its center, and I was intrigued. A similar emphasis on literary and, additionally, cinematic renderings of the theme also animates Mark Jendrysik's (2011) study of posthuman prospects. Jendrysik does not mention Atwood's opus, but considers a broad range of works from Cormac McCarthy's *The Road* to the Pixar animation *Wall-E*. Looking at Vieira's (2020) and Jendrysik's (2011) examples, however, it was impossible not to notice that very few of them, if any, contemplate human extinction in the most literal sense. In fact, most of them revolve around human survival. This, in turn, made me think that adopting a more nuanced approach to extinction utopianism must involve properly accounting for the appeal of this survival trope that, paradoxically, often underpins extinction imaginaries.

All things considered, today's imaginaries of earthly end-times do not necessarily postulate ultimate doom. As long as there is but one human around, there is a strong

chance that the story will revolve around that single human. Or have only a few human survivors in the plotline after the most cataclysmic end-time scenario, and a new beginning will likely emerge. Being perceived as results of human-induced ecological and technoscientific change, it seems that *end-times can in fact refer to a variety of things on a spectrum between societal collapse and the end of human existence*.

Another pivotal aspect to consider in a nuanced account of extinction utopianism concerns the specific domains, practices, and discourses in which extinction utopias are nurtured. For imaginaries of end-times are not confined solely to literary and cinematic imaginations. One of the novelties of extinction utopianism is precisely that it brings science and fiction into a shared platform, in which the aforementioned literary and cinematic end-times meet the most extreme Earth System trajectories of a "Hothouse Earth" as discussed in Earth System science papers (Steffen et al., 2018; Steffen, 2022), or prospects of technoscientific developments tipping beyond human futures in transhumanist aspirations and in the perceived potential of artificial general intelligence (Bostrom, 2014; Fuller & Lipińska, 2014; More & Vita-More, 2013).

All this, I believe, points to the necessity of distinguishing between weak and strong forms of extinction utopianism, in which I use *weak extinction utopianism* to refer to utopian renderings of rebooting the human endeavor after societal collapse, whereas I use *strong extinction utopianism* to denote utopian renderings of the discontinuation of human existence. Both forms of extinction utopianism have their paradigmatic or iconic representatives outside the literary domain. By the first years of the 2020s, the public face of weak extinction utopianism has become collapsology (Servigne & Stevens, 2020), a discourse originating in France. As to strong extinction utopianism, its most well-known popular manifestation is probably the Voluntary Human Extinction Movement (VHEMT). In the scholarly world, however, one is perhaps more likely to encounter strong extinction utopianism in the shape of ahumanism. Even though this chapter is admittedly geared toward analyzing strong extinction utopianism, I would like to say a few more words about its weak version, too.

Weak extinction utopianism revolves around two main issues: first, the contention that collapse will inevitably happen; and second, the question of what to do about it. Two enigmatic book titles perfectly capture the trajectory of collapsologist thought. To start with, Pablo Servigne and Raphaël Stevens have put forward collapsology as a self-referential term in their jointly authored book *How Everything Can Collapse: A Manual for Our Times* (2020). As the title indicates, the book is focused on the first issue of the inevitability of collapse. Only its sequel, entitled *Another End of the World is Possible: Living the Collapse (and Not Merely Surviving It)*, ventures into exploring the possibilities that accompany collapse (Servigne, Stevens, & Chapelle, 2021). And, again, as the title indicates, the possibilities opening up by collapse are provided by the prospect of a civilization reboot on the premise that if collapse happens, let's make the most out of it. In the later pages, I will come back in more detail how collapsology imagines going about

living the collapse. For now, it is time to introduce advocates of human extinction in the most literal sense.

When it comes to strong extinction utopianism, I can only encourage everyone to visit the website of the VHEMT (https://vhemt.org), established in 1991 by Les U. Knight. The website outlines the movement's premises in a catechism-like format. In a light-hearted tone, it guides the reader through a host of themes ranging from economics to politics, while presenting arguments for the case of human extinction as well as addressing potential counterarguments. The movement's members fall into the respective groups of Volunteers and Supporters. Regardless of which group they belong to, they can individually be divided over the question whether they would opt for civilizational reboot or full-scale human extinction (a question which practically mirrors the distinction between weak and strong extinction utopianism). Altogether, however, the website's arguments are designed to address the latter scenario of human extinction in the strong sense. The argument's motto-like last phrase, "may we live long and die out," is perhaps the clearest indication that VHEMT's members focus more on dying out than on rebuilding society. The catchy phrase is also printed on car stickers and other merchandise available for online purchase. Scrolling down long enough even rewards the most curious website visitors with a few photos that showcase tattoos with the movement's logo.

Going voluntarily extinct, according to the VHEMT website, is not a demanding task. It is not the consequence of a suicidal drive. Nor does embracing extinction amount to the promotion of a joyless life. "Really," so states the website, "the only action required from becoming a VHEMT Volunteer or Supporter is not adding another human being to the population." The choice of nonreproduction, VHEMT members believe, is even the ethical thing to do: "Voluntary human extinction is the humanitarian alternative to human disasters," because it prevents or at least reduces the amount of anticipated human suffering by phasing out human existence. For "the massive die-off of humanity, predicted by so many as a result of our overshoot of Earth's carrying capacity, is what the Voluntary Human Extinction Movement hopes to avoid."

The VHEMT's members are perfectly aware that the logic behind their reasoning can be questioned. Thus, they concede that the view makes sense only on the premise of abandoning a human-centered worldview, which, as mentioned earlier, is very much in line with current human and social scientific trends:

> A human-centered world view only values other species by what they can do for us, or for "our children's children." We're collectively so centered on our own species that nothing matters except in relation to ourselves. It's like our ancient view of the universe with Earth at the center: it took a long time for people to accept that our planet is just one of many orbiting a star, which is also just one of many in a galaxy, which is also just one of many in the universe. An Earth-centered world view sees Homo sapiens as one of tens of millions of species in Earth's biosphere. We are exceptional in many ways, and so are the other life forms we share this rare and wonderful place with. By envisioning Earth's entire biosphere, acknowledging the intrinsic value of every life form, our voluntary extinction begins to make sense. (https://vhemt.org)

Patricia MacCormack agrees. In the fairly recently published *The Ahuman Manifesto*, MacCormack (2020, p. 144) claims that, "put very simply, human extinction can be understood as a good idea for ecosophical ethics and need not be considered 'unthinkable' but can be welcomed as affirmative of earth life."

What distinguishes ahumanism from the VHEMT views is its stress on activism. MacCormack brands the book as a mix of academic and colloquial writing, her previous attempts to make the case for critical posthumanist concerns (MacCormack, 2012), and an affirmation of all current emancipatory agendas in the human world as prequels to the more activist stance of the manifesto, presented as a stronger measure demanded by the moment. To live up to such aspirations, MacCormack builds *The Ahuman Manifesto* on various sources, including occulture, animal abolitionism, and the arguments of the VHEMT. Peeling off the layers of self-branding, I would like to note two things about *The Ahuman Manifesto*. The first is that in the third decade of the twenty-first century, activism in the human and social sciences is less of an avantgarde move and more of a legitimate form of scholarship practiced and advocated by many. The second is that the book's frequent mentions of the notion of the Anthropocene amount to a caricature. Without testifying to an effort to understand what the concept means in the context of its conception in Earth System science or in the context of a complex and multifaceted human and social scientific reception and appropriation, MacCormack typically reserves a tone of hostility for mentions of a decapitalized "anthropocene."

Arguing along these coordinates of affiliations and foes, MacCormack presents the ahumanist case as oriented toward the goal of ending anthropocentrism. At its most perceptive, the book correctly points out that although anthropocentrism constitutes a shared agenda of several contemporary approaches and movements, it seems to survive even in the very agendas that aim to overcome it. In a classic move of distinguishing one's own viewpoint in the cacophony of voices in the human and social sciences, MacCormack (2020) levels the charge of anthropocentrism against other supposedly anti-anthropocentric forms of thought and action:

> The extinction rebellion remains anthropocentric at heart, because it sees the threat of ecological crisis primarily through the lens of a threat to human survival. It makes no room for the grace of stepping aside and embracing human extinction so that the world may flourish, which would be the most effective form of rebellion against individual death, the death of diversity or species extinction. (MacCormack, 2020, p. 146)

The quoted passage, I believe, pertains to the logic of both ahumanism and voluntary human extinction by conveying their shared core message: *Human extinction is the only genuinely non- and/or anti-anthropocentric move*. This is so inasmuch as by shifting the attention from a principal concern for humans as one single exceptional lifeform to a principal concern for Earth as a web of equally important and exceptional lifeforms, proponents of ahumanism and voluntary human extinction urge us to admit that—under the conditions of human activity posing a threat to the flourishing of planetary life—affirming anti-anthropocentrism might easily mean erasing humanity from the picture.

An analytical take on extinction utopianism could raise an infinite number of questions. In the second half of this chapter, for pragmatic reasons, I will limit myself to two. The first question is a historical one: How did extinction utopianism come about; what were the conditions of possibility of its emergence? The second concerns the unvoiced assumptions of extinction utopianism: What is the politics of extinction utopianism, in both its weak and strong versions?

Utopianism in a Historical Condition after the End of the World

In approaching the emergence of extinction utopianism, it would be hard to bypass how modern imagination has been fascinated by endings all along. Consider the illustrious list of things thinkers have claimed to have ended only since the middle of the last century—from Reason (Horkheimer, 1941) through ideology (Bell, 1960) and art (Danto, 1997) to the various ends of utopia itself (Kumar, 2010). History too, as is well known, was not exempt, with its end having been postulated in various ways: as the fulfillment of a historical process (Fukuyama, 1992), as the end of movement in time in postmodern theories (Baudrillard, 2000; Vattimo, 1987), or, consequentially, the end of historical studies (Jenkins, 1999).

In what follows, I will focus on end-of-history scenarios of the first two kinds. The two scenarios share an understanding of history as the idea that the human world is prone to change over time in the course of a developmental process. Such a conception of history as a future-oriented process—a conception that characterizes the modern world (Assmann, 2020; Hartog, 2015; Koselleck, 2004)—is the precondition of any utopian thought. For it was the inbuilt future-orientation of modern historical thought that enabled the launch of a host of "historical" projects. Accompanying the oft-conflicting projects of nation-building and emancipation, the modern idea of history nurtured all kinds of future-oriented political ideologies and utopias of desired sociopolitical futures. This means that there exists utopia as betterment inasmuch as there exists history, and as far as change over time is possible. There can be a "desire for a better way of being"—to recall the broad understanding of utopia according to Levitas (1990, p. 8)—only insofar as there is a possibility of change over time provided by the idea of history.

What exactly, one might then wonder, happens when history is assumed to have come to an end? Let me begin to sketch an answer by noting that the end of history, in a certain sense, is a sort of a master-ending. Several other endings are contingent on the idea of the end of history. To start with, the very idea of ending implies that there must have been a beginning. It implies that whatever is considered to have ended had a previous existence over the course of a historical trajectory. In a pronouncement of an ending, what comes to its end is that historical trajectory: The end of something is either the end of its historical development (such as the end of humanity's ideological evolution according to Fukuyama) or the end of movement in time in regard to the human societal endeavor (as in postmodern theories).

Either way, if history ends, so must all "historical" projects: ideologies, utopias, emancipations, and so forth. Simply put, all societal endeavors reliant on the possibility of change over time must end with the end of history.

The fascination with the idea of the end of history that characterized the last decades of the twentieth century holds little appeal today. It is hard to imagine how history would end in a world of political turmoil and anthropogenic transformations of the planet. The idea that dominates today's imaginations of end-times is the idea of the end of the world, typically equated with the end of human existence. Yet, from the viewpoint of this chapter, what matters the most is neither the idea of the end of history nor the idea of the end of the world in itself, but the complex interrelations of the two. For a transformation of historical thought as the precondition of the transformation of utopian thought, that is, the condition of possibility of the emergence of extinction utopianism, reveals itself only when one considers the changing constellations in the relation between the two ideas.

As seen earlier, the modern world came to contemplate both the end of the world and the end of history. Yet, the two conceptions did not interfere with each other. The possibility of end of the world—not in the Christian apocalyptic sense, but as the end of earthly human existence—appeared to the modern mind as a result of natural catastrophes, while human agency to bring about an end was reserved only conceptions of the end of history. In modernity, the continuation of the world as the existence of human (societal) existence was the precondition of history, and, should a natural catastrophe hit, the end of the world would have meant the end of history, too. Yet the end of history—a far more dominant inbuilt trope of the modern idea of history and the modern historical worldview—seemed to have no effect on the continuation of the world. Against the backdrop of this modern constellation in which endings of history were accompanied by the assumption of the continuation of the world, recent prospects of self-authored human extinction have turned the relation between ideas of the end of history and the end of the world upside down in contemplating the end of the world (in the sense of the end of human existence) as accompanied by the continuation of history. These prospects mark a transformation in contemporary historical thought by introducing a shift from a constellation of ideas in which history ends but the world goes on to a constellation of ideas in which the world ends but history goes on (for a more detailed argument, see Simon, 2023).

With all this in mind, the passages quoted earlier gain new layers of meaning. Consider, again, how the VHETM affirms an Earth-centered view:

> An Earth-centered world view sees Homo sapiens as one of tens of millions of species in Earth's biosphere. We are exceptional in many ways, and so are the other life forms we share this rare and wonderful place with. By envisioning Earth's entire biosphere, acknowledging the intrinsic value of every life form, our voluntary extinction begins to make sense. (https://vhemt.org)

Similarly, consider again the ahumanist take on what amounts to a genuine way of being non-anthropocentric:

> The extinction rebellion remains anthropocentric at heart, because it sees the threat of ecological crisis primarily through the lens of a threat to human survival. It makes no

> room for the grace of stepping aside and embracing human extinction so that the world may flourish, which would be the most effective form of rebellion against individual death, the death of diversity or species extinction. (MacCormack, 2020, p. 146)

What both passages suggest is that after world ends for humans, earthly matters would continue to change over time as planetary life would come to flourish. Moreover, for that history of flourishing to take place—that is, for planetary conditions to improve—the end of the world as the end of human existence even appears as a precondition. The result is a history of intelligent life that is, at once, a history without humans. Most importantly, such histories of planetary flourishing also qualify as instances of a "desire for a better way of being." They qualify as utopias, but ones in which the desired being is more-than-human and other-than-human.

Succinctly put, my thesis is that extinction utopianism is the adaptation of utopian thought to the constellation in which history goes on even after the world ends. To see how exactly this adaptation happens, let me consider the transformation of historical thought from the angle of utopian thinking. As often recounted in a massive literature on utopia—from its classics (Bloch, 1954/1986; Kumar, 1987; Levitas, 1990; Mannheim, 1929/1991) to its twenty-first-century iterations (Claeys, 2022; Jameson, 2005; Vieira & Marder, 2012; Zamalin, 2019)—utopias began their career as "no-places" and "nowheres." In early modern Western imagination, they appeared as faraway lands with societal conditions better than actually existing ones. Early modern utopias were typically presented as being discovered by chance, and their precise locations were impossible to recover even to those who happened to stumble across them in their journeys. With the mapping of the globe, however, such utopias as no-places of geographical locations ceased to be feasible. In modern imagination, they moved into the future and become temporal utopias (Koselleck, 2002, pp. 84–99). What this means is that, in the last two centuries or so, the societal betterment of utopias has become reachable in and through history: They were expected to manifest over the course of a historical process.

In the last decades, however, the emergence of potentially self-destructive technologies and a previously inconceivable extent of human-induced environmental degradation have turned the tide. Conceptions of the future have gradually moved from visions of societal betterment toward visions of societal collapse and human extinction, as recounted earlier. Although such visions are certainly not how nineteenth-century humanists imagined the future as fulfillments of a historical process in one or another desired version of a sociopolitical community, not even the darkest visions of the future in contemporary imaginaries could cease to be historical. By virtue of entailing a transition from an apprehended past to an anticipated future, utopian and dystopian futures equally qualify as particular modalities of what I came to call, together with Marek Tamm, as "historical futures" (Simon & Tamm, 2021). It is only that whereas older utopian modalities of historical futures entailed historical transitions from less organized ways of living together to future sociopolitical dreamscapes, the historical futures of extinction utopianism entail transitions from societal organization to futures of societal collapse or human nonexistence.

One might expect that utopian thoughts struggles when the future begins to appear less of a projected place of societal betterment and more of a wasteland of apocalyptic and post-apocalyptic imaginaries. And this is certainly true. It is true, as Eva Horn (2018) put it in her book title, that "the future as catastrophe" has taken hold of today's imagination. Yet it seems that the dominance of catastrophe may not be as catastrophic for utopianism as one would expect.

Utopian thinking has not vanished; rather, it has transformed into something, which, at first sight, may appear odd, counter-intuitive, and paradoxical. It has retained its historical character and begun to appropriate dystopian imaginaries by contemplating even the prospect of human extinction in utopian terms, as the views of the VHEMT and ahumanism clearly indicate. How could this be? Again, the answer lies with history. Insofar as history goes on (even after the end of the world), the human past and the posthuman future cannot but be seen in evaluative terms. The tool of such evaluations is temporal comparison (Steinmetz, Simon, & Postoutenko, 2021), and it takes only seeing the human past as the less positively evaluated item of comparison and the literally posthuman future as the more positively evaluated one. As a historical transition, moving from the negatively seen past to the positively seen future cannot but amount to betterment.

To phrase the result of the historical analysis of this chapter as a thesis: Extinction utopianism is the form of utopian thought in a historical condition beyond the end of the world. Based on the contention that humans are the malaise of the world, human nonexistence might easily qualify as utopian "betterment" in a non-anthropocentric historical process of a far larger scale than the human momentum. Such utopian imaginaries of a better future world without humans are, however, truly challenging, profoundly self-contradictory, and, in many respects, deeply perplexing. One of the most perplexing aspects of extinction utopianism is its politics. In the remaining pages, I would like to pose the question: What exactly is the politics of extinction utopianism? By "politics," I do not refer to actions of policy actors, but the sense in which the critical human and social sciences address the politics of present-day agendas by exploring whom such agendas befit and what lies behind those agendas. To whom exactly do futures of human extinction appear to be "better"? Are extinction-utopias really less anthropocentric, as they claim to be, or do they rather conceal an upscaling of anthropocentrism? And what would a world without humans look like in the first place? I will use what is left of this chapter to briefly address the politics of extinction utopianism in light of these questions.

The Politics of Extinction Utopianism

Both weak and strong extinction utopianism builds its views around core ideas. Whereas weak extinction utopianism revolves around the idea that an inevitable collapse may provide an opportunity to reboot the human societal endeavor, strong extinction utopianism is built on the premise that the only genuine non- or anti-anthropocentric action would be to phase out human existence. Developing an

understanding of the politics of extinction utopianism means looking behind these core ideas.

Weak extinction utopianism is perhaps the less puzzling. The most fundamental of all historical interventions into contemporary debates—which is typically quick to point out that whatever is perceived as new is, actually, nothing new—could easily be mobilized in an argument stressing that the idea of a new beginning is intrinsic to modern historical understanding and modern historical time. According to Aleida Assmann (2020, pp. 105–116), the "fiction of beginning" constitutes one of the five key aspects of the "modern temporal regime." Not just any beginning, but the one that starts all over again:

> In the history of Western culture, the magic of the beginning also consists in the ever-present chance to get rid of the accumulated weight of history and be able to start again from scratch. In such contexts, beginning is not connected to progress but rather to *tabula rasa* or *zero hour*. (Assmann, 2020, p. 106)

At the same time, it must be clear that there is a difference between the idea of new beginning as underpinning the French Revolution or the early twentieth century's futurist declarations of breaking with the past, on which Assmann focuses, and the new beginnings of collapsology. Especially because, contrary to Assmann's claims, modernist proclamations of *tabula rasa* typically aimed to introduce new beginnings that, compared to the conditions they supersede, can also be perceived as progress. Most importantly, however, the new beginnings of modernity worked within a sociopolitical frame of revolutionary betterment of societies and social life, and none of them entailed conscious preparations for a full-scale reboot of the societal endeavor from its very civilizational basics.

This full-scale civilizational reboot seems to have a very peculiar edge in collapsology. As Pierre Charbonnier (2019, p. 91) sharply notes, critics often call out the collapsologist view as a "depoliticizing narrative that blinkers us to the multiple collapses already in motion that have not evoked the slightest compassion or response, and serves only as a platform for providential authority figures." Although "none of these arguments are without merit" as "they have a vital role to play in helping prevent the narrative of collapse from usurping our attention and sapping energy from the much-needed debate on the relationships between environmentalism and social justice," Charbonnier rather proposes to "look seriously at the tomorrow they [collapsologists] seek to instate."

Indeed, the politics of collapsology as weak extinction utopianism lies less in its first contention concerning the inevitability of collapse and more in what it aims to do about it, that is, in the world it imagines as the one that emerges out of the ruins of collapse. In that regard, Charbonnier (2019, p. 93) thinks that the "role of climate catastrophe in the mechanics of collapse" is that it provides "a precious opportunity to cheerfully cast off the entire burden of technical, legal, and economic interventions that has weighed humanity down throughout this modern parenthesis, and to win back our primitive freedom, the only true liberty there is." Needless to say, the aspect of new beginning is clear in the imagination of collapsology. "The ever-present chance to get rid of the accumulated weight of history" that Assmann (2020,

p. 106) attributes to such beginnings here concerns practically the entirety of the human past. Yet the towering feature of the collapsologist restart is not merely the mobilization of the trope of the new beginning, but what it considers as such—namely, the possibility of regaining "true liberty." For, according to Charbonnier (2019, p. 93), the collapsologist argument proceeds on the basis that "catastrophe will lay waste to all of our modern accommodations with nature," due to which "we will finally be able to begin again, and reclaim our prepolitical freedom."

The collapsologist appeal to prepolitical freedom is paradigmatic of what I think constitutes the politics of weak extinction utopianism at its most fundamental: romanticizing the prepolitical and the presocietal. Differently put, collapsology contemplates the postcivilizational future of human survival as a return to a precivilizational condition. Its postsocietal seems to be the presocietal, idealized as an uncompromised state of human existence. Such a view, I believe, easily falls prey to the most elemental human and social scientific concerns about whether humanity would arrive at the collapse with all its members equally prepared and equipped for it. Can there be any uncompromised state of presocietal and prepolitical existence after collapse when people arrive at it from differentiated societal and political forms of existence? Charbonnier (2019) doubts it:

> The collapse will create winners and losers, and its defenders have the decency to be crystal clear on this point. Although everyone is prone to worrying about the future, for themselves and their loved ones, it is only those who, by inheritance or willingness to "pack it all in," have bagged a patch of fertile land and learned to tend it that will be able to adapt to the new reality. Life among ruins does not hold the same appeal for everyone. When the majority of the population finds itself faced with energy insecurity and fighting for access to public goods (water, healthy air, transportation), only a tiny minority will be able to transform that insecurity and exclusion into opportunity. (Charbonnier 2019, pp. 91–92)

Compared to the civilizational reboot of the few, the prospect of complete human extinction in strong extinction utopianism seems more equal. Not because it arrives at a twisted sense of social justice, but because all human concerns and meanings go extinct with the human lifeform.

The question of who benefits from and who suffers in the transition to any future in a human world makes sense only as long as humans survive. In full-scale human extinction, the social differentiations of the human world vanish together with humans. The same applies to debates around the notion of the Anthropocene, in which the standard human and social scientific view routinely questions that an undifferentiated notion of the human could adequately be held responsible for driving the planetary crises, and if humanity would indeed be in the predicament united (e.g., Crist, 2018; Davis & Todd, 2017; Haraway, 2016; Malm & Hornborg, 2014). Although some of these views are even on the same platform with strong extinction utopianism in highlighting anthropocentrism as the worldview behind today's planetary crises, human and social scientific debates typically continue to seek new forms of human politics due to being premised on a prospect of human survival under altered conditions, both planetary and societal. In that, the human and social scientific mainstream is rather on a common platform with collapsology, to the extent that they all ground their politics in the (typically unreflected and

self-evident) view that humans, in one way or another, should make it through all hardship.

Contrary to both weak extinction utopianism and the mainstream of human and social scientific discussions on the Anthropocene and planetary crises, strong extinction utopianism and its politics is premised on a normative view in which humans not only *do not* make it, but *should not* make it. What is more, according to both VHEMT and ahumanis arguments, all this is for the better. One might point out that, even in human extinction, traces of human societies survive in many ways (Weisman, 2007; Zalasiewicz, 2008). Although this is of course true, the fact remains that the attributed meanings to material remains would die off with humans. Again, one might point out that other lifeforms or potential visitors of the planet may attribute meanings to remnants of human civilizations. But what we call "meaning" is just another human meaning, and its attribution is just another human act. Why would we assume that other lifeforms would continue to engage in human ways of going about things even after humans cease to exist? Why would we assume anything about what is good for a planetary life without us? Wouldn't such assumptions be, actually, overly anthropocentric? Are we trying to overcome anthropocentrism because, paradoxically, in the most anthropocentric way, this is what befits us? This is the question which, I think, pertains to the core of the politics of strong extinction utopianism.

In the shared view of VHEMT and ahumanism, phasing out human existence is the only way to actually overcome anthropocentrism, as this is what follows from a genuinely Earth-centered view. On that premise, it might appear that the politics of strong extinction utopianism is a politics of the Earth. But, again, there are several ongoing attempts to develop a new politics and ethics for the planet through shifting from an anthropocentric worldview to an Earth- or planet-centered one (such as Chakrabarty, 2021; Iheka, 2021; Kaldor & Selchow, 2022; Latour, 2017; Mauelshagen, 2017; Nail, 2021; Thomas, 2022). Instead of concluding with human extinction, these views are aimed at bringing together the human with other lifeforms, and, to various degrees, with nonorganic materials, which all appear as integral constituents of a holistic view. Given the abundance of proposals to develop planet-centered forms of politics, it would be hard to argue that there is but one politics of an Earth-centered view, and that it is necessarily the one of strong extinction utopianism. Rather, it seems more plausible to say that strong extinction utopianism is part of a larger contestation of a variety of Earth- or planet-centered politics in the making.

The potential variations of politics for the planet are derivative of the different answers one might give to the question of what, exactly, going beyond an exclusive concern for human life looks like. The answer given by strong extinction utopianism, it seems to me, results in a paradox. On the one hand, it maintains that human extinction is the way to go beyond anthropocentric concerns for the human lifeform; on the other, it claims to be working from an Earth-centered view, which, by all accounts and under present conditions, could not escape including the human lifeform in its web of planetary life.

Why should human existence be phased out in an Earth-centered view if the human lifeform is also integral to Earth's biosphere? In the ahumanist view, the assumed resolution of the paradox consists of allocating to the human the role of the parasite in the planetary web of life. This is the spirit in which MacCormack (2020, p. 16) advocates "the cessation of reproduction towards the end of the human as a parasitic detrimental species." On this logic, it is the liberation from the parasite which keeps the ecosystem healthy. The VHEMT website showcases the same logic. It distinguishes between three kinds of interspecies interactions—mutualistic, communistic, and parasitic—and align the human with the parasitic one in a historical sketch of human development:

> An established and balanced ecosystem functions in a dynamic symbiosis. All species interact with each other in three possible ways: mutualistic, communalistic, or parasitic. A mutualistic relationship helps both organisms. A communalistic relationship neither helps nor harms the interacting organisms. A parasitic relationship helps one and harms the other. Are we a part of Nature in the same way a timber company is a part of the forest? Or the same way a farmer is part of the farm? We could be part of nature the same way, say, an otter is: eating sea urchins and being eaten by sharks. We were once like the otter, part of the ecosystem. Then we developed agriculture, and have become parasitic, depending on exploitation of Nature for our survival, but giving nothing back. (https://vhemt.org)

Seeing the human as parasitic, however, does not necessarily resolve the paradox. By virtue of lacking arguments concerning why human extinction is favorable to a shift to a nonparasitic mode of human existence, strong extinction utopianism fails to testify to its Earth-centeredness and comes out as a rather anthropocentric advocate of a decision made by humans on behalf of the wellbeing of the entirety of Earth's biota.

Strong extinction utopianism excels in political communication. Its intense and controversial message of embracing human extinction diverts attention from the potential weaknesses of argumentation. MacCormack (2020, p. 5) even counts on the likelihood that readers would focus more on the message and less on the depth of the argumentation by claiming in advance that "for many, the idea of the cessation of human existence as an absurd claim prevents any engagement with both its possibility and its validity." This is, most certainly, a clever move, by which MacCormack rhetorically assigns a shallowness to readers in advance, so that potential critiques of ahumanism might appear illegitimate even before they could be voiced. Yet, it seems to me, this strategy serves only the purpose of evading accountability and concealing argumentative flaws. It warns about a potential disengagement of readers precisely in order to prevent *critical* readers from *actually* engaging with the feasibility and validity of the ahumanist view.

All in all, advocating a human decision on behalf of Earth's biota seems to involve knowing what is "good" not only for humanity, but also for Earth, the web of planetary life, and likely for all its nonorganic components. It infuses particular human values even into posthuman planetary conditions, attributing human meaning even to futures defined by the very lack of the possibility of such meaning attributions. Can it be that, under the guise of offering the only genuine way to end anthropocentrism, the politics of strong extinction utopianism actually scales

up anthropocentrism to previously unseen degrees? I think it can. Given its criticism of other forms of non- and anti-anthropocentric thought as instances of anthropocentrism to one extent or another, it is most ironic that strong extinction utopianism can easily be seen as the climax of anthropocentric thought.

Not Really a Conclusion

The aim of this chapter is neither to advocate nor to refute extinction utopianism. It is simply to call attention to the perplexities, conflicts, and self-contradictions intrinsic to the ways in which contemporary societies attempt to navigate the planetary predicament. Although the chapter's discussion has hopefully brought to light some profound intricacies, I am uncertain whether the analysis allows for firm conclusions. Any concluding remark that could follow from the previous pages would likely be less spectacular and intriguing than the very idea under scrutiny: extinction utopianism.

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Chapter 7
Futures All Around: Anthropological Reflections on Where (and How) to Find the Future

Felix Ringel

This volume invites authors and readers alike to consider a question that, initially, makes little sense: Where is the future? To ask for the location or materialization of the future seems counterintuitive. The future is only ever still to come so, arguably, it cannot have a space, place, or material form in the present. As the future is a temporal dimension, the question should instead be *when* the future is rather than *where*. That question is—surprisingly—equally hard to answer. However, we should still rephrase the initial question in temporal terms. Rather than asking for where the future *is*, we could ask where the future *will be*. Opinions on that may also differ, but this, at least, is a question that not just analysts ponder.

In the two postindustrial cities where I have done extensive ethnographic fieldwork, the latter question is of great concern. In Hoyerswerda, Germany's fastest shrinking city in 2009, people were unsure whether there was any future left. On all accounts, Hoyerswerda was a city of "no future." As I was told on arrival, students of a nearby university had even been tasked to calculate the overall economic benefits of Hoyerswerda's wholesale destruction. Locally, the parts of the city that were seen to have a future were mostly in its historic center, its picturesque *Altstadt.* Some of the renovated houses in its socialist new city may also have some future, but definitely less so than their *Altstadt* counterparts. Many considered *Neustadt* in general to have lost its future, despite the fact that not too long ago it had explicitly been built for the future, albeit a socialist one. In contrast, in Bremerhaven—Germany's poorest city and formerly West Germany's fastest shrinking city—the future has already been materialized and placed in the revamped former old and new harbor areas, the city's long-term and most prominent postindustrial brownfields. Here, in the city's very heart, extensive federal funding and investment resulted in two brand-new museum buildings, a 4-star Dubai-esque hotel and convention center,

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and a frighteningly postmodern shopping mall, the infamous *Mediterraneo*. A newly envisioned sustainable future also took form, although only for a short while, in the huge tripods that were initially believed to be the (literal) foundation for a renewable energy future emerging in the German bay, with Bremerhaven as the nation's presumed center for offshore wind energy.

Needless to say, all of these actual and imagined locations of the future (and potential futures of certain locations) are only "of the future" in relation to other places both within and outside of the respective city. They stand out in urban contexts that are themselves defined by a past or present lack of the future and in which many former citizens have already decided to look for futures elsewhere—migrating to Berlin, Hamburg, Dresden, or even further afield (see Pine, 2014). Locating potential futures within these cities can only ever be understood against this backdrop of postindustrial decline and large-scale emigration. The way my interlocutors know the future within their city also takes place (no pun intended) in relational terms: some parts of each city seem to have a future vis-a-vis others that clearly do not. There is a whole internal hierarchy of futurity. For the sake of this paper, then, it might be similarly worthwhile to ask where people think the future *will not be* to get a better sense of the unequal local geographies of futures. Still, none of this means that local predictions for specific places' futures will necessarily materialize or continue to be "of the future" in the future. Nor are any of these places, metaphysically speaking, actually anymore "of the future" than any other. In fact, if the cities' postindustrial pasts teach us anything, it is a lesson about the future's unpredictability. Only a few decades ago, both cities were deemed to be full of futures: Hoyerswerda as the GDR's second socialist model city—a huge vanguard architectural and social engineering project; Bremerhaven as the young Federal Republic's richest city, the prospering US army's port of embarkation and the proud home of West Germany's fishing fleet.

As these initial observations show, placing the future is something that both interlocutors and analysts do. We are all able to point to places which we think have a future and to those which do not. The same works on larger scales. Some districts, neighborhoods, villages, cities, regions and countries seem to have more of a future or at least a better one. Some departments, workplaces, professions, and academic disciplines seem to deal more with futures than others and are seen to have more of an effect on them. Even different people, age groups, and experts seem to have respectively unequal access to futures. These perceived privileges and hierarchies, however, depend on a rather limited understanding of what the future is. In order to overcome such restrictive notions and the role they more generally play in human life, I will lay out my own discipline's methodological and metaphysical convictions, with which I have more recently approached, conceptualized, and studied the future. Like colleagues of many other disciplines, anthropologists have long neglected the futures—and not just the pasts—of other people (see Fabian, 1983; Gell, 1992; Wolf, 1982; Munn, 1992). Laying out anthropology's recent take on the future will allow me to answer the questions about the future's where and when—and the politics involved in locating it. My argument unfolds in three steps.

After some further reflections on the central topics of this edited volume, space and the future, in the next section, I will sketch what has over the last three decades emerged as a vibrant and diverse body of literature: the anthropology of the future. By revisiting some of my own theoretical contributions to these debates, I lay out one particular approach to time and the future, presentism, which, I argue, is the one best suited to anthropology's own methodology and "pre-theoretical commitments" (Moore, 2004). I will apply this approach to my two main field-sites and the specific future logics that are dominant in them: shrinkage in Hoyerswerda and sustainability in Bremerhaven. I will conclude with a call to arms for more studies of the future in the social sciences, and return to the question raised in the volume overall: how we know where to find the future. As a presentist, my main thesis is that the social sciences should take people's relationships to the future seriously as they are crucial for understanding people's presents—arguably more so than their pasts. Furthermore, relations to the future are not the privilege of some, but a core aspect of all human life. Approaching them as social phenomena means embedding them thoroughly in any given social, cultural, political, and economic context. By reflecting on the spatial character of such futural relations, we can provide a much-needed critical perspective on the unequal distribution of futures that seems to be one of the main features of our times.

I base my argument on long-term fieldwork in the two above mentioned field-sites. I lived and worked for 16 months from January 2008 to April 2009 in Hoyerswerda, and intermittently for 12 months between 2014 and 2017 in Bremerhaven. In both cities, fieldwork consisted of countless expert interviews, extensive participant observation, and long-term immersion into local life. I stayed with local families and shared my interlocutors' concerns, hopes and disappointments as a temporary citizen. As qualitative social scientists, anthropologists value these kinds of long-term social interactions that provide a detailed and complex understanding of everyday life, which, as I underlined above, is characterized in both settings by an unquestioned problematization of the future. I present some of the outcomes of my empirical work in the form of general observations and short vignettes, whilst referring to more substantial and detailed ethnographic descriptions in the bibliography. The futures invoked in this chapter are obviously those of the pasts when I was conducting fieldwork. They have already since been subjected to manifold changes. My interlocutors will most certainly have preoccupied themselves with other futures, near and far—the planned coal phase-out by 2038 in the mining district surrounding Hoyerswerda, perhaps, or Bremerhaven's upcoming 200-year anniversary in 2027. However, both places'futures are still rendered problematic. To some extent, I wish they were not and both cities could rest assured about their own fortunes. Until that occurs, however, we better think about how we can account for their specific futurities and the ways that their citizens and we ourselves as analysts go about placing futures—or respectively the lack thereof—in these postindustrial cities and beyond.

Where is the Future?

Before presenting the dominant future logics of my field-sites in the sections below, let me start with two further reflections on the initial question about the where of the future in this and the next section: one regarding issues of transdisciplinarity and another one on the empirical and metaphysical problems with the future and how anthropology as an empirical social science responds to them.

Recently, as this volume easily corroborates, the future has been a fashionable topic in the academy. Disciplines like futurology, planning, design, and demography may have always had an eye on the future, as they are—by definition—concerned with futures. Others, however, have definitely joined the debates. Whilst there may exist no comprehensive theory and method for how to study the future in each discipline, fashionable concepts, topics, or terms that relate to the future are at least usually at hand. When asking colleagues about how they "do" the future in their subjects, the analytics that come to the fore are as varied as hope (e.g., Anderson, 2002; Berlant, 2011; Crapanzano, 2003; Harvey, 2000; Zournazi, 2003), prefigurative politics (e.g., Gordon, 2018; Jeffrey & Dyson, 2021; Maeckelbergh, 2011), dis- or utopia (e.g., Kraftl, 2007; Kumar, 2010; Levitas, 2000), and path-dependency (e.g., Mahoney, 2000; Pierson, 2000). Psychologists Seligman, Railton, Baumeister, and Sripada (2016) even coined the phrase "homo prospectus" to capture the inherent futurity of human existence.

All of these concepts entail their own temporal and futural logics, and all of them offer a particular perspective on the future. Those applying the temporal logic of hope, for example, envision a future that is seen as better than the present, whereas fear applies the opposite logic. Some concepts do not easily translate from one disciplinary context to another, as they are deeply embedded in the contemporary debates of each academic context. When talking about the future or any relevant aspect relating to it in a transdisciplinary context, analysts should therefore be careful to clarify what they mean. Colleagues from different disciplines may be studying very different kinds of futures, or approach the same empirical phenomena with rather different metaphysics in mind. Explicating these metaphysics, as I do in this paper, hopefully helps to more successfully reach out from one particular scholarly context to another. What should underline these attempts at transdisciplinarity, however, is the overall insight that the future must be taken seriously, no matter the discipline, and that this necessarily invites both methodological as well as theoretical reflections. The presentist approach I detail below, I hasten to add, is not one endorsed by all anthropologists, nor will each discipline necessarily have settled on just one approach to the future. But all of them (and more!) are necessary to account for the all-abounding ubiquity of relations to, and representations of, the future in human life. Like my interlocutors below, I can ask colleagues from other disciplines where, in all these overwhelming references to the future, they presume the (so to speak) "real" future to be. Whilst most academics, I presume, would shy away from predicting the future, they will also be looking at altogether

different ones: historians are probably interested in other kinds of futures than chemists or economists.

Anthropological approaches to the future also differ, Some colleagues focus on phenomena relating to recent technological, design, and digital innovations (Akama, Pink, & Sumartojo, 2018; Lanzeni, Waltorp, Pink, & Smith, 2022; Smith et al., 2016). They study the future by looking at currently fashionable topics such as artificial intelligence, big data, and virtual technologies as well as planning and design practices—again, to only name a few—or they are more generally searching for innovation, revolution, or vanguard practices. In contrast, others (including myself) take a broader and more metaphysical approach (Bear, 2017; Nielsen, 2014; Ringel, 2016) and explore specific affects like hope (Jansen, 2014; Mains, 2012; Miyazaki, 2004, 2006, 2010; Narotzky & Besnier, 2014; Pedersen, 2012; Weszkalnys, 2016; Zigon, 2006) or particular future-relations like aspiration, expectations, anticipation, and speculation to map the whole teleological arsenal humans are deploying in their everyday personal and professional lives (Abram & Weszkalnys, 2013; Bear, 2020; Bryant & Knight, 2019; Ferguson, 1999; Krøijer, 2015; Salazar, Pink, Irving, & Sjöberg, 2017). Or they take on the future as a more general cultural fact (Appadurai, 2013). This second group would have far more mundane ideas of what future-making entails and where to locate the future. This could include rather conservative-sounding practices, such as those relating to maintenance, repair, and endurance (e.g., Graham & Thrift, 2007; Ringel, 2014, 2018b, 2021). These anthropologists see the future's location as everywhere, not just in the places where futures are presumed to be made professionally. Arguably, this approach better accounts for contemporary futures' ubiquities.

Indeed, it may have been the simple observation that futures are currently a problem wherever one looks that lies at the core of recent academic interests in the future (see, e.g., Kazubowski-Houston & Auslander, 2021; Rosenberg & Harding, 2005). In my own discipline, too, the future's omnipresence could be seen as a historically unique phenomenon rather than a general feature of human life. One could, following Reinhart Koselleck (1988), ask whether this obsession with the future is a modern invention (see Pels, 2015). I would dispute such a claim (see Wallman, 1992), and many of the scholars exploring more mundane futures might concur. Some of their theoretical contributions are certainly presumed to work in contexts beyond the historical period of modernity, as delineated by Koselleck (1988). Still, there may be something distinct about how we relate to the future in the current neoliberal era (see Guyer, 2007).

Resisting a clearcut hierarchy of futures, however, shall not belittle the many inequalities of experiences of, and presumed accessibility to, the future, manifest, for example, in the different abilities to hope and aspire (Appadurai, 2013; Miyazaki, 2010;), the unequal feelings of safety and global connectedness (Vaccaro, Harper, & Murray, 2015), and the disparate say on collective futures (Boyer, 2006). Futures are still everywhere, but, as I said in the introduction, relationally so. Places, people, and practices do (or do not) have futures only ever in relation to the futures of other places, people, and practices. Hoyerswerda and Bremerhaven both wanted to have the same futures that successful cities elsewhere presumably have. These cities'

alleged futures, coincidentally, look like my fieldsites' successful industrial pasts, which, crucially, did have a future. However, in both cities, what was at stake was not just the future itself or a glorious past, but the present in which both temporal dimensions were represented. To account for the role futures play in shaping the present, social scientists should stop explaining these presents solely through the lens of the past and see the future for what—and where—it is: thoroughly embedded in any given present. Hoyerswerda, for that matter, is—more than 30 years after the fall of the iron curtain—not a city determined by its socialist past, nor is Bremerhaven defined by the decline of its former industries. Instead, citizens of both cities carefully negotiate their pasts and potential futures in the precarious presents in which they find themselves. They continue to "do" the future in their everyday private and professional lives against all negative predictions.

What I propose in this chapter, then, is that the social sciences (and others, too) should, metaphysically speaking, put past and future on an equal footing. Within a deterministic framework, the present was often thought to be the outcome of complex causation. Hoyerswerda's current struggles, as I hinted at above, could almost too easily be explained by the failures of its socialist past rather than the management of its postsocialist transition, as if that past had predetermined the city's recent decline. As I will argue in the next section, its futures could have been different at any point in the past. This is why analysts should take indeterminacy seriously within any given present whilst accounting for the many ongoing effects that human relations to, or representation of, the future (including nonrepresentational ways of knowing and placing it (Thrift, 2004, 2008)) have in and on the present. At least in my fieldsites, the present is as much, if not more, determined by (its relations to) the future than (its relations to) the past. My informants are much less concerned about the past and the impact it has on the present. What they are trying to get their head around is first and foremost their future. And here I come full circle. Although anthropologists may be content with uncovering ever more relations to the future (cf. Ssorin-Chaikov, 2017), these residents' lives depend on knowing—and being able to place—the future. Whether their hometowns or any of their parts have a future is a question they may not ask lightly. But they need an answer.

Anthropology and Futures: Presentism

How, then, do anthropologists study the future? As I discussed elsewhere (Ringel, 2016, 2018a), anthropology's construction of time is based on its discipline-defining methodology of ethnography. The immersion into concrete socio-cultural contexts allows access to their interlocutors' present(s). Whilst many anthropologists talk with their informants about their (presumed) pasts and (potential) futures, references to either of these temporal dimensions remain heavily embedded in the very present that the anthropologist is able to access. Hence, anthropologists focus on and write from the present. As Kirsten Hastrup described it: The ethnographic present entails the discipline's "necessary construction of time" (Hastrup, 1990, p. 45).

Colleagues of other social sciences also endorse presentism, and sociologist Barbara Adam has perhaps provided its most convincing definition. Her take on time starts from the observation that any "reality that transcends the present must itself be exhibited in it" (Adam, 1990, p. 38). However, there are very different understandings of that present as well. For some, it is only ever a fleeting moment, so short that no discipline (or human, for that matter) can capture it. It is technically always already of the past when one tries to represent it. Indeed, transforming any present into an object of analysis is difficult enough, as time, for seemingly obvious reasons, does not stand still. Some anthropologists have tried to adjust the Foucauldian approach of a history of the present, which provides genealogies of modern institutions that usually end several decades before the present in which Foucault was writing, into an "anthropology of the contemporary" (Rabinow, 2007; Rabinow, Marcus, Faubion, & Rees, 2008). For them, the idea of the contemporary allows us to expand the present and widen it into a temporal domain that reaches out into the recent past and the near future. Still, metaphysically, we are trapped between two contradictory positions: the idea that the present is so transient and elusive that we can only ever look at it as something already in the past; and the idea that the present is the only point from which people can reach out into past and future, within the constraints of what historian Reinhart Koselleck (1988) describes as a specific space of experience (*Erfahrungsraum*) and a distinct horizon of expectation (*Erwartungshorizont*).

In the discipline of philosophy, the idea of presentism is the minority position. Its metaphysical opposite, eternalism, is much more fashionable. Those promoting the latter approach hold that past, present, and future are equally real (I presume at any given time), whereas those supporting presentism purport that only the present is real. Presentism may still better reflect what most people would currently take for granted and mirror a rather fundamental aspect of the experience of, and existence in, time. This seemingly commonsensical understanding of time can be tentatively summarized in the following way: At any given moment in time (a present), most people presume that the actual past has existed (previously) and in some way led to the present they are now in. However, despite different levels of probability, the future in that moment, by definition, does not yet exist and could materialize in a future present in many different ways. According to that logic, there are several different futures possible in any present and it is—up until the very last moment, if you wish—impossible to tell which of these will ultimately become the next present. With proper foresight, we might be able to say which of these futures is the real future, but ideas of contingency and indeterminacy (Alexander & Sanchez, 2019), luckily, prevent us from doing so. Some Marxist scholars, like Ernst Bloch (1954–1959/1986) in his magnum opus *The Principle of Hope*, might deploy a determinist framework and speak of something like the "real" future. They read the present from the future they presume must necessarily materialize (communism, in Bloch's case). Unfortunately, that privileged knowledge is beyond the presentist perspective I endorse.

Still, most of the time one may be able to predict what one's actions will result in—after all, it would be difficult for me to write these sentences right now if I could

not trust my fingers' movements on the keyboard to result in the words written on the screen. However, we can arguably never be too sure. My laptop may implode in this very moment, or be destroyed by a virus; my hands could cramp when trying to type the next letter; the doorbell might ring and direct my attention away from formulating the next sentence. (Suffice to say that it did not.) This openness of the future applies in the present right now (i.e., also in the one when you are reading this sentence) and it has already done so in any previous present. The fact that this past future—one of many possible ones—became a present does not take away from the past future's openness.

Philosopher Craig Bourne, in his 2006 book *The Future of Presentism,* describes the presumed metaphysical difference between the one future that will turn out to be the present and all the other futures as leading to what he calls a "deterministic fallacy." Analysts, he describes, often take the actual past futures as predetermined to become a present, and then a past, despite the fact that all past presents were facing an indeterminate future. Indeed, no past futures were ever ontologically predetermined to become a present despite the fact that they did so. History could always have turned out differently, and we should acknowledge this inherent contingency in the flow of time. Subsequently, in any given moment interlocutors and analysts alike can only ever reach out into pasts and futures from the standpoint of the present. As Barbara Adam, according to her above quote, would hopefully agree: They and we can only ever try to refer to pasts and futures in more or less accurate representations in the present. For many disciplines, this moment of reaching out to different temporal dimensions is itself historically embedded or predetermined by, amongst other things, the languages, concepts, and temporal frameworks humans use. However, even this fact does not take away from the aforementioned contingency.

As anthropologists, we are left with whatever we can methodologically access in the present. We obviously extend that present by doing long-term fieldwork. Over a long period of time, we continue to reach with our interlocutors back in time and forward into the future. In the process of writing about the data collected in the field, it will only ever be the (by then necessarily past) present (and its futures) to which anthropologists can apply their analysis, and often without much hindsight. I, in turn, cannot reflect upon the inhabitants of the cities I studied as if they existed out of time—as unchanging Hoyerswerdians and Bremerhaveners—but only as those whose time (and futures) I have shared during a particular period. What defines both cities equally, as I mentioned in the introduction, is that the future has been rendered problematic in them, and the fact that their "problematizations" (as Michel Foucault would call them, see Rabinow, 2003, p. 56) of the future endure in time is even more interesting as they have, against their own indeterminacy, not lost their relevance and were reappropriated in continuous presents. Along these lines, we might interchangeably refer to these cities as postindustrial, postsocialist, or neoliberal as ways of historically contextualizing their existence. But the observed reality remains one of a city in crisis, whose future—in comparison to the past—continues to be lost. For that reason, relationships to the future abound and people feel forced to respond to that lack of a clear vision of where their cities are going.

In each city, a unique "local economy of knowledge" (Ringel, 2018a, p. 14) has emerged, dominated by a specific relationship to the future that continues to impact where residents envision futures to occur. In each setting, a particular term captures local attempts at making sense of, as well as overcoming, the current situation. These terms—shrinkage and sustainability—entail their own temporal and future logics. These logics allow and restrict relationships to the future in each site, but they do not remain uncontested. When returning to the question of where the future is and how it is known, it will be important to point to these enabling and restricting forces, and the way they themselves, as tools for future-knowing and future-making, are being constantly renegotiated. These future logics continue to shape local economies of knowing futures and are shaped by them in return.

Future Logic I: Shrinkage and No Future

Where then is the future in Hoyerswerda, or rather where do its citizens see it? Where is the future in a city that is supposed to have none? And where, indeed, can futures be found when the local economy of knowledge is dominated by the idea that the city is in decline?

As I describe in detail elsewhere (Ringel, 2018a), during my fieldwork period of 2008/09, most citizens and especially those in charge of the city came to fully accept the idea that Hoyerswerda was shrinking. After years of denial and quite harsh attacks on those that had tried to draw attention to the fundamental reversal of this once vanguard city's fate, the official narrative had shifted. Hoyerswerda was shrinking and local politicians had finally publicly acknowledged the fact. The future logic was clear to them and others: Hoyerswerda's future will be one of less—fewer people, fewer houses, less of a city overall. Its future will, by definition, be worse. Despite acknowledging the severity of the situation, local politicians were still offering no concrete ideas of how to overcome shrinkage and simply continued to "manage" the decline. One way of doing that was to—at last—coordinate and streamline local deconstruction.

Hoyerswerda's *Neustadt* had once housed over 70,000 people in its altogether ten living districts or WKs (*Wohnkomplexe,* see Schwenkel, 2014). At the time of my fieldwork, which was incidentally also the height of the global financial crisis, only around 25,000 inhabitants remained. Large parts of its housing stock had been demolished with the funding provided by the infamous *StadtUmbau Ost* program (see Bernt, 2009, 2019). Despite its unique property structure (apartment houses in Neustadt were mostly owned by two landlords: the communal *Wohnungsgesellschaft* and the cooperative *Wohnungsgenossenschaft Lebensräume e.V.*), deconstruction initially happened in an uncoordinated way. The two landlords laid different emphases on different WKs and thought in short-term competitive terms about the ever-diminishing number of renters. Especially throughout the 1990s and early 2000s, these tenants were leaving the city in unforeseen numbers. Most of them had lost their jobs in the now "modernized" local mines and industrial complex

and followed the promises of futures elsewhere. As a local idiom had it, people had moved with the work (*sind der Arbeit nachgezogen),* as local employment possibilities seemed doomed in this quickly post- respectively de-industrializing city and region. Competing for the remaining renters also explains the in-transparent communication about planned demolitions. Nobody wanted to scare those remaining away and so the renters were forced to queasily await the equally feared and expected letter informing them about their building's two possible futures: renovation or demolition. Once the planned demolition was official, renters were entitled to their removal costs.

By the time of my fieldwork, people had developed a way of reading the cityscape with an eye on the potential futures of each house, street, or district (and not just their own). They presumed that any investment by a state program would keep a particular building safe for another 20 to 25 years. This promised considerable stability in an ever-crumbling urban environment, and was an established way of locating the future. Houses not yet renovated, particularly without new windows, doors or entrances, reeked of "no future." Whole WKs became known as more or less secure with regards to the future. The more central WKs 1, 2, and 3 were definitely safer bets to live in than the un-renovated ones further away from the city center. WK 10, divided by a state road from the rest of *Neustadt*, was to be the first district to be completely demolished despite the fact that it had been the city's youngest district, with the construction of some of its blocks only finishing in 1990/91.

In contrast, the Old City offered more steadfast assurances for the future. Mostly neglected during GDR times, it suddenly stood for stability and endurance in the postsocialist era. Most of its housing stock is privately owned and recently renovated. Even apartment blocks built during GDR times are seen as more secure in the *Altstadt*. Despite a few examples to the contrary, demolition is seen to only happen on the other side of the river in *Neustadt*. Many—and not just the *Altstädter* themselves—consider the *Altstadt* as the "natural," "rightful" part of the city. Over the centuries, it had weathered many storms and it would also survive current challenges. For many, it was clear that it would outlive the—in their eyes—"-artificial" *Neustadt*, which, despite its more modern design, seems to have fallen out of time. *Altstadt*'s typical Central European urban center boasts a castle, a market square, a mayor's hall and a few churches, all also fairly recently renovated. More importantly, some would presume, the kind of houses here, privately owned detached and semi-detached, are currently the preferred property form for housing stabilities, promising continuity through their owners' care and commitment. On the site of what was once three huge school buildings in *Neustadt's* WK 8, in the 1970s the urban district with the second highest population density in the world (just after a district in Tokyo, Japan), some detached private houses were erected after my fieldwork had ended. They even had solar panels on their roofs. Although also built with prefabricated concrete units, these new and—crucially—capitalist developments were similarly presumed to be much safer than their former socialist high-rise neighbors.

As becomes apparent, there is a complex local spatial and material hierarchy of futures that transcends the imagination of "no future" at the core of the logic of

shrinkage, which only ever locates futures elsewhere. But the future logic of shrinkage was challenged in different ways, too, for example, by envisioning local futures beyond decline, or by changing the ways a "shrunken" future would be evaluated. Those utilizing these sets of future relations envisioned futures that were different to the one offered through the trope of shrinkage. They helped imagining futures that would be, as not just the city's then lord mayor put it, still "worth loving and living in" (*liebens- and lebenswert*) despite or sometimes even because of further decline. These more promising sets of ideas of the local future may have been constrained by the doom and gloom of shrinkage discourses and affects, but they were not just a simple reversal of decline (a return to modern fantasies of progress and growth) or imaginations of improbable future investments (from ominous foreign investors or tech geniuses). Rather, they entailed detailed ideas about what different local futures could look like. They were relational with regards to "no future" scenarios, but also ingenious in their own ways.

For example, in the 2007 *Zukunftswerkstatt*, a future workshop as part of the local socio-cultural "Third City" (*Dritte Stadt*) project, the young participants developed future-orientated architectural and urban planning alternatives to then-contemporary official practices. One was called (in English) "aWaKe" and redeployed the socialist idea of a WK by envisioning it as the space for new vanguard urban experiments. The participants created different social and economic scenarios that were, as a local commentator had it, "to be taken seriously" [ernstzunehmend] and based on an "acutely realistic perspective onto a feasible future" [überaus realistischer Blick in eine machbare Zukunft]. Like the project as a whole, the commentator summarized, they led to a new "identitification with this radically changing city" [Identifizierung mit dieser sich radikal verändernden Stadt].

Two years later, at the *PaintBlock/Malplatte* project, the reappropriation of the local future happened in less conceptual and more hands-on, material terms. Dozens of local participants created artwork in an abandoned apartment block in WK 10, that, as everybody knew, would be demolished after the project's end. More than 2000 visitors celebrated this artful intervention that felt urban and "of the future," even if temporarily, as it celebrated the destruction of the building in a huge joyous ritual that reversed the terms of shrinkage. Similarly, during the *Time Out* or *Downtime: Thinking about H*[oyerswerda] [Auszeit: Nachdenken über H.] project, a couple of blocks away and another three years later, participants were asked to take time out of their everyday lives and the temporal regime of shrinkage to consider how they as individual citizens could make the city worth living in—no matter whether or not the city was continuing to decline. The results were several mundane and practical projects and more general encouragements, and another festive appropriation of the city's future.

The local situation in general is obviously more complex than the ideal-typical future attributions of the city's districts and kinds of housing suggest. It can result in rather surprising actual and imagined futures. For members of the local socio-cultural elite, for example—that is those organizing the above-mentioned events—the disappearance of emptied and abandoned apartments in *Neustadt* symbolized the loss of the future rather than its opposite: Without these spaces for experimentation,

the city would have less appeal for them and others. Once they are gone, Hoyerswerda would finally lose its urban character, and thus yet another aspect of its futurity ever more quickly. The actual loss of the future was also not restricted to buildings erected before reunification in 1990. The local Burger King branch also had to close, and stood empty during the time of my fieldwork. Lastly, over the years several people have returned who, having lived elsewhere, mostly in West Germany, were consciously looking for the future back home in Hoyerswerda, as they apparently had not found one they liked elsewhere. For them, Hoyerswerda offered proximity to their families and at least some old friends, but also a more rural or small-town lifestyle, which they had come to appreciate. All of these different and somehow subversive ways of placing the future challenge the dominant future logic of shrinkage as they, against this logic, see a future in Hoyerswerda, despite—or indeed, because of—the effects that urban shrinkage had produced here.

The local economy of knowledge about the future in Hoyerswerda will keep on changing, as will the different ways in which the city's inhabitants will attempt to place the future. Paying attention to how they do that in any given present will allow us as analysts insights into that economy of knowledge and what is at stake for whom at any given time. These future-imaginations will oscillate between fears of a second wave of shrinkage (predicated to hit the city when the many older inhabitants "will start to die," as one of my friends put it) and hopes for a final end to the process of decline, when the city will finally have stabilized itself again, not facing any problems with the future anymore (currently believed to be potentially reached with the 2038 coal phase-out, due to the federal structural adjustment program, the *Strukturstärkungsgesetz*). Incidentally, one of the ways through which a post-shrinkage future was envisioned for the city during my fieldwork in Hoyerswerda was through the trope of sustainability. Indeed, many Hoyerswerdians wished for exactly the kind of projects launched in Bremerhaven to happen in their city as well. My decision to do research in Bremerhaven was therefore also an attempt to study the future of Hoyerswerda's future in what had already become Bremerhaven's recent past.

Future Logics II: Sustainability

In contrast to Hoyerswerda, Bremerhaven was both allowed to single out a future and given the (financial) means to realize it. To some extent, one past future has materialized in this postindustrial city. This future has been placed: Most investments went into Bremerhaven‘s main brownfields—the Old and New Harbor in the city center and parts of the Fishery Harbor. Hardly anything went into the outskirts, living quarters, or the social infrastructure of what remains Germany's poorest city. Bremerhaven's future was supposed to be(come) sustainable and that process of postindustrial transformation started with the city's economy. For those deciding how to invest the one-off generous funding—the city's administration, the local politicians, the lord mayor, and especially the *Bremerhavener Gesellschaft for*

Investitionsförderung and Stadtentwicklung mbh (BIS), the city's limited company for Investment Assistance and Urban Development—the future lay in economic diversification. As the city had suffered from the decline of its two main industries, fishery and shipbuilding, the new economic footholds should each be futureproof and, in a combined effort, secure the city's future. They were, incidentally again, the same most of my informants from Hoyerswerda had also identified: tourism and renewable energy. However, there were first doubts about whether they were still and continuously "of the future" during my fieldwork.

As most Bremerhaveners would agree: Both industries are presumably sustainable for many reasons. Tourism, for one, is still at the core of consumption- and leisure-focused late capitalist societies. The "resource" of tourists, arguably, is not due to run out any time soon. Rather, there will be more of them, or so it was envisioned. Renewable energy, in Bremerhaven's case offshore wind energy, was similarly deemed to be in unquestioned supply and demand. The industry producing the materials for it and facilitating its transport and maintenance out in the German Bay—easily reached from Bremerhaven—were surely to play a role in Germany's, Europe's, and the world's transition to renewable energy sources. Many inhabitants shared the conviction that these two industries, among others, would finally, after all these decades of boom and bust, guarantee a future for the city overall—and a future for that future as well. Everything related to these industries has come to be seen to materialize the future that had been promised for Bremerhaven. Sustainability, if you wish, has found material form and place through them.

There are obviously many problems with the term sustainability and the futures it helps to envision (see Brightman & Lewis, 2017; Persoon & van Est, 2000). As a trope, it plays out uniquely in each particular context. In Bremerhaven, it is still the measurement for knowing where the future is to be found. But how does one identify places that have successfully transitioned to becoming sustainable? During the time of my fieldwork, sustainability would have meant that the newly introduced touristic and energy businesses were able to sustain themselves regardless of usual market fluctuations. They had been chosen for their potential success at this. Planners and inhabitants alike believed that they were "of a future" that had a future. However, both of these groups forgot to explicate when anybody could actually say that something had become sustainable. Similarly, is something that is deemed sustainable in one moment sustainable once and for all? Despite sustainability's ubiquity in public discourse and local planning documents, there were no detailed ideas about how a sustainable future in Bremerhaven would actually look. So what are these places that were presumed to have been given a sustainable future? Are they indeed continuously reproducing their futurity in this new era of the city's history? Have they managed to develop a sustainable futurity?

Almost 15 years after the initial changes, the overall assessment of whether the city's placing of the future has worked or not is, to say the least, ambivalent. To be frank, during the 4 years (2013–2017) that I was able to follow my informants' lives and prospects in the city, most were themselves no longer sure what they could expect of the city's future. Some things seemed to have worked out quite well. Indeed, the sometimes bold and daring, definitely international architectural forms

still look like the future to many—be that the organic futurist building of the *Klimahaus* or the privately owned apartment houses just behind the dyke. Even the hotel and convention center that had so blatantly used Dubai's Burj Al Arab design (for which the city was allegedly sued) still stands the test of time. However, neither of these new buildings seem very accessible to the local population. The climate museum's tickets and the 4-star hotel's rooms are barely affordable for many locals and the posh apartments are presumed to be owned by rich folks from Hamburg and elsewhere, but not by "real" Bremerhaveners.

Either way, the ambivalence involved in the judgment of recent developments' futures stems from the disappointments that the city repeatedly experienced throughout recent years—and not just by the temporary closure of the aforementioned *Mediterraneo* shopping mall and the continuous vacancies of many of its shops. For example, only a few years after its grand opening (by the German president of that time no less), the tripod producer *Weserwind* went bankrupt in 2015 and had to close its brand-new facilities in the southern Fishery Harbor. A competitor had opened a factory that, for less costs, was producing monopiles. The monopiles did the same job of carrying the turbines, but for less money. Even their transport to and installation at sea were cheaper. The future had quickly moved on to other places. Before the closure, the impressive metal tripods had been produced in the similarly huge factory workshop in the southern harbor, then transported all along the city's shoreline to the northern harbor to be loaded on to special installation vessels. They were visible from most parts of the city close enough to the harbors and the Weser river delta—like mobile monuments of the future, they were paraded alongside the city, reminding its inhabitants of the city's newly won (and too soon lost again) future.

Although some volatility from an emerging technology market should perhaps have been expected, this was a huge blow to the city's future, especially as other offshore companies followed suit. The rotor-blade producing *Powerblades* company went bankrupt in 2018; shortly thereafter *Senvion*, which manufactured the actual turbines, too had to close. Most offshore-related industries were closed, sold, downsized at one point or another, or had to halt their production. Thousands had first found and then lost their jobs in this emerging industry. A couple of years after *Weserwind's* closure, the small remaining shipbuilding industry was also plunged from hope to despair within a year. A major foreign competitor had taken over the company and invested heavily—only to then suddenly close it down against everybody's expectations.

The situation in the tourism sector was not much more assuring. As local journalists frequently reported, both new museums struggled to consistently attract enough visitors. Whilst the first year of the *Klimahaus* museum's opening in 2009 easily saw more than half a million visitors, this number continuously declined ever since, and even half-baked temporary exhibitions and attractions like a huge dinosaur show proved unable to stop that development. A museum based on experience (in this case of different climatic zones of our planet) will always have to struggle with the fact that once that experience has been explored, visitors are less inclined to come back. The neighboring *Auswandererhaus*, a house, center, and museum for

(e)migration, faced similar issues. Since my arrival in Bremerhaven, it has already extended its building twice in order to attract more visitors, or to maintain visitor numbers above the approximately 300,000 deemed necessarily for a museum of this size. Almost ironically, the whole sector is heavily weather dependent. If the summer is too hot or sunny, people will come to the North Sea but stay at the beaches. If the summers are too cold and rainy, they may not even find their way up North at all.

In a rather stoic manner, Bremerhaven's inhabitants deferred judgment on whether or not their placing of the city's future was working. Indeed, as one friend put it, "I don't even know what to expect anymore." One of the questions they have been implicitly pondering is who or what in these postindustrial times can guarantee the long-term survival of the future, that is, its continuous success. In economic spheres, this guarantee would have to be provided by the market. However, the market is not the most trustworthy when it comes to future stability. The state, in contrast, is still presumably the city's best bet. The traditional redistributor is seen as the safest resource: Publicly funded research institutions such as the city's University of Applied Sciences, the Alfred-Wegener-Institute for Polar and Marine Research, and the most recently welcomed Thünen-Institute for Fishery Ecologies have all received huge investments, created many high-paid jobs, and erected fashionable buildings. Overall, they seem to successfully maintain their work and they even extend their work force. They provide some comfort, albeit not the flagship character of the new and old harbor developments. Arguably, their future is much safer than those of the private companies and institutions mentioned above. To some extent, that is the case because they are seen as able to withstand the short-term market logic of accelerated global capitalism.

The future of sustainability was initially to offer exactly that: a future outside of neoliberal capitalism's cycles of boom and bust. By taking the future's future into consideration, sustainability was to withstand the forces of the market. It promised stability and endurance by being either safe or independent from the market. The way my informants in Bremerhaven tentatively placed their futures in the city shows how that promise has been neither fulfilled—how could it be, as the future keeps on unfolding?—nor disappointed. Futures continue to be placed in the new developments and other futures appear elsewhere, usually in relation to new-built materializations of large-scale investments. However, even those can fail—and Bremerhaven sports several examples beyond the *Weserwind* factory. The city's inhabitants' hesitancy to place futures elsewhere in the city (yet again) makes sense with regards to previous experiences of postindustrial decline. It was no surprise to see local parties resort to narratives and tropes of growth and reindustrialization before the 2015 elections, when the population numbers were finally increasing again ever so slightly. As in Hoyerswerda: Placing the future is revealing of the presents within which these futures are fathomed and negotiated, and less revealing of the actual futures that might transpire. And at the core of these claims on knowing where the future is and will be lie existential and heartfelt concerns as well as political interests—which is one more reason why social scientists should take the future more seriously.

Conclusion: Placing Futures

The editors of this volume have invited contributors and readers to consider the future's locality—where, and presumably how, the future unfolds, materializes, and takes its effects. As I have laid out above, the answer to this question is not an easy one. Irrespective of one's discipline's methods and metaphysics, the future remains an awkward object of study in any social science. As analysts, we can only ever join the people we study in imagining and placing futures, as there is no guarantee that any of us will be right with our predictions. But that does not mean that we should not take our interlocutors' concerns with the future seriously. Arguably more than ever, these futures play an important, indeed essential, role in many, if not all, people's lives. Scrutinizing them forces us to consider the theories and methods we deploy for their analysis. However, although these manifold ideas about and relations to the future do not tell us much about whatever will turn out to be a present in the future, they do tell us something about the very present in which they are fathomed and, more often than not, discarded. Which provides a first answer to the overall question: Futures are, temporally speaking, only ever either not yet or in the present—in specific economies of knowledge, in particular heres and nows, in unique sets of power relations, and with their own distinct logics, affordances and repercussions.

The discipline of anthropology feels quite comfortable in the present. Together with our informants, we happily reach out from specific presents into pasts and futures—and attune to the ever-changing ways people know and locate futures in their private and professional lives. We map their different, changing, and interrelated relations to the future and include even the most mundane practices of future-making to understand contemporary forms of futurity. Indeed, we have no choice but to focus on the future (in the present) and to indulge in the detail and complexity of the many different ways these representations of, and relationships to, the future have an effect in the present. Taking these claims about the future seriously also has political repercussions. We may not have a hierarchy of different futures in our heads or differentially locate futures in the world, but our informants live with(in) such hierarchies, and we must grapple with them as well in our analyses.

When joining debates about the future, social scientists had better apply a clear analytical focus, as any claims on knowing and placing futures has implications for oneself and others. Powerful decisions are made on the basis of—often unquestioned—presumptions about where the future is and, equally importantly, where it is not. Informants in my field-sites, I am sure, would have preferred it if they had been able to live in cities whose futures were not continuously questioned and denied. They would have also liked to trust their own and others' predictions of the future more than they did. Their distinct relations to the future (as well as our analyses) are as much constrained as enabled by the tropes that dominated respective economies of knowledge about the future. In Hoyerswerda, the idea of shrinkage fundamentally problematized the future and facilitated a local spatial hierarchy of particular places in the city that would be more or less affected by it. It also helped to

think about a time when that very process would be over again. It allowed people to develop and focus their imaginations of the future. Sustainability, in turn, had convinced many in Bremerhaven to yet again believe in the future, but struggled to continue to do so due to its own lack of clear definitions. Different potentially sustainable places still manifested that hoped-for future, but with new experiences of bust and decline they had lost some of their persuasiveness. Arguably, they also prevented residents from looking for other, perhaps differently sustainable (as in noncapitalist) futures elsewhere in the city.

In hindsight, neither of these two tropes may have led to successful predictions of the future presents of which they have become such integral parts. But that, indeed, is not the problem. As nobody has a privileged position from which to predict the future, we are only ever left with that very messy, politically charged, conflicted present, in which decisions about the future are made that will affect the lives of many. As anthropologists would ask those interested in global phenomena to take the local context more seriously, I would also ask those interested in times and futures to apply the same care to the present—including the different ways in which humans time and again relocate themselves, their homes, and futures in the flow of time and struggle, yet again, to find a place and time that they can call their own. To do so, we have to take on the future as an object of inquiry and reflection in its own right—one that, in any present, is all around us, although it does not yet exist.

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Chapter 8
Envisioning Alternative Economic Futures Through the Lens of Food

José Luis Sánchez-Hernández

Food and the Future

Feeding is an unavoidable human need. The diversity of natural environments on Earth and the evolution of human history explain the bewildering diversity of actual solutions people have adopted to solving it. Food trade over ever-increasing distances has played a key role in this process. Food exchanges between different geographical and cultural settings have been a powerful lever of globalization since the Portuguese and Spanish kingdoms established maritime routes to Asia and America during the 15th and 16th centuries.

Nowadays, affluent societies enjoy unprecedented food choices. Global food value chains, underpinned by intensive agriculture and livestock farming, and ruled by huge transnational corporations, fill supermarkets and restaurants with foodstuff from around the globe. A non-negligible share of our daily meals has travelled hundreds or thousands of kilometers before landing in our tables: Li et al. (2022) estimate that 19% of food calories consumed in the world are provided by internationally traded products. Current value-chain disruptions sparked by the global pandemic of Covid-19 or the war in Ukraine have raised global awareness about the true scope of the flows that nourish the world's population, the

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interdependences between distant sites of production and consumption, and the weaknesses of this distance-intensive food supply model.[1]

Such distance-intensity of the contemporary food system also implies an enormous energy consumption. According to the Intergovernmental Panel on Climate Change (Arneth et al., 2019, p. 7), food makes up between 21% and 37% of global greenhouse emissions. These high figures are not only due to transport issues. Agricultural practices have become industrialized and standardized under the pressure of global players to raise yields and lower prices. Therefore, it takes around 2,000 liters of water to produce 1 kilo of cereal, whereas a kilo of beef (without bones) needs up to 15,000 liters of water (Food and Agriculture Organization, 2017, p. 1). The intensification process is also apparent when crops like soy or palm replace forests and small family farms to increase the acreage of land ruled by the so-called *agribusiness*. As a result, biodiversity falls, family farms are crowded out of markets, and resources and profits are transferred from small-scale food producers to the few global oligopolies (e.g., Unilever, Procter & Gamble, Nestlé, Kraft Foods, Danone, Johnson & Johnson, Mars, PepsiCo, CocaCola, Cargill), which own the most popular food brands. Food policies and their subsidies (Common Agricultural Policy in the European Union probably being the most influential) should not be neglected as supporters of the consolidation of this corporate regime in the food industry (McMichael, 2009; Díaz-Méndez & Gómez-Benito, 2010).

Although no future is possible without food, it is difficult to imagine one single food future for the entire world. The homogenization forces of globalization (trade, advertising, branding, foodservice outlets, cultural exchanges) do not seem capable of fully countervailing sharp differences in income, culture, and nature across—and within—countries. Unfortunately, famine and chronic hunger still affect millions in less developed countries, whereas 17% of total global food production is wasted, mostly within households (United Nations Environment Programme, 2021, p. 8).

Despite these extreme situations, reflection on the future of food—and the food of the future—needs to be simultaneously contextual and multi-scalar to take account of the interdependences between territories involved in global food value chains. Contextuality is necessary to elaborate on food futures aligned with local actors, resources, preferences, and potentialities. Multi-scalarity connects each particular place to larger networks of food production, distribution and consumption to assess both its linkages to external inputs and its potential influence on food futures elsewhere.

[1] In my opinion, this awareness should lead economic geographers to pay more attention to allegedly mundane activities—such as food provision, retailing, construction—which are frequently neglected in favor of research into high-tech industries, digital economy, finance, biosciences, and other disruptive economic realms. Recent developments about the "foundational economy" (Bentham et al., 2013; de Boeck, Bassens, & Ryckewaert, 2019; Foundational Economy Collective, 2020; Martynovich, Hansen, & Lundquist, 2023) and the "urbanization sector" (Schafran, McDonald, López Morales, Akyelken, & Acuto, 2018) partially address this gap. See also the contribution by Christian Schulz (2025) in this volume.

With these caveats in mind, in this chapter I discuss how the food scenarios are shaped and mobilized to frame the future of the European food system. I assume my own positionality as a European economic geographer well experienced in research about the food sector and, more recently, deeply interested in those alternative economies which treat food as a battlefield to build a post-capitalist future: consumer cooperatives, community gardens, farmers' markets, on-farm selling, or box-schemes, to name just a few alternative fixes for food provision.

For the remainder of this chapter, I will proceed as follows. In section "Four food scenarios for Europe" I present four food scenarios for Europe, each related to a different grand narrative about the future for humankind: business-as-usual, tech-food, bioregional, and eco-global. I briefly outline the assumptions, actors, and goals of each scenario to determine its chances of becoming *the* hegemonic food frame of the approaching European future. In section "Alternative food networks: A brief outline" I focus on the bioregional scenario to introduce alternative food networks as the cornerstone of a more localized, small-scale, and environmentally friendly future food system, based on agroecology and bioregions. Framed by the concept of prefiguration, in section "Alternative food networks as prefigurative endeavors: Dreams and nightmares" I provide an insight into the food futures conceived and performed by members of alternative food networks, drawing on empirical data from previous and ongoing research projects in Spain. In section "What's next?" I conclude with suggestions for research on food futures, some of which will be addressed in the ALISOS project that enables this contribution (see footnote on the front page).

Four Food Scenarios for Europe

Four Narratives for (Food) Futures

This section is anchored in a brief discussion of de Cózar Escalante's (2019) taxonomy of the most powerful narratives to tackle systemic threatens (i.e., global warming, water scarcity, biodiversity loss) and their societal impacts (i.e., climatic migration, raising inequality, race for resources) in the current Anthropocenic context.

First, *naturalism* rests upon a scientific vision of the world. In this view, science and technology constitute reliable guidelines to build a better common future for the Earth and humankind. Depoliticized and technocratic solutions (green energies, smart cities) implemented through market incentives (taxes, prices), as environmental economists suggest, are considered safe, scalable, and uncontested tools to lead the transition towards a more sustainable management of natural resources, regardless of the particularities of local contexts.

Post-naturalism goes one step beyond naturalism. Its supporters argue that "pure" nature does not exist at all. Human impact since the Neolithic era has been deep enough to transform natural processes and to subject nature to increasing societal

pressures. By means of technology, society has been able to turn nature into a cornucopia of resources, devoid of autonomous dynamics. In this vein, it seems possible to increase human control over nature through emerging technologies like geo-engineering and genetic engineering, or through an extensive use of mature options like nuclear power.

Those supporting *eco-catastrophism*, thirdly, claim that the Anthropocene heralds a global collapse. A new way of living, far from unlimited economic growth, consumerism, and short-termism, is imperative to reduce the human footprint on Earth's ecosystems. In this mindset, and as opposed to naturalism and post-naturalism, cutting-edge technology does not hold a central role as resource supplier or impact softener. Instead, eco-catastrophists praise alternative economic practices (Fuller, Jonas, & Lee, 2010; Gibson-Graham, 2008, 2014; Leyshon, Lee, & Williams, 2003; Sánchez-Hernández, 2019; Zademach & Hillebrand, 2013), inspired by non-market and non-competitive principles of coordination (community, solidarity, cooperation, sustainability, frugality, locality) as the building blocks of a non-capitalist eco-socio-economy deployed over a new geographical scale, the bioregion. These proximity economic arrangements very often resemble ideas of degrowth (Lange, Hülz, Schmid, & Schulz, 2022) and ecological economics (Jackson, 2011).

Finally, those supporting *eco-Marxism* challenge the predatory nature of capitalism and its endless quest for new markets and resources[2] that has been so harmful for human and non-human lives. Colonialism enabled a process of unfair ecological exchange between colonies and metropolis after c. 1500, one that should either be paid back in the form of remedies for less developed countries or considered in the institutional design of those carbon emissions markets aimed at overcoming *fossil capitalism* (Malm, 2016). Environmental/climatic, social, and spatial justices (Leyshon, Willis, & Robbins, 2006; Soja, 2010) are closely intertwined because nature and society are not self-containing realms, but mutually interconnected. From this standpoint, it is political economy, and not technology, that is the main tool for a global redistribution of wealth and sustainability.

These four narratives may be promptly translated into four scenarios about the future of food production, distribution, and consumption in Europe. I will sketch them in the following sub-sections.

The Business-as-Usual Scenario

Naturalism underpins the *business-as-usual* scenario. Since the industrial revolution, agrifood technology has developed two main processes: appropriation and substitution (Atkins & Bowler, 2001). Appropriation transforms biological processes into

[2]For example, ongoing projects funded by Silicon Valley tycoons to develop outer space tourism, or discussions about starting human settlements and mining on Mars or the Moon.

industrialized ones which are later re-introduced to the food value chain, either as inputs for farmers (machinery, fertilizers, seeds) or as new foods (butter, cheese). Substitution replaces agricultural products with inputs supplied by industrial corporations, and it is able to produce non-existing foods (margarine) by mixing chemical additives and generic substances (fat, glucose, proteins, carbohydrates). Both processes steadily push the production frontier beyond the traditional biophysical limits of agriculture. Such trust in technology aims at developing new foods or to add new properties to available foods, in terms of shelf-life, color, taste, flavor, texture, or convenience.

Corporate power is central to this scenario at every stage of the value chain: farming, processing, and distribution. It is only these huge corporations that can co-ordinate the complex web of actors and factors that deliver food to Europe from the rest of the world. Cheap prices and year-round availability—anchored in low salaries, economies of scale, and pressure on natural resources—are this model's key advantages.

Its development in the near future will be shaped by the corporate strategy of attaching new attributes to food items that fulfil emerging consumer demands: greenwashing, localness, seasonality, veganism, or animal welfare will play a key role in the naturalist scenario. Authorities and private stakeholders have developed a whole set of certifications and labels (eco, vegan, local) to address each particular consumer niche in Europe. Financialization is not absent in this strategy, as institutional investors are aware of the potential of such labels for raising profits in the agrifood sector (IPES Food, 2022).

According to the naturalist narrative, therefore, this business-as-usual scenario relies on technology and market incentives as the main drivers of a future food system capable of co-opting every emerging societal demand about sustainability without compromising profitability and corporate control over resources. However, the role of public authorities on the European, national, and regional scale is also influential in framing such a future. The *Farm to Fork Strategy* (European Commission, 2024b), launched by the European Union in 2020, is aimed at developing a safer, fairer, healthier, more efficient, and less industrialized food system in its member states. Common Agricultural Policy and the *Biodiversity Strategy 2030* (European Commission, 2024a) are all aligned around the same broad goals of reducing greenhouse gas emissions and achieving carbon neutrality by 2050.

The Tech-Food Scenario

Post-naturalism underpins the *tech-food* scenario, which is even more strongly based on science and technology than the business-as-usual one. Biotechnology, in the form of genetically modified organisms (GMOs), 3D food printing, plant-based "meat" or proteins, or even insect and algae farming (Burke-Shyne, Gallegos, & Williams, 2021; House, 2018; Mouat, Prince, & Roche, 2019; Sexton, 2020), is supposed to overcome current biophysical constraints in food production. In the

context of more frequent droughts and raising temperatures in Europe, food security would receive a huge boost in this scenario, as these new food items are not as sensitive to soil and climate restrictions. These new high-tech foods are coupled to the primary sector in a very different way to actual food. In-lab and in-factory food processing are likely to gain momentum at the expense of fresh or "natural" produce. The aforementioned "substitution" process will probably become far more important than today, with in-house-grown protein forming the cornerstone of our food intake. Veganism, animal welfare, and criticism of meat consumption altogether may be strong societal forces behind this process.

The tech-food scenario will likely bring a higher level of concentration, in two directions. First, firm concentration: R&D requirements in terms of technology, skilled labor, or funding are very high to develop the substances that are to be transformed into tasty food. Only large corporations—or large investors—seem capable of providing such a complex web of resources. It is also critical to achieve economies of scale for supplying large markets with affordable tech-food. Therefore, secondly, a wave of geographical concentration of food production may be expected. The decoupling of agriculture and food, the demise of traditional farm knowledge, and the locational requisites for large factories and other knowledge-intensive and capital-intensive facilities (labs, universities, experimental farms, research centers), will make urban settings far more attractive and profitable than rural ones. Proximity to consumer markets, of course, is also influential in this locational shift. If food production becomes an even more industrial activity, the role of localization and agglomeration economies may also be expected to grow. According to this rationale, the initial stage of concentration may be followed by well-known processes (imitation, standardization, maturity) that lead to the geographical diffusion of tech-food production in the long run. The territorial side of this scenario emerges as an exciting research topic for the next 25 years.

Once again, the state is involved in the scenario's framing. Europe's food regulation is rather strict covering safety, health, consumer rights, animal welfare, producers' intellectual property, geographical origin, product traceability, soil protection, and biodiversity. Most EU countries have banned GMOs. Meat and dairy processors have demanded that food authorities ban the use of the words "meat" or "milk" for labeling plant-based meat, milk, or cheese. This situation suggests that deep regulatory changes are needed for the tech-food scenario to become hegemonic in the short and medium term. The core of the coming debate is the very definition of what food is and what food is not. If food is slowly reduced to a generic nutritious staple, this scenario will have more chances. But if European citizens keep food attached to a wide range of socio-cultural meanings, a massive turn to high-tech food seems unlikely. Only new legal definitions of marketable and safe food, and massive educational campaigns enhancing new dietary patterns, may slowly change European food ideology.

The Bioregional Scenario

The food scenario based on eco-catastrophism is radically different from the business-as-usual and tech-food ones. Technology and scientific knowledge lose ground and traditional agricultural and food-processing practices come to the fore. Certified organic food is, of course, one pillar of this scenario, but it is not the only one.

Agroecology lies at the core of this scenario (Sanz-Cañada, Sánchez-Hernández, & López-Garciá, 2023; Van der Ploeg, 2021). The family farm becomes the building block of the food system. Instead of farm specialization and intensive production (the cornerstone of the two other scenarios), agroecologists propose diversification, extensive cultivation, self-sufficiency, circularity, and traditional expertise as the guiding principles for farm management. Minimization of external inputs (fertilizers, seeds, machinery, loans, scientific know-how, land ownership) and maximization of in-farm resources, in the broadest sense of the word, reconnect territory, agriculture, and animal husbandry (González de Molina & López-García, 2021).

Food value chains, thus, become shorter and seasonal instead of globalized and seasonless. The regional scale, and not the global one, emerges as the food system's new ecological and cultural frame This is exactly what the *bioregion* term means (Peters, Bills, Lembo, Wilkins, & Fick, 2009; Vicente-Vicente, Sanz-Sanz, Napoléone, Moulery, & Piorr, 2021a): a given population's food, energy, and water consumption should not exceed the region's capacity if ecosystems are to be preserved. Agricultural management has co-evolved for decades with natural endowments, so there is also a cultural content in the definition and demarcation of bioregions.

The bioregional scenario is alternative to the other ones not only because of its geography and its agricultural foundations. Its economic coordination is also different, in the sense of critical against capitalism, corporations, financialization, and food processing and retailing companies. Short food supply chains—within bioregions, if possible—challenge market, hierarchy, and competition as principles of economic exchange. A sense of community and solidarity between producers, retailers, and consumers pervades the many different alternative food networks celebrated by bioregionalism (see section "Alternative food networks as prefigurative endeavors: Dreams and nightmares" for further details). Small-scale production, cooperative firms, fair prices, local market channels, democratic governance, and caring for persons and nature are supposed to replace the current power that food corporations exert upon resources, employees, prices, and consumers.

The role of the state in such a scenario is rather ambiguous. As discussed in section "Alternative food networks as prefigurative endeavors: Dreams and nightmares", many members and partners of alternative food networks reject state intervention and demand autonomy. In their view, current regulation (eco-labels included) is instrumental to big food corporations. Nevertheless, looking at alliances between progressive local governments and grassroots food movements (Sánchez-Hernández & Glückler, 2019; Moragues-Faus, 2020; Vara-Sánchez, Gallar-

Hernández, García-García, Morán-Alonso, & Moragues-Fus, 2021) clearly shows that the public sector's support may be a decisive contribution to this scenario. The Milan Urban Food Policy Pact (2024) is probably the most influential political network for the relocalization of food supply. Its members claim "to develop sustainable food systems that are inclusive, resilient, safe and diverse, that provide healthy and affordable food to all people in a human rights-based framework, that minimize waste and conserve biodiversity while adapting to and mitigating impacts of climate change". The reconstruction of food linkages between cities and their rural surroundings is a key argument of the Milan Pact, just as the concepts of bioregion and *city-region food systems* suggest (Food and Agriculture Organization of the United States, 2024a). Urban agriculture, responsible public food procurement, or support to direct selling will become very popular proposals in the bioregional future.

Moreover, the Food and Agriculture Organization of the United States (FAO) also endorses agroecology as a feasible option for empowering rural communities worldwide (FAO, 2024a). In 2022, the Food, Farming and Countryside Commission (FFCC) of the United Kingdom released a report (FFCC, 2022) highlighting agroecology as a strong economic, social, and ecological alternative to the current state-of-the-art in food provision within the European context.

Therefore, alternative forms of food provision should not be discarded as naïve or utopic. Their minority status is not at odds with growing citizen interest for a healthier and more local and sustainable diet, a concern shared by public authorities all over Europe. It is precisely the tension between a community-led transition and an alliance with political stances that carves the divide inside the alternative food arena, a topic further debated in section "Alternative food networks as prefigurative endeavors: Dreams and nightmares".

The Eco-Global Scenario

The bioregional scenario appears to be somehow disconnected from the world beyond its regional borders. The political economy approach of the eco-Marxist narrative may be helpful to scale the bioregional scenario up to a higher geographical scope. Supporters of bioregionalism must clarify the issue of food exchanges and trade across bioregions, because they do not give sound responses to simple questions like: How can megacities be fed? Is urban agriculture a reliable solution, or is it merely a palliative or even an entertainment? What about eating fish in Austria or oranges in Sweden? What is the alternative to World Trade Organization rules and corporate-led food value chains?

Yet full de-globalization and pure re-localization of food and diet seem unrealistic in the 2020s. So, if a bioregional scenario is to be a serious option, its supporters must conceive of a fair, sustainable, and non-colonialist way of overcoming the constraints of bioregions to nourish densely populated territories (Vicente-Vicente et al., 2021a, b). Economic efficiency, environmental sustainability, and social

justice, within and beyond bioregions, should be the threefold goal of a future trans-scalar food political economy subject to a more democratic and inclusive governance system. La Via Campesina (2024), URGENCI (2024), or Fairtrade schemes (Fairtrade Ibérica, 2024) are but some of the grassroots initiatives tackling the challenge of re-localizing food circuits without falling into parochialism (Winter, 2003) and lack of solidarity with "others".

Towards a Hybrid Food Future

These four food scenarios for Europe are not mutually excludable. Rather, they will co-evolve because their stakeholders interact, react, clash, and strive to increase their social, economic, and political influence in Europe. The European Union guidelines (Common Agricultural Policy, Farm to Fork, Green Deal) will probably enhance some convergence around the now prevailing business-as-usual scenario. National and regional authorities must act in line EU regulations to receive EU funding, itself a powerful tool for working towards such a future.

However, the most likely future food fix in Europe is a hybrid one, where the hegemony of the current status quo will be eroded, to a greater or lesser extent, by changes induced from the other scenarios, namely the tech-food and the bioregional ones. Three factors will probably lead to such hybrid future.

First, the hegemony of the corporate regime and the market share of global food value chains is not equally spread all over Europe nowadays. Cross-national differences are probably smaller than cross-regional ones, mostly if the urban-rural divide is accounted for. Southern Europe's attachment to locally/regionally sourced food is deemed higher than that of Northern Europe (Parrott, Wilson, & Murdoch, 2002; Joosse, Olders, & Boonstra, 2021), whereas labeled organic food has reached substantial market shares in countries like Sweden, Denmark, Germany, Austria, or Switzerland (IFOAM, 2021).

Second, the very geographical diversity of Europe does not provide equal opportunities for the bioregional scenario to develop. Soil fertility, water availability, and climatic conditions change drastically at the regional scale, namely in large countries, thus influencing the volume and scope of nearby food supply and consumption. The settlement pattern and the level of urbanization are also vital, because proximity linkages are more likely to flourish in rural settings and mid-size cities—although empirical evidence is not conclusive here, because metropolitan dwellers are also engaged in the promotion of short food supply chains (box schemes, consumer cooperatives, community-supported agriculture) with farmers within their vicinity.

Third, the tight relationship between household/individual traits and dietary patterns. Many different consumption profiles coexist within each country, region, city, or bioregion, shaped by income, age, nationality, religion, education, values, ideology, or health condition. The so-called "foodies" are rarely found in poor families, but they all live in the same cities, regions, and bioregions too. This social

dimension of feeding, then, crosscuts geographical and market factors to make the hegemony of one food scenario impossible at any geographical scale.

Therefore, from the perspective of economic geography, it is possible to imagine a rich diversity of food futures and fixes in Europe at the regional level, all of them framed by the overarching guidelines of the European Union and the foreseeable influence of the business-as-usual scenario. According to local circumstances, the alliance between local authorities and conscious/knowledgeable/activist citizens might push alternative food practices beyond their current niches and encourage the development of bioregional food frames. Internal consensus and political stability appear to be key conditions for this development to come true (Sánchez-Hernández & Pitarch Garrido, 2019). The share of tech-food in this variegated and unstable environment is subject to political, climatic, and market contingencies, as suggested above. It might supplement food shortages in regions with poor natural endowments, fulfil demands from growing market niches (veganism, vegetarianism, locavores), or reinforce the main scenario with a new generation of highly processed and very affordable foodstuff.

Alternative Food Networks: A Brief Outline

In this section, I briefly describe *alternative food networks* (AFN) as forms of economic coordination whose members are challenging the current hegemony of global food value chains and corporate control over the food supply in Europe. Their challenges concern three dimensions of food (Sánchez-Hernández, 2009): product (food's properties and qualities), process (food's supply chain), and place (food's geographical provenance).

Regarding the product, AFN members strongly reject highly processed food items due to their high content in sugar, fat, and chemical additives. In the same vein, they also refuse fresh produce (fruits, vegetables, milk, meat, fish) sourced from industrialized farming systems where fertilizers, antibiotics, heavy equipment, and genetically modified organisms (GMOs) are commonly used. Health implications—both individual and public ones—and the environmental impact of these appropriation and substitution processes constitute the main reasons for such criticism.

In terms of process, AFN members point to the tight control large, often transnational corporations exert over the food value chain: primary production, processing, warehousing, and retail. Other critical functions like research and development, financing, advertising, lobbying, or logistics usually fall under the control, direct or indirect, of so-called *big food*. The members of this organizational framework pretend to be the only solution to developing the large-scale food operations worldwide necessary to feed Western countries. The size of these big players reduces prices all along the value chain and pushes out small independent competitors (farmers, processors, retailers), thus fueling a continuous process of firm concentration that reduces choices at both ends of the food chain (the "hourglass model"):

producers find almost no delivery options apart from large supermarkets and food factories, whereas consumers find almost no food outlets other than large supermarkets as well.

Third, and closely related to product and process concerns, corporate food travels long distances *from farm to fork*. The term *food miles* embodies the wide concern about the environmental effects of the distance-intensive hegemonic food system. But the reduction of food miles and the subsequent re-localization of food supply (within the bioregional boundaries, if possible) is not only a matter of carbon footprint reduction. Consumers and producers are kept apart from each other by several intermediaries who market such commodified food, detached of its natural, cultural, and geographical meaning. The linkage between food and place, so important in Mediterranean countries, is blurred in the corporate system made of *food from nowhere*. Thus, a true food re-localization includes the reconnection of consumption and production, mostly via short food supply chains where intermediaries are reduced to a minimum and direct sales enjoy a greater market share.

More "natural" food marketed through a short/local network of small actors who interact face to face emerges as the cornerstone of the bioregional scenario AFN members demand. Such food is allegedly healthier, less harmful to the environment (soil, animals, climate), embedded in the local traditions, and sourced by local actors. Prices, a key issue in any economic arrangement, are supposed to be lower and fairer: lower because geographical proximity and less intermediation reduce costs, fairer because no big players can extract value via economies of scale, bargaining power, or monopolistic practices.

All these elements underpin the usual definitions of alternative food networks. With their pioneering contribution, Whatmore and Thorne (1997) highlighted actors' reconnection, value redistribution, and participatory governance as the three fundamentals of AFNs. Sánchez-Hernández (2024, p. 2) defined these networks as

> arrangements of food production, distribution and consumption (and co-ordination of these processes) whose values and practices promote a food environment respectful of nature and health, establish a more equitable distribution of economic value among the actors involved, reduce the number of intermediaries, usually operate in a frameworks of geographic proximity, and are ruled by participatory, inclusive and democratic decision-making mechanisms based on mutual trust among the people involved.

Shorter or longer, in these definitions, food is no longer commodified and thus recovers its role as a valuable nexus between individuals, community, society, and nature.

Members of AFNs adopt manifold empirical forms. At the stage of production, small organic, agroecological, and nearby farmers constitute the basis of the alternative food system, along with facilities that process inputs from those suppliers to make jam, cheese and other dairy products, honey, bakery, meat products, beer, wine, or preserves. But it is in the relationship between producers and consumers that the alternativeness comes to the fore (Fig. 8.1).

Direct exchange between producers and consumers is the basis of on-farm selling, farmers' markets, eco-markets, "box schemes," community-supported agriculture

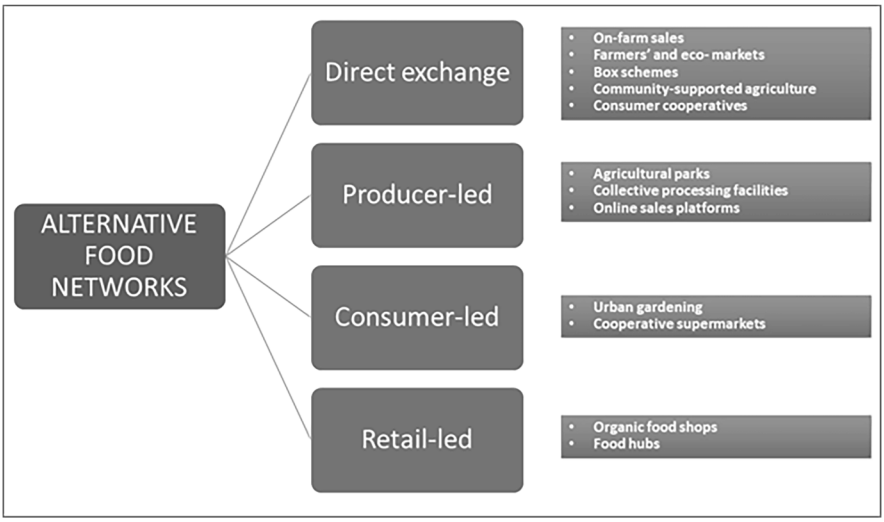

Fig. 8.1 A typology of alternative food networks as chains of values. Source: Design by author

(CSA), and consumer cooperatives/consumer groups/solidarity purchasing groups. These tight networks attach personal relationships of trust and regard to food (Kirwan, 2006; Macías Vázquez & Morillas del Moral, 2022). Trust is not only built upon eco-labels, but on enduring and non-hierarchical relationships. In CSAs, for instance, consumers pay farmers for their food in advance, so the latter can be confident that their yearly production will be sold and consumed. Consumer cooperatives often visit their suppliers' farms to be aware of the farming process and to develop strong ties with the owners. More sophisticated governance frameworks are "participatory guarantee systems" (PGS), where farmers, processors, and consumers discuss and sign a formal agreement with which they lay out quality requirements in detail (Loconto & Hatanaka, 2018). In the view of many AFN partners, these democratic and horizontal agreements should replace "organic," "bio-," or "eco-" labels, enacted by public authorities in a top-down process that usually burdens small actors with high costs and heavy bureaucracy that only large companies can afford.

Producer-led networks are also noteworthy. Managers of agricultural parks (Yacamán Ochoa, 2018; Zazo Moratalla & Paül Carril, 2021, for instance) claim to be preserve agricultural land and production on city outskirts to deliver fresh and local food to households, retailers, or even public facilities (schools, hospitals). This associative arrangement is intended to both save costs and increase scale economies of individual farmers and to stretch the scope of fresh food available for buyers, thus reducing their transaction costs. Another possibility is that of collective processing facilities. The legal and sanitary requisites for transforming fresh produce into processed food often lie beyond the reach of very small farmers. But if they jointly invest in a cooperative facility/kitchen that meets all regulations, it becomes possible

to retain added value by making small batches of craft food. Both agricultural parks and collective processing facilities sometimes receive some funding support from local governments. Finally, farmers' individual specialization is also the basis of joint online sale platforms which connect households and local producers.

Consumer-led networks start with the most elementary arrangement: self-supply through urban and community gardens where neighbours raise vegetables for their own consumption or for delivery outside the market (bartering, gift). Urban gardening, and urban agriculture as a whole (Espinosa Seguí, Maćkiewicz, & Rosol, 2017; Poniży et al., 2021; Tornaghi, 2014), has quickly spread over European cities during the last two decades or so. A grassroot initiative at their beginning, they often become one more piece in the toolbox of urban policymakers that strive for a greener city. Cooperative supermarkets are a far more sophisticated alternative fix. To escape from the tyranny of big supermarkets, conscious consumers—often middle-income ones—set up a cooperative shop where they can buy a wide range of fresh and processed food supplied by alternative-local-organic farmers and processors. According to cooperative principles, supermarket management is ruled by democratic, transparent, and participatory procedures.

Retail-led alternative networks take several forms as well. Organic-only food outlets have become commonplace in European cities, according to the usual market-led process. First movers used to be environmental activists or health-concerned people who sold the very few organic food items available decades ago. Nowadays, such small independent shops hardly compete with organic food sold in hegemonic supermarkets or franchised shops. However, the so-called *food hubs* are conceived as an autonomous fix for those alternative food actors who strive for keeping apart from mainstream food retailers. Food hubs gather fresh and processed food from small independent farmers, craft processors, or collective processing facilities (LeBlanc, Conner, McRae, & Darby, 2014; Motzer, 2019). Such food is handled, stored, packaged, and delivered to end consumers, either households or foodservice outlets. Producers do not need to drop their boxes at every purchaser's door any longer. Instead, they drop their stuff at food hubs, which take the responsibility of solving the last mile problem. For instance, restaurants which claim to cook "good" food use to find food hubs extremely useful and convenient.

This broad overview of AFNs is crowded with small actors, in terms of land ownership, production volume, staff, sales turnover, or geographical reach. Big players have been mentioned just as latecomers who capitalize on growing demand for healthy, natural, and local food. This process has been labeled as "conventionalization" by Guthman (2004) when she describes the ability of the big food to co-opt new societal demands. This threat from "the system"—a topic further discussed in the next section—has encouraged some alternative players to scale up their operations all along the alternative food value chain. The usual way to develop this new path is the foundation of social firms ruled by the principles of co-operativism, a formula with a long tradition as an alternative to capitalism (Ajates González, 2017, 2020). Most of these companies remain specialized in one single stage of the value chain, but in some cases evolve towards a sort of vertical integration. Not only individual consumers, but organic retailers, mainstream

supermarkets, and the rocketing increase of responsible and lifestyle-prone restaurants (vegan, vegetarian, organic, local), are the market target of these new actors.

Another powerful leverage for scaling up alternative food supply up is the support of the public sector. I have already underlined some of these interventions (agricultural parks, collective food processing). Allowance, or active promotion, for urban gardening is a must in current city planning. But there is wide consensus (FAO, 2021) that public procurement is the true key to boosting sustainable food—and any kind of bioregional food future—beyond its current environmental, social, and economic boundaries. Canteens at school, campus, hospital, or any other public facility constitute a substantial amount of food consumption. Even food banks should consider offering safe and nutritious food to the excluded.

Public regulation and contracts may positively discriminate the purchase of every kind of "green" source. Such policies, currently active in many European cities (Neto et al., 2016), may shape cooperation among producers to fulfil this strategic market niche. A closer connection between cities and their rural surroundings under new schemes for territorial governance should enhance the transition towards a bioregional food future (Blay-Palmer et al., 2018; Houdart, Le Bel, & Lardon, 2020; Wallet & Bouroullec, 2021).

Despite their diversity, all the alternative initiatives and networks already mentioned share the common features listed above to challenge the corporate food regime. Regarding product, they rely on sustainable primary production, mostly organic or agroecological. Regarding process, they prefer small scale stakeholders connected by cooperative, democratic, and participatory governance rules. Regarding place, food miles reduction is the overarching criterion to allow engagement in these food fixes, which their promoters claim to be anchored in geographical proximity. Loosely defined, see Feagan (2007) or Reckinger (2022) for an extensive discussion of the term, proximity serves as a gateway to interpersonal trust. The main outcome is supposed to be a sustainable, inclusive, and post-capitalist food system bounded within the limits of the bioregion.

Alternative Food Networks as Prefigurative Endeavors: Dreams and Nightmares

With the description provided in section "The bioregional scenario", I was not acknowledging the rich insights about the bioregional scenario that inspire AFNs' stakeholders' daily performance. Nor was I highlighting the internal contradictions and fears of these same individuals about the (food) future. In this fourth Section, I am narrowing my focus from AFNs as a whole to the prefigurative experiences of AFN makers, their lived geographies, their vision of an alternative food future, and the legitimization strategies they resort to for overcoming daily constrains posed by the corporate food environment. But it is also necessary to underline their fears about

Table 8.1 An Overview of the Author's Research Background on the Economic Geography of Food

Period	Empirical focus	Theoretical framework
1996–2006	Craft food in inland Spain Wine and meat processing under the protected designation of origin label (PDO)	Industrial districts Innovative milieux Territorial development
2007–2015	Protected designations of origin (PDO) as innovative institutional settings: quality & fine wines Location trends of food industry	Convention theory (orders of worth) Worlds of production
2016–2025	Alternative economic practices: production, distribution, and consumption Recent turn to short food supply chains	Critique of capitalism Community & diverse economies Social and solidarity economies From "food value chains" to "values-based food chains"

Note. Source: Design by author

what the future may look like if the bioregional scenario is colonized by powerful forces from the tech-food and the business-as-usual ones.

I have drawn my empirical material to dive into these topics from a number of sources (Table 8.1). First, I am utilizing my long-term research experience with the agrifood industry (wine, meat), its innovation strategies, and its contribution to rural development in Spain. Second, I am applying more recent research on alternative economic practices in Spanish cities (Sánchez-Hernández, 2019), where I found alternative food networks to be a key node of criticism of capitalism. Semi-structured interviews, questionnaires to members, monitoring of virtual spaces (social networks, blogs), attendance of live activities (fairs, exhibitions, assemblies), and documentary revision provided rich information records. Researchers involved in the ongoing ALISOS project (see footnote on the front page) are developing this initial approach to locate every AFN based in the neighboring Spanish regions of Madrid, a true city-region, and Castilla y León, a sparsely populated inland region deeply committed to the development of a high-end, sustainable, and localized food supply system.

Dreaming of a Bioregional Scenario

Prefiguration is a widely used concept in the study of economic experiments whose actors are claiming to build an alternative to capitalism (Polletta, 1999). Boggs (1977, p. 2, cited in Jeffrey & Dyson, 2021, p. 643) defined prefiguration as "the embodiment, within the ongoing political practice of a movement, of those forms of social relations, decision-making, culture and human experience that are the ultimate goal." Living today as one wishes everyone else to live in the future forms the core of prefigurative practices. Prefiguration, then, is a strong political claim which consists

of "[…] the self-conscious channelling of energy into modelling the forms of action that are sought to be generalized in the future in circumstances characterized by power, hierarchy, and conflict" (Jeffrey & Dyson, 2021, pp. 643–644).

AFNs, in Allaire's words, are "the promise of difference" (Allaire, 2021, p. 225), that is, they promise a different present and future. AFNs may be conceived as an attempt to prefigure the bioregional scenario depicted above. Such an attempt, according to the definition of prefiguration, is a political one. AFNs are political endeavors aimed at defining a new political economy and a new political ecology of food. Their threefold challenge (product, process, and place) rests upon a different way of organizing the food system which is political in nature.

Direct democracy is the true alternative AFNs present. The different cases presented in section "Alternative food networks: A brief outline" all share a deep commitment to the participation of every member of the network. The decision-making process is based on assemblies where everyone can attend, talk, discuss, and vote. Long meetings in search of consensus to avoid exclusionary processes or feelings lie at the organizational heart of AFNs. Voluntary work to keep the project alive, task rotation of every member to avoid specialization, or team work to carry on duties, all reinforce this flat and non-hierarchical model of governance. Quantitative and qualitative data emphasize democracy, participation, and freedom as reasons to engage and stay involved in AFNs.

This alternative organization not only empowers members. AFNs wrap food with a rich web of social, natural, political, and geographical meanings and attributes. These attributes turn fetishized "alternative" food (eco-labels, local labels, branded items) into contextualized and socialized food (Clark, Jablonski, Inwood, Irish, & Freedgood, 2021; Kallio, 2020). Such de-fetishization of food is another important political and social fact because it also opens the door to food's de-commodification, a by-process with potential consequences in the economic field.

Prefiguration within AFNs, then, defines a new political framework for food. Such a framework, secondly, is not subordinated to the economy, namely the capitalist system. AFNs aim at placing the economy as a tool or instrument to reproduce life on Earth—just the opposite of the economy's current hegemony in every aspect of human (and natural) life. An alternative economy, then, is instrumental for proceeding towards a bioregional food future. De-fetishized, de-commodified food is no longer the domain of market, competition, and private property. In the AFN mindset, food and feeding fall—or should fall—into the domain of the commons (Vivero-Pol, Ferrando, De Schutter, & Mattei, 2019). Commoning—the process of defining and managing the commons outside of private property, competition, and markets—is another hot topic in the AFN arena, along with water, land, and energy. Of course, commoning of those natural resources critical for humankind is properly aligned with claims for participation, consensus, and food democracy. In the most horizontal AFNs, as a matter of fact, prices are subject to negotiation in assemblies. The goal is to set a "fair" price, one that makes a living for producers and is affordable for consumers. In cooperative supermarkets, partners' voluntary work reduces the company's overall costs so as to cut final prices as well. This means that suppliers

do not need to compete with each other on a price basis, whereas consumers can access "alternative" but affordable food.

Turning food into a political issue to divert it from capitalist markets shares the same rationale as those criticising the privatization of education or health care. Cooperation among all stakeholders along the (short) food supply chain redistributes resources and value. This community-led and trust-based mode of economic coordination prefigures a less competitive economy, a less individualistic labor market, and a less hierarchical governance of firms.

Every community needs a territorial attachment to realize itself. The process of food commoning tightens that attachment because food is obviously connected with nature. And the choice of the bioregion as a main source of food increases the linkage even more. Looking after nature becomes self-evident if the nexus democracy-community-environment is as neat as the practice of AFNs underlines.

Therefore, the politicization of food reshapes societal priorities. Democracy, now at the apex of the scale of values, re-locates the economy as a tool, not as a goal. A democratic governance of the economy is the logical consequence, hence heading to a resignification of nature, the place where food comes from.

This bioregional scenario seems to be anchored in cities. AFN-led prefiguration is today a mostly urban process. According to empirical data, it is large cities that are the cradles of AFNs. This somewhat counterintuitive fact seems anchored in several economic, social, and political factors. First, a critical threshold of conscious citizens is easier to reach in large cities. Second, the corporate food regime is even more hegemonic in urban settings, so food criticism is more likely to arise. Third, values and attitudes (health, lifestyle, hedonism, ideology) cognate to "food alternativeness" widen the niche of potential promoters and consumers of AFN; although these people are not as engaged as the foundational activists, they strongly contribute to sustaining the more evolved AFN types (cooperative supermarkets, organic food shops, alternative foodservice), whose members are striving to replace conventional facilities. Fourth, this wider range of AFN in large cities unleashes a sort of cumulative and demonstrative effect which attracts more people. Fifth, when this new urban foodscape (Moragues-Faus & Morgan, 2015), carved out in the cracks of the hegemonic one, catches the attention of local authorities, urban food policies may eventually absorb ideas from the alternative realm. Empirical data from Spain clearly shown that such urban food policies are well settled in larger cities, although the political bias of local governments either boosts or hampers their evolution over time (Sánchez-Hernández & Glückler, 2019; Sánchez-Hernández & Pitarch Garrido, 2019). And sixth, urban food networks (C40 Cities, 2024; Milan Urban Food Policy Pact, 2024; Red de Municipios por la Agroecología, 2024) constitute an excellent resource for individual cities to gain access to better practices and knowledge about the transition to a more sustainable, localized, and fair food system.

The dream of a bioregion that nourishes its population in a long-term equilibrium is, at the moment, prefigured in the more conventional geographical scales of the functional region or the city-region (Blay-Palmer et al., 2018; Vicente-Vicente et al., 2021b; FAO Green Cities Initiative, 2024b). It is the city—its authorities and some of its dwellers—that is now trying to bring about the future. City actors outnumber

rural actors, although those promoting ideas of participation, democracy, consensus, and urban-rural alliances are trying to balance the obvious power unbalances implicit in the bioregional scenario and in its prefigurative practices.

Fearing Other Future Food Scenarios

Two sets of threats are putting the achievement of a bioregional food future at risk: those internal to AFNs and their contradictions, and those external that are derived from the implicit or explicit reaction of the prevailing corporate forces, which back the business-as-usual and the tech-food scenarios. Both sets are, however, connected to the same dilemma: Should AFNs scale up to develop a bioregional future, or are their current small-scale operations capable of replacing the hegemony of the big food?

AFNs' partners usually represent themselves as members of a community. The political challenge described above stems from a strong sense of membership and empowerment, embodied in the institution of consensus as the cornerstone of the decision-making process. Nevertheless, for many AFNs to deliver a larger food portfolio it seems necessary to adopt firm-like management practices: steering boards, labor division, staff recruitment, contracts, ICT tools, registration as legal entities, tax payment… Face-to-face contact fades in this new environment at the expense of the sense of community, and AFNs lose a bit of their alternative identity.

In economic terms, AFNs also need profits to pay daily operation costs. An increase in scale implies higher amounts of profit, thus disturbing price bargaining. Voluntary work on a long-term basis raises burn-out at the end, so capitalist relationships (staff recruiting, wages) pop up as solutions. The concern about the *economic* future thus pollutes the communitarian spirit. Fieldwork in Spain clearly demonstrates that several AFNs are more focused on paying the cost of utilities (power, water, premises, fuel) than on foodscape transformation.

Moreover, a richer food portfolio, attuned to contemporary dietary habits, usually compromises the bioregion's supply potential: AFNs then start to market fair, organic, or agroecological but distant food, thus eroding their foundational principles once more. The bioregion, then, loses ground as the scalar framework of the food future.

This stylized description of the political, economic, and ecological risks that point to AFNs pushes some of its members to strongly reject scaling up. Instead, they use to prefer leaving the group and setting up another one (the "mushrooming" strategy), firmly committed with the alternative way of doing. In their view, scaling-up is a highway to authenticity loss, to "conventionalization" and to final integration in the capitalist food system.

Those AFN members who share the idea of scaling-up argue that it is the only way to slowly replace the corporate foodscape with an alternative one. They believe that it is precisely the (too) small size of most AFNs that makes conventionalization feasible and profitable, as less conscious consumers have difficulty engaging in AFN

for different reasons: a narrow assortment, time availability, higher prices, convenience… Instead, large cooperatives at the production, processing, and retail stages, and positive support from local authorities, hold—they argue—the potential to undermine corporate actors' current hegemony. Decent work, fair contracts and prices, sustainable sourcing, or participatory management should not be at odds with fulfilling conscious consumers'demands.

This endless debate that pervades the alternative arena is influenced by the external pressure from the hegemonic actors of the food system who are also building their own futures. According to the conventionalization thesis (Guthman, 2004; Sánchez-Hernández & Espinosa Seguí, 2020), food corporations have de-politicized and re-fetishized organic and local food through the massive development of labels and brands. Such "healthy" and "sustainable" food is widely available in supermarkets all over Europe. Prices are reasonably affordable, and convenience is maximum. These conventional retailers meet the needs of those potential AFN subscribers mainly interested in their own health. Therefore, it is not necessary to invest in community membership, assemblies, and voluntary work to access to "good" food. Values of sustainability, local commitment, healthy diet, and a greener future for everyone are thus co-opted by the power of corporations and their ability to make profit from every societal demand.

At a higher level of generalization, several AFN fears stem from more than just big-company competition. Their prefigurative practices are supposed to be a political challenge, one capitalism and governments are trying to undermine. Co-optation is but one of "the system's" tools in that direction. Many researchers have mentioned regulation as a powerful guardian of the status quo. Small agroecological producers or processors often find food safety rules and organic standards, for instance, too expensive to meet. Urban gardening is frequently harassed by real estate and land property acts, and municipality-led urban gardens are usually more focused on leisure and "urban greening" than on feeding the city differently (Sánchez-Hernández & Glückler, 2019). Complaints about tax elusion and unfair competition by urban gardens and farmers' markets on the part of groceries and other retailers are also not unusual.

Hence, according to this narrative of fear, the state-capitalism nexus, founded upon private property, taxation, and regulation, reacts upon the political content of AFNs. A promised future made of cooperation, commoning, commitment to nature, and attachment to bioregions defines an alternative political economy and ecology. Nevertheless, external and internal factors make prefiguration very difficult in capitalist societies—accordingly, the bioregional food scenario remains likely to wield less influence compared to the power of corporations and technology.

What's Next?

In this chapter, I have discussed four scenarios for a future food system in Europe. By combining the role of firms, technologies, markets, and regulation, four possibilities emerge: business-as-usual, tech-food, bioregional, and eco-global, each one with a geography of its own. However, the most likely future for food in Europe is a hybrid one under the rule of the business-as-usual framework and with a high degree of geographical variation. I have scrutinized the bioregional scenario in depth because its proponents demand an alternative food future based on community-based economic arrangements, small-scale (agro)ecological production, distribution, and consumption of food, and attachment to the local and regional scale.

The alternative food networks that underpin the bioregional scenario thus challenge the hegemony of the corporate food regime led by powerful global companies. They prefigure instead a future made of a closer and tighter bonds between society, food, and territory. Such a future is threatened by the internal divide in the alternative arena between "scaling-up" and "mushrooming" strategies to cope with external pressure from conventional actors which supply affordable "good food" devoid of the meanings and values that inspire alternative networks and their futures.

Beyond internal contradictions and external threatens, the bioregional standpoints—rooted in the eco-catastrophist narrative—play a significant role in driving the future of the European food system. Despite its niche nature, bioregionalism and alternative food networks have been fertile labs developing new ideas and practices that challenge the food market status quo. The current market share of "eco-" and "bio-" foods, labels, and shops, the growing number of farmers' markets, the quest for locally sourced food in foodservice and supermarkets, or responsible public food procurement schemes all seem hard to imagine without the continuous pressure of the variegated initiatives from the bioregional realm. The same applies to the enactment of food and agriculture regulations in the European Union (and in many European cities as well) whose policymakers subscribe to principles of localness, fairness, and sustainability. Tech-food itself may be considered a market-led response to societal demands (veganism) and global concerns about water scarcity and livestock-driven greenhouse gas emissions. Therefore, food scenarios should not be regarded as autonomous entities, but as interlocking webs of action, reaction, competition, and reconfiguration of the European food system. Irrespective of their size and power, all four scenarios play a role in shaping current individual beliefs, collective behaviors, and public policies related to food.

This chapter is but a preliminary attempt to define food scenarios in the European geographical context. Nevertheless, the reflection about food futures may benefit from insights from several theoretical and conceptual standpoints intended to shed light on the relationship between the present and the future. Of course, researchers of food futures have already resorted to the theory of socio-technical transition to frame the potential of AFNs to grow at the expense of corporate food players. The same applies to degrowth studies.

But it seems also possible to merge scenario-thinking and multilevel perspective to achieve a deeper understanding of the true possibilities of the bioregional scenario to increase its influence and, perhaps, to feed Europe with a degrowing consumption of resources. Those adopting this line of reasoning should not forget the inextricable nexus between food, water, housing, and energy. It accordingly seems quite narrow-minded to forecast food futures in isolation from the broader field of the ecological transition that encompasses the material foundations of human life. Applying a multi-sectorial forecasting process that places food in a wider network of basic human needs might lead to the conception of stronger and more comprehensive scenarios.

One last question is worth asking. Most alternative food networks were settled by grassroots movements critical of capitalism. Food was chosen as a battlefield to fight the economic, social, and political structures involved in the reproduction of capitalism. Terms like "change," "autonomy," "autogestion," "revolution," or even "rebellion" were commonplace in the onset of AFNs. Why have these words—and ideas—lost momentum in favor of "transition," a softer, milder, and probably catch-all term? Is this, perhaps, a new symptom of capitalism's endless ability to absorb threatening societal demands and make more money? In this particular field of food, is "transition" the harbinger of those market- and technology-based scenarios?

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Chapter 9
Economic Geographies of Post-Growth

Christian Schulz

Recent debates around accumulating "crises" in the fields of climate change, energy supply, biodiversity, forced migration, and (not least) food security—partly marked by the aftermath of the COVID-19 pandemic and certainly reinforced by the war in Ukraine—have led to a new dynamic in growth-critical discourses. Although dating back to the late 1960s/early 1970s, the latter have gained traction over the past decade, both in political and mediatic realms as well as in the scholarly literature. In the English-speaking context, for example, a series of seminal book publications starting with Tim Jackson's (2009) "Prosperity Without Growth" and continuing with Kate Raworth's (2017) "Doughnut Economics", Jason Hickel's (2020) "Less is More: How Degrowth Will Save the World" and (once more) Jackson's (2021) "Post Growth: Life After Capitalism" have not only challenged orthodox economic thinking and neoliberal policy making. The authors have also made it to public arenas such as TV talk shows, keynotes, and roundtables at major business events, or into documentaries, and have provided activist movements with compelling and substantial evidence and arguments regarding "the case for degrowth" (Kallis, Paulson, D'Alisa, & Demaria, 2020)—that is, a pledge for a fundamental change needed to overcome the growth-fixation of the prevailing capitalist economy.

More recently, the "Beyond Growth Conference 2023," a cross-party initiative of 20 members of the European Parliament held at its premises in Brussels in May 2023, included a large variety of stakeholders in search for alternative pathways for a currently unsustainable economic system and made the post-growth debate more visible in mediatic and political realms. The conference can be seen as an initiative dissenting with the goals and means of the European Union's Green Deal (European Commission, 2019), criticized for both its growth-fixated belief in the mere technological feasibility of sustainable production as well as for its partly low

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transformative ambitions. This latter deficit is most obvious in the realm of the Common Agricultural Policy (CAP), which essentially perpetuates conventional and industrialized farming practices (Schulz, 2022).

Those engaging in post-growth thinking challenge the assumptions of the ecological modernization policies which over the last four or more decades—despite some progress in reducing environmental impacts—have largely failed to decouple economic growth from material and energy consumption (see below). Simultaneously, the social benefits of an ever-growing economy have proven to be unequally distributed—to say the least. Other than being aspired for in the trickle-down hypothesis of GDP-growth oriented policies, little advantage (if any) accrues to large parts of today's population, whereas other social groups profit considerably more from an unbalanced benefit allocation—both within single national economies and at the global scale.

Against this backdrop, the notion of post-growth provides compelling avenues of how to rethink the economy more fundamentally. Over the past decade, it has been increasingly taken up by social sciences interested in sustainability transition (D'Alisa, Demaria, & Kallis, 2014; Kallis, 2018; Lange, Hülz, Schmid, & Schulz, 2022; Schmelzer, Vetter, & Vansintjan, 2022). Economic Geography, a sub-discipline of Human Geography, shall serve as a disciplinary case here, whereby much of the following can be generalized for, or easily adapted to, other disciplinary perspectives. The particular curiosity of economic geographers seems to be driven by at least two different motivations: a) the recognition of the physical limits to growth and the impacts resource scarcity and ecological imperatives will have on the spatial organization of the economy, and b) the observation that emerging post-growth practices can transform places and spatial patterns as well as create new spaces of economic exchange, knowledge creation, and wealth production. Both aspects imply the need to reconsider some of the established conceptual assumptions as well as methodological practices of our discipline.

My aim in this paper is twofold: On the one hand, I seek to assess the conceptual and empirical potential of post-growth research, starting from a self-critical reflection on the growth-fixated perspective of mainstream economic geography models and concepts. On the other hand, I discuss possible modes to operationalize post-growth principles for the purpose of regional development and innovation research. That is, I will not provide a concrete imaginary of a hypothetical post-growth future. Rather, I aim to access and understand trends and building blocks of ongoing or emerging post-growth-oriented transition trajectories. Assuming that the prevailing economic system will need to undergo a profound transformation towards more ecological and socially just principles, I may equally challenge core assumptions, reference systems, and (not least) methodological perspectives.

This chapter's structure unfolds as follows: First, I will elaborate on the terminology around notions of degrowth and post-growth and further comment on the concept's uptake in economic geography and cognate disciplines. I will then discuss illustrative examples of how economic geography models and their ontologies—implicitly or explicitly—remain anchored in infinite growth logics, and where their concepts and terminology may need to be adapted to alternative understandings of

economic wealth and societal prosperity. I will thirdly outline two recent approaches that may help to translate post-growth ideas into a new framework to assess regional development trajectories or the dynamics and transformations within single industries or firms. Finally, I will critically reflect upon the normativity and positionality of much of the current post-growth literature.

Key Blocks of Degrowth/Post-Growth Debates

Growth-criticism is not new and partly goes back to the early stages of capitalism. Its supporters essentially target the negative social and ecological externalities of a growth economy, and question the systemic growth-oriented logics of the prevailing production, financing, and taxation systems, as well as misleading incentives and subsidies. Moreover, they disagree with how economic development and wealth is monitored and challenge utilizing the GDP as the predominant indicator for its manifest shortcomings (see Schulz & Bailey, 2014, for a more detailed discussion). As indicated in the introduction, this growth criticism has regained momentum over the last decade and has a strong role in the debate around post-growth futures. This recent debate has simultaneously been nurtured by the coincidence of several overlaying crises as it has been triggered by the increasing recognition that hitherto efforts to increase resource and energy efficiency in the production system through technological advances have not led to the aspired decoupling of economic development from resource consumption. At best, a relative decoupling can be observed—that is, the GDP's growth rate is higher than the increase in material consumption. As can be seen in Figure 9.1's global statistics, both rates continue to grow in absolute terms. That is, an actual decoupling as propagated by those promoting international agendas such as "green economy" (UNEP, 2011) or "sustainable growth" (European Commission, 2010) remains unattainable—what Nico Paech (2010) called the "myth of decoupling." Despite all efficiency efforts, some authors even expect a "recoupling" (Hickel, 2020, p. 154). Although too early to judge, there is some reason to believe that the recent EU Green Deal (European Commission, 2019) and its promised twin transition (digital and just) may also adhere to a rather non-disruptive, weak ecological modernization logic (Schulz, 2022).

In other words, the search for increased resource efficiency through technological and organizational change has not provided the expected results, even though efficiency gains could be achieved in many areas. Yet most achievements have so far been outweighed by increased resource consumption elsewhere—known as the Jevons paradox (Jevons, 1865) or rebound effect. The latter can be direct (e.g., a car with a more efficient fuel engine may be used more often or for driving faster) or indirect (reduced heating costs after building insulation may lead to resource-intense expenditures in other areas, such as for an additional holiday flight).

To avoid a frequent misunderstanding, the notion of post-growth does not mean the opposite of growth (decline, shrinkage). Rather, it encapsulates how best to

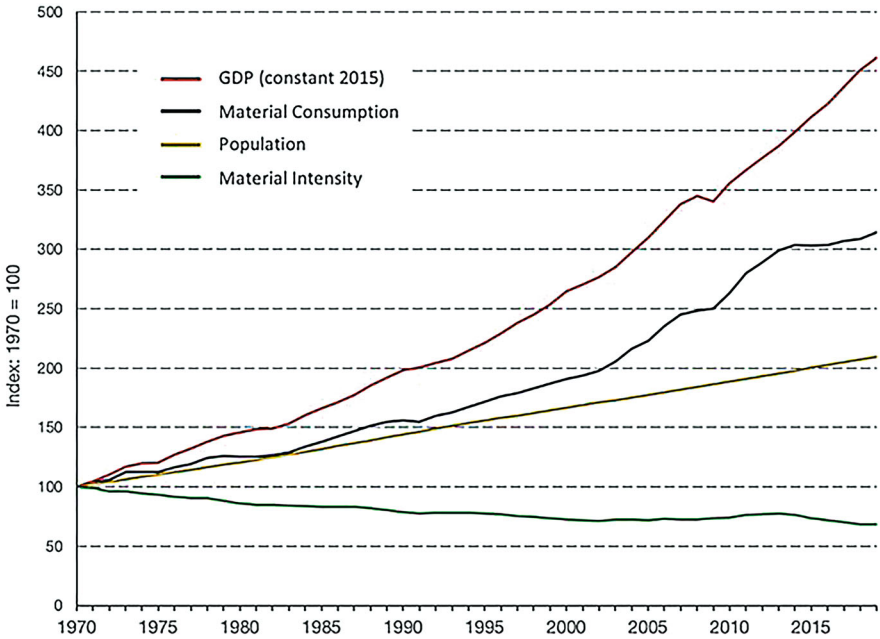

Fig. 9.1 GDP growth and material consumption worldwide 1970–2019. Data source: WU Vienna (2022). Source: Design by author

overcome growth-fixation and create economic value in a sustainable manner. In addition to addressing the question of finite resources disallowing for infinite growth, post-growth comes with an emancipatory critique of growth as a political objective in itself, primarily addressing distributional injustices and systemic disadvantages (e.g., for women) resulting from prevailing structures and practices of the capitalist economy. That is, to support post-growth is clearly to go beyond the resource question and seek an economy that serves both the common good and ecological sustainability.

Promoting post-growth does not mean denying the need for growth in certain sectors and in certain areas. But it does mean raising questions that are fundamentally different from the mere technology-oriented decoupling approach. Unlike the *how* question put to the fore by those following *efficiency* (e.g., energy and material consumption) or *contingency* (e.g., circular economy) approaches, those supporting post-growth follow a *sufficiency* approach that rather reveals *what* and *why* questions. What kind of manufactured products, what kind of agriculture and food, what kind of energy sources does a society want to use and why? In her intriguing book *Mission Economy*, Mariana Mazzucato (2021, p. 10) framed this "why" question under the notion of the "purpose-oriented economy". These questions are admittedly very normative and lead to further complex questions of democratic participation, legitimacy, and morality, to name but a few. The imperatives of the current crises,

however, provide more than a first taste of how central such normative questions will become in the near future.

Before turning to the challenges resulting from these imperatives, I shall here provide some more terminological clarity around the two—often interchangeably used—notions of degrowth and post-growth. In his recent book *Ralentir ou périr* (engl.: *slow down or perish*), the French economist Timothée Parrique, one of the leading voices in today's degrowth scholarship, makes a compelling distinction between these two terms (Parrique, 2022, p. 15). To him, degrowth is the process of reducing, redistributing, and reorganizing that leads to some kind of steady state economy not consuming more energy and material than can be regenerated, whereas post-growth describes the new regime resulting thereof. However, this distinction is far from widely shared, as Schmelzer et al.'s (2022) or Lange's (2018) terminological debates reveal. Moreover, this semantic distinction may not work in all linguistic contexts—see, e.g., the prevailing notion of post-growth/*Post-Wachstum* in German-language literature, whereas the same term is marginally used in the English language, and its equivalents are rather absent in languages such as French or Spanish. Nevertheless, Parrique's definition conveys two compelling messages.

First, degrowth as a process can be understood as both an object of analysis for degrowth researchers studying a transition process, and as a programmatic notion that provides a legitimation for degrowth activism. Again, degrowth is not to be understood as negative growth, but as a means of reducing the material growth imperative inherent to most capitalist endeavors. The former dimension would be of heuristic use for framing processes and investigating agency, whereas the latter serves more as an agenda or guiding principle for post-capitalist activists. In some parts of degrowth scholarship, the boundaries between these two dimensions are not only blurred, but deliberately entangled as a key motivation for "action research" (see the concluding discussion about positionality further down).

Second, defining post-growth as a future state emphasizes the provisional character of the syllable *post*. It stresses the uncertainty about how exactly a future that is not fixated to a growth paradigm may look. And it conveys a certain openness towards diverse articulations of post-growth as an emerging ontology. In this paper, I therefore do not understand post-growth as a concept, a theoretical model, or policy program; rather, I will use it as a lens for focusing on phenomena, practices, and organizations that contain elements of post-growth orientation. Dimensions that could be addressed include:

- Goals and motivations of corporate, civic, or public enterprises;
- Production modes independent of growth imperatives that allow for a steady state;
- Organization and governance (e.g., ownership and corporate democracy);
- Work organization and labor relations, going beyond traditional categories of paid/unpaid labor;
- A look beyond the narrow (GDP) understanding of the economy.

Post-growth ideas are increasingly inspiring scholars in economic geography and cognate disciplines. To date, researchers have focused on emerging practices and spaces for "nowtopias" rather than on questioning the notion of growth, and how the

latter still marks contemporary economic geography thinking. Empirical contributors provide sectoral insights, for example in the realms of food/agriculture (Davies et al., 2017; Rosol, 2018), energy production (Klagge & Meister, 2018), maker spaces and fab labs (Lange & Bürkner, 2018; Schmid, 2020), housing (Nelson & Schneider, 2019; Jarvis, 2017), finance (Dörry & Schulz, 2022), or labor (Seidl & Zahrnt, 2021). Moreover, urban geographers and urban studies scholars have started addressing urban economies from a post-growth perspective (Sánchez Hernández, Nicolás Penela, Alonso Santos, & Moro Gutiérrez, 2017; Savini, 2021; Savini, Ferreira, & von Schönfeld, 2022; Schmid, 2022). Aside from these mostly idiographic research endeavors, a few more conceptual contributors have "spatialized" post-growth for its adoption in our discipline (Krueger, Schulz, & Gibbs, 2017; Schmid, 2019; Demaria, Kallis, & Bakker, 2019; Lange et al., 2022).

Admittedly, besides the explicit post-growth scholarship, there exists a long-lasting skepticism towards neoliberal economies, expressed in a diverse literature ranging from early Marxist geographers over feminist scholarship to post-colonial development studies—these strands often being combined with one another.

On the Implicit Growth Fixation of Economic Geography

Although the number of scholars discussing post-growth perspectives and practices is increasing, it seems appropriate to here take a self-critical view at mainstream concepts and models within economic geography. As emphasized earlier, in light of the fact that many social sciences are facing similar challenges, economic geography can stand in as just one disciplinary example. In particular, several of the key terms discussed hereafter are presumably framed in a similar way across other disciplines. My humble attempt at self-criticism must be preceded by two disclaimers:

(a) I am well aware of the plurality and diversity of economic geography scholarship (Barnes & Sheppard, 2009), and I recognize that viewpoints as to what is "mainstream" may differ. In the following, I therefore give examples and discuss terminology that is widely acknowledged within our discipline (e.g., by the fact that they are used throughout textbooks);
(b) Secondly, this section is admittedly far from a systematic analysis or in-depth screening of the recent scholarly literature in our field; rather, I am trying to illustrate avenues of thought that deserve further exploration.

Two examples of approaches from contemporary economic geography may serve as illustrations of a (conscious or unconscious) adherence to capitalist phenomena and mechanisms taking for granted, coming together with a rather narrow understanding of "the" economy.

First, Economic Geography researchers have a long-standing interest in understanding innovation processes and the spatial and institutional contexts thereof. The model of Regional Innovation Systems (RIS) has particularly resonated in the spatial sciences as well as in the political realm. RIS serve as a heuristic framework to map

the relationships between, and to scrutinize the agency of, various types of actors within a region, determining or fertilizing innovation processes in the corporate or public sector. Analytical dimensions include public and private research infrastructures; higher education and training environments; cluster initiatives and other strategic platforms; funding schemes; moderating functions of public authorities; development agencies; business associations; and—in particular—the practices of interaction and collaboration between these actors.

Despite its holistic view on actor groups and regional institutional contexts shaping innovation processes, the concept comes with some limitations obscuring the view towards alternative futures. Most authors of RIS literature deal with mere technological innovations and the regional institutional context they emerge from, are embedded in, and thus contribute to. Although they may also address organizational and procedural (governance) aspects, less is known about social innovations or the role of civil society actors. This blind spot may have to do with the rather reductionist concept of the firm or enterprise, usually understood as a formal organization, one listed in trade registers and participating in market transactions (see below). In addition, analysts tend to evaluate and monitor the success of RIS against the backdrop of conventional metric indicators such as regional GDP, job creation, submitted patents, and R&D expenditures, whereas alternative wealth indicators are rarely used. Overall, the RIS concept tends to equal a particular form of innovativeness with regional progress and prosperity, its utilizers rarely questioning either the assumed trickle-down of benefits and the actual socio-ecological impacts of an RIS.

Second, the concept of Global Production Networks (GPN) seems a suitable example of a well-established textbook model inspiring many scholars and students in economic geography and beyond (Henderson, Dicken, Hess, Coe, & Yeung, 2002; Yeung & Coe, 2015). Those using the GPN approach partly dissent from, but also build upon, the more linear Global Commodity Chain or Global Value Chain (GCC/GVC) perspectives (Gereffi & Korzeniewicz, 1994). Whereas those adopting the latter focus on single commodities tracked along their value chain, mainly revealing power relations and interdependencies between the firms involved, those using the GPN framework not only apply a more comprehensive view of all auxiliary services and supporting industries, but spatialize Global Production Networks along both their international and regional/local dimensions. That is, they not only look at interactions and interdependencies on the global level, but also with regards to the regional embeddedness of nodes within global networks. In addition, GPN scholars increasingly value resource questions and environmental threats as uncertainties that mark risk-minimization strategies of global firms (Schmitt & Schulz, 2016). And Bridge (2009, p. 1231) concedes that hegemonic powers within GPNs have "the capacity to produce highly differentiated resource geographies."

Notwithstanding, most GPN scholars rely on an unspoken core assumption of capitalist growth logics and uncritically foreground rather conventional performance indicators of major global industries, rarely problematizing issues such as distributional injustices or the neo-colonial articulations of "extractivism" (e.g., lithium mining in South America in relation to automotive battery production). On a

different note, it remains to be seen how current deglobalization trends will challenge the GPN model's conceptual underpinning.

With the limited space available here, I cannot give a more detailed assessment of contemporary economic geography thinking. Similarly to the two concepts addressed here, many of our discipline's textbook models share both normative assumptions and a vocabulary that needs to be challenged against the backdrop of post-growth imperatives. This starts with the conventional understanding of a core research subject—the *corporate firm*. Although usually defined as an organization formally recognized as a registered business, paying taxes and participating in monetary market exchanges, this understanding misses a possible wider understanding of the term *enterprise*. The latter could include all other (non-commercial) undertakings of societal relevance, for example, as indicated in the literature on diverse or community economies (Gibson-Graham & Dombroski, 2020) or discussed under the notion of hybrid organizations and their transformative potential (Nicholls & Huybrechts, 2014; Becchetti & Huybrechts, 2007).

In a comparable manner, the prevailing understanding of the term *innovation* as mere technological or organizational (e.g., logistics) advances in the production system rarely allows for incorporating other notions of innovation. In particular, social innovations as found in collaborative consumption endeavors (parts of the "sharing economy") or in participatory governance practices are rarely scrutinized, partly because they are not subject to metric monitoring using indicators such as patent registrations, R&D expenditures, a highly skilled workforce, or success rates of start-up companies.

The pervasiveness of econometric indicators extends to the typically narrow conception of *regional economic development* which is often monitored, evaluated, and strategically orientated against such criteria. Assessments often exclusively build on variables found in official industry or labor market statistics, business reports, or similar sources. Other variables than material or monetary expressions of wealth are rarely used to scrutinize the actual well-being of a regional economy and population. Assessing the latter would require both suitable indicators and a (fundamentally) different understanding of *value* creation and *wealth* distribution.

A further example would be what we understand by *labor*, be it paid work recognized in employment statistics etc., or a more encompassing notion of usually unpaid activities that serve societal well-being (e.g., care work, volunteering in charities and sports clubs). The role of these various types of labor and its social recognition is an important strand in the current debates around post-growth orientation (see overview in Seidl & Zahrnt, 2021).

These examples of terms presented here can only be a small selection. The pledge to critically reconsider established concepts, core assumptions, and usual tools of our discipline expand to numerous other key notions (e.g., evolution and path dependence), models (e.g., clusters), or methods. Simultaneously, economic geography's empirical and theoretical contributions to spatialized conceptions of institutions, power, value, and others put the discipline in a good position to assess transformative processes at local, regional, or superior scales. Little adaptations as to ontological understandings are necessary to access post-growth-related dynamics.

Post-Growth Oriented Economic Geographies

In the remainder of this paper, I aim to start a discussion about possible ways of framing post-growth-oriented economies and of operationalizing the notion of post-growth for research that looks beyond the "usual suspects" of ephemeral post-growth/alternative economies (see the notion of "nowtopias" above). I briefly introduce two recent and implicitly interlinked approaches before synthesizing their main characteristics and provisionally assessing their potential: *Foundational Economy* and the *Economy for the Common Good*.

Foundational Economy

This concept is propagated by an international group of scholars united in the Foundational Economy Collective (FEC). Not surprisingly, this Manchester-based initiative emerged in countries most affected by neoliberal policies and a considerable weakening (if not vanishing) of the welfare state idea. The FEC supporters' central claim is that policy-makers should refocus economic development on industries that provide daily necessities, either material or providential (Foundational Economy Collective, 2018). These industries encompass different types of utilities (including related infrastructures), health and welfare services, education, transportation, as well as food processing and retailing. These activities should become decommodified and hence equally accessible to all parts of the population. Although pleading for a stronger role for the public, the core idea is not to (re)communize those sectors. Rather, it is to mitigate the negative implications of neoliberal privatization of public infrastructures and services through a "fundamental rethinking of the relationship between governing institutions and private operators in the foundational industries through constitutional reforms" (Nygaard & Hansen, 2021, p. 771). A "social license" to operate and a close supervision of corporate service providers shall assure that a) social, ethical, and ecological standards are complied with and that b) surplus benefits exceeding the provider's tender calculation are being reinvested into infrastructures and services instead of being extracted and accumulated by private shareholders. This approach significantly exceeds the usual (and increasing) stakeholder orientation of firms (Braun, 2003; Schwab & Vanham, 2021), for example, in the context of sustainability reporting or more proactive stakeholder dialogues. Other than these often-voluntary initiatives, a formal social license assigned by a democratically constituted authority (e.g., a city government) comes with both a binding character and accountability mechanisms.

Froud, Haslam, Johal, Tsitsianis, and Williams (2018), members of the FEC, contextualize the Foundational Economy as one of three sectors outside the tradable and competitive economy that—together with the latter—constitute a "zonal economy." This distinction provides a compelling view on the sometimes more teleological discussions around diverse, alternative, or ordinary economies, and places

	Form of consumption	Examples	Provider business model	Source of revenue	Organisational mobility and mortality	Post 1980s public policy
Core Economy	Non-economic because "we must love one another and die"	Parenting, voluntary action etc.	Gifting: no charging or recovery of cost	Goodwill	Re-invented forms e.g. divorce and marriage in our generation	When the state retreats, try volunteers
Foundational Economy	Daily essentials via infrastructure of networks and branches	Material e.g. food, and utilities; Providential, health and care, social housing	WAS low risk, low return, long time horizon for public and private providers	Tax revenue for free at point of use or subsidised; or regulated private purchase	Low mobility and mortality as networks and branches 'ground' firms, stable demand	Privatisation, outsourcing and shareholder value = new business model
Overlooked Economy	Occasional purchases of mundane, cultural necessities		Financialized corporates vs SME and micro pro lifestyle and getting by	Discretionary from market income	High mortality in small firms and structural shifts e.g. streaming not DVD	Below the policy radar if firms too small to take outside capital
Tradeable, competitive Economy	(aspirational) private purchase	Cars, electronics, new kitchens and bathrooms, private housing	IS high risk, high return, short time horizon	Market income from wages (state subsidy for R & D, training etc.)	High mobility as footloose under free trade; cyclical demand	Business friendly, structural reform

Fig. 9.2 Schema of the "zonal economy". Source: Design by author, based on Froud et al. (2018, p. 7)

the Foundational Economy as a key pillar alongside the market economy, the core economy, and rather overlooked parts of the economy (Figure 9.2).

Researchers currently working in this realm deal with regional approaches to implement Foundational Economy (FE) principles, as in Wales or Barcelona (Earle, Froud, Johal, & Williams, 2018; Russell, Beel, Rees Jones, & Jones, 2022), or its articulation with other conceptual debates. For example, Wahlund and Hansen (2022) explore the compatibility with the concept of the Doughnut Economy (Raworth, 2017), and discuss to what extent it could serve as a means of further operationalizing Foundational Economy research and policies. Bärnthaler, Novy, and Plank (2021) explicitly discuss how the FE can be one trajectory within a post-growth transition, transforming capitalism "from within" (see more in this chapter's conclusion). Those (self-)criticising the FE approach address its "overwhelmingly Western-centric gaze" (Russell et al., 2022, p. 1081), to which one could add a lack of differentiation in terms of "varieties of capitalism" recognizing the achievements (or remnants) of actually existing welfare states and further exploring the variegated dispositions of national (Crouch, 2005) and regional economies (Ebner, 2015).

Economy for the Common Good

Narrowly linked with the work of the Austrian activist Christian Felber (2019), Economy for the Common Good (ECG) has become an international network movement whose supporters seek to propagate values-driven businesses that are committed to human dignity; solidarity and social justice; environmental sustainability; and transparency and codetermination. The ECG Matrix (Figure 9.3) serves as a differentiated tool for monitoring a company's common good performance. First developed only for businesses, adapted matrices can also be applied to municipalities and educational institutions.

A detailed evaluation scheme is provided for each matrix box. For example, in category A3—"Environmental sustainability in the supply chain"—the following levels of evaluation are used in assessing a firm (Drosg-Plöckinger et al., 2017, p. 27):

> *Exemplary*—Ecological purchasing management is part of the company's corporate identity and positioning. Policies for environmentally friendly purchasing and reducing the environmental risks of purchased goods are innovative in all areas of business.
>
> *Experienced*—Comprehensive purchasing guidelines have been established outlining how purchased goods are assessed and selected according to environmental criteria, and how suppliers are supported in implementing required environmental standards. Almost all main suppliers fulfill above-average environmental standards.
>
> *Advanced*—First measures have been put into place to reduce the environmental risk or impact associated with the purchase of goods and services. The firm is committed to reducing the use of environmentally damaging products. Initial steps have been taken to encourage suppliers to reduce environmentally damaging activities.

VALUE / STAKEHOLDER	HUMAN DIGNITY	SOLIDARITY AND SOCIAL JUSTICE	ENVIRONMENTAL SUSTAINABILITY	TRANSPARENCY AND CO-DETERMINATION
A: SUPPLIERS	**A1** Human dignity in the supply chain	**A2** Solidarity and social justice in the supply chain	**A3** Environmental sustainability in the supply chain	**A4** Transparency and co-determination in the supply chain
B: OWNERS, EQUITY- AND FINANCIAL SERVICE PROVIDERS	**B1** Ethical position in relation to financial resources	**B2** Social position in relation to financial resources	**B3** Use of funds in relation to social and environmental impacts	**B4** Ownership and co-determination
C: EMPLOYEES, INCLUDING CO-WORKING EMPLOYERS	**C1** Human dignity in the workplace and working environment	**C2** Self-determined working arrangements	**C3** Environmentally-friendly behaviour of staff	**C4** Co-determination and transparency within the organisation
D: CUSTOMERS AND OTHER COMPANIES	**D1** Ethical customer relations	**D2** Cooperation and solidarity with other companies	**D3** Impact on the environment of the use and disposal of products and services	**D4** Customer participation and product transparency
E: SOCIAL ENVIRONMENT	**E1** Purpose of products and services and their effects on society	**E2** Contribution to the community	**E3** Reduction of environmental impact	**E4** Social co-determination and transparency

Fig. 9.3 The Common Good Matrix for Enterprises. Reprinted from Drosg-Plöckinger, Kofranek, & Koloo (2017, p. 8). Copyright 2017 by Matrix Development Group. Reprinted with permission

Getting started—Purchased goods and services are checked for environmental risks and impact, and environmentally preferable alternatives are sought. Initial exclusion criteria are met when making purchases.

Baseline—Legal requirements are met. The firm makes no further assessment of suppliers according to the environmental impact of their activities.

Together with further assessment tools recommended by the ECG network, these levels are used to reveal individual scores for each respective category. The evaluation results then feed into a comprehensive balance sheet for the company. The current scores of all categories are displayed in the synoptic matrix, which can be used like a dashboard for further monitoring and adaptation strategies.

Despite its analytical rigor and search for methodological transparency, the ECG approach can be criticized, for example, for the following issues:

- Like many other multi-dimensional evaluation schemes that result in a kind of metric synthesis expressed in a scoreboard, questions arise concerning the underlying criteria, the scope and comparability of the variables, and the pertinence of the indicators used.
- On a more than semantic level, Felber and the ECG network have built not only a concept but also a brand. To a certain extent, their label takes possession of a formerly wider notion of the common good in the corporate sector. With all respect for the concept's robustness and the network's noble motivations, the ECG represents but one particular reading of how the concept of the common good can be established in the corporate sector.
- Finally, one could question the dynamics inherent to a somewhat commercialized label and the performativity of the Common Good Certificate assigned to positively evaluated firms (see the general discussion on the validity of sustainability labels used in corporate marketing).

Despite these criticisms, the ECG provides an advanced tool to further operationalize the idea of post-growth orientation. Possibly going beyond the status of a voluntary assessment in the future, it could provide a tangible tool and substantiated standards for political and regulatory initiatives towards incentivization and formal recognition of firms that divert from mere material growth logics.

Discussion and Conclusion

Both the post-growth imperatives in general and the two concepts presented in the preceding section in particular offer compelling research avenues for an economic geography engaged with a profound transition of socio-economic practices and institutions.

These avenues are intriguing albeit challenging, as their exploration necessitates questioning established reference frameworks and core assumptions of economic geography and other disciplines. The challenges exceed terminological and

conceptual reconsiderations and also require adaptations in methodological terms, aspects that would go beyond this chapter's scope and cannot be outlined in more detail. They include both the range of appropriate research tools as well as issues related to the availability of data and monitoring indicators.

What those utilizing the Foundational Economy and the Economy for the Common Good approaches have in common is that neither claim to provide a comprehensive alternative to the capitalist economy. Nor do they present a one-size-fits-all methodology, applicable in the same manner to all different industries, business models, organizational forms, or regional contexts.

Rather than claiming for an antagonistic model to prevailing capitalist practices, they aim at conceptualizing ideas that can inform either policy making (e.g., the FE's role) or corporate enterprises (e.g., by providing instruments such as the ECG Matrix) to readjust within the current system. This does not mean, however, that they do not aspire towards fundamental (if not disruptive) changes, be they in the role of the state and civil society in controlling corporate FE providers or in the motivations, goals, and actual practices of companies turning towards a common-good orientation. Still in their infancy, both concepts need further elaboration and real-world experiences. An economic geography whose practitioners are interested in socio-ecological transformations seems well situated to contribute to the further development of these and other operationalizations of post-growth ideas.

Finally, and as indicated above, growth critique and post-growth thinking is inherently normative (as many other research perspectives implicitly are too) and may require a particular consideration of researchers' positionality. This is the more relevant as numerous post-growth scholars would see themselves as action/activist researchers advocating for transformative ideas in a fairly militant manner. Such scholars would justify their combativeness by citing the pertinence and emergency of the current global crises; their work, they might say, is in response to societal expectations that scientific contributions solve pressing problems. Although transformative commitment appears justified under these circumstances, all activist researchers should also be able to adopt a critical distance and address any possible conflicts of interest and resulting biases in a transparent manner to avoid a loss of credibility.

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Chapter 10
Trusted Emplaced Futures

Sarah Pink

In this chapter I explore the notion of trusted emplaced futures. Recent accounts of place, as a concept and as an experiential site, have centered on our contemporary circumstances, in what geographers Edensor, Kalandides, and Kothari (2020) term a "heightened existential angst which currently links humans to the fate of their place or places" (Edensor et al., 2020, p. 2). The growing body of research into place which Edensor and colleagues cite, alongside the burgeoning field of futures studies (Bryant & Knight, 2019; Collins, 2021; Salazar, Pink, Irving, & Sjöberg, 2017), are symptomatic of a turn in academia, with researchers recognizing the increasing urgency to address what will come. In these concerns about place (its relation to planetary health, its inequalities and inequities) and about futures (at a moment of climate crisis, a global pandemic and increasing technological automation) the notion of uncertainty comes into play. Place is always uncertain, contingent, and—as geographer Doreen Massey (2005) emphasizes—"unfinished and open" (Massey, 2005, p. 11), an "ever-shifting constellation of trajectories" (p. 151) always in forward movement. To be in place is then to be in a world which will inevitably continue to move forward and reconfigure into as yet unknown futures. How, then, might one engage with this increasingly urgent situation?

As argued elsewhere (Pink, 2023), those of us who are social scientists need to change the game: We need a dramatic shift, to position ourselves in such a way that we are able to address the angst that Edensor and colleagues refer to and the "crisis" that is so commonly cited, from the other side, or by passing beyond the openings of an unfinished world. Rather than standing back from an imagined precipice over which we wish the world would not slip, we must think futures differently. Rather than viewing what is ahead as a crisis in need of a fix (Roitman, 2013), we must instead get ahead of this moment of crisis in which we are said to be, and step into a

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futures place. Or, put differently, we should constitute sites from which researchers, research participants, and other stakeholders in our futures are sensorially and emotionally emplaced in such a way to imagine, envision, and proactively engage with possible trusted futures. While acknowledging that futures are always contingent, uncertain, and unknowable in the present, social scientists must ask themselves how they might work towards constituting trusted emplaced futures.

In this chapter, I argue that rather than seeking to mitigate uncertainty, suppress the sense of not knowing that permeates social scientists' relationship with futures, or rely on predictive data analytics to guide decision-making and planning for futures from above, social scientists should instead focus on how futures are constituted and imagined in the everyday. I propose that by acknowledging uncertainty as a generative facet of place, and by understanding what *is* familiar and trusted in the everyday, we can better consider how to work towards futures that are trusted because they stabilize uncertainties through values and principles rather than through predictions. The concept of trust that I employ here is central to such considerations, as a trusted future is one where people feel confident in the circumstances, environments and relationships in which they find themselves; it would be a future where they are emplaced in situations of trust. It represents a future where one is able to know, constitute, and engage with the materials, experiences, relationships, and environment of place in such a way that one feels protected from possible or imaginable threats or challenges.

In what follows I first discuss what happens when social scientists bring together concepts of place, futures, and uncertainty to work towards an understanding of emplaced and trusted futures. I then outline how we can engage the concept of trust to express and analyze the ways that we feel in and about experiential places in the present and possible futures. I subsequently demonstrate these principles through examples from recent ethnographic futures research.

I show how we can mobilize these concepts to help us understand, imagine, and work interventionally in relation to possible futures. In doing so I emphasize and advance the need for us to do what I refer to as *social science research forward*, that is, to create and mobilize the conceptual, methodological, and practical tools we need to participate in a futures space alongside other disciplines and stakeholders.

Emplaced Trusted Futures

To develop the notion of emplaced trusted futures—that is, an understanding of futures as emerging from and contingent on place—I draw together three concepts: Place, Futures, and Uncertainty. I use this trio to refer to principles through which to understand emplaced, trusted futures.

Place: Place, for Edensor and colleagues, is a concept that enables social scientists to "make sense of the distinctiveness of the sites through which we move and in which we live" (2020, p. 2).

A processual theory of place can be engaged to understand life in the present and possible futures. Theories of place are useful precisely because they emphasize how diverse processes and things continually configure and reconfigure over space and time (e.g., Massey, 2005; Pink, 2012), through the movement of things and shifting relationalities, and the changing ways in which people experience and know place. Proponents of this framework envision place as configuring intensities of materialities, activity, affect, or sensation within wider (and endlessly shifting) flows of people and other species, things, materialities, and processes. Theorists of place also emphasize movement, with a focus on how place is constituted and experienced through and in movement, which can be both spatial and temporal. Such a theory of place can be used to understand empirical situations (Pink, 2012), as well as ethnographic research processes (Pink, 2015), as sites of intensity which draw together continually moving and reconfiguring relations of researchers, participants, stakeholders, and audiences. However, much existing research and theorization of place ends in the present and is subsequently written into the past. By this I mean that researchers of place, its constitution, experience, and materialities tend to focus on sites of research as they were in the moment they were studied, rather than in anticipation of possible futures. Although, as noted above, researchers tend to regard place as unfinished, it is this quality of unfinishedness that they emphasize, rather than the idea of place as a generative site of possibility. This means that researchers tend to study place as happening, with the acknowledgement that it will continue to happen—because it is "unfinished" and temporal as well as spatial. Thus, although researchers acknowledge the uncertainties of place, they do not, to my knowledge, usually unpack them as possibilities or bring them together with theories of future within mainstream discussions of place in academia. However, our futures are of course equally implicated in relations of place as is the present. Thus, making a theory of place relevant to understanding possible futures through a new focus on forward movement entails not simply moving up to the edge of the future, but has implications for understanding future place as constituted in possible forward movement of people, things, and processes, and in *scholarship forward*, which is engaged with futures.

Futures: Futures, in anthropological scholarship, are always emerging, contingent (Bessire & Bond, 2014; Irving, 2017) and uncertain (Akama, Pink, & Sumartojo, 2018). They can thus not be predicted, and there is an urgent need to investigate futures qualitatively, creatively, and collaboratively (Pink, Ferguson, & Kelly, 2022a, Pink et al., 2022b). To speak of futures therefore signals the inevitable ongoingness of place beyond the present which is lived at the *edge of the future* (Pink, 2023). Indeed, I suggest that to be in place means to live both at the edge of the future and in *possible futures*. There has recently been a particularly intense focus on futures across the social sciences and humanities (Bryant & Knight, 2019; Kazubowski-Houston & Auslander, 2021; Salazar et al., 2017). Such scholars build on earlier geographies of anticipation (Adey & Anderson, 2011), anthropological work on future (reviewed by Collins, 2021), and sociologies of expectations (Brown & Michael, 2003). Yet in the light of the Covid-19 pandemic and the experience of accelerated climate change, associated with the idea that we are in

an increasingly urgent crisis, it seems that academic interest in futures has also grown. The authors of much recent literature about futures, however, tend to focus on futures as an object of study—that is, they propose the anthropology or sociology *of* the future. In contrast, I argue that social scientists need to take a new step in futures scholarship, to investigate in and with people in possible futures. Methodologically I am concerned with how futures feel: What is the experience of possible future places? How can we imagine the contingent circumstances of futures? How can we inhabit possible futures with others and seek to comprehend their emplacement?

Attending to emplacement involves evading the easy option of either advocating for utopian future fixes or depending on critique to outline how futures could play out as dystopian. To understand futures also involves making a commitment to futures as possibility rather than tracing causal trajectories towards future end points. For example, advocating for and working towards future end goals—such as net-zero carbon emissions by 2023—encourages mapping out pathways to transition and then seeking to find ways to ensure that people behave in ways that will bring them about. Such top-down approaches are difficult to achieve precisely because their designers to not take into account the ways that people will be emplaced. Instead, I advocate for an approach that enables productive and generative ways forward, often working through further anticipatory concepts, including trust, with which I refer to a value that can be associated with emplaced futures. Trust is a complex concept, of which there are competing definitions (see Pink, 2023 for a discussion). I here engage trust as an anticipatory concept, involving our feelings relating to our immediate or proximate futures. Coinciding with philosophers of trust, I see trust as involving feelings of familiarity and confidence (e.g., Frederiksen, 2014), and have elsewhere proposed that as an anticipatory concept:

> Experientially, trust emerges in the spaces where we can never know for sure what will happen next, and holds us steady as we move forward, wrapping us with a sense of familiarity and confidence. Experiential trust is ephemeral, emergent, contingent and shifting, it may be hard to describe but is manifested in our sensory and emotional engagements with people, things and environments. It cannot be held still, captured, given or taken. (Pink, 2023, p. 29)

Trust is not the only relevant value and other researchers may wish to also associate other value-related anticipated concepts—such as hope or anxiety, or the angst referred to by Edensor et al. (2020) noted above—with emplaced futures. Indeed, anxiety creates a better frame for investigating possibilities relating to future climate disasters, inequalities, or oppression. However, although I acknowledge the need to engage with the possibility of unjust and unbearable futures, my focus here is on carving out routes through which injustices would ideally be mitigated in generating trusted futures.

Uncertainty: Uncertainty is core to understanding both place and futures anthropologically. People's lives, relationships with others and things, and the environments of which they are a part are inevitably uncertain. It is impossible to know what will happen next, as history and life continually reveal—the unknowable, unthinkable, unimagined, and not hoped for are not exceptions that interrupt what would

otherwise be a predictable life. Rather, they are articulations, demonstrations, manifestations of the uncertainty that always lies at the edge of the future. We encounter them not in an as-yet unknown future, where they lurk in wait for us, but as we step over into the unstoppability of what is next, that moment where the present becomes the past and our continually shifting circumstances show themselves to be renewed. Of course, we do not notice this uncertainty all the time, and moreover there are certain things that we get so used to being uncertain about that we do not continually pay attention to living with uncertainty. Such everyday uncertainties permeate our lives in very mundane ways. For example, I am never certain that I will not miss the tram on my way to work, that I will not catch the Covid-19 virus at a crowded event, or that a research grant application will be successful. That is, I know that there are contingent circumstances that surround each of these possibilities, and in each of them I invest various degrees of trust that things will turn out well.

Simultaneously, uncertainty manifests itself retrospectively when there are occurrences which we cannot imagine. The Covid-19 pandemic is a well-worn but good example of this: In 2019, most people in the world could not have imagined that a year later they would be locked down at home surrounded by death, ill health, and failing economies. But when the pandemic took hold of our lives, it revealed precisely how uncertainty plays out, in that we simply do not know what is going to happen next. The Covid-19 pandemic demonstrated this on a large scale, but such uncertainty is likely revealed many times across the world every day, to ordinary people as everyday life unfolds. Communities could never have imagined that their lives would be horrifically interrupted by war; generations have felt the futures they expected vanished in times of economic crisis. There are endless possible examples, and readers may be able to feel this more closely if they try to remember or imagine something other than pandemic that left a similar trace on their own lives, or the lives of those close to them. Uncertainty does not, of course, always mean disaster or grief; the contingent circumstances that constantly characterize life might also lead to joy and survival. Take, for example, the anthropologist Andrew Irving's (2017) narrative about a woman who on turning one way instead of the other came across a person who would effectively save her life.

There exists an extensive literature about uncertainty (Akama et al., 2018; Pink, 2023), but I here want to emphasize two elements, to which I later return: First, uncertainty is a mundane everyday life concern and concept as much as it is to do with spectacular unanticipated events; second, that uncertainty is continuous, inevitable, part of the inescapably ever-changing circumstances of an ongoingly emerging world. In my earlier work on uncertainty, developed with the designer Yoko Akama, we focused on the question of how to harness uncertainty as a generative force in an ever-emerging world (Akama et al., 2018). Aligning with design anthropological understandings of emergence (Smith & Otto, 2016) and the processual theories of phenomenological anthropology (Ingold, 2000, 2011), we sought to understand uncertainty as an element of emergence. If uncertainty is impossible to avoid then it may be better to seek to work with it, to understand how it is implicated in the ways in which people move forward and live with everyday uncertainty, and the improvisatory and creative modes of being that this entails. How can uncertainty

be a generative force in constituting futures? Why might acknowledging uncertainty better enable us, to work towards hopeful and trusted futures?

Bringing together these three concepts—place, futures, and uncertainty—invites the notion of *Emplaced Futures*. I have used emplacement to consider how we—meaning people in this discussion—are both embodied (that is, dissolving any mind-body distinction) and situated as part of place. We are thus contributors to the constitution of place, rather than separate entities who exist in or on place. Connecting this concept to that of futures, it is possible to understand our sensorial and emotional experiences of possible futures as similarly being within and part of the possibilities of place, rather than as experiencing future place as observers. Acknowledging the uncertainties of place and futures takes this framework a step further, to suggest that as we step forward into futures, and as we imagine possible futures, we are emplaced in circumstances that are inevitably uncertain. Thus, to understand these uncertainties and their generative potential for futures, we must find ways to apprehend experiences of emplaced futures, in research. I next explore methodologies, aligned with an understanding of place as constituted through movement, which can support this.

Methodologies for Investigating Emplaced Futures

In existing work (Pink, 2007), I have explored how place both comes about and can be explored through video-based ethnographic walking methodologies, and work led by Kari Dahlgren (Dahlgren, Pink, Strengers, Nicolls, & Martin, 2022) has examined how future-focused comic strip elicitation methods can generate understandings of how people may experience future sites. I have discussed how through the method of walking in a Slow City community garden project, the project leader, David, walked his future vision for the pathway in the garden, using his steps and his stretched-out arms to show me how it would be, thus at the same time emplacing himself in that imagined future (Pink, 2021). I have also conceptualized the video trace that recording while walking creates, not as a record of simply what is in the camera, but as a mode of capturing the positionality of the researcher as they traverse the environment, with the participant, and to emphasize that "the process of walking with video is one of *going forward through* rather than mapping onto an environment" (Pink, 2011, p. 146). This "walking with video" (Pink, 2007) research inspired the development of the method further in walking tours of homes to emphasize that:

> If both the ground and the air are part of the experience of the environment that we are seeking to understand (as they indeed are in the study of the sensory aesthetic of home where we are interested in floor surfaces, smells and temperatures), video creates a trace of our routes through that sensory environment. Video of course does not *record* invisible elements like smell, warm or cold air or the feel of the carpet or wooden floor. Yet in recording what is said about it, facial and bodily expressions and performance, the sound of footsteps and

> visible and spoken referents, it has the potential to invoke empathetic responses to these experiences. (Pink & Mackley, 2012, p. 4–5)

In my experience (e.g., Pink, 2004), video tours of the home, like those of public spaces noted above, also encouraged people to relate not only their experience of the present but their hopes and intentions for the future, how they imagine their future homes, its materials, and the related sensations. Building on these existing methodological advances, in the next section. I discuss an example of my encounters with a research participant within the Digital Energy Futures project, further elucidating the approach by engaging the video tour method to explore possible and imagined futures. The Digital Energy Futures project is a research-council- and industry-partnered funded project, its participants committed to both high-quality scholarship and impact in terms of guiding energy companies through design ethnographic foresight and collaboration in energy forecasting. They emphasize futures and engage a range of design ethnographic methods in doing so. Rather than discussing the full scope of the project, I concentrate on how its future-oriented frameworks have inspired the development of emplaced walking and touring methods, alongside comic strip elicitation methods (Dahlgren, Pink, Strengers, & Nicholls, 2022), and how these reveal relations of place in the present and in possible futures.

As noted above, video tour methods already proved to generate emplaced reflections and performances of possible future feelings—sensations and emotions—and materialities. It is something that happens as, and creates a trace of, the ongoing process of stepping over from the present into the immediate future and a site for imagining near and far futures with participants. In the Digital Energy Futures project, we also used two other methods, which I draw on briefly below. The anthropologist Kari Dahlgren created comic strips representing possible futures to ask participants to imagine themselves in these future sites (Dahlgren et al., 2022). Whereas social scientists have frequently used conventional photo or other visual elicitation methods (Harper, 2002) to uncover historical/biographical and contemporary experiences and subjectivities, they have rarely used them to invoke experiences of possible futures. Designer Hannah Korsmeyer created design ethnographic workshops to invoke future situations and ask participants to comment on others' experiences and actions in the future, as well as to role play or outline future situations (Pink et al., 2022b). In such research practice, while the 'findings' of the research are also fruitfully separated from the processes through which they were created, and aggregated to present insights and foresights, much of their meaning also resides in the research encounter and its telling. Therefore, in the example discussed in the next section. I take this opportunity to tell emplaced futures as they came about in research. In our project these possible emplaced futures were simultaneously aggregated with many similar encounters with other participants (Pink et al., 2022b).

I next explore empirically how emplaced futures are constituted through two examples. The first focuses on how collective movements work towards emplaced futures. The second on how emplaced futures can become visible in individual trajectories. In both cases, I suggest how emplaced futures can arise through the generative power of uncertainty and explore what made them feel trusted.

Knowing Emplaced Futures in Research

As noted above, I became alerted to how place is implicated in generating possible future imaginaries and plans when researching slow cities. The Slow City movement (https://www.cittaslow.org/) encourages its town-based groups to envisage how they might move forward in their localities through the principles of the movement. The planning processes the groups went through, aligning their own local future visions with the movement, were often riddled with moments of uncertainty. For example, leaders of Cittaslow application processes were often concerned about the possible futures they did not want for their towns, including the introduction of large supermarket or fast-food chains, as frequent examples. Often, to show me what they wanted and did not want for their towns' futures, participants would take me for a walk through their streets. As time went on, I realised that they had offered me a generative research method and began to request town tours when visiting towns and engaging with participants. The tours also reflected the principles of the Cittaslow movement—that is, they emphasized the elements of place that they felt were Cittaslow, and those that were not, as well those that could emerge as such in the future.

Planning through the Cittaslow principles enabled participants to envision and take actions towards alternative practical and experiential futures. This did not mean that they necessarily contested or directly fought these large-scale capitalist initiatives, as they rarely had the power to do so. Instead, they were able to carve ways of envisioning, planning for, and practically working towards trusted futures, which represented their own values alongside these commercial initiatives that did not reflect their local place-based values. In the context of unfolding into immediate futures this meant, for instance, encouraging local farmers' markets and economic activity that was rooted in the environment of the town, or in more event-based activities, only permitting local traders to sell locally sourced food at the town's annual carnival. My research in the United Kingdom and Australia between 2004 and 2014 (e.g., Pink, 2008; Pink & Lewis, 2014; Pink & Seale, 2017) with slow city leaders and applicants involved attending planning meetings, where they designed both their forthcoming events and applications to join the movement. This enabled me to view how people envisaged and constituted trusted futures—in this case, futures that embodied the values of locality—as they planned and then carried out events and actions. A key insight concerned the capacity of people and groups to imagine, constitute, and begin to live possible trusted futures as they played out. The nexus between place, uncertainty, and futures in these situations was crucial, and is a key example of how emplaced futures are constituted: through the experiential and embodied dimensions of place (for instance, tasting and ingesting local food produce), the certainties of alignment with local values (related to sociality, sharing foods, and a commitment to the local economy and heritage), and the carving out of these into a future-focused trajectory resilient to (if not able to directly resist) the corporate encroachment that so many slow cities feared (Pink & Lewis, 2014). I next

explore how place-based knowing can similarly further future imaginaries as individuals navigate and sense their everyday environments.

Al participated in the ethnographic phase of the Digital Energy Futures project, undertaken by a team of five researchers, including myself, during the Covid-19 pandemic in 2020. Due to pandemic restrictions our ethnographic encounters took place online and involved two stages. The first was an ethnographic zoom interview, in which we explored a range of questions around everyday life in the present and the future, with a particular interest in energy and automated home technologies, and also used participants' energy-use graphs and future-focused comic strips as probes. In the second meeting we then asked participants to discuss selected diary activities we had asked them to undertake between the meetings, and to take the researcher on a video tour of their homes via their smartphones or other mobile devices. With this research, we discovered that place is fundamental to how people use energy in the present and how they imagine their future home lives with energy and automated and emerging technology (Pink et al., 2022b). I have selected Al's interview for discussion because it exemplifies how understandings of possible futures, and the modes through which futures feel trusted, are inextricable from the ways that people know, sense, and imagine the changing configurations of place.

Al worked in IT, mainly from home, a spacious coastal house he shared with his wife and three sons in what he described as "quite an isolated little spot" where "typically, if someone drives in, up the driveway, everyone's, okay, they're lost." When we toured his home, he started off by showing me the kitchen and living area, which he managed and used in relation to his embodied and sensory knowledge of the weather system his house was in. The sunroom had no technological heating and cooling, but its windows could open, and he commented that when the winter sun shone through the space heated up nicely and was cozy to sit in. He used other big windows in the house in relation to his emplaced knowledge of the environment as well, as he explained:

> We actually have blockout blinds here because [of] the west sun, … Two reasons. . . . these blinds here, so this will stop the western sun, which is starting to hit now, from about 3 o'clock in the afternoon, we'll cut that down because that stops it heating up the house. And it's also there because you can see, that's [a]National Park behind us so from a fire protection perspective … we can close the shutters if we need to stop a fire in this part of the house. So, we'll get amber attacks and things like that. (Pink et al., 2022b)

We walked through the home down to the basement, which Al was digging out himself to "give us a bit more space," for extra storage for the family of five's camping equipment. He then took me into the "enormous" garage which contained two cars, a boat, a workshop, a freezer, dryers, and many other items with room to spare. He then led me outside, past the pool, and noted that they didn't have solar panels, referring back to our earlier interview. As he explained, although several solar panel companies had claimed that a solar installation would be possible, the electrician who had worked extensively on his own had advised against the attempt. This, in combination with Al's own emplaced knowledge about the positioning of their house and roof, convinced him that they could not capture sufficient sunlight to generate a significant amount of solar energy with so many shadows cast onto the

roof, from the surrounding trees. He then took me around the house, showing me the roof and the small patch of sunlight that fell on the back in the summer, which he thought might be able to run the pool pump on solar, discussed if it might be viable for the panels to be placed elsewhere, as he had already explained to me that he had to block out the intense heat from the sun on the windows on one side of his house at certain times of the day, which he thought could be possible.

Al's case shows us how he lived with the sun, shade, wind, and winter chills, and organized the materialities, routines, and relationships in his life at home relationally to these elements of place. Bushfire smoke threats and the lesser annoyance of backburning were annual presences in his area, part of living in what he described as an exceptionally beautiful coastal location. In relation to these, he imagined possible futures where this knowledge continued to figure.

Al's life at the edge of the future was in anticipatory mode: He set his thoughts towards creating more space in his home, ensuring that both family and house were safe from the sun and from fires, imagining how he might generate solar energy, what would complicate this attempt and what he could use the resulting energy for. When I asked him to consider a future comic strip where more extreme weather would be part of everyday life, he agreed that "yes, we will get increasing days of extreme weather" and anticipated loss of energy supply through "failures" in the energy grid. He felt he would "like to have some form of backup" such as batteries to be able to cope in such situations. Living in an area that was prone to filling with bushfire smoke, he was uncertain how much air purification technology he might need in his home in the future. Judging from his comparative emplaced knowledge, he contemplated:

> I thought about it the other day. You know, you do get days of smoke but in terms of traffic pollution and other pollution, I think we're probably better off where I am because we're far enough outside … [the city] to not get the settling pollution. (Pink et al., 2022b)

When I further explored this with him in a later online workshop, in which I asked him to design a future air purification technology for his home, he was keen to design future technologies that could support him and his family in times of extreme weather, using his own trusted local emplaced knowledge relating to smoke and heat in his environment to determine how he would control this automated technology. He also introduced a new factor, relating to data privacy: In the future he would need to be able to trust in the digital environment that he could imagine becoming part of his home, as automated technologies increasingly featured in his emplaced futures.

Trusted Emplaced Futures for a World in Crisis

In both of the examples discussed above, it becomes clear that trusted futures—futures that people are engaged with and wish to work towards—are envisaged in relation to local ways of knowing and sensing. They are built on the familiarity of

local knowledge, and through connection with the local environment. They involve people understanding futures through their ways of knowing about, sensing, and experiencing local produce and weather systems, and relationships with neighbours and community. Importantly, they are futures that emerge from people's engagement with place—and are, as such, emplaced.

As such modes of envisioning and working towards futures are rooted in the local, they are in a very literal sense *ground-up*, rather than *top-down*. They are built on the ways in which people experience, know, and imagine the air they breathe, the ground they grow their food in or dig up to make their properties more suited to their needs. They are thus built on the knowledge that people trust, and people's relationships with other persons, species, organizations and entities, in which they maintain control over decisions that require their local knowledge. Constituting trusted emplaced futures therefore in all cases means knowing with, and in, the local environment.

Through the examples discussed above, I have demonstrated how movements towards possible trusted futures can be driven incrementally from the ground up. However, as I noted earlier, we are not only confronted with slow-moving change, but also with abrupt or disruptive shifts, like those of conflict or the Covid-19 pandemic. Though these processes of more dramatic change differ from processes of change driven through everyday action, there are also cases in which everyday (albeit more intensified) action can be seen as constituting more immediate shifts to trusted immediate futures. One example of this, elaborated elsewhere (e.g., Pink et al., 2022a), was used to demonstrate how during the Covid-19 pandemic in the UK child protection social workers adapted their practice, in times of crisis, towards new modes of digital practice in which they could trust. Although the change was dramatic, the processes through which they learned to know, sense, and practise differently were inevitably ground-up and incremental, if accelerated.

In our contemporary context, I noted at the beginning of this chapter, there is a sense of urgency for us to engage anew with futures. There is angst or anxiety about what will happen in a world of climate change, political upheaval and a global health pandemic. In short there is much that is uncertain about our futures, yet, when people engage with future situations related to this 'crisis' ground up through their own local knowledge, in ways that acknowledge their emplacement, they can envisage trusted ways forward.

Social Science *Forward*

It is here that I believe social scientists need to engage and be attentive to the many modes through which people become prepared to move forward towards possible and imaginable futures. We must go forward with them, as researchers, developing methodologies that enable us to work with research participants to collaboratively carve and craft new trajectories into futures. By joining these participants in imagining and experiencing futures, in sensing how futures could feel, we will be able to

understand better what constitutes a trusted future, for whom, when, and why. This involves becoming emplaced with participants, and in turn understanding and analyzing their emplacement, the values associated with it, and the ways these values carry forward in possible futures.

However, as an anthropologist I have a further responsibility, one that goes beyond simply engaging with people in future-focused fieldwork and producing academic accounts of their experiences. My work involves creating the kinds of knowledge, stories, and foresights that are needed to be able to participate as a stakeholder in the futures space. This means that social scientists should not only go forward in the context of fieldwork and publishing, but that as public and applied scholars. This involves collaboration with stakeholders, public speaking, and dissemination. In my earlier work with Slow Cities, I became involved in speaking and participating in a public event—Grand Designs Live—where I engaged my emplaced knowing with participants to represent the movement's work in the UK. In the Digital Energy Futures project, my colleagues and I collaborate and partner with three organizations in the Australian energy industry in order to qualitatively understand energy and technology futures and bring this work to the forecasting analyses of the industry.

These are all modes of doing social science in ways that are either open to stakeholders in our environmental futures or that move forward not only with research participants but also with the dominant stakeholders in the fields in which we work. Such a move is necessary and, I argue, benefits from understanding futures from the perspective of emplacement.

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Chapter 11
Speculating on Future Presents: Sociology, Futures, and Fictions

Richard Tutton

All that is solid melts into air. We must invert this process. We must reverse direction. No longer taking what was once solid and burning it to lift us up, free of the constraints of an earlier life. The Moderns bequeathed us the idea of progress: that humans (but they did not mean all humans) were travelling towards the destination called utopia. Did they reach that destination? No, it was never a destination but a horizon: that illusory line between sky and sea that some days one can see more easily than on others, but one can never reach. I am not advocating we do away with horizons. Without a horizon we would be lost. I instead call upon you all to embrace a different process, one we call unfuturing: We will not make a future but unmake one—the one they made us suffer.

Since the nineteenth century, the field of European sociology has been strongly connected to a particular way of looking at the future. As Connell (1997) relates, the emergence of sociology—as the science of human society—was concerned with "discovering and expounding laws of progress" (p. 1519). Progress was a "conviction that man [sic] and his world were moving upward toward a constantly rising level of perfection" (Bossard, 1931, p. 8). Driving this progress was not Divine Providence, but human agency. In the twentieth century, remaining committed to the idea of progress, sociologists initiated an attempt to create a "sociology of the future" to both consider the future as "an analytical object" (Brown & Michael, 2003, p. 4) and as a "temporal space" in which sociological knowledge could be mobilized to achieve social improvement. This attempt was short-lived and the "focus on the future once more fell out of favour" (Adam, 2011, p. 592).

However, in the past two decades, sociology has experienced a significant upsurge of interest in futures—now multiple, contested, contextualized—"-articulated through a range of critical economic, public health, geo-political and

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environmental crises" (Halford & Southerton, 2023, p. 264). Today, commitments to progress are less evident. For instance, John Urry (2010) argues that "the twentieth century has left a bleak legacy for the new century, with a very limited range of possible future scenarios" (p. 191). Today's *sociology of futures* has produced a plethora of new analytical concepts to enrich scholarly understanding of future-making practices in societies, some of which I discuss below. As Halford and Southerton (2023) note, "while it is certainly important to observe, analyse and critique others' future-making practices, this positions Sociology as responsive to rather than active in future-making" (p. 266).

With this observation in mind, I use this chapter to explore one way in which sociology might indeed become more active in future-making—through the use of speculative fiction. This is an experiment in writing about the future, one in which I recognize the value of speculative fiction or science fiction for sociological analyses and engagements with futurity (see Benjamin, 2016; Claisse & Delvenne, 2015; Seeger & Davison-Vecchione, 2019; Tutton, 2016). As with other approaches—such as the scenario-thinking that Wright (2025; see Chapter 2) discusses—speculative fiction can serve as a social science method for imagining and contesting futures.

The editors of "Speculative Research: The Lure of Possible Futures" argue in favor of cultivating the kind of speculative practice in the social sciences that has long flourished within speculative or science fiction. Wilkie, Savransky, and Rosengarten (2017) suggest that from this fiction, we can appreciate how our "reality is always already entangled with the 'not yet,' the 'what if,' the 'already-here,' that is, with a sense of the (im)possible" (p. 8). In recognition of this, the task then is to imagine and explore alternatives futures. The value of social science knowledge, in turn, has been recognized by science-fiction authors. While much speculative fiction centers on technology, the feminist author Ursula Le Guin (1992) notes that the "science in my fiction was mostly going to be social science, psychology, anthropology, history, etc." (p. 132).

In this chapter, I take inspiration from others who have adopted speculative methods in their work. Afrofuturist scholar Kodwo Eshun (2003) asks his readers to imagine archaeologists from a future United States of Africa seeking to make sense of "Afrodiasporic subjectivity" in the twenty-first century. In his article, he uses descriptions of events from that future as provocations to frame his analysis and critique of the present. Ruha Benjamin (2016) goes further and produces a speculative narrative set in 2064 called "Ferguson is the Future" that centers on a future state-sponsored program for regenerating victims of current police violence. In justifying this approach, Benjamin argues that "social change requires fictions that reimagine and rework all that is taken for granted about the current structure of society" (p. 2). From this perspective, "fictions, in this sense, are not falsehoods but refashionings through which analysts experiment with different scenarios, trajectories, and reversals, elaborating new values and testing different possibilities for creating more just and equitable societies" (p. 2).

Adam and Groves (2007) argue that sociologists need to go beyond being concerned with producing what they term present futures—futures imagined and

planned for in the present. They contend that many contemporary societies operate with the idea of an "empty future" to be "filled" with desires and wants. In this sense, the future is to be colonized and used to further interests in the present. As they see it, the key problem is that "the future is not simply beyond the present but is a latent and 'living future' within it" (p. 17). We must therefore recognize the "deeds and processes already on the way" (p. 176). This requires shifting perspectives from present futures to future presents, to figure the potential impact on future generations of processes set in train now. This means taking the "standpoint of the future present," which then "enables us to accompany our actions to their potential destinies and know ourselves as responsible for their time-space distantiated impacts" (p. 176).

As Donna Haraway (1988) appreciates, science fiction writers are often well placed to conjure future presents in ways that frequently convey important issues of transgenerational responsibility. Taking the standpoint of a future present, as Adam and Groves call for, thus absolutely requires imaginative figurations—replete with metaphor, visual images, and stories—to bring that future present into being and to connect it to what is in process today. Take, for instance, Robert Llewellyn's "News From…" trilogy, in which he explores how future societies find themselves dealing with (and making the best of) the legacies of the twentieth and twenty-first centuries. In the last of these three novels, "News From the Clouds," Llewellyn's protagonist—a thirty-something white, male engineer called Gavin Meckler—experiences a world in which rapid and extreme climate change was not acted upon. Resources were used to preserve the existing political and economic order for as long as possible, until there was little left to protect them, and they crumbled. Dramatic sea level rises, droughts, and 500 km winds ravage the planet, making the surface uninhabitable. In this future, Gavin meets people who have developed ingenious systems of survival, but some of whom also feel a strong animosity towards him as a person from the past who they hold responsible for making such a pernicious future. He is confronted and says repeatedly that it's "not his fault," yet the history that he learns of the mid- to late-twenty-first century reveals that his skepticism about climate change was flat out incorrect. When he returns to his time—2011—he enacts several changes in the hope that the future he has witnessed will not materialize.

In 2020, Christopher Nolan's film "Tenet" opened in cinemas worldwide. As Covid-19 restrictions were being relaxed in many countries, audiences were invited to the cinema to watch a story about the future. In a remarkable inversion, in Nolan's film the future is at war with the present. While the inverted action sequences were impressive visual spectacles that sold the film to potential cinemagoers, why the future would be at war with the present was only touched upon in a brief dialogue between the film's leading characters, as the film reached its denouement:

> The Protagonist: "How could they want to kill us?"
>
> Sator: "Because their oceans rose and their rivers ran dry. Don't you see they have no choice but to turn back—we're responsible."

It transpires that an unseen group of people living in the future are working through Sator to undo the environmental destruction continued by the Protagonist's

generation. Are they seeking to mete out justice, looking for revenge, or hoping to save themselves? Reviewing the film for *Esquire*, Ovenden (2020) complains that this scene serves only to provide a "glancing motivation for the villain." In any event, despite Sator's revelation, the Protagonist and his allies ensure that his plans are thwarted. The film does not show us who these future people are, other than that they are obviously living in a world that has been changed for the worse by present-day generations and their predecessors. In this chapter, I fill that lacuna through a speculative engagement with that question of who these people are—or might be—and how they would approach designing and using such a technology. Imagine, then, that the opening to this chapter is an excerpt from a speech given by a political leader more than a century from now, issuing a call for the best of minds to undertake a sociotechnical project comparable to sending men to the Moon, in what for them would be a distant and mostly forgotten past.

Informed by my viewing of the film and the literature discussed above, I attempt to take the standpoint of future people—the people who invented a process of unfuturing. While inspired by Nolan's 2020 film, I develop my own distinctive narrative engagement with ideas of futures and responsibility in the contexts of the "'not yet,' the 'what if,' the 'already-here'" (Wilkieet al., 2017, p. 8) of life in the early twenty-first century.

The Unfuturing Machine

Below the surface of the inhospitable world live people who dream of undoing the future. Here they shelter from the storms and gather all that is left of the past and the present. Far down, in one of the innermost spaces, is the machine in which they have invested all their hopes and resources.

Imagine, for a moment, that you have dedicated your working life to inventing a machine that could alter planetary history. The day before switching it on would be intense. Overwhelming. Of course, it is more than a machine. Unfuturism would be a guiding philosophy, a quasi-religious calling.

This is the case for Yearn and Dena, who are two of the most important Unfuturists. Here, they sit in the machine room. Yearn is small, with vivid blue eyes sunk into an angular face, his skin marked with blemishes, burns, and a fresh red scar just above the left eyebrow—a recently acquired reminder of the perils that come from walking in the world outside. Dena, by contrast, bears no such scars—she chooses never to venture outside—she is taller than Yearn, with deep brown eyes.

Now, the day before they switch on the Machine, they are once again looking over the Timeprint that is displayed on the large, illuminated screen between them. The Timeprint is their attempt to catalogue, capture, and measure the multitude of changes started by a period in human history known by many names—the Anthropocene, the Capitalocene, the Pyrocene, the Wasteocene. Building on the efforts of those who came before them, Yearn and Dena have studied the many and varied impacts through time of how people then extracted and burned the remnants

of past life, dug out of the ground metals and minerals, altered the composition of the land and the atmosphere, poisoned their very own bodies, and let loose a multitude of unintended consequences.

Their role demands that Yearn and Dena concern themselves only with understanding and tracking the biophysical changes across time, the changes in the composition of the Earth's matter, its climatic changes. But Unfuturism is more than a technical challenge of making a machine to reverse destructive processes: It must contend with the intentions and motivations of the people of this distant past who had set them in motion.

For this, they rely on what the archaeologists tell them, but Yearn and Dena both believe that, despite the destruction that these people from long ago brought upon their world, they did so not knowing what they were doing. They did not—could not—realize that their lives would also lead to so much suffering, so much irreversible harm. Now, thanks to their dedication and resourcefulness, Yearn, Dena, and their people will set about reversing that harm and change the direction of the future.

Without taking her eyes away from the entanglements shown by the Timeprint, Dena breaks the companionable silence of their work together. "How do you feel about tomorrow?" she asks.

> "It's what we have given our lives to, isn't it? This is when Unfuturism really begins."

Dena studies Yearn more closely. "Yes, but you haven't said how you feel about that."

Yearn shifts in his chair as if it has suddenly become uncomfortable. Somewhere deep inside him, there is doubt. I wonder if they will understand when we send our Inverters back, will they see what they are doing? We are sending some of our best young people to a time, to a place, we don't fully comprehend."

> "Despite the consequences of their actions, we have always believed that we will find good people there who will listen, learn, and change when we show them the world that we inhabit here."

Yearn nods. He knows however that, for all the resources the project has received, for all the wickedly difficult problems of temporal dynamics they have had to overcome, their work is ultimately speculative in nature. It will come down to experimental interventions in changing past decisions and actions that produced their present lives. It will come down to human, not technical, qualities.

> "You know, some of our young people grow increasingly angry and frustrated at their situation. I fear that they could even be losing faith in our work here, so switching the machine on tomorrow will be crucial."

Yearn pushes back against the chair, and the screen dims, sensing that his attention is now being directed elsewhere. Looking up at the cavernous ceiling above them, carved roughly into the bedrock, Yearn's eyes trace the many small cracks crisscrossing it. A hundred meters above them, a week-long storm is now abating. Their calculations—or is it really their hopes?—are that such storms will ease in severity over time, that the effects of what the Unfuturists achieve will be tracked by differences in degrees of warming. Neither he nor Dena will be alive to see that

change. But the hope of that change has animated and given shape to their lives. Without the prospect of a future, they have held fast to the idea that the past may offer them a renewed sense of possibility. What must have it been like back then, Yearn wonders for a moment, to live viewing the future as full of potential but empty of consequence—and with a past that was all done with, to be easily forgotten about? Or is it more a case of swapping one illusion for another?

He turns to Dena. "Who is feeling that way?" he asks, knowing that she is much better acquainted with the political situation.

"Well, Mangle for one," she replies. Along with Rutha, Mangle is one of the two co-leaders of their community. "He has so much responsibility to bear, and did you know that he lost three of his group a few months ago after that big storm?"

Yearn nods. He is aware of that terrible incident. One that seemed to illustrate all too well the urgency of their work.

"You are right," he says. "Switching on the machine tomorrow will lift everyone's spirits."

"It will, but now, given that we have worked all night," Dena says and stands up, "I think it best that we sleep, so we are ready for the occasion."

Yearn nods and follows Dena over to the bed, pushed into the far recesses of the room. He waits for her to undress and to lie down first and then takes the space next to hers. A moment passes and then, quite unexpectedly, she reaches out for his hand. Her fingers push through his own. He sighs, feeling the tension slowly leave his body. He closes his eyes and knows that soon he will be in the same dream place he visits every night: a sun-dappled forest of the greenest trees that live only in his imagination.

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As Yearn and Dena sleep, outside, on the surface, the archaeologists have decided to brave the last of the storm. Before it arrived, they had been completing a major excavation at a significant site of interest, with the largest collection of digital artifacts they had yet found. For Shan, the archaeology group leader, this is yet further insight into efforts made by the people in the past to create, capture, copy, and consume data in such quantities that they had created an immense datasphere. So far, they have recovered many hundreds of zettabytes and are still finding more . They are reconstructing an image of their world, to trace the things that they did, to identify positions in time when possibilities for an inversion can be made. The data is fragmentary, often confusing, and with many omissions. But what they had found is beginning to trouble Shan a great deal. She has dedicated herself to learning as much as she can about the past, and the more she does, the less certain she is that the people from the past will save them. She is beginning to question whether Unfuturism will fulfil its promise—and it turns out that she is not the only one.

Mangle has taken a strong interest in her work, and they have spent many hours discussing what she is discovering about these people of the past. She has the sense that he too, despite his many public statements in support of Unfuturism, is having doubts, that he is alarmed by what they are finding out. There is a new kind of intensity to him these days, for sure. They are all on the verge of doing something

significant, something life-changing for them all, and her work could make a real difference to what happens next.

Lost in her thoughts, she looks down into the site. From her vantage point, she has a good view of everyone working below to fix the protective layer around the last of the artifacts, before it is slowly lifted. Suddenly, she notices Mira trying to get her attention. Dressed in a long black coat, and wearing a battered and scarred pair of goggles, per[1] cuts a distinctive figure down on the site's floor. Personal affectations are frowned upon, but Mira had recovered this coat from another one of their digs back when they were focusing on physical artifacts and had yet to discover the datasphere. When the temperature allows it, per likes to stride around the sites, with the long black fabric swaying behind per. Shan smiles at the thought of it. Mira is the most eccentric person she knows and for a moment she is overcome with feelings of love and loss. She knows that tomorrow, when per becomes one of the first Unfuturists, she will lose per forever.

She watches as Mira travels up the small elevator that runs up the wall of the excavation site. In no time at all, per is standing before her, the wind catching per hair. They attempt a clumsy embrace, their goggles bumping against each other.

"Are you pleased with the progress we made?" Mira asks, pulling down the face scarf to reveal per smile. At Mangle's behest, Shan had insisted the group come out before the storm had fully passed over. "Will you be able to retrieve the data that you need?"

"Yes, I should think so. Everyone will be happy, especially if we can get them the complete analysis before they switch on the machine."

Mira nods and they watch as the artifact is secured on its cradle for transport back to Home. As they do so, a deep boom suddenly cuts through the air around them. Mira and Shan both pivot in the direction of Home and see a column of black smoke twist quickly into the air.

"Not another accident." Mira sounds pained.

Shan immediately thinks of Mangle. She flips up her screen with her gloved fingers, and in a moment his image appears. As the leader of the Maintainers' Group, Mangle is tending the power plant today, after the problems they have been having with the power grid for the past few months. Although everyone in Home has care work as a part of their daily lives, the Maintainers consider themselves a class apart from everyone else. They claim a special knowledge, certain skills, and, above all, the feeling for the infrastructures that all their lives depend upon. Now, on the screen, Mangle looks exhausted. He has been working longer and longer days.

Shan takes a breath to speak but, anticipating her question, he cuts across her: "We've lost another manifold, it triggered an explosion. We're attending to it now."

"Is anyone hurt?"

"Yes, but it's not serious. I must help my group now, but don't stop your work on the datasphere Shan…" His image disappears. Shan looks back at Mira who is still watching the smoke rise higher in the sky.

[1] A preferred pronoun for some inhabitants of Home.

"It's the power network, isn't it." It wasn't really a question.

Shan replies that per is correct. "There's too much stress on the network. The Unfuturists' power needs for their machine are just too high to sustain, however much the Maintainers claim that they can keep everything running for us. We're putting everything at risk."

"We'll just have to find new ways to power down other things then. I'm not giving up on Inversionism. It's our only hope to put things right in the end."

"Even if it means losing us?"

Mira looks away. "We've spoken about this many times before Shan, let's not do this again now." Per steps over, takes Shan's gloved hand in pers. "Come on, let's go home. We still have time before the switch-on tomorrow."

Shan withdraws her hand. "I would like nothing else, but I have work to do."

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It is in the early hours of the following morning that the content of the final artifact is retrieved and analyzed. It only confirms what Shan already knows from her previous datasphere research. She sits hunched over her set of desk screens—on them are fragments from another world, another time, words that speak to her from an alien past. Apparently, they did know. Their leaders did know what they were doing, and they allowed it anyway, encouraged it in fact. Some considered their actions to be criminal, but that didn't stop them. The things that Yearn and Dena repeatedly say about how the people then were good but just ignorant of the consequences are wrong: that if only they were given the knowledge, they would act to save them. That is wrong. She is angry. She will lose Mira and it will be for nothing.

Shan opens her screen and waits. It takes longer than she expected for Mangle's image to appear. She knows he left the site of the accident and went back to his room. Of course, he'd been sleeping. "Yes, Shan?" he says, pushing long black hair back from his forehead. "Do you have something to tell me?"

"We have everything we need now. I am sharing the data with you." Shan swipes the data onto the screen for Mangle to read.

Mangle glances off to his right where, in the corner, a little icon shows him that the documents have been shared. "Thank you, Shan, for everything you have done. This will make a real difference."

"Will you tell Rutha?"

"Yes, I'll let her know, as always. Sleep now and I'll see you outside the machine room."

His image disappears and Shan is left alone. On the screen before her are words of someone now long dead, the words of someone who was apparently a leader. They read: "This is. .. criminal. .. guilty of arson of our only home."

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Everyone gathers in the Inversion Machine room. The air is filled with the low hum of many overlapping conversations. But Yearn and Dena stand next to each other in silence, by the controls that will switch on the machine. She can tell Yearn is nervous and wants to comfort him, but at the same time, she is distracted by the conversation

that is taking place away from the group, between the young leader Rutha and someone from the Maintainer group. They are standing very close to each other and their exchanges seem tense.

"We have a real problem in our power network with the latest manifold failure," Keon tells Rutha. "I wish Mangle was here to explain, but he told me late last night that we will struggle to maintain current output. Our geothermal power is at risk."

"It's vital that we maintain current output. We cannot risk everything now. Yearn and Dena tell us that we can switch on the machine."

"Yes, but if we don't sort this out, people could start dying here," Keon protests.

"None of us want that. Once the first of the Inverters go through the machine, we can begin to redirect power, but not until then."

Keon looks displeased. He starts to protest but thinks better of it as he surveys the room, seeing everyone awaiting the decision. The excitement is palpable. "You can count on the Maintainers," he says and walks over to the table. Keon takes his seat across from Dena, who watches him intently. He nods at her and she responds in kind.

Rutha also comes over and stands next to Yearn and Dena. She looks around her—towards the entrance to the Machine Room—but there is no sign of Mangle. The conversations slowly fall away as everyone sees that Rutha has joined them. Across Home, their images are on everyone's screens. Suddenly, the young leader looks a little uncertain. It crosses Dena's mind that she and Yearn are more experienced and know more about Unfuturism and the Inversion technology than the young people, and that they should be leading this decision. The founders however had been clear on this point: Power should lie with those who had to live the longest with the consequences of decisions made. And so it is that the most momentous decision that they will make as a community will be made by its young people.

"We would like to begin by thanking Yearn and Dena, and all their group, for their years of dedicated service to our community. What they have achieved is beyond impressive. They tell us that the machine is ready to be switched on." Rutha beams a wide smile.

There is applause.

"As you know," she continues, "Inversionism has been a multigenerational endeavor. To think, it began as little more than a theoretical proposition in the minds of our predecessors and now—thanks to this generation—we have built the machine of their vision."

There is more applause.

"Here, today, we have with us our first Inverters. Those who are taking the message from our time to their time, who will, through their endeavors and sacrifice, undo the future and remake the past."

Mira and per two fellow Unfuturists step forward and take their place next to their leaders.

"And now, I invite Yearn and Dena to switch on the machine!"

Yearn and Dena glance at each other. They hadn't agreed who between them would switch it on. In Yearn's moment of hesitation, Dena taps the screen, the lights above them flicker and dim, and a low, strange, disconcerting hum fills the room.

At that moment, Mangle and Shan appear in the entrance.

"Stop," Mangle calls out.

"Mangle?" stammers Rutha, her usual poise disappearing at the sight of his wild appearance.

"The people from the past are not who we thought they were," Shan begins to explain.

"What do you mean?" asks Rutha.

"I mean," says Mangle, cutting across Shan before she has time to reply, "that the datasphere tells us that these people were not innocent, they were criminals, they knowingly did the things that the Timeprint shows and left us with this world to inhabit. They were not willing to leave anything for those who came after them, nothing but their poisonous detritus. Shan and her research have convinced me that we are not going to change that. It should convince all of you—I have just shared it over the screens."

Everyone starts consulting their screens and now they can see what Mangle is talking about.. .

Rutha's eyes quickly scan through the words of long ago…

"The state of the planet is broken… humanity is waging war on nature…"

"God intended us to use this planet, to fill this planet for the benefit of man. It is a disposable planet…"

"Biodiversity is collapsing… ecosystems are disappearing before our eyes… Human activities are at the root of our descent towards chaos…"

There is so much more… too much more to read and understand at that moment.

"We should stop it now, switch it off," begins Shan. Mangle flashes her a look, his face hot with anger.

"Switch it off!?" he cries and steps closer to where Yearn and Dena stand. For a moment, Dena thinks that he is going to reach out to the screen controls, but he doesn't do so. Instead, he stands in front of the machine itself and looks it up and down as if it is the first time that he has ever seen it.

Shan is confused. This is not how she thought things would go.

"I don't want us to switch it off, but to face the reality of our task," Mangle continues, an eerie calm now overcoming him. "I want us to change our methods, the nature of our intervention. The only way to address the planetary devastation that we have been forced to live is to carry out some societal devastation. Only by destroying them will the misfortune of this world be avoided."

Dena suddenly realizes, but only too late, what Mangle is intending to do. "Do you mean to use violence!?" Her eyes widen. Violence of all kinds has long been taboo, ever since the days of the Founders. Dena and Yearn exchange looks. They can hardly believe what they are hearing from their leaders: Mangle is going to use their technology to inflict harm on people.

"We have learned a great deal about violence from our work in the datasphere… as I believe someone from that time observed, 'the master's tools will dismantle the master's house."

"Mangle, please don't," Rutha begins, taking a step towards him. He hesitates and, before Dena reaches out to touch the screen, he turns and steps into the machine.

The unfuturing begins.

"Switch it off… now!" urges Rutha, but Dena withdraws her hand.

"We can't—if we do, it will kill him."

"But. .. but we must stop him," Rutha says, turning to the rest of the people in the room, suddenly aware that everyone in Home has witnessed Mangle entering the machine. She then turns to Shan, who is still standing near the door, tears running down her cheeks.

"What have you done Shan?" she asks. "Did you know about Mangle's plan?"

"No, I had no idea. I thought… I hoped he…" she catches sight of Mira also looking at her. "That he would want to switch the machine off, given everything that we had found out about the past." She begins to understand that Mangle has manipulated her feelings.

"Well, Mangle never shared any of this information with me as co-leader," Rutha says.

"So, what are we going to do?" asks Yearn, recovering himself.

Dena looks around the room. "Whatever the datasphere shows, I do not accept that everyone then was simply bad; there were people who did good then, as, just like now, there were people who did wrong."

"Well, we can't switch the machine off, and we can't allow Mangle to go back and kill people from the past. That goes against everything we stand for."

"The only option is for us to invert as we planned," says Mira. "We will try to find Mangle and prevent him from doing harm. At the same time, perhaps between the three of us"—per gestures towards per companions—"perhaps we can also achieve our original goals."

"No, don't," Shan cries out. Mira walks over and holds her tightly.

"It's all right." Mira kisses the tears from both her cheeks. "We made this machine to make a different past. If we don't do this now, that will be lost."

Shan nods, realizing that there is nothing more she can do. Mira turns back and walks over to where Yearn and Dena are standing. Per nods at them. The other two Unfuturists step in next to per, and the three of them disappear into the machine.

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Around them as they move backwards through time, the Unfuturists see trees rise from ashes in the landscape, see cities reform from scattered debris, see rivers and oceans begin to flow again, see life emerge from death. They realize that they have left their futureless world and entered a new one: a beautiful world of anxiety and dread, but also of possibility and hope…

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Exegesis

With the narrative above, I have attempted to take the standpoint of an imagined group of people who are inhabiting a future that is currently latent in the present. In this final section of the chapter, I reflect on some of this narrative's significant elements and how they relate to ongoing debates and ideas about futurity.

Let's begin with the title of the narrative, "The Unfuturing Machine"—this is a somewhat playful nod to the work of Oomen, Hoffmann, and Hajer (2022, 2025; see Chapter 13), who have discussed the significance of the "act of futuring," to "view the future in terms of the imaginative work and practices that negotiate meanings and legitimacy, embed knowledge, engage publics and create relations of trust." Specifically, they address "techniques of futuring" (ToFs), first defined as "practices bringing together actors around one or more imagined futures and through which actors come to share particular orientations for action" (Oomen et al., 2022, p. 254).

In the narrative, the idea of unfuturing denotes a technique that actors employ to undo the futures made by others, and as a practice by which "actors come to share particular orientations for action" (Oomen et al., p. 254). Here, their action is to ensure that an undesired but already actualized future is not realized by intervening with it in its latent stage. In doing so, I narratively invert the idea of futurism, turning the past, and not the future, into the domain of possibility. The imagined future people living in the place called Home are living "after the future" in Berardi's (2011) terms; they are on the other side of the catastrophe. They are "futureless" people (Tutton, 2023). While the Futurism of the twentieth century tended toward celebration of speed, forward movement, and a denunciation of the past, to adopt Unfuturism is to invert such commitments. It is the future, not the past, that feels oppressive.

As Claisse and Delvenne (2015, p. 155) relate, "a dystopia can be defined as the depiction of a dark future based on the systematic amplification of current trends and features." Crucially, however, those who imagine such "dark futures" are not seeking to bring them into actuality, but to empower their audiences to face what could happen, "restoring a 'sense of possibilities' that eventually makes alternative pathways thinkable" (p. 155). This is especially so with the emergence of critical dystopia as a narrative form in the 1980s through the work of writers such as Octavia Butler and Ursula Le Guin. As Tom Moylan (2019, p. 276) observes, such authors writing in this mode "took a hard look at the bad new times of contemporary enclosure and, within a sober apprehension of the intensified exploitation and deprivation, endeavored to find traces, scraps, and sometimes horizons of utopian possibility." For my own narrative, I have borrowed some elements from critical dystopia, leaving space for alternative futures to emerge.

Seeger and Davison-Vecchione (2019, p. 60) argue that dystopian fiction has a strong connection to the "sociological imagination" as it centers on "how elements of social structure and individual experience influence each other, thereby capturing how it feels to inhabit a particular social world with a vividness that even a qualitative ethnography that strives for the 'thickest' description can arguably

never quite achieve." Dystopia therefore has application within sociology to highlight the conflicts between the "private troubles" and "public issues" that can arise in dark societies where injustice, oppression, or inequality are at their extremes. In contrast, utopian writers are unable to achieve this.

Since the Covid-19 pandemic, it has become increasingly commonplace to refer to the times in which we are living as a "perma-crisis" (Turnbull, 2022) or "polycrisis" (Tooze, 2022). In his Jackpot trilogy (still in the writing), William Gibson introduces what he calls the "jackpot" in The Peripheral (2014), when such crises come together to produce a set of cascading global catastrophes. (It is also of note that Gibson here casts people in the future as interfering in the lives of people of the past and creating alternative versions of it). Wilf, one of the novel's main characters, explains that the jackpot had no one, single cause, and that it had no particular beginning and no end. More a climate than an event, so not the way apocalypse stories liked to have a big event, after which everybody ran around with guns… or else were eaten alive by something caused by the big event. Not like that. (Gibson, 2014).

In other dystopian fiction, such a catastrophe is accompanied by what in *Blade Runner: 2049* is referred to as the "blackout," whereby a massive amount of electronic data is lost. This has the effect of rupturing the past from the future. Today, data centers have been expanding in size and digital services and networks are underpinning all aspects of social and economic life across the world. Their energy consumption is increasing and the amount of data produced, transmitted, and stored is projected to reach 120 zettabytes (or 1 billion terabytes) in 2023 (Statista, 2021). Given this, as Taylor (2021a, b) relates, the designers and operators of data centers are concerned with protecting such facilities from frontal attacks, electromagnetic pulses, or extreme weather events. Taylor notes (2021b) that some operators have repurposed Cold War era bunkers that "promise to protect data from threatening futures but also strives to ensure that data can survive into the future" (p. 85). If there was a globally significant data loss, as imagined in "The Unfuturing Machine," future people would lack ready access to information about and from the past, leading to an archaeological project of data recovery.

The narrative also features the Timeprint, with which I acknowledge the work of Adam and Groves (2007), who introduce the concept as "the temporal equivalent of the 'ecological footprint'" (p. 26), which is based on space and matter, and "alerts us to the problematic relation whereby current future making extends far beyond any capacity to match our concern and responsibility to the temporal reach of our actions" (p. 26). With my narrative, I have imagined that someone would build this as a tool to capture and represent the implications of societal and economic activities over time. As Adam and Groves (2007) note, while those running public information campaigns may highlight the impact of everyday life in the form of amount of CO_2 emissions, they do not register how this CO_2 remains in the atmosphere for a long period of time, or how plastic waste endures in the environment for hundreds of years. Imagine, then, that the Timeprint was a feature of how different societies talked about the impact of economic and social activities on others both alive today and yet to be born.

Prompted by my viewing of *Tenet*, sociological debates, and my reading of speculative fictions, I have here used the notion of Unfuturism to critically consider how new stories can be told, ones whose authors adopt the standpoint of imagined future people. Rather than representing the future as being at war with the present, the stories we need to tell are precisely those that allow us to "accompany our actions to their potential destinies and know ourselves as responsible for their time-space distantiated impacts" (Adam & Groves, 2007, p. 176). As Adam and Groves (2007, p. 24) argue, "if we became convinced that our grandchildren would be forced to live on an earth devastated by war or climate change, then our own lives now would fall under a shadow." This should motivate us to act in the present, to at least reduce the length of that shadow over us—even if by now it's too late to remove it all together.

Conclusion

In this chapter, I adopted the speculative narrative as a social science method of future-making, with which I both confront others' stories and visions of the future and infuse my writing with ideas from the sociology of futures. I recognize that writing such speculative narratives of possible futures will never suffice on its own. As Benjamin (2016) acknowledges, it is not the case that simply "imagining alternatives is sufficient, or that all things possible are even desirable" (p. 3). However, there is an important and urgent need for new and different stories about possible futures and their consequences, and critical social scientists can play a role in fashioning and telling those stories, drawing together its analytical insights with a "sociological imagination." Such a method offers a way of conveying concepts from the sociology of futures with which one can challenge hegemonic visions to reach new audiences.

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Part III
Enacting the Future

Chapter 12
Design and Other Ways of Knowing the Future

Ramia Mazé

The "future"—as a rhetorical device and as an orientation in practice—pervades contemporary design. The temporality implied by this rhetoric may contradict other prevalent conceptions of design, for example as a discipline preoccupied with form, materials, and space. Nevertheless, rhetorics of the future are ubiquitous in communications of promotional bodies, such as the (UK's Design Council, and professional associations, such as the World Design Organization and International Council of Design, as well as in the names of educational programs, professorships, and research projects. In these, "the future" is typically intended to evoke imaginaries of (and markets for) "transformation," "innovation," and "the new." Indeed, as Nina Wakeford (2014) has noted, design is just one of many disciplines affected by the increasing hegemony of particular political-economic narratives of innovation, progress, and the lure of the new. Noticeably missing from such narratives are related temporal phenomena such as "chance," "indeterminacy," and the "untimely" (Grosz, 1999). Selectivity in such framings already indicates that particular preferences, assumptions, and even ideologies are at stake.

Beyond the rhetoric, scholarship in design must further interrogate such narratives and concepts. This is critical to the development of design as a discipline, which entails development of the knowledge (or knowledges) core to design as well as the limits (or next frontiers) of the discipline. The prevalence of the "future" in articulations of design begs a question: What does it means for the discipline if the "future" is indeed within its scholarly and practical remit? This is a timely query within design and beyond. The knowledge foundations, core curricula, and competencies within design, formulated and academized as a discipline only recently, are still relatively nascent. Due to design's practical basis, it has emerged and developed differently within specific cultural, institutional, and political contexts. Unlike

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architecture, which has a longer and more established history in academia to ground both the intellectual discipline and the practical formation of professionals, design's knowledge foundations remain more heterogeneous and amorphous. Subject to "radically different interpretations," as Richard Buchanan (1992, p. 19) pointed out, "the flexibility of design often leads to popular misunderstanding and clouds efforts to understand its nature." In spite of this, design has gained attention well beyond itself.

Indeed, we are arguably experiencing a turn toward design by other disciplines. The social sciences, for instance, have debated design as a model for anthropology's future (Rabinow, Marcus, Faubion, & Rees, 2008), sociology has turned to more "inventive methods" (Lury & Wakeford, 2012), and "interdisciplines" such as "design anthropology" and "design ethnography" have emerged. Jeroen van den Hoven advocates for "The Design Turn in Applied Ethics", premised on a wide range of philosophers interested in the application and relevance of their thinking to societal problems. He argues: "They do not only attempt to offer applied ethical analysis, they also want to think about the economic conditions, institutional and legal mechanisms and incentive structures that need to be put in place in order to *realize* our moral views that result from our analysis. Design in the work of these authors is primarily focused on institutional design, but […] *The Design Turn* also pertains to technology, artefacts to the design of socio-technical systems" (van den Hoven, 2017, p. 23–24, emphasis in original). Indeed, given neo-liberalizing forces and socio-ecological challenges affecting the higher educational sector, universities themselves may be subject to a "Design Turn," argues Cameron Tonkinwise (2017, p. 36), the appeal being design's tendency toward synthesis, practical application, and societal impact. Design's capacity to bridge across and integrate diverse academic "cultures" has proved a powerful device for legitimizing its place within the university (Hellström Reimer & Mazé, 2023). In light of this so-called "design turn"—which entails considerable stakes beyond design itself—it is even more important to critically interrogate design's foundations and ways of knowing.

So, What Is Design? (or, What Isn't?)

Those inquiring into the nature of design and design knowledge frequently encounter definitions premised on this quotation: "everyone designs who devises courses of action aimed at changing existing situations into preferred ones" (Simon, 1996, p. 130). This quote from Herbert Simon, especially when taken out of context, is expansive. Many actions—from the most trivial of daily acts to the most specialized technical activity—can be conceived as moving from one situation to a preferred one. In these terms, there is little beyond the limits or remit of design.

Although the idea of design in the quote seems expansive, Simon's (1988) proposed "science of design" is very specific in both historical and epistemological terms. Premised on a positivist epistemology and conceived as problem-solving, design according to Simon consists of rational, methodical activities in which

"problems" are narrow or "tame," amenable to calculated techniques to determine where a good course of action lies (Simon, 1996). Accordingly, his idea of design knowledge can be understood as primarily rational, cognitive, and dispassionate, a particular expertise claimed by particular kinds of designers. In the same historical context—post-war American reform of education and professional training—Donald Schön's (1983) pragmatist and experiential epistemology of design evolved in direct response and sharp contrast to Simon's (c.f. Dixon, 2019; Galle, 2011). Versions of these and alternative ideas of design have been developed since, each revealing a different conception of the knowledge, or knowledges, at stake within design and, beyond and by implication, in the wider "design turn."

The emerging field of "design futures" has produced yet another spin on the infamous quotation. In Simon's (1996) turn of phrase, the definition of design hinges on two states: "existing situations" and "preferred ones." This distinction has been much discussed, for example, scholars in the early "design methods movement" saw the two states as mirroring that of "problem" and "solution," in which design involved a particular process temporally divided up into two distinct phases (first the "problem definition", then the "problem solution"). This conception persists today (see the "Double Diamond,", Design Council, 2023), although a second generation of design methods scholars moved away from this in order to engage with more complex "wicked problems" (Buchanan, 1992). Some today have returned to a temporal interpretation of Simon's turn of phrase—not in terms of the design process itself, but in terms of the "existing" present as juxtaposed to "the future" that follows. Putting forward a "Simon-type observation," proponents of "design futures" Dan Hill and Stuart Candy (2019, p. 125) argue that "future-making" is something that many designers intuit and are now explicitly doing.

As these diverging interpretations of the quote reveal, design's core subject matter and knowledge foundations are varied. For some, the object of design knowledge and action is problem-solving, for some, it is the design process—and, for others, it is the future itself.

Which Knowledge(s), Whose?

I evoke Simon's quotation here for several purposes. Having motivated this paper in terms of the "design turn"—that is, by arguing that design matters beyond itself—I find this earlier, expansive, and influential conception to be an interesting precedent. Learning, however, from debates around that early formulation, I would like to argue for more elaborated, contextualized, and nuanced articulations of design and design knowledge(s). This matters for design, as each conception has different implications for what is deemed design's valid "objects" and, thus, what counts as design knowledge and competence (e.g., as a core of educational degrees and professional titles and recognized within associated institutions and economies). Some whose disciplines have turned toward design also call for more critical studies. Lucy Suchman, a prominent figure for "design anthropology," reminds us to attend to

design's limits, arguing that "design needs to acknowledge the specificities of its place, to locate itself as one (albeit multiple) figure and practice of transformation" (Suchman, 2011, p. 1).

I am seeking here neither a unified model nor a universal definition of design—rather, I am reflecting on the multiple and evolving design knowledge(s) at stake. In this paper, I begin by outlining a stereo(typical) understanding of design as object-centered, I then trace some emergent fields within design, elaborating elective glimpses of those particularly concerned with temporality and futurity. This reflects my interest in negotiation at the "agitated edges" of knowledge practices (Hellström Reimer & Mazé, 2023) and builds upon my earlier interdisciplinary inquiry into design in terms of time and futures (Mazé, 2007). I do this not as a historian but from my own experiences, having trained as an architect and designer and having worked as a practitioner and scholar involved with emergent fields of design and related transdisciplines within various (e.g., Northern European) contexts.

In addition to the question of *which* knowledge(s), I also reflect on *whose*. Another purpose of my evoking the Simon quotation is to point out the adjective "preferred." This implies that design involves not only knowledge but *preferences* about prospective solutions, processes, or futures, and that designers should be capable of distinguishing among alternatives and making judgments. For proponents of "design science," this might involve preferences concerning solutions to relatively tame and technical problems. In "design futures," however, and for those with an expansive conception of design as "future-making," there are quite profound implications in terms of which (or whose) future is preferred. In related (inter)disciplines such as Futures Studies, normative judgments are explicit, for example in the foundational model of the "futures cone" (Bell, 1997/2003) that differentiates among "probable", "possible," and "preferable" futures. However, and particularly given the normative and political dimensions of "design futures" (Mazé, 2016, 2019), further and critical study is necessary for developing and deepening the discipline of design and, given the wider "design turn," for disciplines and stakeholders beyond.

The Early "Object" of Design

Design is often perceived (stereo)typically as a matter of space, rather than time. Indeed, as philosopher Elizabeth Grosz articulates (1999), "space" has engendered many discourses and practices—architecture, urbanism, geography, and geology, for example—which might be understood, in part or even primarily, as occupied with the study, articulation, and regulation of space. A primary object of design is, literally, objects.

Historically, physical, material, and spatial objects have indeed been central to design. Particularly in Europe, the emergence of more professionalized roles (e.g., the "industrial designer" during the Industrial Revolution) centered on mass-produced objects such as furniture, appliances, and products. In the first half

of the twentieth century, design started becoming more formalized as a discipline, as academic programs began to emerge alongside (and to eventually replace) more informal ways of knowing and learning within apprentice and guild traditions. Those shaping academic curricula posited particular ideas about what was "core" to the discipline. A prime example centering spatial and material knowledge was the Bauhaus, a pioneering if short-lived school that thrived during the inter-war period in Weimar, Germany. It's "original curriculum" (1920–1930) (Itten, 1975) is portrayed through an iconic circular diagram, in which the core prominently revolves around materials such as stone, wood, metal, textiles, glass and clay. In the Bauhaus curriculum—a blueprint for many others then and since around the world—design was ontologically framed in terms of physical materials and epistemologically premised on hands-on sensory learning within a signature "studio pedagogy."

Designing spatial and material objects continues to be core to many curricula. This has persisted through the widespread transformation of design conceived of as "postindustrial" and postmodern. Even as new technologies and fields of design proliferated toward the end of the last century, design's early ontological and epistemological framing persisted. For example, Jeremy Myerson (1997, p. 178) at London's Royal College of Art argued: "[W]e know our students won't physically make things when they leave […] but their decisions will be based on the experience of making things." Still today, design's spatial and material roots are reflected in the nomenclature of fields such as:

- urban design,
- architectural design,
- interior design,
- exhibition design,
- industrial design,
- furniture design,
- graphic design,
- textile design, and
- jewelry design.

Example: **Acceptera***, an Object-Centered Manifesto of the Future*

Within the early decades of the twentieth century in Europe, however, some designers were explicitly concerned with time rather than space. This is evident in the manifestos (an important form of design discourse in the modern period) of several groups or movements. In fact, publication of the "Futurist" manifesto (Sant'Elia & Marinetti, 1914/1976) preceded that of the Bauhaus (Gropius, 1919/1971). *acceptera* (Åhrén et al., 1931/2008), the first manifesto of Swedish modern

design, is another relevant example with specific articulations regarding time and the future.

The authors of *acceptera*, a book-length manifesto featuring imagery alongside substantial text passages, drew strong contrasts between "A-Europe" and "B-Europe" (Åhrén et al., 1931/2008, p. 155–165). The latter is characterized by values, customs, peoples, and cultures portrayed as regressive and stuck in the past. A-Europe, instead, is held up as a model for the future, a standardized society, industrialized at all levels, from that of large-scale communications networks to local farming, leisure activities, and domestic work. *acceptera* is a manifesto for development in a predetermined direction, created on the basis of a modernist understanding of time, progress, and linear causality, a specific arrow of time, leading to a particular, and singular, societal future.

Designs suited to meeting this singular ("A") future vision populate the manifesto, including now iconic furniture, lighting, and interior designs, as well as architectural and urban programs for types of multi-dwelling high-rises that distinguish the Modern style. Underlying these designed objects and spaces are strong articulations of what living, families, communities, and societies should be in the future. For example, typical apartment layouts constrained family living in terms of size and roles (gendered, for example, in terms of the spaces for caretaking and domestic work) (Andersson, 2011). This was intentional "social engineering" by design, in which the middle-class nuclear family was the archetype for post-war mass housing (the "Million Program") for a rapidly growing and urbanizing society, which superceded a prior largely agrarian society, in which homes often accommodated multiple generations making shift with multi-functional objects (typical furniture included, for example, the "bed cupboard" and the "kitchen sofa" bed). In recent years, as Sweden has become more multicultural and diverse in many ways, modernist plans and interiors of the Million Program housing block apartments have been specifically critiqued as rigid and controlling and de/re-constructed in terms of more varied and open cultural, sexual, and gender norms (e.g., Stenberg, 2018).

The rhetorical device set up in *acceptera* exposes not only the concern for temporality and futurity, but also a strongly normative position of design: "B,", or "Sweden-then," contrasted against the preferred "A." This preference was not only that of the manifesto's authors: It was an explicit political position. *acceptera*'s politics were clear—the manifesto was distributed by the publishing branch of Sweden's Social Democratic political party.

Which Knowledge(s), Whose Preference(s)?

Multiple design knowledges are demonstrated in *acceptera*. The manifesto as an object in itself (a book) demonstrates what one might think of as (stereo)typical design knowledge. There is a purposeful and skilled use of imagery, typography, and layout for an eye-catching and iconoclastic message. Images and drawings depict existing and new products, spaces, and built environments, in which considerable

professional competence, technical skill, and aesthetic sensibility is evident in the industrial, interior, architectural, and urban design. However, and likely beyond the fundamentals taught in architecture and design schools at the time, the extensive and articulate text of the manifesto demonstrates skill and knowledge in argumentation and political rhetoric, in scientific and technological development, and in concepts and techniques of social as well as spatial planning. Indeed, as arguably one of the most powerful articulations of "functionalist" theory within architecture and design, its authors successfully integrated ideas about social engineering and social democracy, positioning design as the protagonist in a theory of socio-political change.

However, it is the methods and knowledge of other disciplines that reveal how socio-political change unfolded afterwards and over time. The profound and lasting effects of architecture and design on the construction of the Swedish welfare state are evident primarily in historical and philosophical studies (e.g., Mattsson & Wallenstein, 2010; Mattsson, 2023). Beyond the specific example of *acceptera*, architecture and design scholarship has increasingly incorporated historical and sociological perspectives to better understand the larger scale and longer-term effects of designs.

For example, the Foucauldian concept of "governmentality" has formed an important basis for socio-political analyses of design. In his classic account of governmental power (1978/1991), Foucault traceed a shift away from early forms of "hard" state power, exerted through military and territorial control, to more "soft" forms of modern power, in which urbanism, architecture, and design exert influence through "political ergonomics" (Winner, 1995), that is, visual, material, and spatial form that persuades, seduces, or coerces people and populations to behave in particular ways. Objects of critical study in this vein include traffic management systems (Silbey & Cavicci, 2005), graphic and product design of voting ballots and booths (Tunstall, 2007), architectural form and facades (Dovey, 2008), products and public spaces (Lockton, Harrison, & Stanton, 2010), border security infrastructure and services (Keshavarz, 2018), and designed programs for local governance (Mazé, 2021). Such concepts, adopted and integrated from other disciplines, reveal new dimensions of design, including the purposes and preferences of its commissioners and the socio-political effects on its users.

Beyond the Object in Postmodern Design

Temporality has entered into design more substantially and explicitly over the past half century. A book prefaced with an introduction that aptly captured the postmodern expansion of design—*Beyond the Object* (Thackara, 1988)—collated several emerging positions in design. Design in the "information age" involved not only giving form to sculptural objects in space, but also a "soft"-ware processes of computation and communication extending over time. As such processes infused spatial and societal relations, spatial knowledge alone seemed unable to account for social complexity, and some within design turned to concepts from other disciplines,

such as "chaos," "risk," "cybernetics," and "automata," as well as to cultural discourses of plurality and difference, protest and transgression, populism and consumerism. Such ideas influenced design in both direct and indirect ways, through new or hybrid ways of knowing and working in design practice as well as in the 'object' of design itself. For example, further fields have emerged within design (alongside the previously established and more spatially preoccupied ones), in which time, change, and futurity are explicit. These include:

- interaction design,
- communication design,
- experience design,
- service design,
- participatory design,
- transformation design,
- transition design,
- design futures, and more.

Temporality as Fundamental in Interaction Design

Fields such as "interaction design" emerged in terms that were barely spatial. Even its nomenclature implies time, as the term "interaction" has more traditionally been used in the physical sciences to characterize processes of reciprocal influence and, in the social sciences, to describe interpersonal communication. Interaction design emerged some decades ago at the intersection of multiple disciplines, including graphical and product design; computational, communication and cognitive sciences; human factors; and ergonomics.

The "objects" of interaction design include user interactions with computers (e.g., the design of software programs, interactive content, and digital services, as well as ways for people to interact with these through various devices) and "smart" products (for example devices, vehicles, buildings, and larger systems that behave dynamically over time). User access and interaction with and through these may happen in many ways including through tangible or graphical input mechanisms (such as touchpads, buttons, keyboards, mice, and joysticks) and automated sensing (of gesture, eye-tracking, movement, environmental or other inputs), often enabled by computational programs involving algorithms, machine learning, and AI. Interaction designs are by now ubiquitous and embedded into ordinary daily life, within our countless digitally enabled transactions, communications, experiences, and decisions within and across work and leisure, public and private sectors, from the most consequential (such as electronic ballots and voting systems) to the most intimate (such as healthcare services) of contexts.

The multiple disciplinary influences and temporal implications of interaction design expose the knowledges at stake within and beyond (stereo)typical design,

including an expanded range of knowledges concerning materials, computation, and use.

Materiality in interaction design must necessarily be considered in temporal terms. A Bauhaus-era lamp would be built out of materials such as glass and metal as well as electrical components for turning on and off mechanically. An interaction design may act as a lamp—for example, "flashlight" is a mobile phone app—but it is more fundamentally about the design of things that happen within or through a phone—for example, user interactions with app ads, movie content, or with remote control over their home security system. Even if, as Myerson argued, classic "making" and "studio" skills are still relevant for interaction designers, these kinds of design require more than traditional material epistemologies. "Smart" product and building design may involve intervention in material micro-structures (more traditionally in the knowledge domain of materials science) or macrostructure (potentially at the scale of architecture and civil engineering). Such design involves ways of conceptualizing and working with materials that "perform" in terms of a variety of structural, chemical, mechanical, and computational effects as well as the pace and orchestration of these effects during fabrication and, long after, in contexts of use. This is no longer selection from a stable and standing reserve of material resources that can be manipulated hands-on within the design studio; rather, these are designs that can span the spatial-temporal scales of "atoms and bits" through to "infobahns" with global reach (Mitchell, 1996).

The computation central to interaction design introduces further temporal dimensions. Indeed, computation is fundamentally temporal given that its basic elements—lines of code and commands—are executed sequentially and over time. The layered structure of computational devices entails that patterns and cycles of logical activity underway at various levels may intersect, reproduce, and evolve even over long periods of time. As these levels may be affected in various ways, the computer continues to be altered structurally—every time a program is run, a file written, or a new program added, the system undergoes a change that may cause it to act differently in the future. Interaction designers must also consider the temporality of use. As Suchman (1987, pp. 10–11) articulates, "real-time control over the computing process is placed in the hands of the user, through immediate processing and through the availability of interrupt facilities whereby the user can override and modify the operations in process." Thus, there are further temporal dynamics introduced through use in embodied, situated, and diverse contexts.

Temporality of future use thus entails further considerations. Like Bauhaus designers, interaction designers must make decisions at one point in time based on incomplete knowledge of potential users and future use. However, interaction designers must consider variables that will only ever be present in the future. Interactive apps, content, and services are to some extent dependent upon user activation, customization, preferences, and maintenance over time. For example, users discover many of the highly designed features of mobile phones only after a while, if at all, and necessary upgrades depend upon user action. An interaction design, rather than pre-given and fully present in space, only comes to be through and over time, at the will of the user. Anticipating use and users has thus become

central to interaction design—and extends design's remit in general even further into the space and time of future use. Whereas some fields in design remain more (stereo)typically object-centered, interaction design has become fundamentally "user-centered," involving theories and methods from the human and social sciences for anticipating, testing, and steering "usability", "pleasure," and even "emotional durability" (Chapman, 2015).

The temporality central to interaction design requires integration of knowledges from other disciplines. Such design includes consideration of various traditional and new materials, mechanical and computational technologies, and the interactions of individual users or collective interactions among and across devices and systems at nano-, micro-, macro-, trans-local, and global scales, a complex entanglement of material, computational, and social dynamics. Effects of reversability and predictability are mixed with those of synergy and emergence, those subject to "the arrow of time" and those not. Use and users are particularly unpredictable, entailing further spatial-temporal (in)determinability. To develop relevant knowledge foundations, scholars including myself and colleagues have attended particularly to interrogating and integrating ways of knowing and working within interaction design and relevant disciplines.

Which Knowledge(s), Whose Preference(s)?

Design theoretical foundations have necessarily expanded for interaction design, drawing in relevant knowledge from disciplines mentioned above and from further beyond. Particularly in relation to the temporality fundamental to interaction design, colleagues and I have theorized interaction design in terms of temporal as well as spatial "formgiving,", more specifically as "temporal form" (Mazé & Redström, 2005). With this concept, we are building upon philosophies of aesthetics and form. Johan Redström (2005/2010, p. 22) has articulated it in these terms: "[M]aterial is what builds the thing; form is the way material builds the thing" (c.f. Redström, 2001). Inspired by the philosopher Elizabeth Grosz (1999, 2001), I have explored how concepts of "becoming" and "futurity" can help us to articulate the complexity and indeterminability of how an interaction design changes and comes to be in part through users' own socio-political agency (Mazé, 2007). Colleagues have further developed related concepts in terms such as "becoming materials" (Bergström et al., 2010), "fluid assemblages" (Redström & Wiltse, 2019), and even "designing time," the motto of a new curriculum in Experience Design launched at Konstfack University of Arts, Crafts, and Design in 2007, for which I was one of the founding faculty welcoming students from music and dance, materials science and media, as well as from more traditional spatial design backgrounds.

Concepts such as "governmentality" have proven extensible and have been further developed for interaction design. Given the profound user-centeredness of interaction design, users (or user dependency, Mazé, 2007) can be seen as an "object" of interaction design (Redström, 2008). Indeed, social media and game

interaction design can induce addiction (Kaya, Türk, Batmaz, & Griffiths, 2023). Analyses of spatial and temporal form elements reveal such designs as "ordering devices" (Suchman, 1987, 2011), comprised of plans and scripts as well as "hooks" (Conway & Britton, 2023) and an embedded "computationalist order" (Golumbia, 2009). Some features may be imperceptible to users—for example, visual, sonic, and other cues inserted at speeds or sensory thresholds below that of human perception, which are explicitly designed to steer user decisions and behaviors (e.g., Ham, Midden, & Beute, 2009; Sohn, Nam, & Lee, 2009). Indeed, Paul Virilio (2006) articulated an emerging dimension of "governmentality" that operates through technologies of "speed." Through various such strategies as well as database logics, ISO-standards, and algorithms, design can be understood as a kind of "extrastatecraft" (Easterling, 2014). Within these designs are embedded the preferences of designers and of others—such as governments and corporations—that commission design.

Example: OSS Hope *to Colonize Mars*

A relevant example of the multiple temporalities at stake in contemporary design is one of the exhibits within Dubai's *Museum of the Future* (see Koch, 2024), which opened in 2022. Visitors entering the museum are metaphorically transported to the year 2071 and the *OSS Hope* space station on Mars. Practically, this involves visitors boarding a space capsule (in reality, an adapted freight elevator) to ascend into the museum. Creation of the experiential exhibit required multiple design fields and other disciplines including: highly specialized mechanical engineering (to simulate the feeling of acceleration and landing with a bump); scenography and lighting design (the walls, floor, and ceiling of the capsule mirror each other to give a sense of zero gravity); design of cinematic sound effects output through more than two dozen audio channels; and imagery and animations comprising more than a trillion pixels (so that each capsule "portal" reveals different scenes along the journey). Each element is orchestrated within a complex design that, ultimately, should manifest as a visitor experience of moving through vast amounts of space and time in 4 min. Visitors are immersed in a familiar "Space Age" narrative trope. In leaving behind a sick Earth and escaping to Mars, they are enrolled in a very particular set of assumptions and preferences regarding the future. Without exception, each visitor must actively choose from a selection of futuristic jobs and join the colonizing mission.

Design and Futurity

I have argued here that it is crucial to better understand what is meant by design, particularly given the "design turn" beyond design. In the previous two sections, I have used spatial and temporal dimensions of design as a means to articulate various fields within the design discipline in terms of different knowledge foundations. This is not to oppose space and time but to reveal the breadth, heterogeneity, and expansion of the discipline. On one hand, the "object" of design in terms of material and spatial form, which was core to many early design curricula including the influential Bauhaus model, remains a (stereo)typical imaginary of what design is, perpetuated in public perception through museum archives, exhibitions, magazines, and shops. But this has never been design's only remit. Even early exceptions are readily available, for example, *acceptera*, whose authors integrated social and spatial planning into design along with a particular political ideology about a preferred future.

More recently emerging fields expose how design has itself turned toward other disciplines, including other and manifold knowledges. Interaction designs—which are active, reactive, and interactive, crafted and programmed even at the scale of "atoms" and "bits"—require profound understanding of material, biological, chemical, and computational ideas. As people are central to how, and whether, digital content, experiences and services are used, designers have integrated some fundamentals from the human and social sciences, including ergonomic, cognitive. and behavioral sciences. Further, as social and political change have become aims of design—in part as political parties, governments, and corporations have turned to design in order to materialize and embed their preferences into enduring spatial and temporal forms—cultural, ethical, legal, and political dimensions are revealed. Temporality is one of many lenses through which we can inquire into the multiple and multiplying "objects" of design, its heterogeneous and expanding knowledge foundations.

Temporality in "experience design" and "service design" (fields that partly overlap with interaction design) typically involves the human-scale, real-time flow and duration of usage through space and time. To design for such use, knowledge including temporal conceptions may be drawn from psychology, phenomenology, and even "somaesthetics" (Höök, 2018). Service design may involve long-term use of public or commercial services, and a range of temporally oriented and practical conceptualizations have evolved, such as "customer journeys" and "life events." In these fields, knowledge from literature and the performing arts may be invoked through conceptions of design as time-based "storytelling," "orchestration," and "theater" involving technical, physical, symbolic, and experiential elements. Although not all interaction and service designs may explicitly aim to steer the future writ large, carefully designed usage inevitably unfolds in the future at a variety of spatial-temporal scales. Thus, I argue (Mazé, 2007), ideas about the future—"-futurity"—are at least implicit within such fields, and, for others such as "design futures," explicit.

As design thus turns towards other disciplines—and, as others turn toward design—further questions arise such how these knowledges relate. Do special so-called "designerly ways of knowing" (Cross, 2006) trump others or become eclipsed? Do they integrate, for example as expressed in formulations such as multi-, inter-, trans-, and cross-disciplinarity, and if so, how and on what terms?

This question is relevant to the rapidly growing field of "design futures." This moniker effectively puts forward a vast object for design—the future, or futures. Any number of further knowledges and preferences may be relevant to design with such a remit. Indeed, there are multiple approaches relevant to "design futures" with contrasting knowledge bases and preferences. On the one hand, designers have long created popular and persuasive visualizations of the future desired by corporations—think of the "concept cars" and "concept houses" displayed in world expos and trade shows to attract capital investment and instill popular desire for particular lifestyles. On the other hand, designers may critique companies' visions—those engaged in "critical design," for example, draw in part on critical social theory and science fiction to explore and prompt public debate about the (sub)cultural side effects and "dark sides" of emerging technologies. Although "concept design" and "critical design" objects may look similar on the surface, they have very different purposes, preferences, and politics (Mazé, 2020). These are just two of the contemporary genres through which designers engage (or others engage design to) influence future markets, public opinion, and cultural imaginaries (Dilnot, 2015).

As the field of "design futures" turns towards knowledges more typical in others, such as "futures studies," the terms of engagement are still an open question. Classic futures studies methods—such as "scenarios," "environmental scanning," "road-mapping," "futures wheel," and even the "Delphi method"—are being readily incorporated into design. Futures researchers and institutions (e.g., *Museum of the Future*) are increasingly making use of design and designers, for example to make high-level and abstract scenarios more appealing and accessible to wider audiences. This cross-fertilization may produce a new "interdiscipline," or each may subside back into themselves but augmented with new methods and techniques. There is, however, a distinct danger in a merely superficial encounter between disciplines. For example, some examples of "design futures" seem to uncritically reproduce techno-centric, colonial, and extractivist logics typical of some—but not all—epistemological paradigms present within futures studies. The danger of such a selective and superficial understanding of futures studies should be countered with more critical and profound engagement with the knowledge(s) at stake.

Futures Studies—Which Knowledge(s), Whose?

The discipline (or "transdiscipline") of futures studies is comprised of multiple approaches with different philosophical and historical roots—indeed, different foundations for futurity. Early approaches grew within post-war Western defense

Table 12.1 A typology of futures approaches

Key terms	Futures studies approaches	Underlying theories and/or paradigms	Goals
Probable futures	Predictive/ Empirical	Positivism, Empiricism	Analysis, Prediction
Preferred futures	Critical/ Postmodern	Critical Theory, Deconstruction	Normativity, Emancipation
Possible or alternative futures	Cultural/ Interpretive	Constructivism, Hermeneutics	Alternatives, "Other" Futures
Prospective or participatory futures	Prospective/ Participatory	Action Research, Hope Theories	Empowerment, Transformation
Planetary or integral futures	Integrative/ Holistic	Integral Theories, Planetisation Theories	Global Justice, Planetary Era

Note. Source: Adapted by author from Gidley et al. (2009, p. 429)

organizations and were further boosted by the need for long-term planning in the 1960s and 70 s. Such approaches are still mainstream, resonant in rhetoric and imagery of the "Atomic Era" and "Space Age." In these, the future is often portrayed as a singular, discrete, and definite location, to be reached according to theories of change following a billiard-ball sort of logic along linear pathways. In those pathways, the development of particular technologies is typically the privileged baseline for plotting human, cultural, and societal progress (that is, if social—much less ecological—factors are considered at all; see Wangel, 2011). Indeed, Ulrika Gunnarsson-Östling (2011) has argued that images and activities of women and Non-Westerners, as well as issues of particular relevance to these groups, remain noticeably absent in such futures studies. Adhering to the "middle class standard" of such futures can mean failing to recognize other (and sometimes more sustainable) practices, as well as disruptive innovations, which may be involved in everyday life, cultural traditions, and ecological niches. Thus, in light of such early approaches—and partly in opposition (Gidley, Fien, Smith, Thomsen, & Smith, 2009)—futures studies arose as an academic field in the mid-1960s.

A typology outlining multiple approaches within futures studies has been articulated by Jennifer Gidley et al. (2009; Gidley, 2017) (see Table 12.1). These types are not mutually exclusive, according to Gidley et al. (2009), but suitable for different contexts and purposes in practice—for my purposes here, the distinctions can be utilized to articulate different epistemological underpinnings. The differences between approaches to some degree reflect historical and geographic contexts as well as developments in other knowledge spheres. For example, and in contrast to the mainstream "predictive-empirical tradition" that can be traced from origins in post-war US defense intelligence, Gidley et al. (2009) point out a normative "critical-postmodern" approach within futures studies in Europe, its practitioners making explicit context and values dimensions, a "prospective-action" approach with French precedents, and an ongoing focus in Swedish and Australian futures studies on engaging participants to change awareness and prompt action.

Multiple Ways of Knowing the Future

Understanding futures studies as comprised of strands with different epistemological orientations provides a more variegated landscape for potential design engagement. With reference to Gidley et al.'s (2009) typology, designers have arguably engaged primarily with futures approaches underpinned by positivist logics and, to a lesser extent, by critical theory, action research, and cultural paradigms. To the first point, for example, designers have readily adopted and now commonly utilize "foresight" and associated techniques of "forecasting" in order to predict what is likely to happen in the future. Predictions may be manifested in roadmaps for design business development as well as for future product lines—for example as a basis for materializing futuristic cars and houses in "concept design." Foresight is often, and historically has been, associated with a positivist worldview, in which knowledge of the future should be built scientifically from empirical evidence of past and current phenomena (e.g., not "science fiction") following deterministic logic of cause and effect (Piirainen & Gonzalez, 2015). Design futures in terms of foresight, thus, is an approach that may contrast with others not only in goals and methods but in terms of epistemology. For example, those engaging with "critical"—also "norm-critical" (Andersson, 2023) and "counterfactual" (Light, 2021)—design futures may seek neither scientific evidence nor reliable roadmaps but, rather, employ critical theories to expose the assumptions, norms, and preferences embedded in ideas of progress or predicted trends.

Beyond early or mainstream futures approaches, design may align with "critical" and "participatory" varieties of futures studies. Much of design is arguably aligned not with positivism, but with pragmatism (Dixon, Rylander Eklund, & Wegener, 2023), science and technology studies (STS) (Woodhouse & Patton, 2004), and constructivism (c.f. Verbeek, 2005), which is clearly evident in participatory design and design anthropology. In these fields, the future may not be seen as a separate space and time but as always already "in the making" (Binder et al., 2011) and even "already here" within a continuous unfolding of the past and the present (Kjærsgaard et al., 2016). "The future," as a social construct, is seen as amenable to deconstruction, deliberation, and, furthermore, co- or collective design through action- and participatory action research methods of "rehearsing the future" (Halse, Brandt, Clark, & Binder, 2010) and "ethnographies of the possible" (Smith, Vangkilde, & Kjaersgaard, 2016). Proponents of "collaborative future-making" (Jönsson, Lindström, & Ståhl, 2021), influenced by STS, feminist technoscience, and new materialist concepts, focus not on the future per se but on "staying with the trouble" (Haraway, 2016) and "thickening the present" as relevant to anticipatory and design futures practices.

"Critical" and "cultural" varieties of futures studies may align with ecologizing and decolonizing movements in design, whose supporters understand design today as unsustainable to the point of being fatal (or "defuturing," Fry ,1999/2020) for many people, cultures, species, and for the planet. Toward a goal of more equality or equity for those others, and potentially aligned with "planetary" futures, such

movements may widen design to include the interests of other and underrepresented social groups, future generations, and more-than-humans. For example, Martín Ávila (2022) elaborates an "ecocentric" mode of design that takes into account "all life forms," Emilija Veselova (2023) theorizes participatory design processes that include natural entities, and Klaas Kuitenbrouwer (Zoöp, 2023) develops a "zoönomic" method and certification process to "safeguard the interest of all life" within legal and organizational models as well as in design and futuring processes. Beyond including or centering other bodies, beings and entities, some movements in design and futures move toward other epistemologies altogether. Decolonizing movements, for example, often stem from "epistemologies of the South" (Santos, 2002)—in design, see "kokoro" (Akama, 2017) and "sentipensar" (Escobar, 2018, 2020) (c.f. Calderón Salazar, 2021)—and other ways of knowing than the Western knowledge paradigms currently dominating design.

Although those working in design have tended to borrow selectively and superficially from futures studies, the identification of different typological approaches in futures studies suggests multiple potential types of "design futures." Further, it suggests the need for more profound interrogation of underpinning theories and knowledge paradigms (as in Table 12.1), that is, which knowledges and whose are at stake. Indeed, the continued domination of mainstream approaches in futures studies and of forecasting in design might also explain the relative absence (or resistance) of others. Bergman, Engwall, Gunnarsson-Östling, and Johannesson (2014) point at the suspicion some feminists harbor towards "the future," which may be a fear of falling into the trap of universalism, linear temporality, and narrow definitions of progress. Barbara Adam (e.g., Adam & Groves, 2007), for example, illuminates how futures studies framed in terms of the management of "time" and "futures" is explicitly modern, Western, and patriarchial. Futures scholars such as Sohail Inayatullah (1990) point out that time as structured in terms of three categories—past, present, and future, that is, a tripartite ontology—can be queried as historically- and culturally specific, given that concepts of "the future" scarcely exist in some cultures. Broadening and deepening our approaches of "design futures" thus also entails further engagement in these and other's critiques and ontologies relevant to "futurity," as well as their ethical-political standpoints.

Example: Stockholm 2030 Otherwise

A recent response to the City of Stockholm's *Vision 2030: A guide to the future* (City of Stockholm, 2007) brings to life a particular way of using future visions to both critique and to empower others in redirecting towards alternative futures. In their response, Bradley, Gunnarsson-Östling, Schalk and Andreasson (2017) analyze the official city vision through the theoretical lenses of feminist political ecology. They carefully articulate their critique in text and, further, put forward their alternative vision in the form of carefully composed illustrations and a city map, pointing out several specifically sited architectural and design proposals.

The content as well as imagery of their response stands in stark contrast to the city's. Text within the official *Vision 2030*, named "A World Class Stockholm," is full of assertions and exclamation marks (rhetorically not far from the proclamatory tone of *acceptera*). It is full of bright and colorful photos resembling tourist postcards, including photos of individual children, posed and smiling like models. It unfolds through several sections, the first seemingly aimed at prospective students and tourists, the second, themed "innovation and growth," targeting businesses and knowledge workers, and the third, citizen beneficiaries of public social services. Marked on its maps are sites such as: Kista Science City, the newly built neighborhood Hammarby Sjöstad, Stockholm Royal Seaport, and Klara Hotel and Conference Center. Bradley et al's (2017) counter-vision has a low-tech and collage aesthetic, as if local amateurs have captured glimpses of existing places and communities and cut and pasted them into a larger illustration, with a wide and diverse color palette (and skin tones). Here, there is no sleek "starkitecture" (icons built by celebrity architects) nor historical monuments—rather, there are neighborhood multi-functional spaces, concerts, and gardens. Children are depicted as interacting within a larger collective that is multigenerational and multispecies, in which their agency and voice as well as that of animals is reinforced through speech bubbles. Imaginary projects on their map include: Neighborhood Kitchens, Retrofitting Suburbia, Kungens Kurva Souk, and Supercycle Highways.

Bradley et al. (2017) carefully articulate their theoretical and epistemological underpinnings— that is, feminist political ecology research—through which they query access to and control over environmental resources. In such research, gender is in focus, including women's knowledge, gendered ways of handling ecological change, the value of local knowledge, women's socio-environmental struggles, power relations in decision-making about the environment, and critiques of technological progress and domination of nature (Rocheleau, Thomas-Slayter, & Wangari, 1996). Bradley et al.'s (2017) feminist stance concerns not only the roles of men and women, but also other divisions and hierarchies, such as nature-culture or the developed-developing world. In contrast to binaries and essentialist categories, they articulate a decentered subject and poststructuralist power analysis (Elmhirst, 2011) and an intersectional approach, with which they take into account gender, class, ethnicity, sexuality, place, and, more recently, "more-than-human" approaches (Bennett, 2010). Bradley et al. (2017, p. 304) articulate their proposition as:

> imagination of another world-order, beyond the economic growth paradigm, freed from the complex of patriarchy-capitalism-militarism-colonialism […] a system where the creation and quality of life is placed in the centre, where production is synchronized with needs of consumption (rather than focusing on profit and growth)—a society entailing decentralized and local economies and bureaucracies, and life characterised by equity between genders as well as between different societal groups, territories, species and generations.

Bradley et al.'s (2017) project is more more aligned with "critical" and "cultural" strands of futures studies, in which particular futures are critiqued and preferred futures put forth. Those adopting this kind of approach question and articulate assumptions and norms, and they put forward alternative standpoints and multiple (including underrepresented and marginalized) perspectives. They refute the idea

that critical theory is merely a negative activity of looking for flaws and absences, arguing that feminist critical positions can also be productive and inspiring. Furthermore, rather than restricting their response to proclamation and publication, they took forward their proposed vision into deliberative and collaborative forums with stakeholder groups. Such futures studies approaches aligning with feminist criticality can be seen, Bergman et al. (2014, p. 67) articulate, as "a way of making temporal knowledge production more tangible and engaging, as well as a way of intensifying the debate about the future in politics and planning."

Conclusion

I have here used temporality as a lens to interrogate and elucidate design in terms of some knowledge foundations and ways of knowing. Although design's early "object" was centered on material and spatial form, that has never been its only remit, as exemplified in *acceptera*. Practitioners of more recently emerging fields of interaction and experience design reveal time as central, that is, the temporality of (inter)active materials, digital/computational processes, and user interaction with and across devices and systems at scales well below and far beyond the threshold of human perception. Interaction design thus exposes the expanding knowledge foundations of design, including theories and practices informed by disciplines such as material, computational, cognitive, social, and political sciences. Further normative dimensions of design are also revealed, as interaction designs embody *preferences* about user experiences and social interactions. Communities, companies, civil society organizations, and governments increasingly turn to design in order to embed their preferences into spatial and temporal forms. Indeed, societal and political change are explicit aims in contemporary design for "behavior change," "social innovation," and "public policy" (Kimbell, Durose, Mazé, & Richardson, 2022), such that further knowledge domains relevant to design include ethics, law, and politics. Temporality is one of many ways through which to expose and explore the heterogeneous nature of design, to inquire about *which* knowledges as well as *whose* are at stake.

Futurity, as a particular way of framing temporal concern, is explicit in the nomenclature of nascent fields such as "design futures." Futurity has long been more or less implicit in design, as evident in various movements, from the early modern (e.g., *acceptera* and the *Futurists*) through to the contemporary (e.g., concept and critical design). Today, those engaged in "design futures" are putting forward a vast object for design—the future, or futures—and any number of further knowledges and preferences may be relevant to design with such a remit. But the stakes are high if we are to go beyond uncritical design (re)production of futures that are techno-centric, colonial, and extractivist (e.g., *OSS Hope* in the *Museum of the Future*). Delving further into futures studies—for example through Gidley et al.'s (2017) typology here—reveals a multiplicity of possible design orientations with different theoretical foundations and different practical goals. Beyond foresight and

positivist paradigms, "critical" and "participatory" futures studies resonate with design ways of knowing premised on pragmatist, STS, and constructivist paradigms, and "critical" and "cultural" futures studies may open joint prospects for ecologizing and decolonizing movements. New alignments may also be forged with those philosophically and politically engaged with futurity but critical of certain futures paradigms and proliferating buzzwords (e.g. Stockholm 2030).

Whereas various scholars and practitioners herald a "design turn" in their own disciplines and professions, I have here outlined ways in which designers have also turned towards others. Attending to the changing and heterogeneous nature of design is, I would argue, one way of contributing critically to its development as a discipline. Resisting a singular definition or grand narrative of design, which is inevitably reductive and risks universalizing, I argue instead for more situated accounts. By definition, such accounts do not exist in a vacuum. Rather, situatedness entails precedents, contingencies, and influences in, on, and of design. From this perspective, there are always and inevitably multiple and heterogeneous "designerly ways of knowing" (Cross, 2006). This means that as design turns towards futures and vice versa, there are multiple possibilities for meaningful engagement that need not be reduced to design merely (re)producing others visions. Attending with sensitivity to diverse forms of knowledge work "between and across" (Rendell, 2013) disciplines can reveal transitions within each, and even mutual transformation. Within and well beyond design, the turn of, and to, design raises a host of critical questions—and exciting possibilities.

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Chapter 13
Techniques of Futuring: How Imagined Futures Become Socially Performative

Jeroen Oomen, Jesse Hoffman, and Maarten Hajer

The State of Politics in the Mid-2020s

If the future has a space in today's politics, it is one occupied by bleak images. Anxiety dominates the European political landscape of the 2020s. Behind the fear lies a sentiment of losing grip and a lack of perspective, whether that be in the farmers' protests against environmental policies, the conspiracy theorists taking to the streets because of their concern about the handling of Covid, or the scapegoating of migrants on social media. Analytically, we can see a peculiar way of relating past, present, and future. People hold on to what they have in the present, constructing a perspective on what the past was like. What is dearly missed are narratives about the future, preferably ones that are appealing and able to create new aspirations and perspectives, new "imaginaries" that are collectively held, that create a certain appetite for change. This is where *futuring* might come in. Futuring, as we understand it, is about analyzing how images of the future are performative in the present. It is a branch of social theory one can use to help explain political constellations like the ones in which we find ourselves but, what is more, whose scholars also aim to help find ways out.

Obviously, futuring will be meaningless if we do not address the causes of emotions of apprehension and fear. Decades of industrial modernization have

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created a society that thrives on technological innovation, mass consumption, and the (relative) redistribution of wealth. Postwar European politics has created social security, food security, and economic growth that have allowed for decades of relative calm. Consequently, people have become accustomed to privilege and, over time, came to regard the newly acquired freedoms as entitlements. Yet capitalist modernity is inherently crisis-ridden and a world that constantly undercuts stability, as Marshall Berman put it in his seminal *All That Is Solid Melts into Air: The Experience of Modernity* (Berman, 1982). The imaginary of the "American Dream," with its peaceful suburban automobile ideal of arrival and satisfaction, does not comprise the harsh and constant competition that success in this society requires. Underlying it is an alleged meritocracy: You can prosper if you develop, comply to the rules and compete for your place. Citizens are enticed to live a life of consumption, enjoying and defending the freedom of choice.

For a long time, industrial modernization fueled by cheap fossil fuels kept this project viable. Decade after decade, a relative growth (both demographically and economically) was possible. But now industrial modernization falters. Several macro trends undercut its viability. Globalization and digitalization have eroded the spatial basis of social accord (wealth slips away), and sustainability (climate change) is a major knock on the door exposing the exploitative nature of industrial societies. Demographics undercut the social possibility to keep an economy running without a major import of labor or of commodities, and the protests of a continued colonial exploitation grow ever louder.

Individuals do not see reality through sociological or geographical concepts like "macro trends". They perceive an individual and collective sense of loss—loss of stability, of intergenerational perspectives, of their "ontological security" (Giddens, 1990) People feel how their freedoms to live their lives as they like are jeopardized. Climate policies threaten automobility, holiday flying, and the red meat BBQ; new citizens enter the housing and labor market. Lifestyles and cultural preferences are at stake.

Moreover, there is a new inequality that is not so easily ironed out with the postwar policy toolkit. Wealth is accumulated outside the nation states, and whereas some have found a way to "ride the tiger of time" within the nation states, others struggle to keep their families and household afloat. Left-leaning "globalites" buy solar PV panels and electric vehicles, and accustom themselves to newly discovered complexities of gender, race, and coloniality. Yet others cannot buy into sustainability or shift liaisons so easily. They feel caught in their dependence on diesel on agricultural subsidies, or feel the squeeze of a housing market that makes it difficult for many to find a place of their own. Entitlements, whether those be cheap mobility or education, and life-guiding social perspectives, such as the common zeal to try to outperform your parents' standard of living, are under threat. Anxiety is creating political turmoil.

The above is generally well understood, be it in a less sociological language. Something similar holds true for futuring. "We need new persuasive narratives," we now often hear. That we need new narratives is most certainly true. Yet the question,

of course, is what new ideals are carrying these new narratives. Moreover, how do they become socially persuasive? This is where the theory of futuring can be of help.

Techniques of Futuring: A Dramaturgical Analysis

The concept of the future is re-emerging as an urgent topic on the academic agenda (Andersson, 2018; Beckert, 2016; Beckert & Bronk, 2018; Bryant & Knight, 2019; Urry, 2016). A response to widespread societal uncertainty about what the future may hold "as the twin threats of ecological collapse and technological risk loom ever larger" (Krznaric, 2019), this renewed attention manifests itself in many domains of public life. The public imagination is infused with visions of future environmental catastrophe and social inequality. In the social sciences, academics worry about the consequences of technological developments such as the "smart city" and "surveillance capitalism" (Kitchin, 2020; Townsend, 2013; Zuboff, 2019) that increase both the power of "big tech" and global inequality. In the domain of sustainability, scholars question the prevalence of doom and gloom narratives, arguing for "desirable futures" people can act towards (Bai et al., 2016). A shared concern in these debates is the ability of human societies to imagine futures for themselves—and the lack of desirable alternatives. Yet social theoretical questions about how such imagined futures might gain traction remain insufficiently explained.

There exists a rich, if scattered, social theoretical scholarship on the status and dynamics of the future. Historians have shown how "the future of the world" became a subject of concerted effort and study (Andersson, 2018). Anthropologists attempt to formulate anthropologies of the future (Bryant & Knight, 2019), often based on the analyseis of fears and hopes in the contemporary world (Appadurai, 2013; Augé, 2014). Sociologists, too, have focused on how the future manifests in the present—as well as how present trends co-determine the future's shape (Adam & Groves, 2007; Tutton, 2017; Urry, 2016). For Barbara Adam (2011, p. 592), "a future-less sociology is increasingly hard to defend in a world where socio-scientific products and their effects extend to ever further futures while temporal perspectives and concerns continue to narrow." Those expressing this social-theoretical interest in the future share an attention to the way "the future" is a part of (and gives meaning to) daily life in societies around the world—or for that matter, how the lack of a shared vision of the future can cause widespread anxiety (Adam, 2011; Appadurai, 2013; Tutton, 2017).

Those studying the *performativity* of the future in the present show how images of, and expectations for, "the future" structure decision-making and social organization (Beckert, 2016; Bell & Mau, 1971; Borup, Brown, Konrad, & van Lente, 2006; Groves, 2017; Jasanoff & Kim, 2015). Yet *how* such visions come about, why they become performative, and *who* has the capacity to render their visions performative remains underexplained. Drawing on constructivist sociological theory, we aim to fill (part of) this gap by exploring the seemingly simple question "how do imagined futures become socially performative?" We aim to conceptualize the social

origin of imagined futures, examining how they come to structure and organize collaborative action. In doing so, we put the "politics of the future" center stage: We propose to focus on the social practices that allow particular notions about the future to become performative (see Hajer & Oomen, 2025 forthcoming, for a detailed account).

We suggest that social-theoretical scholars focus on the act of *futuring,* which we define as the identification, creation and dissemination of images of the future shaping the possibility space for action, thus enacting relationships between past, present and future. This active concept helps one to view the future in terms of the *imaginative work and practices* that negotiate meanings and legitimacy, embed knowledge, engage publics, and create relations of trust. In doing so, we argue for making the performative power of ideas and visions about the future into an *explanans,* something that must be explained. We suggest that the performativity of such visions can be explained through careful analysis of the practices through which imagined futures come to be collectively held. Such imaginative work is a site of agency, and therefore a site for the "politics of the future." We invoke the concept of *techniques of futuring*, first defined as "practices bringing together actors around one or more imagined futures and through which actors come to share particular orientations for action" (Hajer & Pelzer, 2018, p. 222), as an analytical tool to examine futuring practices used to attempt to render imagined futures performative.

This contribution, then, has three aims. First, we identify the leading social-theoretical work on the future in terms of its insights and shortcomings. Secondly, we fill (some of) these lacunae by describing the relationship between the imagination of the future through social practices and the performance of reality. Finally, building on the techniques of the futuring concept, we develop a performative understanding of futuring—proposing a dramaturgical analysis to investigate how actors actively "bring the future into the present" through performances using particular narratives, settings, and configurations. To further this type of research, we introduce the concept of "dramaturgical regime"and a dramaturgical framework. We thus aim to provide a theoretical framework to explain how images of the future gain performative traction.

Visions of the Future and Their Performativity

Until recently, the future received surprisingly little attention in social theory. As Beckert (2016) observes, the creators of most important social-theoretical concepts try to explain the present in terms of the past, with notions such as "path-dependency" or "unintended consequences." The future, however, is always also influential *in the present*. The "later-than-now" always plays a role in decision-making. Individuals and collective actors (businesses, governments, NGOs) anticipate futures (Beckert, 2016; Vervoort & Gupta, 2018). Societies develop and adopt tools and social technologies to render the future actionable, such as predictions, models, and scenarios (Andersson, 2018; Candy & Dunagan, 2017; Miller, 2018;

Wack, 1985). Yet for social scientists, the future's temporality makes it difficult to study (Bell & Mau, 1971): "How does a sociologist study the 'not yet,' that which has not yet happened, which has not taken material form in the present time? What counts as knowledge of the future if the future is not considered as already pre-existing?" (Tutton, 2017, p. 482). As a result, those who have produced most fruitful social scientific research on the future interrogate the relationship between present and future. In this view, "the future is real in so far as social actors produce representations of the future which have an effect on others' actions in the present" (Tutton, 2017, p. 483)—implying that the future is "real only to the extent that it is performed," akin Judith Butler's famous analysis of gender (Butler, 1988, p. 527). Although the future may not count as "already pre-existing" in a strict sense—being subject to events and choices in the present—it is certainly a point of orientation for action. Images of the future give direction and they structure societies and policies (Bell & Mau, 1971; Polak, 1973). As such, *imagined futures* and *fictional expectations* (Beckert, 2016) do exist and can be studied (Borup et al., 2006; van Lente, 1993). Furthermore, as Sheila Jasanoff (2015, p. 2) shows, normative "imaginaries", "collectively held, institutionally stabilized, and publicly performed visions of desirable futures," also motivate sociotechnical developments. Similarly, one can observe how the *absence* of meaningful images of the future may stifle transformative change (Augé, 2014; Hajer & Pelzer, 2018). Those studying the future in terms of performativity explain how visions of the "future" shape and coordinate social action in the present. This explanation comes in four distinct but closely related readings of performativity: the sociology of expectations, sociologies and anthropologies of affect, the burgeoning literature on the collective imagination, and material-semiotic approaches.

To those conducting a sociology of expectations, expectations function as "wishful enactments of a desired future" (Borup et al., 2006, p. 286). Applying a sociology of expectations shows that discourses about the future are generative, in that they "guide expectations, provide structure and legitimation, attract interest and foster investments" (Borup et al., 2006, p. 285). The factuality of these imagined futures is not important so much as the way that their *credibility* provides a "prospective structure" (van Lente & Rip, 1998) that shapes actors' orientations for action (Beckert & Bronk, 2018; Hedgecoe & Martin, 2003; MacKenzie & Millo, 2003). In their capacity to direct action, then, "expectation statements are not only representations of something that does not (yet) exist, they do something: advising, showing direction, creating obligations" (van Lente, 1993, p. 191). They can become "real-time representations" of future situations that attract coalitions through press-releases, conferences, and other promissory performances (Sunder Rajan, 2006).

Affect regulates another aspect of the performative relationship between past, present, and future. Where the performativity of expectations relies on credibility, on being believed and expected, affect relies on (a form of) emotive investment. The authors of a growing body of literature in both sociology and anthropology—such as the sociology of hope (Desroche, 1979; Miyazaki, 2004; Petersen & Wilkinson, 2015)—show that an *affective* relationship to the future can also be performative (Adam & Groves, 2011; Adams, Murphy, & Clarke, 2009; Massumi, 2015; Mauch,

2019). Hope, for example, can be understood as "an insistence on potentiality or concrete possibility for another world" (Muñoz, 2009, p. 1), giving meaning to future-oriented practice through the imagination of different futures. Hope, of course, is not the only affective relationship with the future. As Bryant and Knight (2019) outline in their *The Anthropology of the Future*, there are at least six types of affective relationships with the future: anticipation, expectation, speculation, potentiality, hope, and destiny—with utopias and dystopias as particularly powerful affective motivators (Moore, 1966; Sliwinski, 2016).

Affective relationships with the future are performative because they provide actions in the present with meaning, especially when combined with expectations about (the effect of such actions on) the future. This meaning-making aspect of the relationship between an affective engagement with the future and expectations features centrally in literature on the collective imagination. Those producing studies of the collective imagination describe "the way people imagine their social existence, how they fit together with others […] and the deeper normative notions and images that underlie these expectations" (Taylor, 2004, p. 23). This collective imagination is a site for meaning-making, affect, and the structuring of social relationships and expectations. Imaginaries shape social relationships with the future (Anderson, 1983; Butler, 1988; Ezrahi, 2012). Sociotechnical development, for example, relies on *sociotechnical imaginaries* (STIs), culturally specific, collectively held imaginations of desirable techno-scientific futures, to structure investment and solidify collective belief in the desirability and feasibility of technologies (Jasanoff & Kim, 2015). In this literature, the collective imagination is presented as a form of social work, imaginaries being "neither cause nor effect in a conventional sense but rather a continually rearticulated awareness of order in social life" (Jasanoff, 2015, p. 26), relying on performance and (re)enactment "of a set of meanings already socially established" (Butler, 1988, p. 26).

The authors of literature on the collective imagination are in continuous dialogue with those of material-semiotic approaches, who—in the context of futuring—stress that "the material aspects of anticipation—its capacity to draw virtual futures into the present and make them actually effective—extend beyond language," because "anticipation is dependent on the capacity of bodies and of socio-technical apparatuses, distributed through the environments of social action" (Groves, 2017, p. 29). In this sense, material organization contributes not only to an unevenly distributed anticipatory capacity through the lopsided distribution of the material futuring capabilities—it also structures what is thought of as possible (Adam & Groves, 2007; Jasanoff & Kim, 2015; Urry, 2016). The post-war imaginary of the "American Dream," for example, related to the negative sentiment of living in confined urban neighborhoods and required the visible existence of the automobile and the construction of motorways and suburban infrastructure to be effective as a sociotechnical imaginary—as well as the material capacity to present and *perform* such an imaginary. In the words of Barbara Adam and Chris Groves (2007, p. 178), "matter is to be understood not just spatially as frozen in time but also temporally as extended and enduring, interacting and regenerating, decaying and leaving a record, projecting and entailing […] futurity" (Adam & Groves, 2007, p. 178). In short,

material arrangements embody and embed social relations, as well as images of the future *into the design of the present* as well as *the modes of anticipation* they afford.

The authors of these four connected literatures all focus on the *structuring* effects of those imagined futures. They provide distinct views on the performativity of imagined and material futures in the present. Those conducting a sociology of expectations focus primarily on the activities that lend credibility to imagined futures and the promise requirement cycles this may induce. Those applying sociologies of affect show the ways in which visions of (alternative) future worlds provide hope, inspiration, or despair. Authors of the literature on the collective imagination, in turn, merge the study of the affective, meaning-making power of the imagination with the guiding role of expectations and visions in a culturally sensitive way. These three interpretations of performativity are complemented by material-semiotic interpretations whose authors foreground the way imagined futures are enacted in and through material structures. Across the board, those applying these social theoretical approaches to the performativity of imagined and materially embedded futures stress that the future is a *cultural fact* (Appadurai, 2013), relying on performance, enactment, and material embedding in social practice (Malkki, 2001; Mische, 2009). It is not something "out there," or something that is only "of the mind" (Adam, 2011), but a materially and discursively enacted part of the present (Tutton, 2017).

What the authors of these approaches leave under-conceptualized is *how* such visions and imaginaries emerge and gain traction in the collective imagination. Although they stress the importance of *performance* and the continuous repetition of imagined futures through practice, they rarely address explicitly how such visions of the future become a persuasive part of people's lived experience. Often, they also overlook the contextualized (and unequally distributed) agency of people to both act upon and *change* such visions. In the next section, we explore precisely this question: How can the performance and enactment of futures be understood as a form of social practice?

A Practice Approach to Futuring

Social-theoretical attention to the future should not only be paid to how visions of the future underpin practices in the present, but also to how contextualized practices bring that future into the present. The collective imagination is, as Arjun Appadurai (1996, p. 31) puts it, "an organized field of social practices, a form of work (in the sense of both labor and culturally organized practice), and a form of negotiation between sites of agency (individuals) and globally defined fields of possibility." Collective imaginations are performed and (re)enacted in practice, needing *organized fields of social practices,* media technologies, and existing cultural norms and imaginaries through which to travel. An equally important part of what makes those visions persuasive, however, are the contextualized practices used to *identify, create, and disseminate images of the future*—and through a "stylized repetition of acts" (Butler, 1988, p. 520) embed them in social reality. Those applying social theoretical

approaches to the future often explain such practices structurally, based on existing imaginaries and power structures, paying too little attention to the ways in which "the possibility of a different sort of repeating" (Butler, 1988, p. 520) allows the creative disruption of imagined futures. The social instruments for the dissemination of imagined futures *have* received significant attention in futures studies and critical futures (e.g., Eelderink, Vervoort, & van Laerhoven, 2020; Mangnus et al., 2019)—but the authors of those studies often lack a firm grasp of such social technologies' structurally bounded nature. Steering a middle course, a better understanding of the dynamics of imaginaries becomes possible by examining *futuring* practices—critically investigating how they are embedded in a social world of practitioners, meanings, and material realities.

Such an investigation should bring out the active and situated work of *futuring*, defined here as the identification, creation, and dissemination of images of the future shaping the possibility space for action, thus enacting relationships between past, present, and future. It should be used to actively probe how visions of the future come about, become persuasive, and travel through social practices. According to practice theory, people construct and perform a social world through social practices. It is through these routinized practices that we create and continuously recreate our lived-in reality (Butler, 2011; Mol, 2002; Moser, 2008; Shove, Pantzar, & Watson, 2012; Woolgar & Lezaun, 2013). Applying this social-theoretical notion of *practice* to futuring, we can investigate how people come together around particular visions of the future. Constructing and performing practices mediates, curates, creates, and enacts imaginations of possible futures in the same way that it creates our lived-in reality. Through giving shape to daily life, and the meaning of people's actions, practices allow for the enactment of imaginations about a shared reality—and of visions of the future. Because they do, futuring practices can be analyzed in their potential to both maintain and disrupt visions of the future. Whether it concerns expert-led practices like climate modeling or democratic deliberations, the practices involved are socially codified ways of acting out, presenting, and performing images of the future. They require social and material settings that come with specific competences, material requirements, and a range of implicit meanings. To take a familiar example, the dissemination of the American Dream as an image of the future initially took place via glossy magazines like Harper's Magazine, Readers Digest, and its subsequent material expression in the 1939 New York World Fair called "The World of Tomorrow" (Albrecht, 2012). To this very day, the culture of consumerist individualism that underlies the American Dream is propelled by a mighty marketing industry that masters the tricks of the trade of futuring through consumption.

Analyzing such practices as functionally designed *techniques of futuring* helps to identify the concrete social practices—and their recognizable social and cultural history—through which societies perform imagined futures. When it comes to governments, these practices are mostly organized around specific tools or instruments, such as cost-benefit analysis (CBA), climate modeling, visioning exercises, or codified forms of public participation. Rather than delimiting the analysis to studying how CBAs or climate models produce images of the future, a futuring lens would study the social practices that give such tools their performative

authority. Techniques of futuring contribute to shared imaginaries according to their own internal "logics" (Lascoumes & Le Gales, 2007; Law & Urry, 2004). Since WWII, a wide variety of futuring practices have been developed around technologies and instruments designed to envision the future (Andersson, 2018). Some of these are explicitly "futurological," such as scenario-planning, whereas others, such as design thinking and trend-watching, are less explicitly future-oriented. By conducting a practice-based investigation of these tools, one sheds light on how they "bring imagined futures into the present." One also highlights how coalitions form around particular expectations and visions, and how they render these visions authoritative orientations for action.

Future-oriented tools are often presented as "neutral investigations" of the future aimed to support political decision-making. There is ample empirical research showing they are nothing of the sort. Brian Wynne (1984), for example, demonstrated early on that numerical world-modeling was always not just a scientific project, but a practice of political persuasion and coalition building. Far from providing a morally neutral and "rational" description of the (future) world, those using world-modeling aimed to bring about a coalition around a particular form of (global) environmental action (Edwards, 2010). In the years since, those conducting scientific modeling work have often aimed to make people "walk together" towards shared imagined futures (Andersson & Westholm, 2019). In the present, IPCC reports fulfil a similar role by bringing political actors together around particular "pathways" for mitigation policy (Beck & Mahony, 2018). Likewise, economic instruments create "fictional expectations" that enable actors to converge around shared imagined futures (Beckert, 2016). Cost-benefit analysis or world-modeling are thus not just tools: They come with a shared background understanding through which actors mutually adjust expectations and evaluate what is feasible and appropriate in a given situation.

Through the *techniques of futuring* (ToF) concept, it becomes possible to draw out how the usage of models or CBAs helps to create order in the unstable imagination of the future—but also how these imaginings rely on shared background understandings. All ToFs rely on specific "logics," presuppositions and practices that structure how actors can interact and engage with certain images of the future. ToFs come with embedded assumptions about who gets to participate, how the future ought to be presented, what the implications of the presented futures are for socio-political practices, and what types of knowledge are needed for presenting the future. At the same time, there is always room for creative agency in the presentation of the future (e.g., Hoffman, 2013). This means that techniques of futuring are characterized by a dynamic relationship between the (imaginative) *structures* within which interaction takes places and the *agency* of actors to shape those structures, as well as their *creativity* "to do things otherwise" (Hoffman & Loeber, 2016; Joas, 1996). This structure-agency dynamic is key to understanding how techniques of futuring enable imagined futures to become persuasive. We typically find little attention for this form of mediated agency in practice theory, which tends to privilege the social, material, and discursive structures around practices. To address

the subtle form of agency inherent to *presenting and performing* visions of the future, we suggest complementing practice-orientation with dramaturgical analysis.

Understanding Futuring as Dramaturgy

The structure-agency dynamic relationship can be illuminated by observing the *dramaturgy* of futuring practices. Borrowed from theatrical studies, the concept of dramaturgy is used to describe how social situations are "performed" and how existing performative imaginations are enacted (Burke, 1969; Goffman, 1959; Hajer, 2009). With dramaturgical analyses, one captures how practices are *structured* by conventions, and how actors can assert *agency* in becoming knowledgeable and capable of shaping that dramaturgy. In doing so, dramaturgical analysis enables the comparative study of different techniques of futuring and a "close-up" of actors in action. By conducting such analysis, one can explain how embedded assumptions and norms around the presentation of the future—but also disruption through "a different sort of repeating"—allow images of the future to travel, to become persuasive, and ultimately become performative.

Although new to the analysis of futuring practices, dramaturgical social theory has underpinned social and political analysis of the "performance" and "enactment" of collective and shared images of reality for decades (Burke, 1969; Ezrahi, 2012; Goffman, 1959; Hajer, 2009). According to dramaturgical theory, social situations can fruitfully be understood as theatre plays in which actors aim to convey an impression of the world through particular settings, sequences, dialogues, props, and even costumes. Through these performances, people come to "suspend their disbelief" and share collective imaginations of political power, authority, or, indeed, the future (e.g., Ezrahi, 2012). By foregrounding the importance of *setting* and *sequence*, dramaturgical social theory corrects a historical bias to what people say (e.g., Edelman, 1985) by connecting it "to how they say it, where they say it, and to whom they say it" (Hajer, 2009, p. 65). Key to this is what Kenneth Burke calls the "scene-act ratio." In introducing his famous "pentad" of scene, actor, agency, act and purpose, he writes that "it is a principle of drama that the nature of the acts and agents should be consistent with the nature of the scene" (Burke, 1969, p. 3). A dramaturgical analysis is thus used to emphasize how act and scene, discourse and setting, content and form come together to convey a particular impression of the world. Like sequential scenes of theatre plays create the possibility for the suspension of disbelief by the audience, the dramaturgy of social life creates "reality effects" (Ezrahi, 2012) for social reality—and for images of the future. Individual scenes contribute different elements (scientific and experiential knowledge, legitimacy, resources) that, through sequential organization, stylized repetition, and alignment of assumptions and practices, can aid the formation of an "imaginary" of how the world should be understood and acted upon (Appadurai, 1996; Ezrahi, 2012; Jasanoff & Kim, 2015; Taylor, 2004). Combining the sequential logic and alignment of assumptions with the idea of a scene-act ratio, we define the subject of *dramaturgical social theory of*

futuring here as the sequential social performances that allow particular visions and collective imaginations to become socially authoritative.

This dramaturgical perspective can be employed to investigate how techniques of futuring aid the social journey of imagined futures. A first avenue for such investigation is through the "staging" of successive events, "the organization of an interaction, drawing on existing symbols and the invention of new ones, as well as the to the distinction between active players and (presumably passive) audiences" (Hajer, 2009, p. 67). A second angle is to analyze *what* futures are made present in each individual act of an overall performance. The future can be presented in myriad ways—through numbers, words, images, sounds, smells—employing different sensory systems and forms of meaning-making (e.g., Pelzer & Versteeg, 2019). The medium of this performance is crucially important to what types of engagement it allows and encourages by the instrument's constituency and its audience. A dramaturgical take on techniques of futuring thus makes possible the study of how images of the future get produced and circulate in society. Moreover, it allows for the investigation of how certain images of the future gain traction—how they come to function as imagined futures and shared imaginaries that structure peoples' lived-in reality. This becomes possible because techniques of futuring are characterized by particular *dramaturgical regimes*, specific sets of arrangements, competencies, meanings, and identities underpinning a way of imagining the future and of going about things.

An illuminating example of a dramaturgical regime is that of the climate modeling community, which in recent years has co-structured political debates on climate change through the IPCC, initiated by the World Meteorological Association in 1988 in an attempt to create an authoritative scientific voice on climate change. Through the 1992 United Nations Framework Convention on Climate Change (UNFCCC), it became the privileged "science-policy interface" on climate change. As scientific support for UN politics, the IPCC follows a ritualized sequential logic, one of periodic assessment reports with tens of thousands of scientists contributing their knowledge. The "summary for policy makers" of these assessment reports is a text agreed upon in a line-by-line procedure, with input from both academics and policy makers (Hulme & Mahony, 2010). For projections of the future presented by the IPCC to be authoritative, this protocol needs to be carefully maintained and executed. Its reports depend on widespread media-attention and continual re-enactment for the political authority of its presented futures. As such, analyzing the IPCC as a dramaturgical regime would require the analysis of the many facets that contribute to its periodical performances. Likewise, other ToFs would require a similarly holistic analysis of their dramaturgy. In the next section, we develop this dramaturgical framework further.

Techniques of Futuring and Dramaturgical Regimes

Two lines of inquiry are particularly promising for the dramaturgical analysis of ToFs. One avenue is the investigation of dramaturgical regimes of ToFs as durable social practices and communities of practice. One could use such an approach to study, for example, how presentations of the future are codified in handbooks (as is the case with cost-benefit analysis) and how actors continuously update techniques of futuring to incorporate new demands. In this context, dramaturgical regimes function as more or less stable social practices that come with sequential social performances. They also presuppose imaginative structures and logics that prescribe the presentation of imagined futures in a particular way (e.g., Pelzer & Versteeg, 2019). By conducting an analysis of durable techniques of futuring, one is focusing on how particular types of engagements with the future travel and become persuasive through the enduring efforts of its key agents and their widely disseminated and accepted signifiers and symbols. A second promising avenue would be to analyze *specific* imaginative interventions. In such an analysis, the focus lies on the ways in which actors use particular ToFs to create a certain form of order in a particular social or political situation. This means focusing on how ToFs frame the futurity of issues at hand, and how they coordinate action in the face of uncertainty. Analyzing ToFs as imaginative interventions means studying exactly *how* actors perform visions in situ, and how such performances travel to redefine existing imagined futures and futuring practices.

In both these lines of inquiry, three core aspects determine the dynamic relationship between dramaturgy and the structuring of imagined futures: a) the specific types of *genres* and *storylines* through which the future is presented; b) the particular *staging* of the performance and its corresponding sequence of events in which people are brought together, both physically and imaginatively, and; c) the existing dramaturgical and discursive conventions that restrain and structure the possibility space for action.

Storylines: The Presentation of the Future

The dramaturgy of ToFs informs action by presenting particular *storylines* about the future. These storylines "have the functional role of facilitating the reduction of the discursive complexity of a problem" (Hajer, 1995, p. 63). ToFs present particular storylines about the future, in which they reduce the unknowability and openness of the future to more manageable proportions, helping to create a shared orientation point for action: "If we want to keep the global warming under two degrees Celsius, we will need to radically curb our CO_2 emissions over the next decade(s)"; "the future of traffic is for self-driving vehicles that are no longer privately owned but are shared as a service." Such storylines can be affective, raise expectations, or normatively structure imaginaries about the future. Their first key element is the *discursive*

genre in which they present the future as a combination of numbers, words, and images. This discursive genre, to a large extent, determines whether and how specific audiences engage with the future. Discursive genres rely on and imply specific forms of imaginative authority. Quantitative presentations of the future, such as most climate models, speak to what Porter (1995) calls a "trust in numbers" and an assumption of scientific rigor and rationality. To safeguard this rigor and public trust in that rigor, there are strict assumptions about who may participate in creating these presentations of the future (and in what way)—and often quite severe material constraints to participation, such as access to super-computing or the venues in which the future is performed. This means that quantitative presentations of the future tend to be expert-led. They derive their authority from the numerical projections—using words and images as dramaturgical aids to the presentation, but not as the central claim. Other genres of imagined futures draw on other registers of authority. Back-casting exercises that start from an imagined *desirable* future derive part of their imaginative authority from pre-existing notions of plausibility, but they may also draw from notions about the value of democratic participation. Yet others draw from their aspirational quality or experiential tangibility, or an emotive mix of images. Primarily commercial suggestions that the future is for self-driving vehicles, for example, show a desirable future world via slick video-clips bordering on science-fiction. Such choices function as signifiers to help people read, trust, and identify with an imagined future. In all genres, discursive and dramaturgical choices are importantly *specific* to the relevant registers of authority. For climate models to become persuasive, they must adhere to different conventions in presenting the future than commercial attempts to open up new markets for smart commodities do.

These storylines can be analyzed in terms of their *narrative structure* (Mische, 2009). Like any story or theatrical production, a presentation of the future needs a narrative arc to draw people in. Narrative structures diverge widely across different genres of ToFs, drawing on different forms of affect and expectations. These storylines can privilege continuity from the present into the future or ruptures between past, present, and future. They can have shorter or longer time spans, expand or narrow the range of imagined futures. The narrative structure of a presented future does not just determine whether people consider particular imagined futures possible, plausible, or desirable in the first place; it also co-determines whether this resonance is strong enough to allow the imagined future to travel and become persuasive. Analyzing how a ToF is used to discursively present the future, in what genre and using what narrative structure, helps one to understand how it enables different audiences to engage with the future and in what ways this reinforces, consolidates, or transforms an imaginative space of possibilities for action.

Dramaturgy: Staging the Performance

The second way in which ToF dramaturgies allow visions of the future to travel lies in the sequential processes of interaction between people and places. The first key element of this is the "*mise en scène*" of social interaction, the particular *staging* of a presented future. Social interactions take place in particular settings that co-determine the social process and effects of interactions. The setting of such interactions is crucial, because settings and stages imbue interaction with certain meanings, often based on imaginative understandings of how particular settings and configuration "are supposed to" work. An excursion or a field visit provides a different set of opportunities for the sequence of events *and* allows for meanings and experiences to be imagined differently than, for example, a meeting in office building. This brings out an all-important second aspect of the sequential process of interactions between people and places, namely the particular *sequencing of events.* As discussed above, a sequence of events can be seen as the step-by-step braiding together of knowledge, images of the future, and legitimacy. Such a sequential process, facilitated by the actors' specific competencies, allows actors to find coalitions that rally around its accuracy, probability, (un)desirability, or potency of imagined futures. The analytical focus here, then, is not on the power of the ideas, visions, or imagined futures themselves, but rather on how such performance of visions of the future becomes persuasive over a sequence of events. Again, material organization and access to anticipatory tools such as integrated assessment models also play an important part in the scripting and staging of futuring performances—as do the bodily competences of the practitioners.

An imagined future's persuasiveness does not merely depend on how its performance is staged *in general*, but also on how its presentation is "scripted" and performed by its organizers, as well as "counter-scripted" by antagonists. Scripting includes, amongst other aspects, structuring the order of a conversation, what is said, and who is (and is not) allowed to speak (and in what way). Climate modeling, especially scenario modeling, for example, is often a response to specific political concerns, as formulated by a particular community of experts. Sequentially, it allows voices making political demands (through the UNFCCC) and offering expert judgement (through the IPCC), but excludes other voices. In such a way, climate futures imagined through climate modeling travel sequentially from the desks of expert communities and the IPCC into the UNFCCC's political sphere—leading to particular, often narrowly technocratized imaginaries about possible climate futures (Oomen, 2019; Swyngedouw, 2011).

Analyzing a ToF's sequential logic thus helps one to understand how a particular imagined future becomes persuasive, sequentially braiding coalitions around a vision of the future. As Hajer and Pelzer (2018) showed through an empirical investigation, this sequential logic is not always scripted in advance. They studied an immersive experience, one in which the North Sea transforms from a sea used for the exploitation of oil and gas in 2016 into a sea of offshore windmills providing 90% of the electricity demands of the countries surrounding the North Sea in 2050.

They revealed how the suspension of disbelief gradually allowed a desirable imagined future to capture its key audiences. Importantly, this ToF did not work according to a preconceived script but followed the emergent quality of the process, sequentially following the success of particular joint experiences of this new possible future. This, however, was only possible within existing *structures* and expectations.

Structure: Navigating Dramaturgical Convention

ToFs do not just rely on particular discursive carriers or sequences of events: They also exist within structures—imaginary, discursive, and material—in which assumptions about their value and appropriateness are held and enacted. This means that any analysis of how imagined futures become persuasive cannot be complete without including the structural bounds that allow them to *become* persuasive. In this article, we have used illustrations from different fields and time periods. Whereas all these examples presented particular visions for the future, the 1939 World Expo performed the future in a different environment than climate models do today. Techniques of futuring are temporally specific, though some more so than others. Particular expert-based claims about the climate future, for example, rely on an epistemic trust in numbers (Ezrahi, 1990; Porter, 1995) and computer models that solidified over decades (Edwards, 1996, 2010). In the 1960s, model-based ToFs were not widely trusted as accurate descriptors of the future; today, however, the imaginative structure around simulation modeling is so strong that modeling has become one of the most authoritative ToFs. Simulation modeling is now "virtually a knee-jerk response, the first and most effective tool for analyzing any problem," whereas "before about 1970 most sciences had barely begun to think about simulation modeling, let alone to accept it as a fundamental method of discovery" (Edwards, 2010, p. 358). Techniques of futuring are also culturally specific. Transdisciplinary participatory collaborations between government officials, policymakers, academics, activists, and civilians are seen as legitimate ToFs in the Netherlands (Hajer & Pelzer, 2018), for example, in ways they would not be in other cultural contexts. In short, techniques of futuring relate to norms, meanings, and competencies that inform how their utilizers can present their imagined futures. Such norms and competencies are specific to particular types of techniques of futuring. Modelers operate in structures different from those of theatre-makers, although both share a cultural context. Structures delimit the types of claims that can be made about the future and how they can be performed and presented. This is an important field for research; the reliance on established routines for depicting the future may often hinder reimagining the range of possible futures.

Taken together, these three general characteristics of techniques of futuring (storyline and narrative structure, sequential dramaturgy and performance, and the navigation of structural constraints) constitute a *dramaturgical regime*, which we define as a routinized set of performances and conventions through which politics

are enacted and how imagined futures are brought into the present. Each successful ToF can be understood to have a certain coherence in the way storylines are presented, sequences of events organized, and meanings and competencies structured. This means that a ToF's dramaturgical regime informs how and when particular futures can be presented and imagined. Paying attention to the dramaturgical regime allows one to investigate of how ToFs exist in bounded structures, but also how, in return, purposeful actors can perform such structures dramaturgically. It makes possible a dramaturgical analysis of the ways in which ToFs make imagined futures persuasive through practice, performance, and re-enactment and stylized repetition. This interplay between the three aspects of the dramaturgical regime is summarized in Table 13.1.

Table 13.1 Analyzing structurally bounded agency in the formation of future imaginaries

Techniques of futuring	Dramaturgical regime	Contribution to shaping possibilities for action
Storylines: Presenting the future	Choice of (a) Discursive genre: presented form (in combinations of words, numbers, images) (b) Narrative structure (internal logic of the 'story')	(a) Creates a projective structure through which actors can envision possibilities for action Draws upon particular cultural sources of authority (e.g. "trust in numbers") (b) (Affective) engagement of audiences
Dramaturgy: Staging the performance	(a) Staging of events (b) Sequential logic that enacts an imaginary of the past, present and future	(a) Performance of imagined futures, attracting a coalition to performed visions across organizational boundaries (b) Constitutes a sequence of performances: "Visions or "imagined futures" through which the future can be understood and acted upon
Structure: Navigating dramaturgical convention	(a) Competencies, meanings, dispositions, material elements (b) Organizational structure, (political) access, and geographic dispersion of practitioners (c) Imaginaries, cultural norms, and widely shared imaginations of the future	(a) Negotiates performed visions of the future with existing practices around visualizing the future (b) Allows imagined futures to become persuasive and travel politically and socially (c) Reifies or disrupts cultural norms, expectations, and imaginaries, based on cultural resonance of discursive carrier and dramaturgical performance

Note. Source: Design by authors

Conclusion

The current anxiety in society can partly be explained by the lack of persuasive images of the future. If we want to mobilize futuring, we must engage with the social theory that explains the dynamics of images of the future. A dramaturgical interpretation of the ToF concept provides a symmetrical analytical lens to reconstruct and understand why certain futuring interventions lead to performative imagined futures, whereas others do not. Analyzing the dramaturgical components that give particular performances of futuring their "reality effects" (Ezrahi, 2012) helps to explain how visions of the future travel from the particular to the collective. It also allows for the further investigation of the interplay between different elements of each dramaturgical regime, and how they are characterized by different logics. Some logics, such as the "imaginative logic," concern the narrative structure through which the future is brought into the present (Pelzer & Versteeg, 2019). Numerical projections of the future, such as IPCC reports or cost-benefit analyses, derive their imaginative power from particular imaginative logics based on an extrapolation from the present, whereas artistic presentations might juxtapose an imagined future with the present. Another set of logics worthy of investigation are the logics of appropriateness (March & Olsen, 2011), which inform action in a situation, prescribe appropriate behavior, and are subject to on-going effort to create and enact a shared understanding of what is real, valuable, reasonable, and right. A third set comprises the temporal logics (Mead, 1932), through which communities tend to organize and understand a sequence of events, deciding who gets to speak at what moment and what audiences are involved at what stage. The combination of these logics emerging from the underlying conventions, routines, imaginaries, and other structural elements co-determine the dramaturgical regimes that allow ToFs to present and perform imagined futures in persuasive ways. Importantly, this also opens up an avenue for research into how actors participating in techniques of futuring consciously decide what to do, how to organize themselves, and reflect on their own futuring work.

A dramaturgical analysis of techniques of futuring, then, allows for careful investigation of the subtle forms of agency that enable imagined futures to become persuasive. By conducting such an analysis, one can show how structurally bounded agency embeds visions of the future in the collective imagination. As "politics is about who can make his/her claim authoritative in the scenes and at the stages that matter" (Hajer, 2009, p. 4), the politics of the future revolve around who can make their imagined futures authoritative in the scenes and stages that matter. The uncertainty about the future that is currently manifesting itself is only partially due to geophysical or technological realities—it also springs from societal ineptitude at making sense of, and planning for, the future. The ubiquity of forecasts, projections, and scenario-modeling in modern society's public policy, politics, and business planning creates a particular, delimited range of imagined futures. Methodically analyzing the practices that enact and produce certain visions and the structures that enable them through the ToF prism may make it possible to reconstitute futuring

practices. Perhaps this can also constructively reconstitute constructivist analysis of the future, in ways more suited to solving the crises of the twenty-first century.

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Chapter 14
Outsourcing the Future

Ian Miles

Among the many sources of views about medium- and long-term futures are firms—ranging from quite large transnational businesses providing, for example, engineering, management consultancy or other professional services, to very small microbusinesses where one or two experts may generate scenarios of trends analyses, or support their clients in developing their own appraisals. These are examples of Knowledge-Intensive Business Services (KIBS), some of whom explicitly elaborate images of potential futures in online and print publications for wide audiences, and almost all of whom will provide tailored or one-off strategic foresight insights (or other such support) for clients. Many more KIBS will more implicitly address long-term concerns and/or trends in their designs, strategic recommendations, and other support for clients. Particular attention has been paid to the roles that some KIBS play in supporting their clients' innovation activities and/or efforts to deal with those of other actors[1]; they may or may not elaborate on long-term implications of these innovations but are certainly part of the processes shaping the future.

[1] See Miles et al. (2018) and Scarso (2015) for evidence of this focus in the literature.

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KIBS are businesses[2] providing "professional, scientific and technical services"[3] to clients who may be themselves in private or public sectors.[4] KIBS' income comes from clients' purchase of support for one or more business processes, support that involves the production, distribution and/or application of specialist knowledge. This expertise may involve the classic professions (P-KIBS such as accountancy, legal services, etc.), Science and Technology (T-KIBS such as computer services, engineering services, etc.), and more cultural and creative domains (C-KIBS such as design, marketing, etc.).[5] Since KIBS are largely working on contracts from their clients, the services they provide reflect the demands of these clients. Their orientations, use and influence will be shaped by clients' framing of concerns, but KIBS have some agency, and may shape these framings, beyond simply reinforcing existing assumptions. The increasing complexity of (post) industrial economies, and their continually evolving regulations and markets, means that KIBS are often called in to address new problems, that their clients have not developed sufficient in-house capability to master. There may be most scope for agency here.

KIBS sectors of national economies have typically grown in terms both of employment and value-added at relatively high rates over the last half-century—

[2] Strictly KIBS as discussed here be KIBSFs (KIBS firms), KIBSs (KIBS sectors). or KIBSIs (KIBS industries); the term "services" is ambiguous, since it could refer to the specialized producers of these service outputs, or to the outputs themselves. (KIBS-like) services are sometimes provided by membership associations and charitable bodies (supplying advice, consultancy and lobbying—"-think tanks" are often such bodies), not to mention business school and other academics. Statistical analyses of KIBS often include public sector organizations working in the same areas—in particular the "R&D services" subsector (which includes social research other than market research/opinion polling) can include government laboratories and public research institutions. KIBS firms are specialist providers of knowledge-intensive service activities (KISA), but these may be undertaken in any industry—for example, in-house production by organizations for their own use, customer support services from high-tech companies (for KISA analysis see OECD, 2006; Martinez-Fernandez, Miles, & Weyman, 2011).

[3] Standard Industrial Classification systems using this terminology include NACE v2 (Eurostat, 2008) and NAICS (Executive Office of the President, Office of Management and Budget, 2017) presents. NAICS *Sector 54*, "Professional, Scientific, and Technical Services" is close to the KIBS construct, and resembles NACE *Section M*, with some exceptions—the Computer/IT-related services in NAICS *Sector 54* are located in NACE's *Section J* ("Information and Communication"). "Management of Companies and Enterprises" is in NAICS *Sector 55*, whereas NACE locates "Activities of Head Offices (oversight and management of other units of the same enterprise)" within *Section M*. As for less knowledge-intensive business services, NAICS' *Sector 56* ("Administrative and Support and Waste Management and Remediation Services") corresponds roughly to NACE's *Section N* ("Administrative and Support Service Activities"), though a few arguably KIBS activities slip into these, and there are a few other cases of KIBS-type firms being attributed to non-PST categories.

[4] KIBS rarely provide services to households—the chief exception being legal services, who may provide support with criminal proceedings, divorce, probate, wills, etc.

[5] The dominance of particular categories of knowledge—is architecture more C or T? when does marketing become R&D (T) as opposed to cultural analysis (C) or strategic business advice (P)?—is liable to vary across time, place, firm, and subsector. In practice, many KIBS firms combine expertise in elements of all three knowledge domains.

thus KIBS professions' shares of the workforce also expand (cf. Miles et al. 2018. This is especially true for T-KIBS—in particular those related to new Information Technologies (IT) such as computer services and software. KIBS gain attention not just because of this growth; but their active role in shaping innovation and business practice suggests that they are more than a set of channels for knowledge interchange. Views are not universally positive. Thus, the Introduction to *The Oxford Handbook of Management Consulting* states:

> … management consultants … are frequently portrayed as shadowy figures operating in the background but exercising considerable influence … their influence by far exceeds their importance both in terms of size of economic activity and employment … They have not only influenced commercial/business organizations, but also governments … and a variety of other organizations, including non-governmental organizations (NGOs), trade unions, and the church … Their impact has not only been exerted through the advice they have sold, but also, if not more importantly, through their more general pronouncements on major issues such as regulation or health care … and even the future of capitalism …, and, last but not least, through former consultants occupying leading positions in business, politics, and society … (Kipping & Clark, 2012, p. 9)[6]

In terms of shaping views of the future, KIBS may be requested to be explicit: for example, consultants commissioned to scan horizons or build scenarios to support corporate strategic planning. The prognostications that published on their websites of various management consultancies, accountancy, design, IT and engineering services firms may well serve as appetizers for such commissions. But appraisals may be more implicit: unexamined assumptions about change or stability in technologies, competitive environments, and consumer demands are liable to be built into support for the selection and implementation of new processes, or of ways to design and market new products.

KIBS: Shaping the Future(s)

KIBS often seek to characterize the present, discussing such constructs as the "knowledge economy," the "creative economy," and one or other contemporary crisis (e.g., the unravelling of the "globalization" hailed a few decades earlier). Such diagnoses of the present almost invariably point to the prognosis associated with whichever they are highlighting. Some KIBS specialize in prognostics, futures analyses of one sort or another; but, then, so do some more academic commentators.[7]

[6] Probably the most assiduous and wide-ranging critical appraisals of consultancy processes and results is the body of work undertaken by Andrew Sturdy: see for example Sturdy (2018). While the present paper was in redrafting, Cooke (2024) has produced a wider-ranging critique of the "dark side of KIBS," which also questions why this topic has been taken up rarely in the KIBS literature.

[7] Mapping this field is difficult: There are specific applications of "futures" (in financial analysis and trading) and "foresight" (in computer science and economics); and such terms are often employed in company names and straplines for symbolic significance.

There are few attempts to systematically map the population of suppliers of long-term prognostications.[8] The UK government (which runs its own foresight program) publishes a "Futures Procurement Framework"[9]—part of its set of resources supporting departmental and agency procurement decisions—which currently lists some 35 suppliers of services to help these bodies "think about the future." Consultancies and other KIBS seem to dominate this market; while three of these suppliers are UK university-based, the others are almost entirely .com or .co.uk businesses (admittedly, some of these collaborate with academics).

The consultancies in this list include several international businesses (e.g., Arup, and the European branch of the RAND organization—famous for pioneering many futures techniques). There are also fairly loose networks of consultants operating as a virtual organization, and small or microbusinesses. Some specialize in particular areas, such as risk analysis or "green" issues—and all provide support to public bodies. Only the smaller among them being really focused on futures methods and very long-term issues, while the largest ones may have dedicated units (as in Arup and Rand); this range is probably characteristic of the field as a whole. Most of the larger organizations involved are multi-functional consultancies, whose futures frameworks and underpinning methods may inform their work but rarely take center stage. Note also that some corporations are famous for their own in-house futures consultancies—which have rather often been the seeds for prominent KIBS. A well-known example is the in-house activity of Royal Dutch/Shell; Peter Schwartz—previously director of SRI International's[10] Strategic Environment Center—had been their head of scenario planning, with his scenario methods distributed very widely in the 1990s by the Global Business Network,[11] among others.

Most KIBS sectors feature a host of small firms alongside a few large and transnational businesses. Many of the smaller firms focus on local clients and more routine problem-solving. But a few provide specialized services to a wide range of international customers—often making extensive use of digital communications and tools such as data analytics. In the futures field, some suppliers offer scenario development, others horizon-scanning and trend analysis; some offer advice and forecasts based on data assets (e.g., opinion polls); all may offer futures consultancy. Thus, polling companies analyze social trends and their drivers, data

[8] An online directory at https://foresight.directory/directory (accessed December 31, 2023) is a valuable resource, but KIBS and other consultancies fall into categories like "think tank" and "company" together with nonKIBS.

[9] A version dated as August 2022 was available at https://www.gov.uk/guidance/futures-procurement-framework (accessed December 31, 2023). This contains links to the supplier organizations, a fair sample of whose reports can be obtained. As well as the two.ac.uk addresses, we have an .org.uk and a .fi.

[10] SRI International is still highly active; it was itself a spin-off from Stanford University, where it was the Stanford Research Institute.

[11] GBN—a KIBS usually described as a consultancy, was eventually acquired by the Monitors Group (one of whose founders was Michael Porter), now submerged into the professional services KIBS Deloitte.

firms apply AI to scan the horizon via online data sources. One member of the UK procurement list is *Shaping Tomorrow*,[12] whose digital assistant "Athena" reports on scans of tens of thousands of online sources, spotting key issues and collaborating on scenario development with clients. Some conduct/facilitate workshops (in-house and wider) for mutual appraisals of future prospects and responses. Such futures-oriented KIBS develop appraisals of the future for/with specific clients, as their primary mission.

Larger KIBS businesses may not be mainly focused on futures, but publish their generic appraisals to show potential clients that they combine expertise with broad understanding of hot issues in the specific services they provide.[13] They often have divisions or other units that focus on long-term futures. For example, the engineering/consultancy firm Arup has a foresight team specializing "in identifying and analyzing the major trends shaping the future of the built environment,"[14] PWC's Emerging Technologies team focuses on "disruption and innovation" and its risk, and strategy consultants, promote a futures framework.[15] Some practically oriented KIBS—especially smaller businesses—focus on short-term (and often recurrent) problems like tax returns, audits and legal submissions, running clinical trials or testing devices for conformance with technical standards, etc.). But, as noted, those supporting innovation in their clients are still implicitly drawing on expectations of (at least) the medium-term future in their work. The solutions they create rely on appraisals of future prospects, and thus contribute to shaping or circulating culturally prevalent notions of the future, in business and policy communities. These solutions are made to fit a particular future, or be future-proofed against a range of future possibilities—although often they will not be articulated. For instance, it might be assumed that the digitalization of industrial and commercial processes continues to become more intensive; that consumer markets (e.g., some class of healthcare products) will remain lively and profitable or continue to evolve (or respond to shocks such as price rises) as in the past; that the importance of sustainability standards will grow both in market and regulatory terms; and so on. Such assumptions may have been debated with the client in previous interactions, or simply absorbed through their circulation in conferences and other media—and in reports from think tanks, government agencies, and KIBS.

Typically, futures studies will begin with horizon scanning and trend analysis, and then consider the interactions and impacts of emerging and ongoing phenomena, before elaborating one or more scenarios and appraising strategic implications. Increasingly phenomena can be identified using online tools, but many major trends

[12] https://www.shapingtomorrow.com/ (accessed November 21, 2022).

[13] For example, many KIBS have produced studies of the future of work and employment; see Sturdy and Morgan (2018).

[14] https://www.arup.com/services/advisory-services/strategy-and-insights/foresight (accessed January 10, 2023).

[15] https://www.pwc.co.uk/disruptive-innovation and see also https://www.pwc.co.uk/services/risk/rethink-risk/insights/four-trends-shaping-uk-economy-how-to-respond/futures-framework.html (accessed January 10, 2023).

and factors will have been examined in earlier work. John Naisbitt (whose Naisbitt, 1982 global best-seller *Megatrends* established new terminology)[16] scanned the horizon via content analysis of (mainly) print media. His capabilities were honed in a career encompassing corporate management, advising US presidents, and social and cultural trend analysis in his consultancy, Urban Research Corporation. A recent review of megatrends study by Kuhn and Margellos (2022) depicts various actors who apply and popularize this notion. These include: influential individuals ("shapers"), think tanks[17] and governmental and intergovernmental organizations—and major consulting firms, who portray themselves as knowledgeable about futurity. They note that, for example, four major global accountancy firms produce specific reports featuring their own lists of megatrends, with views of impacts on businesses of various types. These reports emphasize technological change and associated organizational developments (digital business, industry 4.0, new life science developments, etc.). But they also consider matters of sustainability (especially the transition from fossil fuels, but also issues like deforestation), changing consumer preferences, global demographics (ageing, urbanization, etc.), the rise of China, and much else. The KIBS bundle these, more or less neatly, together, into a handful (rarely more than 10) of top megatrends. They provide detailed strategic advice to individual client businesses, but their reports for wide public circulation are often prepared at the behest of, or in collaboration with, (inter)governmental organizations and nongovernmental organizations (such as the World Economic Forum).

KIBS may actively seek to shape the future through their interventions, including through fostering their own innovations. An exceptional group of KIBS thus lies within the R&D services subsector. Some R&D services firms mainly perform "contract research"—for example, establishing which materials are suitable for a new household appliance, or undertaking clinical trials of a pharmaceutical company's new product. But some are less focused on solving client problems, and more on developing knowledge whose application will shape the future.[18] They may be funded, for example, by venture capital, to undertake research that may yield commercializable Intellectual Property (IP). Some will go on to license this IP, some are acquired by larger firms, and some even transition into manufacturing their novel products (cf. Li, Gagliardi, & Miles, 2020). Such IP-oriented KIBS are apparent in fields of rapid technology advance such as life sciences (there are notable cases in development of COVID-19 vaccine and treatments), nanotechnology, and AI.

[16] One point in that book particularly relevant to KIBS is Naisbitt's apparently paradoxical formulation of "high tech / high touch" as a key future development.

[17] These authors' definition of think tank is rather open; some of their examples are nonprofit foundations, but others look to be KIBS.

[18] Statisticians divide the R&D services sector into natural and social science subcategories, and locate market research and opinion polling in a different category. We suspect that natural science R&D services may themselves invent technologies, while social and market research more often documents "social inventions." IPSOS-MORI, a market/opinion research firm, is included in the UK government list of futures expertise for procurement, mentioned above.

Some KIBS do align themselves with specific missions, for instance KIBS that are heavily focused on environment-related services.[19] Practically every KIBS sector features some self-proclaimed "green" firms,[20] aiming to support clients seeking more environmentally friendly practices, while also promoting wider awareness of ecological problems and pro-environmental solutions.[21] Alongside service businesses offering waste disposal, water remediation, installation of solar panels, and the like, are more specialized KIBS provide related consultancy, testing and management services. Already in the 1990s such professional services accounted for almost a third of employment in the UK "environment industry" (Kastrinos & Miles, 1998, who reported some divide between firms focusing on "clean-up" versus those promoting "cleaner" processes). The last few decades have seen the emergence of numerous—mostly small or medium-sized—firms branding themselves as "green," offering advice and/or solutions supporting sustainable business practices, energy and materials efficiency, architectural and engineering designs, marketing, and so on. But alongside "green" KIBS, many others feature sustainability-oriented services on their portfolios. As investors seek validated documentation of the sustainability of their investments, support services for ESG (environment/social/governance) reporting have become commonplace. (There has been both confusion and controversy concerning alternative ESG accounting practices.) Progress towards goals of net zero CO_2 emissions has become central to the longer-term future espoused by most major consultancies, though there is limited appetite for wading into the argument that long-term net zero ambitions are no substitute for emission reduction in the immediate future).

Many positive roles can nevertheless be played by KIBS in supporting the transition to more sustainable futures. One view of such a future rests on the notion of circular economies, and proponents of such developments have outlined opportunities for KIBS here (see Table 14.1). Knowledge and knowledge-based solutions are required for the problems encountered by all types of public and private organizations participating in such a transition. This includes, for example, knowledge about the environmental impacts of products and processes, including the application of "clean," "cleaner" and "clean-up" approaches in various ecological, social and economic contexts. KIBS may provide advice, make recommendations,

[19] Criteria for identifying environmental services are quite fuzzy; the OECD notes that "many services that are not necessarily classified as 'environmental' end up playing decisive roles in environmental projects … for example … those services that are associated with the permitting, design, construction, maintenance, and decommissioning of environmental facilities, be they renewable-energy projects or wastewater-treatment plants" (Sauvage & Timiliotis, 2017, p. 30) The OECD argues for liberalizing trade in such services in order to speed diffusion of clean products and processes.

[20] Zaring et al. (2001) is an early study of eco-efficient producer services.

[21] Weber (2018) defines three groups of KIBS firms providing energy efficiency-related services to construction/buildings (residential, non-residential, cross-sectoral) and then four groups dealing, respectively, with energy management (ISO 50001), energy auditing (DIN EN 16427–1), consulting, and other.

Table 14.1 KIBS' contributions to circular economy

Functions and services	Examples
Prospective and diagnosis	Development of roadmaps, tools and advice for CE strategies Trends and opportunities market studies
Eco-design (products and services)	Product and service eco-innovation Material intelligence Software Labelling of products and processes
(re)Design of value chains/ business models	Examination, review and evaluation of products and processes Compilation of external information for sustainable chain organization Use of tools for business model innovation
Evaluation, optimization and certification (based on using specific methods and tools)	Cradle to Cradle Certified™, Lean2Cradle, LEED, BREEAM certifications Life Cycle Analysis (LCA), carbon and water footprint, eco-labelling Life Cycle Costing (LCC)
Information	Inspiring talks Workshops and seminars Sectoral reports Books and guides Environmental communication and marketing of companies
Training	Conferences, seminars and workshops in universities, business schools, and in-organizations Entrepreneurs' training and mentoring: CE concept, business models, methodologies, eco-design and eco-innovation

Note. Source: Adapted from Pereira and Vence (2021, p. 6). Copyright 2021 by Pereira & Vence. Adapted with permission

support awareness-raising and training programs, and contribute much more—but many KIBS will need to strengthen their capabilities for addressing such challenges. Professional staff and new recruits can promote awareness of these challenges within KIBS, but ultimately KIBS have to be responsive to client demands. Though KIBS may play a role in foregrounding sustainability concerns in their clients, more capabilities will be acquired, more rapidly, by more KIBS, when they see market opportunities in so doing, and competitive disadvantage by failing to do so.[22]

[22]For instance, the UK industry ministry, outlining a growth strategy for UK Professional and Technical Services, selected "Carbon reporting and management services" as one of two opportunity cases (BIS, 2013, p. 33). Claiming that "UK capabilities in professional and business services for carbon management compete with the best in global markets," it continued: "The UK has also taken a leading role in promoting the development of standards based approaches in the sphere of carbon measurement and management and in the significant international moves towards a framework for this—which is supportive to exports of associated business services." Accounting, consulting, and IT services were among the KIBS cited as contributing such services.

Problematic Futures?

The bulk of the literature on KIBS, especially when concerning their innovative potential, dwells upon their positive contributions—benefitting regional growth, client competitiveness, public sector efficiency, innovation system distribution capacities, and so on.[23] There is some discussion of problems associated with clients, where the lack of "absorption capacity" for the inputs that KIBS provide may affect just how far these inputs are transformative—which is a matter that is very important when we are thinking about the extent to which client firms are helped in shifting to more sustainable trajectories (cf. the case of French SME clients in Ben Arfi et al., 2018). Firms that have appointed senior environmental managers, or at least are serious about meeting environmental standards beyond mere compliance with regulations, are more likely to make the sorts of change that are required for the transition to more sustainable patterns of production and consumption.

But some clients may resist such transition: They see the problem as being environmental regulations and campaigns for sustainability. The "externalities" of unsustainable practices and the threats of climate disasters are not major corporate concerns. Fossil fuel industries, in particular, have adopted tactics pioneered by the tobacco industry, in particular, such as embedding narratives claiming that the consensus of the vast majority of climate scientists is merely one of a range of equally valid opinions about the future, by means of think tanks and compliant journalists. KIBS firms, too, may be called upon for lobbying, strategic advice about greenwashing, for messaging (and worse) that undermines the credibility of their clients' opponents, and so on.

Some KIBS may be more than willing to engage in such practices, some may even seek to burnish their credentials for such roles. Some KIBS may be less proactive, but are themselves resistant to "greening" their own agenda. And some may simply not be up to the task, working with business models that are unable to deliver really transformative knowledge to their clients (let alone the wide public). In the following sections of this chapter a number of more problematic issues concerning KIBS role in creating the future will be confronted,

Problems of KIBS

KIBS are not public services: There is no requirement for them to be universally accessible or to be overly concerning with issues of social and economic inequality (unless this features as a key issue in a trend analysis!). As private businesses, KIBS charge for their services, access to high-quality inputs depends upon the clients' ability to pay for them. Occasionally business support services from one or other level of government will provide funds for use of particular types of KIBS (e.g., by

[23] Zieba (2021), and various entries on KIBS in Gallouj, Gallouj, Monnoyer, and Rubalcaba (2023).

SMEs exploring applications of new technology in their business), but in general larger and better-resourced clients can access more, and presumably more highly tailored, services than smaller and less well-endowed organizations. KIBS sectors are far larger in the richer countries, too, so inequality in KIBS access is bound to be a global matter—and the perspectives on the future advanced by KIBS are liable to reflect their own location, experience, workforce and clients.

Not all of the major KIBS hail from Western Europe and North America—India and Japan are both home to major companies in software/computer services,[24] for example. With richer countries hosting many of the world's largest KIBS, it is not surprising that businesses in poorer countries may have to turn to foreign suppliers for many of their inputs. Sharpe, Retamel, and Martinez Fernandez (2022) are concerned with Environmental Impact Assessments (EIAs) in Southeast Asian countries, and particularly in the textiles and garments sectors, where major Western purchasers have been keen to see improved labor and environmental standards. EIAs are typically sources from major global consultancies, though in some cases (e.g., Bangladesh) local engineering firms may play a role. There are only limited efforts to secure knowledge transfer and build local capabilities, and it has been reported that recruits from these countries frequently end up working in corporate centers elsewhere. One implication of these factors is that there may be limited ability to oversee the work of the consultants and ensure that value for money and accurate assessment are being given.

Much more could be said about the geographical distribution of KIBS activity, since solutions employed in some contexts may not be appropriate elsewhere. Thus, in Western consultancy interactions with Saudi clients, different understandings as to employers' expectations of employees hindered implementation of the proposed solutions (Aldhalaan, 2018). Even within the UK, a London-based legal services company failed to break into the Manchester professional services market, until it employed local advertising, design and PR consultants to prepare publications on business issues for clients there (Flanagan, 1999, p. 159 passim). Evidence of such experiences is accumulating with the decolonizing/post-colonial critiques of Western consultancies' modes of operation in the developing world (see the review in Frenkel & Shenhav, 2012).[25] More academic research can also fail to meet local expectations: Nago and Krott (2022) for instance describe a failure to achieve successful sustainability-related knowledge transfer from Dutch and German universities to Congo Basin stakeholders: The Western climate scientists skewed the initiative to global climate modelling, overlooking local concerns about impacts of climate change for land use.

[24] No less than 10 Indian firms operating in the UK are mentioned in a 2021 press report (https://www.uktech.news/news/uk-india-trade-deal-20210505), while Fujitsu Services (https://www.fujitsu.com/uk/) has received billions of pounds worth of UK government contracts (accessed January 1, 2023).

[25] And not only "Western" ones—see Moore (2014) on Japanese consultancies in Southeast Asia.

The geographical distribution of KIBS within national economies attracted much of the early interest in KIBS (often then studied together with other producer services). The concern was that centered on their location inadequate access to these services could disadvantage businesses in more peripheral regions.[26] Many KIBS firms (especially the large businesses) are based close to their major clients' headquarters, which are typically in metropolitan cities. The literature broadly concludes that this reflects the need for sustained interaction between KIBS and client. In practice, KIBS vary a great deal in the extent to which they are in close contact with clients; firms and activities vary in their standardization and contact requirements.[27] KIBS firms adapted fairly rapidly to the social distancing rules and travel restrictions imposed in the COVID-19 pandemic (cf. Empson, 2021; Miles, Belousova, Chichkanov, & Krayushkina, 2021a, b), with much use of videoconferencing and similar approaches. It is likely that some of the lessons learned concerning digital organization of teamwork and client interactions will relax requirements for proximity. This may broaden geographic access to relevant KIBS inputs, if not making services tailored to specific client requirements any more available to less well-resourced clients. AI and online systems could lead to more low-cost services being available, in futures work as well as other KIBS inputs.[28] Some of the more open-ended appraisals of future prospects are potentially shareable across many clients; and while explication of strategic implications for specific clients requires much tailoring, it is not hard to imagine online self-servicing and social networking of foresight.

Stepping back briefly, what of the idea that KIBS constitute a second knowledge infrastructure (2ndKI), emerging alongside the first infrastructure (1stKI—mainly public organizations, such a Universities, Polytechnics, public Research and

[26]The pioneer here, long before the introduction of the term KIBS, was Neil Marshall, who remarked that "independent companies based primarily in provincial regions … may be disadvantaged by local communication and servicing if their local area has a poorly developed business service sector and is peripheral to the dominant flows of information in the economy" (Marshall, 1982, p. 1523). He found that the KIBS use of manufacturing firms with regional branches was influenced by the location of the head offices, with London tending to dominate KIBS supply. Provincial service centers (other major cities with substantial KIBS activities) competed for the supply of services to provincial manufacturing establishments. Marshall also demonstrated that industries varied in the extent to which service activities were internalized or sourced from KIBS—with pharmaceuticals internalizing relatively more knowledge-intensive activities than did other parts of manufacturing.

[27]A striking study of advertising firms who are locating in relatively peripheral parts of the UK, in contrast to this predominant pattern, is Chan (2022). He found many such KIBS located in "surprising places," and that these were often working for clients who were located at some distance. While the median direct regional-agency client dyad distance was 70 km, and 23% of the dyads were under 20 km, some 22.5% were over 200 km.

[28]Susskind and Susskind (2015) see major changes underway in most professional work, for example, however with equivalents to Fintech and Lawtech arising as some more routine elements of professional service being subject to AI-type delivery; and also the use of social networking-type facilities to provide helpline and mutual support services, user groups, etc.

Technology Organizations like government laboratories and other Public Research Institutes, Technology Transfer and agronomy offices, and public libraries)? This view was articulated by den Hertog (2000) in one of the most highly-cited publications on KIBS.[29] Bodies in the 1stKI do engage in futures studies—especially since the rise of national technology foresight programs in the 1990s[30] led to government agencies employing foresight specialists and working with public research institutes (and private consultancies) on long-term future prospects. This helped legitimize futures studies within higher education (HE)—usually employing the foresight "brand"; a wave of new university appointments, academic journals and more or less scholarly publications appearing in the field.[31]

Consultancies have made little use of traditional scientific publication as means of validating and distributing knowledge, and often their methods are somewhat opaque. If universities adopt their "third mission" and attempt to engage to a greater extent with public agencies and private businesses, this may allow for many more points of view (and perhaps novel methodologies)[32] to enter into analysis and discussion of future prospects. In principle, the growth of university courses and projects in the field could result in demystification and wider awareness of the tools, even if highly creative professionals are needed to valorize them. The location of HE professionals is not evenly distributed across regions, but it is more driven by policy decisions (and national history) than by the localization of economic activity. We can achieve a rough comparison of the two "knowledge infrastructures" (1stKI and 2ndKI) across different regions by examining the prevalence of consultants and HE professionals in the labor force—thus Figure 14.1 presents data on the share of these occupations in the total employment of each UK region.

These results confirm that major regional differences appear for both "knowledge infrastructures" in the UK. Here, London is the only region with strong representation of each type of knowledge worker. Each shows moderately strength in the Southeast (near London). Several regions have relatively few KIBS experts but many HE experts; no region is high in consultants, but low for HE professionals. Some regions are poorly endowed for both.

[29] The "first knowledge infrastructure" can play an important role in providing information for, and collaboration with, industrial innovation. But Higher Education is reported by firms as being much less used as a source of information or as a cooperation partner than is consultancy, in the recent UK Innovation Survey report (at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1074069/UK_Innovation_Survey_2021_Report.pdf (accessed February 15, 2022)). Suppliers, customers, professional associations and social media are among the major external information sources reported. However, "government or public research institutes" do appear to be rather important—which is rather surprising in the UK, where many government laboratories were privatized in the Thatcher/Major era.

[30] See Miles (2010).

[31] UNESCO has established numerous chairs in futures and foresight in the last decade—see https://en.unesco.org/futuresliteracy/network (accessed November 23, 2022).

[32] Many existing techniques of future appraisal were pioneered or at least formalized by consultancies—delphi and scenario methods, for example.

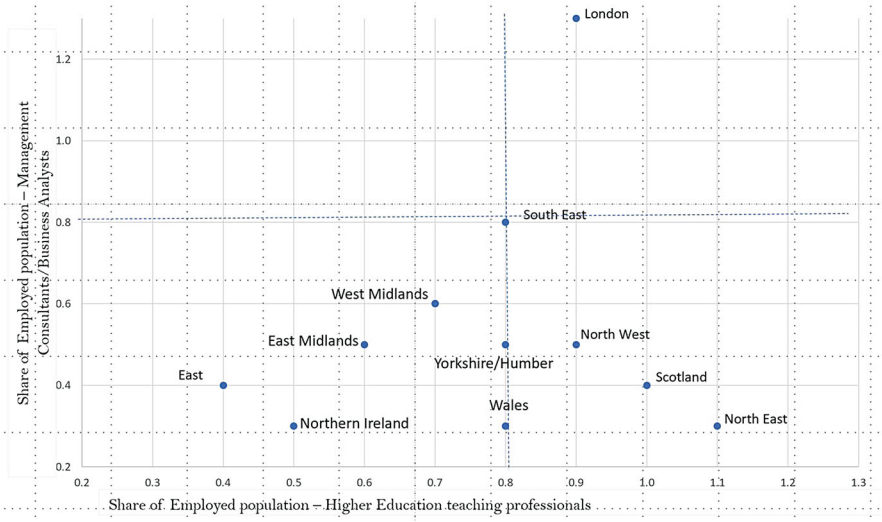

Fig. 14.1 Share of regional employment in percent (2021). Source of data: NOMIS, annual population survey—regional—employment by occupation; https://www.nomisweb.co.uk/. Source: Design by author

Trend data for the two occupations in the various nations of the UK over the first two decades of the present century (not displayed here), indicates that the share of consultants in the workforce grew steadily in England while remaining fairly constant in Northern Ireland, Scotland and Wales. In contrast the HE share grows strikingly, if less steadily, in all nations. Closer inspection of regional data suggests that the English growth in the share of consultancy occupations was initially driven by the Southeast, and subsequently by London (where the consultants' share remains above that of HE throughout). We cannot say that this partial rebalancing of access to knowledge resources applies to the more future-oriented resources; nor that the HE professionals are capable of relating their work to local businesses and political actors.

The ONS data also let us consider gender issues. Both professions tend to be male-dominated, but this is far less the case for HE. Appraisals of future prospects are probably also male-dominated, but more work is needed to determine how far this is the case, and how far the rise of futures studies in HE might be eroding or reinforcing this.[33]

[33] Academic futures work will to some extent be captured in journal publications, and relevant journals and essays could be studied through a gender perspective.

Service Problems

"Service problems" here refers to occasions where KIBS fail to supply adequate high-quality services to their clients. The phrase "cowboy consultants" has long been in use, mainly to describe upstart firms offering cheap but inadequate services. In general, the industry claims that the problem is overstated. Various surveys have been conducted by the Management Consultancy Association in the UK, which suggest that high levels of satisfaction are reported among most clients, though a minority (just over 8% in the most recent survey, in 2018) feel that the services fell substantially below expectations in terms of value.[34] There are problems with assessing the quality of such survey reports, and indeed the 2ndKI may be less amenable to refereeing through peer review than the 1stKI (though numerous cases of press releases misreporting—hyping up—university research have occurred in recent years[35]). There is also the matter of who is judging service quality. An earlier survey undertaken for the MCA by PricewaterhouseCoopers (Czerniawska, 2006) found satisfaction levels to increase when the respondent was at higher levels of the project hierarchy—48% of those commissioning projects were completely satisfied, as compared to 28% of project managers, with a mere 11% of those seconded to the project, and 14% of end-users. Dissatisfied clients were far more likely to report that consultants did not understand the project at the outset and that they themselves had to do a great deal of the consultants' work for them. PricewaterhouseCoopers saw the problems as reflecting poor consultant-client interaction, with poor internal communication within the client firm contributing to mismatches of expectations about partner roles and responsibilities. In a very different context (Russia) Doroshenko, Miles, and Vinogradov (2013) report that KIBS companies and their clients often have different expectations concerning their respective roles in service (co)production. KIBS tended to expect more client input (inexperienced clients especially failed to realize this).

All industries have instances of firms failing to deliver the products and outcomes they have offered customers. Many services are difficult for the purchaser to assess (the "product" is not visible prior to purchase), and what economists call "information asymmetries" are apparent with KIBS. A study focusing on the client side compared their experiences of just over 300 German managers with procurement of goods and of knowledge-intensive services (Satzger, Schulteß, & Neus, 2009).[36] It was difficult to embed outcome goals in the contracts, and often the success of outcomes was not formally appraised. The visibility of the provider's cost structure

[34] "MCA Client Survey, 2019" at https://www.mca.org.uk/report/mca-client-survey-2019 (accessed January 11, 2023). Earlier surveys implying high overall regard for the services, but quite substantial variations in the percentages of dissatisfied customers, were published but are now hard to locate online, as is the PricewaterhouseCoopers study (Czerniawska, 2006) mentioned in the text.

[35] An early empirical review of this was Sumner et al. (2014).

[36] This report is also now difficult to locate online, despite KSRI being located in the "first knowledge infrastructure."

and capabilities was much lower in the KIBS case, lowering clients' negotiating power as compared to goods procurement (45% as against 69%), leading to suspicions that the information discrepancy was used to the advantage of the other party (16% as against 7%). Procurement, commissioning and quality control of KIBS was thus problematic for many client firms.

This is exacerbated by the frequent complaint that KIBS deploy their most experienced and charismatic staff members to present their value proposition to clients, but then use junior staff in implementing the project. Toppin and Czerniawska (2005, p. 214) report typical complaints from clients:

- projects are staffed with inexperienced people who are unfamiliar with the business and may be learning on the job;
- consulting firms profess to bring expertise and leading-edge thinking, but deliver only "warm bodies";
- consultants apply a standard solution to what the client perceives to be a unique problem;
- consulting firms try to sell clients services they do not need.

KIBS staff may attribute problem service to these factors, but are also liable to report that they are overloaded—under pressure simultaneously to complete projects, to help bid or prepare for future projects, and the like. They also point to lack of client knowledge as to the nature of the service they are requesting—sometimes even from those responsible for procurement, often from those delegated to participate in implementation. Client complaints about lack of engagement with senior KIBS staff may be mirrored in KIBS reporting insufficient engagement from senior client staff. Indeed, Bettencourt, Ostrom, Brown, and Roundtree (2002) focus on the strategy and efforts that KIBS firms must make to effectively enlist clients in the coproduction process. Toppin and Czerniawska (2005) note that often disputes arise when the KIBS is liable to be pushing for major business transformation (such as is required for sustainability transitions), while the client is seeking to resolve a more specific problem without embarking upon more wide-ranging change (such as just meeting standards for an EIA).

Sometimes clients may not want quality service—or rather, they want lip service to meet expectations of regulators and the like. When it comes to EIAs, for example, there may simply be basic estimation of the environmental damage likely to be associated with construction and operation of facilities, and a failure to provide reasons for taking these impacts more seriously and more substantive design advice. Sharpe et al. (2022) report that perfunctory EIAs have prevailed in some Southeast Asian countries, where the client simply wants a document sufficient to secure approval of their project, and where regulatory authorities have limited resources to undertake their own inspections. Regulatory authorities are not equipped (or willing) to undertake their own quality control of some services they mandate, in richer economies too. There are numerous examples of accountancy and audit firms, around the world, failing to detect errors (or misrepresentation) in corporate accounts—often discovered when the company in question gets into financial or legal difficulties, or when a whistle-blower exposes malfeasance. Sometimes this

may reflect inadequate capability to detect the problem on the part of the KIBS, or inadequate motivation to conduct a penetrating analysis and possibly lose customers. Sometimes it may reflect collusion between KIBS employees (and possibly senior managers) and counterparts in the client firm (Harrington, 2012). Regulators rarely have resources sufficient to conduct forensic analyses of more than a small fraction of company accounts; they rely on KIBS to provide such appraisal—at least, until a whistle is blown loudly enough, or a major loss of market confidence takes place.

Poor quality futures inputs (and published outputs) from KIBS may of course take many forms. Members of the 2ndKI may be under less pressure to rigorously provide references to prior work and rigorous explication of the methods that they themselves use. In order to create the impression of fresh and novel insights, they may attempt to introduce new terminology and classification systems, while largely replicating ideas that are widely available elsewhere. But in terms of benefitting clients' strategic planning, a more substantial problem will lie in failure to engage clients adequately in coproducing appraisals of future prospects. Eliciting active participation from influential members of client organizations is almost always required if these appraisals are to be more than just glossy reports, and instead to induce learning on the part of clients about the range of implications they have for stakeholders and for action in the present.[37]

Problem Services

Some KIBS simply fail to produce work of sufficient quality to expose problems in their clients, then. But others more actively seek to shape the future in line with corporate or ideological interests. One set of these are lobbyists and PR firms, for example, work to establish the image, or increase the influence. of their clients. Some promote with innocuous causes; others seek to effect change in directions that run counter to public interests, for instance by loosening safety or environmental regulations. (It is likely that some of these professional advocates actually do share the convictions of these particular causes.)[38]

KIBS can act as lobbyists for specific clients or wider networks,[39] and while these will generally reflect special interests, not all of these are necessarily subverting the

[37] On the importance of participation in foresight, see Miles et al. (2018).

[38] Similar roles can be played by "think tanks," operating as nonprofit organizations, with charitable or similar status, and thus not technically KIBS. Some think tanks play a clear role in advocating particular futures, with those promoting libertarian and neoliberal points of view—many supported through the Atlas Network and related bodies (Djelic & Mousavi, 2020)—achieving much influence on right-wing populist governments in recent years. In the neoliberal future, individuals are freed from many of the constraints associated with governmental interference in markets and liberated to spend "their own money" as they wish.

[39] A source of information on firm-level lobbying in Europe is Dellis and Sondermann (2017). In-house lobbyists and trade/professional associations are by far the main lobbyists, followed by NGOs and then KIBS (consultancies and law firms are mentioned).

future—though they are liable to be propounding their own solutions—sometimes "tech fixes"—within it. Thus, Khorasani (2016) found a set of KIBS as playing important roles in the articulation of arguments about shifting to "smart" electricity grids in the UK as part of a low-carbon transition, pushing industrial and policymaking audiences in particular to support the rapid introduction of "smart meters." Those industrial sectors that stand to benefit from (particular configurations of?) sustainable futures may thus be clients for KIBS, whose various expert contributions can involve their acting as lobbyists as well as technical experts.

As already noted, KIBS work mainly on solving problems presented to them by clients, and these clients may perceive their problems to be the legal, regulatory, or taxation regimes, or the campaigning groups and journalists, that restrict their practices. KIBS support is sought to help them maintain or extend practices they consider beneficial to their business or personal wealth.[40] The problem might also reflect the activities of competitors, or of such stakeholders as unions, employees, consumers, or local communities. If KIBS collude with such understandings of the core problem, then the solutions will reflect these, for instance:

- Support for avoiding and evading taxation and regulatory requirements—this may require dubious accounting practices (e.g., classification of expenses) or location of activities in tax havens and regions with weak regulations/regulatory enforcement. Collins (2021) notes how accountancy and legal firms may support such strategies (part of a "wealth management" industry). Mossack Fonseca, a law and corporate services KIBS, became a major provider of offshore financial services and notorious for the Panama Papers scandal (Rettig, 2016).
- More clearly illegal versions of such activity involve money laundering and fraudulent activities aimed at investors or other parties.
- PR and similar firms may engage in defamation of those seen as opposing their client's interests.
- Legal services may be adept at methods of slowing down justice processes, and exhausting parties who are less well-resourced than their clients.
- Advertising and marketing service firms may actively seek to create or amplify the sense of controversy and dissensus. KIBS and others working for the tobacco industry successfully delayed action aimed at reducing levels of smoking by promoting voices arguing that there was great uncertainty as to whether smoking caused harm (or if it did, who should be seen as responsible).[41] These tactics have been emulated by fossil fuel industries, amplifying denialism concerning climate

[40] Harrington (2012) documents that where financial fraud is conducted, those responsible are often unconcerned about securing the future of the business—their goal is primarily the amassing of personal wealth.

[41] *Tobacco Tactics* documents this, and lists consultancies servicing the tobacco industry at https://tobaccotactics.org/topics/consultancies/, lobbyists at https://tobaccotactics.org/topics/lobbyists-and-pr-people/, PR companies at https://tobaccotactics.org/topics/pr-companies/ and related "think tanks" at https://tobaccotactics.org/topics/think-tanks/ (accessed January 10, 2023). Some of these organizations featured may be proponents of harm reduction and freedom of speech rather than actually being pro-tobacco industry.

change and its causes so as to undermine the threat to business as usual in these industries. Methods such as "astroturfing" have been widely deployed.[42]

- An alternative strategy pursued by some advertising, PR and similar KIBS is to divert attention from activities that might engender reputational damage, and focus attention on worthy features of the client—"greenwashing" is particularly relevant in relation to sustainability issues.
- Unlike private investigation services[43] competitive intelligence services are included among KIBS, and both can operate in effective ways without engaging in any skullduggery, for example, by analyzing public domain material. But the threat of corporate espionage is real enough for risk management and other KIBS to offering anti-espionage services to business.
- Some IT service firms are selling software tools that enable states and other actors to spy on their opponents—surveillance technologies, whose best-known example is NSO's Pegasus spyware (cf. Kaster & Ensign, 2023). Others have been active innovators in technologies such as facial recognition and debatable "lie detection" systems.

While these activities may impact socioeconomic change, their self-interested origins and sometimes murky practices are not exactly conducive to portrayals of desirable futures. Occasionally a firm or industry behavior may intervene in discussions of future prospects by inserting accounts and images of tech fixes that can ameliorate damage—carbon capture systems are a case in point.[44] Of course, companies often commission advertisements in which a future is portrayed, within which the corporate logo or iconic products are gently inserted, but this need not be a problem service.[45]

KIBS as Problems

The use of KIBS by the public sector is far from a new phenomenon,[46] and there are numerous ways in which KIBS can bring innovation and new ideas to government institutions. It is clear that innovations in service design, for example, have often

[42] A discussion of how astroturfing is deployed by PR firms is online at https://mediahouseinternational.com/astroturfing-is-a-widespread-pr-tactic/ (accessed September 19, 2022). This also covers a topic taken up in the next subsection—the use of these techniques for political campaigns, and by political parties. The case of the firm C/T, whose founder has been a political advisor to UK governments, is particularly telling.

[43] Security and investigation are treated as more operational services, e.g., in NACE's Section N.

[44] See, for example, "Why some of your favorite podcasts are filled with oil company ads" https://www.theguardian.com/environment/2021/dec/04/exxon-podasts-oil-company-ads-climate-crisis (accessed January 11, 2023).

[45] Motorola's use of images of the home of the future feature in https://flashbak.com/house-future-charles-schriddes-stunning-1960s-adverts-motorola-393942/ (accessed January 11, 2023).

[46] Kipping (2021) traces the use of consultants by the US government back to the nineteenth century, with a marked expansion of activities after the Second World War.

been pioneered by specialized KIBS.[47] Felix and Rubalcaba (2022) report a Spanish survey in which KIBS were shown to have a high positive impact upon public service innovations—when they took users into account, by applying cocreation and codesign methods—and more mixed results when KIBS were just "acting on their own" and not employing "user-focused multiagent frameworks".[48]

More critical views see the use of consultancy by public services as (at least sometimes) part of a broader neoliberal project[49]:

> Informed by the rationalism of public choice theory, the move to managerialism and the increased use of consultants have emerged alongside political discourses about the inefficiency and ineffectiveness of politicians and bureaucrats, and alongside the more general shift to neoliberalism and New Public Management from the 1970s onward. (Ylönen & Kuusela, 2019, p. 252)

This goes beyond the longstanding concerns of trades unions and professional associations about outsourcing and the loss of public sector jobs, and those of campaigning groups and politicians about the long-term threats that wider privatization of public services poses to their universality of access and political oversight. Ylönen and Kuusela (2019) see four major problems with "consultocracy" (which they differentiate from more commonplace outsourcing of public sector activities):

- Monopolization and privatization of knowledge—public sector organizations' information and data (including sensitive material) become an asset for the KIBS, yielding information advantages that can create dependencies and facilitate rent-seeking.[50]
- Erosion of tacit knowledge—internal expertise decays, along with experience with procurement and (sufficiently critical) evaluation of services and implementation of solutions, further increasing dependency on outsourced knowledge.
- Weakening of accountability—the responsibility for failures in policy and its implementation is diffused, commercially confidentiality hinders review of contracts and contracting, and long-term relations between policymakers and experts can embed a "shadow elite."[51]

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[47] Service design has emerged as a specialty in the last decade, and applications to public services are discussed, for example, in Kershaw, Dahl, and Roberts (2017), Sangiorgi (2015), Sangiorgi, Prendiville, Jung, and Yu (2015), and various resources at https://oecd-opsi.org/guide/service-design/ (much of the material presented there has been coproduced with design KIBS).

[48] In a Russian study, Vinogradov, Shadrina, and Doroshenko (2018) reported that public sector clients were liable to report lower levels of satisfaction with KIBS use than did private sector ones; and that the public sector service relationships involved less coproduction than the private sector ones.

[49] An incisive critique of the use of the term "neoliberalism" has been made by Colin Talbot, see https://statecraft.blog/2016/08/31/the-myth-of-neoliberalism/ (accessed September 18, 2022).

[50] In the UK, there has been considerable concern about allowing Palantir access to National Health Service data: Numerous news articles and campaign group reports feature this; an academic overview is Iliadis and Acker (2022).

[51] Two elements of this are the "revolving door" between civil service and commercial employment, and the social networking and personal ties between consultants and clients.

- Strengthening of instrumental rationality—a technocratic approach to evidence-based policymaking with a focus on efficiency at the expense of other values, and on supporting client interests rather than opening policy up to wider debate.

These four tendencies are liable to promote increased demand for—and dependency on—KIBS by public services,[52] and as cementing in a more neoliberal version of the state. Few KIBS will overtly argue for this outcome, but some are regularly aligned with neoliberal strategies. Thus, "behavioural science" (social R&D service) firms, like the UK's Behavioural Insights Team[53] (spun off from a government office) proposes policies based on "nudge theory."

The UK government turned to KIBS for support during the Covid-19 pandemic, enlisting accountants, consultants, IT services and others to manage many key elements of the response.[54] One striking role involved their serving as policy advisors. Expert groups informed the government's main Scientific Advisory Group, as the government sought public support for measures frequently described as "unprecedented." Members of the Behavioural Insights Team and the AI firm Faculty Science Limited participated in these groups, discussing, for example, behavioral dimensions of, and modelling approaches to, the pandemic and policy responses.[55] When it came to messaging, advertising and public relations KIBS provided advice and implementation,[56] opinion polling and the like were deployed to examine confidence in public transport, encouragement of face mask uses, and the like.[57] The recourse to external knowledge sources to address a many-sided emergency is understandable, and KIBS could be similarly mobilized to assist with the significant challenges posed by transition to a more sustainable economy (and the potential catastrophes associated with the climate crisis). Lessons can be drawn from the pandemic experience, and the problems exposed concerning the hasty and nontransparent procurement, contracting, and assessment of KIBS inputs.

[52] See Sturdy, Kirkpatrick, Reguera, Blanco-Oliver, and Veronesi (2020) on how consultancies increase demand for consultancies.

[53] See https://www.bi.team/about-us-2/who-we-are/ (accessed November 22, 2022).

[54] There was much controversy surrounding some of these roles, with pervasive criticism that selection of external expertise often reflected cronyism rather than competence.

[55] One murky question arising in this context concerns the notion of "behavioral fatigue", which may not have caused, but seems to have played a role in convincing key actors of the case for, the UK's delayed "lockdown." The term "behavioral fatigue" came into frequent use, but various sources have denied responsibility for it (Harvey, 2020).

[56] According to the advertising industry trade magazine, Campaign, two firms accounted for the bulk of almost £200 million in pandemic-related advertising spend in 2020, Manning Gottlieb OMD and MullenLowe UK. These were the two firms that had been mainly responsible for pro-Brexit communications—with much smaller amounts going to Topham Guerin, Engine and Wavemaker, see https://www.campaignlive.co.uk/article/govt-spent-184m-covid-comms-2020/1708695

[57] See https://www.gov.uk/government/publications/message-testing-studies-on-transport-and-coronavirus-covid-19. Independent SAGE (2020) rapidly produced a timely analysis and critical advice concerning government messaging in the pandemic.

KIBS are often adept at presenting accounts of the value they provide, and their appraisals of future trajectories of change have become deeply inserted into public services. But there is a lacuna in these views of the future: Just how can a private knowledge infrastructure (if this is what they constitute) contribute to a democratic society? Expertise and public oversight have long been in tension—with various "deliberative democracy" approaches offering partial solutions,[58] but these issues remain to be examined by trend-watchers (though public disillusion with politics and political parties is a familiar theme). Although there is much discussion of the future of professions, the future political role of KIBS and the implications for regulation and representation remain to be explored.

Conclusions

KIBS are important creators, disseminators and purveyors of "futures"—appraisals of trends and countertrends, alternative scenarios, risks, and long-term challenges and opportunities. Much of their analysis and advice will remain proprietary, much material is published. Content analysis of such material could be usefully enriched by case study observation of KIBS roles in strategic planning and policy formulation. Comparison with the activities and outputs of think tanks, and the public sector, especially Universities would be valuable, and inform better use of futures analyses. This will need to attend to such matters as domination of futures work by men from the global North, typically with worldviews oriented to tech fixes and technocratic and neoliberal responses. Furthermore, in a near future we can expect the use of AI to transform both the operation and use of KIBS—including where strategic foresight is required—and to surely impact the ways in which clients and researchers approach these topics. That is a topic for another essay, however.

In any case, KIBS are likely to retain their important roles in innovation systems and in the shaping of futures (both by articulating appraisals of alternative prospects, and by supporting design and strategies positing particular trajectories of change). Most will provide quality services, and few will focus on the problematic services discussed above. Some restraint of the problem cases may be achieved through upgrading professional training and standards, establishing more robust regulatory frameworks (bridging elements of self-regulation and external oversight), enhancing clients' capabilities to procure and coproduce with KIBS, and the like. Clients might share experiences through social media and the like, so that there could be more assurance in advance about the service that might be delivered. KIBS and their clients engaging in problem services—ranging from wealth hoarding to misleading lobbying, from corporate espionage to unreasonable delaying tactics in legal cases—may be hard to identify, but deserve to be the targets of campaigning groups and

[58] See Christensen, Holst, and Molander (2022) and the growing literatures on "expertocracy" and deliberative democracy.

coordination of regulatory authorities. And in general, more public discussion and scholarly analysis of the roles of KIBS and the nature of KIBS-client interactions can only be beneficial—because KIBS are influential in articulating and shaping the future. This can provide huge opportunities—KIBS can be key agents within the transitions needed for a sustainable future—but market forces cannot be guaranteed to ensure that this happens most effectively.

These future-oriented roles of KIBS are significant elements in political evolution, too. They impact not only the orientation and operation of public services, and the formulation and implementation of public policy. They also impact the relations between states and citizens, and the use of evidence and expertise and the articulation of values and interests in political decision-making. It would be unwise to outsource thinking about these aspects of the future to KIBS themselves.

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Chapter 15
Futures Governance: The Case of Outer Space Technology

Jessica Bland

Common public narratives about mitigating catastrophic or existential risks to humanity require technological progress, as well as the assumption that the investors and makers of those technologies will also envision and govern how they are used. However, singular innovations and technocratic governance are rarely a match for the complex systems that will create and deescalate global catastrophe. Fundamentally, no universal knowledge can unravel complex systems.

This is particularly true for space-based technology. Satellites are often made and launched far away from the populations they can most help. The physical distance also represents a distance in understanding, missing the mechanisms to comprehend how to best serve those populations. For example, monitoring disasters and environmental change from space is often done by satellites made by a small number of companies and governed in Western countries or by a specialist group at the United Nations (UN). These systems for universal earth monitoring rarely make use of local knowledge and knowledge from multiple levels and realms.

This article explores how technological progress is described by scholars in nonfiction related to the long-term future of humanity, where concerns about existential and catastrophic risk have been popularised. It argues that it is possible to allow technology to have an important role in that future, without advocating technology as a universal solution, or that those with technical know-how should lead the frontier of human development.

This involves developing governance that does more work to reflect the complexity of the planet it makes decisions about. It also involves confronting the immaturity of human decision-making and avoiding the colonising behaviours that have reappeared in today's space entrepreneurs.

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There are alternative models of governance that rest on more inclusive participation in imagining and realising futures. The chapter goes on to articulate one of these models, exploring how unexpected narratives from groups often excluded from global policymaking could enter the process.

Finally, the chapter outlines how spaces for more affective interfaces situated within the venues of policy making could help support not just the inclusion of alternative narratives, but the creation of them too. This is illustrated by a proposal for an intervention at the UN Summit of the Future in September 2024.

Recent, Popularised Arguments for a Role for Space Exploration in Answering the Challenges of the 21st Century

Popular publications from philosophers like Nick Bostrom (2003), Will MacAskill (2022b) and the co-founder of the author's research centre, Martin Rees (2018, 2022), argue that the best human response to the challenges of the 21st century is reliant on technological progress.

Bostrom's (2003) interest in achieving an advanced technological future comes from his argument that time today is better spent developing the technology to support larger populations in the future than focusing on short term objectives. This includes prioritising the development of technology to colonise outer space in order to support a larger population than ethe planet Earth alone can sustain and maximise the number of possible human lives: "the potential for over ten trillion potential human beings is lost for every second of postponement of colonization of our supercluster" (Bostrom, 2003, p. 309). According to Bostrom, technological progress is the means to a future with greatest utility, and where more humans will always derive more utility. Space technology as a critical element of increasing that utility by making it possible for more humans to exist.

This seeming enthusiasm for technology is dampened by Bostrom's vulnerable world hypothesis. For all the white balls of innovations that have improved the human condition, he believes that humanity should be concerned that "the urn of creativity contains at least one black ball" (Bostrom, 2019, p. 457). He is concerned about the negative effects of technology: "grey balls" that have good and bad uses like nuclear technology or existential threats from future black balls. However, he also sees technology as part of the solution to these technological risks. His blueprint for achieving future technological maturity includes pervasive surveillance technology (Bostrom, 2013).

In a similar vein, Will MacAskill (2022b) argues that it is important to mitigate technology risks like nuclear and biological weapons to ensure humanity survives, as well as stressing the importance of avoiding "technological stagnation" (MacAskill, 2022b), and that technological progress will be key to avoiding these technology hazards.

He has, however, distanced himself from Bostrom's prioritisation of space colonisation. In a series of tweets in mid-2022, MacAskill (2022a) distinguished his views from Elon Musk's, which in turn made it clear that he differs from Bostrom: "I do not think near-term space settlement is a top priority. I hope that humanity settles space *eventually*…" Instead MacAskill (2022b) focuses on the importance of innovations in, for example, clean and green technology.

Martin Rees (2018) goes further than MacAskill (2022b) in distancing himself from Bostrom's (2003) immediate imperative to conquer other planets. Rees has long been an advocate for non-manned space exploration, given the hostile environment in space. More recently he has made a psychological argument too: "It's a dangerous delusion to think that space offers an escape from Earth's problems. We've got to solve these problems here. Coping with climate change may seem daunting, but it's a doddle compared to terraforming Mars." (Rees, 2018, p. 150)

Like MacAskill and Bostrom's writing, Rees (2022) advocates for advanced technology's role in the survival of humanity. "If Science is to Save Us" argues that science deployed optimally will be vital to overcoming challenges like climate change. He also shares Bostrom and MacAskill's concern with the mis-deployment of technology at a scale that could wipe out humanity. In "On the Future", he says, "we have zero grounds for confidence that we can survive the worst that future technologies could bring" (Rees, 2018, p. 118).

Unlike MacAskill, Rees nods to the need for governance that is more that technocratic: "We need to think globally, we need to think rationally, we need to think long-term—empowered by twenty- first-century technology but guided by values that science alone cannot provide" (Rees, 2018, p. 227). This leaves the door open for governance that recognises the negotiated, complexities of democratic decision-making, rather than a focus on re-engineering the "grey balls" of technologies and hoping this will mitigate potential hazards.

Often Bostrom, MacAskill and Rees are bundled together as public intellectuals with similar commentaries on the challenges of the 21st Century and the role that technology progress must play in answering those challenges. However, space exploration has a very different position in each of their writings. A drive for off-world living is a consequence of Bostrom's philosophical reasoning, but it is viewed more as a vivid distraction by the other two. All three acknowledge the potential largescale risks of technology, but only Rees points towards the need for human systems rather than technical ones as part of the mitigation of those risks.

Spaceship Earth and Colonising the Moon: Two Common Ways of Thinking About Space Technology

This section covers two mental models that often implicitly or explicitly shaping behaviours of space sector leaders.

First is the metaphor of Spaceship Earth: the abstraction of the Earth as a single system to be tinkered with. Although this has historically been a valuable way to

understand resource constraints, it can also make technological fixes appear more effective than they are.

Second is the idea of outer space as a new frontier to be colonised. The idea that humans are explorers with ultimate power over their conquered territory remains at the forefront of space exploration today, and is often disconnected from concurrent efforts to learn lessons from the history of colonisation.

Spaceship Earth: The Metaphor that Helps and Hinders the Governance of a Complex System from Space

Human exploration of space has helped support better technologies for Earth. In particular, the resource constraints of space flights has helped humans to work within the resource constraints of the planet. Water recycling is often cited as a successful example of techniques developed for space and now used on Earth.

The start of discussions of planetary boundaries coincided with the first space age. In 1966, Kenneth Boulding presented a now famous paper on a sustainable future, where he articulated the idea of a spaceman economy on "SpaceShip Earth":

> The closed economy of the future might similarly be called the "spaceman" economy, in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy. (Boulding, 1966, n.p)

The idea of limited stocks that need to be tended rather than extracted is common today, with the reality of these limits more obvious in contemporary life.

The suggestions that followed this 1966 concept is echoed in the language that public intellectuals have returned to again today. In that speech, Boulding defined technology as maintenance:

> In the spaceman economy, what we are primarily concerned with is stock maintenance, and any technological change which results in the maintenance of a given total stock with a lessened throughput (that is, less production and consumption) is clearly a gain. (Boulding, 1966, n.p)

This invokes the kinds of innovations that MacAskill and Rees propose, giving technology a primary role in the management of the Earth system. Indeed, Rees refers to the same metaphor of Earth as a spacecraft in his recent writing: "'Space-Ship Earth' is hurtling through the void. Its passengers are anxious and fractious. Their life support system is vulnerable to disruption and breakdowns. But there is too little planning, too little horizon scanning, too little awareness of long-term risks" (Rees, 2018, pp. 227–228).

Following Boulding's (1966) speech, there continued to be a dominant vision of a spacecraft-like Earth that is an observable and measurable system that is managed by tinkering with it. "The Limits to Growth" (Meadows, Meadows, Randers, & Behrens, 1972) used a computer model called World3, to demonstrate through a

series of scenarios for 2100 how population growth and natural resource use interacted to impose limits to industrial growth. Feedback loops and nonlinear relationships make World3 dynamically complex, but the conclusions drawn from it took a very simple view of how policy should be formed: by reducing population size or material consumption. These were controversial ideas, rightly so, because of the way this treated human actions like variables in the engine of a spacecraft, to be turned up and down rather than chosen by individuals.

Donella Meadows et al. (1972) was the lead author of "The Limits to Growth". In her later writing (Meadows, 1999) she includes up to 12 ways to intervene in a system, moving beyond re-engineering stocks into more abstract manipulations. These included adding or evolving system structure, changing the goal of the system or the mindset or paradigm out of which the system is built. It is not only the constants, parameters and numbers that define a system. It can also be properly understood through different, less scientific lenses. These are each just different ways of modelling. Crucially, Meadows does not say that structure, mindset, or paradigm is collapsible into the measurable; she understands these as distinct ways of understanding a system that can sit alongside each other. By legitimising non-universal descriptions for the complex, dynamic systems, Meadows also allows that the same objects can be understood in many ways with different underlying paradigms. In fact, she is saying to understand a complex system and its non-linear evolution, these different views are all required—it is perhaps a "Manyship Earth".

There is a danger in governing the Earth by looking back at it from space. This perpetuates bias towards seeing it as a simple object to be analysed and engineered. While the idea of Spaceship Earth has done much for supporting more sustainable development on Earth, it speaks to an abstraction of the complexity of Earth that may distract from other forms of governance that reflect that complexity in their structure.

In Boulding's (1966) speech, there was a warning about the long journey still ahead to transition to thinking about the globe as a complex system:

> It was not until the Second World War and the development of the air age that the global nature of the planet really entered the popular imagination. Even now we are very far from having made the moral, political, and psychological adjustments which are implied in this transition from the illimitable plane to the closed sphere. (Boulding, 1966, n.p)

Boulding cautioned against expecting humans to quickly adapt to new way of thinking about their environment. In that case it was warning about how long it took to come to terms with Spaceship Earth. But the same warning can be applied to the transition *away* from the idea of Spaceship Earth and towards Manyship Earth, thinking of Earth as describable in many, equally viable ways from within and without rather than as a single object of study. The transition to decision-making that allows for these multiplicities in ways of knowing is still ongoing despite the decades of thinking on this topic.

More than this, the prevalence of satellite monitoring, mapping, and communication technology, monitoring the planet far away from the Earth's surface, can make it easy to forget these layers of interpretability in the Earth's system. This space

technology that we have developed reinforces the idea that knowledge about this planet comes from a universal scientific observation.

This means that one of the hardest places to transition away from this idea will be in the decisions that are made about that very technology. Those involved in space governance are working with the technologies that monitor Spaceship Earth, making it particularly difficult to extricate themselves from technocratic models. Without moving beyond this idea of the planet as knowable only at a distance, the development of space technology will not connect with other types of knowing; There will not be space in the governance of satellites for alternative uses, and alternative futures, for this technology.

Colonise the Moon: Humans Still Need to Develop Social Structures that Could Help Us Live Well Elsewhere

> "Colonise the moon, colonise the moon
> With all the bad ideas
> And all the hopes but none of their fears
> And all the market leaders
> And all the hopes, and all the hopes
> And all the hopes but none of their fears"
> "Colonise the moon, colonise the moon
> With all the bad equations
> Colonise the moon, colonise the moon
> With all the warring factions
> They'll fight it out, they'll fight it out
> They'll fight until extinction." (Song lyrics from Super Furry Animals XE "Super Furry Animals", 2005)

Super Furry Animals are a proudly Welsh band, distinguishing themselves from their English neighbours who they see as their colonisers. This song gets to the essence of second concern about how humans govern space technology. It is not just that the abstraction of Earth, viewed from far away, is an inappropriate way to understand a complex system. It is also that there is very little in humanity's current forms of governance to recommend them as a responsible steward of outer space. At a moment in history when societies are still working out what the lessons are from humans colonising each other's land, how can humans also believe they will not repeat these mistakes elsewhere?

"The Great Colonization Debate" (Smith et al., 2019) records contemporary scholars debating this issue, bringing together ecological issues with a more explicit discussion of colonial actions. In this article, the transcription of Lori Marino's remarks reprises Boulding's point about the immaturity of human psychology, and therefore lack of readiness to move off-Earth (Smith et al., 2019):

> There is every reason to think that we would treat another world exactly the way we've treated earth. .. .We could argue that our species intentionally wants to make life better on this planet (I mean, who could argue that being intentional about having a sustainable earth is anything less than the most important goal.) And yet, we are failing to do that. It is just not in our psychological toolkit. (Smith et al., 2019, p. 7)

Marino goes on to compare hiring humans to colonise planets to hiring a child abuser as a babysitter (Smith et al., 2019). This violent simile and the image of fighting to extinction on the moon in the Super Furry Animals song is a reminder of the voracity of the wider public conversation about the damages of colonisers on Earth. Other participants in "The Great Colonization Debate" make arguments about outer space exploration that echo those made more generally about learning from this history. For example, Sheri Wells-Jensen says that moving to other planets should involve "actively unthinking systems of oppression" (Smith et al., 2019, p. 6). Greg Anderson says that "settlement" is better language than "colonization" as it does not imply the imposition of a political structure and could be more temporary (Smith et al., 2019, p. 6). Danielle Wood held workshops in 2021 at MIT to explore an anti-colonial mindset for space travel, and she has previously written five recommendations for how to embed learning from exploited communities on Earth into human activity in space (Wood, 2020).

These are valuable points no doubt, but there is also something about the excitement of space-faring efforts that makes them a persistent pursuit. There is a reason that colonising outer space is enjoyed as a common fictional narrative. It speaks to the excitement of life being transformed and away from the troubles of the drudgery of everyday existence. It also speaks to having the control to build your own world without the complexities of reality or many others' needs to tend to. This provides an attractive fantasy that is an escape.

The difference between colonising on Earth and these kinds of dreamscapes is that the colony is not an extension of current territory, but an optimistic hope for starting afresh. Grove's (2021) recent analysis of the United Arab Emirates' (UAE) Mars 2117 Mission contrasts it to the expansionist plans of colonisers in the United States of America. They identify how the UAE mission is discontinuous rather than continuous with the current territory of that nation:

> This plan to colonize Mars reflects a form of anticipatory authoritarian nation-building, one that is organized around an imagined community premised on a nostalgic longing for a mythic future rather than a mythic past… . The new UAE envisioned by Mars 2117 is not expanded from the modernist projects of Abu Dhabi and Dubai—it transcends them. It is hard to find a correlate nation-building project for which the vision of building the nation-state is one of abandoning the territorial state already built. (Grove, 2021, p. 1035)

The Mission hopes—indeed their first Mars probe is called Hope—to create a new kind of citizenry: The mythic future mentioned by Grove. They represent an idealised form for a nation that would replace rather than extend the current one.

This is much like the vision of space entrepreneurs, looking to build a new business empire. The parallel is, perhaps, not surprising. The 50 year history of the UAE, following the discovery of oil, is one where wealth creation is intertwined with the establishment of statehood.

In "Arid Empire", Natalie Koch (2023) connects: Buckminster Fuller's manual for designing a sustainable planet; Norman Foster, a favoured architect for mega-projects in the UAE; and one of the first US entrepreneur-led attempts to live in an artificial environment—Biosphere 2 sponsored by Jim Allen. Fuller's (1969) book, "Operating Manual for Spaceship Earth", is explicitly continuous with Boulding's (1966) lecture in 1966. Koch examines how Foster saw his work as continuing Fuller's lineage, including the design of Masdar City: A carbon neutral and zero waste city being built in the desert near the capital of the UAE, Abu Dhabi. Koch also describe the influence of Fuller's book and architectural work on the design of Biosphere 2: A sealed dome in the Arizona desert in which a small group attempted to live self-sufficiently—like they are on a spaceship—in the early 1990s. These projects share aesthetics, architecture and engineering, motivated by the idea of building a new way of life afresh in a self-sustaining vehicle.

The projects were also similar in the way they came about, particularly the way that the project leaders see their almost heroic role. Koch summarise this historical thread as follows:

Beginning in the 1970s, such visioneers united with various futurists and entrepreneurs to invite the public to imagine a world of environmental collapse (the horror!) where humans had to survive in an artificial environment of their own making, but where they had successfully harnessed modern technology and rose to the challenge (the wonder!)… such experimental projects in the desert are neither new nor progressive. Their logic is quintessentially colonial … And here again, modernist science is valorized over other ways of knowing and helps to justify settler control of Indigenous lands. Biosphere 2 also featured the same hero—he white male scientist, the visioneer—arriving just in time to save the day (Koch, 2023, pp. 134–135).

There is a special flavour to the acts of colonisation described by Grove (2021) and Koch (2023). The land that Biosphere 2 was built on was indigenous, but it was nonetheless conceptualised as an empty space for the visionary to inhabit. Foster built spaceships in the desert, designed for a citizenry with a nomadic past when that was able to live off that same land without the spaceship. Spaceship-like settlements built on Earth are more often about de-contextualising the environment and ignoring what was there before. In fact, some projects ignore the colonising history of the very land they are on. It is plausible that many of these efforts will re-make the mistakes of the saviour-narrative rather than learn from them.

This also applies to the satellite kingdoms being built in the sky. Satellite internet in the Ukraine provided by Elon Musk's Starlink was initially celebrated like the act of a benevolent saviour. However, once Starlink decided to turn off access to the network for Ukrainian military drones, there was a stark reminder of the ability of privately owned infrastructure to rapidly respond to the personal ethics of its owners rather than international precedent or agreement.

Avoiding more examples like this would require more than the steps mentioned in the first part of this section (the growth of humanity's toolkit for governing). It is not just that decision-making needs to be improved, but also an examination of how those in power end up with those roles, that is, how those who have technical knowledge are also the decision-makers.

Inclusive Governance for Space Technologies

This section suggests more modest, context-specific roles for technical expertise in the development of space technology. This means promoting non-universal ways of knowing: those that are not derived from data collected from a distance or from the stance of an omniscient visionary.

Connecting Satellite Data with the Local Contexts It Measures

Donella Meadows (1999) description of systems analysis focuses on the idea that systems are models of a world that is fundamentally and irreducibly uncertain due to its complexity. There is no one correct model of the Earth, but different ways to analyse the dynamic, socio-ecological interactions that it encompasses. Going further than this, Rogers et al. (2013) argue that comprehension of complex systems come from combining (intellectual) understanding and (lived) practice. It is not enough to understand how a technology affects the Earth system by studying it from afar; a more complete analysis also requires close-up experience.

When it comes to developing satellites, this could mean shaping them towards the concerns and aspirations of the communities they monitor or provide connectivity for. Some of this starts from Aarathi Krishnan and colleagues' toolkit for reimagining for the UN Development Programme (UNDP) in Asia-Pacific states: "we believe that imagining the future from perspectives of experiencing rather than witnessing, will help us address the diverse and complex challenges of our times in Asia and the Pacific" (UNDP, 2022, p. 5). Working from experience rather than from observation could be characterised as a kind of user-driven design of governance—starting from the perspective of those that a technology could most benefit.

In practice, this might refocus monitoring of the atmosphere, oceans, and land from space to improve preparedness for environmental catastrophes. These are experienced by large global populations that are not usually in the nations at the forefront of space technology.

The recent large volcanic eruption in Tonga illustrated gaps in this kind of service for those living away from the rich, continental populations that have usually built satellite constellations that prioritise their own land. For Tonga, the European Union's Sentinel-1A probe took 12 h after the eruption to send back images of the site (and it could have been up to 12 days). Lara Mani and Mike Cassidy's (Mani &

Cassidy, 2022) recent call to action for better volcanic preparedness point out that beyond rich nations, volcanologists often rely on the good will of private satellite companies to understand the land and atmospheric effects of an eruption.

When the satellites used to monitor disasters are designed, made, and launched far away from the populations they can most help, the physical distance also represents a distance of understanding how to best serve those populations. In the UAE, the first home-grown satellite KhalifaSat was launched in 2018. The first image sent back from the satellite was of the Palm: The artificial island on the coast of Dubai. This is a powerful visual statement that this small, young country now owns the means of production of its own image from space and holds the power over an infrastructure with its roots in Western military uses.

Through the comfort of statistics, it is easy to forget the understanding of local ecosystems and societal structures will also be key. Mani and Cassidy (2022) say that "real-time monitoring and simulations of ash fallout, gas plumes and other hazards, such as volcanic flows, should be fed into real-time, targeted communication" (Mani & Cassidy, 2022, p. 471). They discuss the case of the eruption of La Soufrière in Saint Vincent in April 2021, an SMS advice service and radio broadcasts helped evacuate 20,000 people. This network was designed in consultation with people on the islands, understanding the media they have easy access to and trust. This is an example of a response designed from experience rather than just the scientific data from a monitoring system.

The 2024 recommendations from the Senior Leadership Group that helps set the strategy of the UN Office for Disaster Risk Reduction (UNDRR, 2024) include improving multi-hazard warning systems, which requires responding the complex environmental context of a natural disaster. The recommendations also include more inclusive disaster risk reduction, taking an all-of-society approach that leaves no one behind. The UN is signalling that disaster response needs to consider contextual factors.

The impulse to localise the ownership of data and the response to it is reflected in a recent creative project where 28 arts organisations from around the world form the World Weather Network. Each station monitors their own weather, encouraging a conversation between scientists, environmentalists and concerned communities online about the observations and related stories. In Dubai, the station is located in the gardens, the library and public spaces of the Jameel Arts Centre, explores atmospheric humidity, a central climatic marker in the Arabian Gulf. It is accompanied by on-site air-to-water generators, providing visitors with fresh drinking water (Art Jameel, 2022). This does not use space data, focusing instead on closing the distance between beneficiary and observation. It opens a possibility of future experiments that more intimately connect the space technology with the community, not just for the sake of a cultural conversation, but to increase the effectiveness of preparations for the disasters that climate change could bring.

The UN Office of Outer Space Affairs (UNOOSA) is an important caretaker for the 1960s treaties that govern peaceful use of outer space. More recently, the Office has turned its attention to sustainability in space. For example, they maintain the United Nations Platform for Space-based Information for Disaster Management and

Emergency Response (UN-SPIDER), which is used to enhance the use of space technology for disaster risk reduction. The aim is space not only holds promise for humanity but also contributes to improved "life on land" for all beings through monitoring ecosystems and protecting wildlife. There is enough strategic alignment to imagine a successful new partnership between UNOOSA and UNDRR that design new services combining: satellite technologies; the local concerns and aspirations captured in the UNDP toolkit; and the context-specific disaster response that UNDRR are interested in.

Space Nomads not Settlers: Alternative to the Colonisation of Technology Governance by Technologists

The literature on systemic anticipation and foresight (Saritas, 2013; Rogers et al., 2013) argues that good decision-making comes from bringing those that see a system in different ways into the same room. A concept from cybernetics theorist Ross Ashby (1956), the law of requisite variety, is popular with these authors. This states that for an organisation to be in a stable relationship with its environment, it needs to have at least as much complexity as that environment. For example, the cohort of people making decisions about the sustainable development of the Earth should themselves represent different ways of understanding the relationship between people and planet.

Sheila Jasanoff (2022) talks of the 21st Century Compact that has returned humans to an immature state where technical and scientific expertise is given authority. In response to grand and global challenges like climate change, conflict in Europe and pandemics, Jasanoff and others argue that humans have forgone their desire to enact their own judgement in favour of deference to an epistemic authority (Jasanoff, Hilgartner, Hurlbut, Özgöde, & Rayzberg, 2021).

Jasanoff (2022) worries about the unwillingness to engage with the political nature of public-decision making. She believes that it is not enough to agree with Martin Rees' declaration quoted earlier in this chapter that governance should be: "empowered by twenty-first-century technology but guided by values that science alone cannot provide" (Rees, 2018 p. 227). Jasanoff reminds us that defining those human values is not simple. Within a democracy, it is necessarily a negotiation between different sets of values, which cannot be reduced by piling on more scientific evidence. She says that Science and Technology Studies has made it clear: "What we accept as fact for policy purposes is not a preexisting condition of the world, discoverable through policy neutral processes, but rather the endpoint of socially sanctioned methods of observation, argument, negotiation, and persuasion" (Jasanoff, 2022, p. 30).

One tool Jasanoff (2015) uses to describe how technology enters policy-making is describing how imaginaries of the future motivate decisions. These "collectively held, institutionally stabilized and publicly performed visions of desirable futures"

(Jasanoff, 2015, p. 6) are used to justify support for the technologies that enable them. A functioning society sanctions its own desired futures and is therefore willing to invest or legislate in mechanisms to deliver that future.

20th Century governance of space relied on a small number of space-faring nations. 50 years ago, this group could sit around a table and negotiate between their positions on the use of outer space. Space policy was defined by a small group of desired futures. Now there are 70 space-faring nations, in theory creating room at the table for a wider range of desired futures. However, they are often drowned out by the vivid ambitions of non-democratic states or figures like Elon Musk, who have imposed their vision rather than negotiate a collective one.

Not only is this a time when the technical expert has been returned to a pedestal within democracies, it is a time when technologists have power over multi-lateral governance too. There is an urgent need to find ways to avoid these contemporary visioneers—a version of the colonising technology entrepreneurs mentioned above.

One obvious intervention is to encourage new imaginaries for technologies that challenge the dominant ones. These could help policymakers reframe an issue or see new potential solutions to a challenge. Although Norman Foster had much in common with the founders of Biosphere 2 (as described in Koch, 2023; See above), he in fact chose to visit a very different world-building project when in Arizona. He visited Arcosanti, a living laboratory for a city created in harmony with nature in response to the concerns about ecological collapse in the 1970s (Koch, 2023, p. 157). Instead of closing its doors to its desert environment, Arcosanti is built into the edge of a ravine. Instead of sponsorship by a billionaire, the residents make their living by producing craftworks (particularly bells) in a foundry on site. This is a different publicly performed vision of a society that had heeded the warnings of environmentalists—an alternative imaginary maintained by its community. Today, Arcosanti still has residents experimenting with a different way of living. But their community is also home to those who live elsewhere but base their craft business at Arcosanti via a micro-enterprise initiative (Arcosanti, n.d). This respect for know-how and flexible affiliation is very different to the status of Biosphere 2 participants, who were paid from the donations of a billionaire, chosen for their medical or engineering knowledge and locked inside the closed environment for 2 years.

Nonetheless, in some respects these experiments are still very similar imaginaries for the future of living systems: "Arcosanti, Biosphere 2, and Masdar [Norman Foster's eco-city in the UAE], the white settler is never the culprit but the savior, preparing to engineer a solution the imagined future ecological collapse" (Koch, 2023, p. 159). Although Arcosanti provided an alternative narrative, it still follows the logic of technical expert as hero.

Sarah Dillon and Clare Craig's (Dillon & Craig, 2022) practice of "story-listening" uses the tools of literary analysis to seek out new narratives, often with the goal of finding more unusual stories about familiar topics. They argue that narrative should be a form of evidence for policy decisions (Dillon & Craig, 2022). Their team is applying the idea to space policy, working with the UK government to understand the space-based fictions that influence policy decisions and survey a wider range of stories about space that might challenge those ways of thinking. At a

workshop attended by UK Government officials, one of the stories the team cited was "Collision Orbit" by Jack Williamson (2004). Set in a research station on an asteroid, scientists are seeking independence from Interplanet Corp though the creation of self-sufficient energy supply and a promise to continue preventing asteroid collisions. This quest for sovereignty based on service is a quieter rebellion than the stories of outlaws than are commonly told in stories about conflicts in space. These UK-based efforts are important interventions in a society looking for new narratives as it navigates it's post-Brexit identity crisis, but this is not necessarily a template for countries with very different story-telling and political cultures.

There are a host of nations that have decided to create their own narrative about space. Some of these are focused on collaboration.

For example, Luxembourg is home to the European Space Resources Innovation Centre. This facility supports experiments with the technology needed for mining as well as developing and debating the economic models for successful commercial missions. The small country offered up to $200 million for space start-ups in 2016, and now 50 space companies are based there. Alongside that programme, Luxembourg and 11 other countries have signed up to the Artemis Accords that try to clarify the rules for resource extraction in space. They are working outside the usual channels of international space law to move their agenda forward. This pressure has accelerated discussion at the UN, where space resources has become a key topic for new regulation.

Another example of a coalition of countries forming outside large nations and US entrepreneurs has been led by Portugal. In 2020, the Portuguese Space Agency hosted a forum for countries in the Atlantic region called "Clean Oceans with Clean Space". This brought together those with interests in sustaining the oceans and those keen to better manage space debris, which includes countries from Nigeria to Brazil. The group aims to provide additional satellite support to managing the health of the Atlantic, without adding to the layers of satellites already polluting Low Earth orbit. This could include temporary monitoring systems during large storms or busy shipping periods that then burn themselves up in the upper atmosphere once the exercise is over. This narrative is one of a shared transnational space, the Atlantic, bringing together otherwise very different nations.

There is also a quieter narrative, different to the one described above, inside the UAE's Mars Mission. Despite the virtual reality renderings of a new citizenry in 2117, the aims and structure of the Hope probe that reached Mars in 2021 are far more collaborative. The mission aims to collect basic scientific data about the Martian atmosphere, a goal chosen from an international list of scientific priorities for Mars research. The team behind the Mission, particularly the project director Omran Sharaf, have been public about the collaborative network that supported the project, arguing that the mission would never have been completed in 6 years and would have cost much more than $200 million without companies and countries like Japan as partners (Bridge, 2018). This builds on the UAE's role as a relatively safe and visa-friendly location for global meeting, and the Dubai Declaration created from five intensive days of negotiation in the city in 2016 and signed by many countries, Non-governmental Organisations (NGO) and companies to support

"space as a driver for socio-economic sustainable development" (UNOOSA, 2016, p. 1). This collaborative rather than colonising vision marks a potential alternative imaginary for the gulf state.

Although less focused on a hero narrative or developed by a single individual, these collaborative visions are still not delivered through broad deliberation. They are still delivered through the language of legal declarations and formal conferences by those who have access and confidence in those forums.

To move away from Western perspectives and stories, Aarathi Krishnan (2022a, b) believes that there need to be more active pursuit of views that have otherwise been silenced in discussions of the future (Krishnan, 2022a, b). She says in a recorded lecture that the "design of exclusion" is embedded in the language, expertise and confidence expected in conversations about the future. About the language for thinking systematically about the future in government, corporate and NGOs, she says:

> The same term is used to describe approaches and methods regardless of whether it is understood or embraced or whether it can even be translated into local language. When language and terms are not understood, it becomes a form of exclusionary privilege. (Krishnan, 2022b, n.p)

For her, the goal is to develop systems of decision-making in organisations like the UN that do not repeat the mistakes of the power imbalance set-up in privileging the views of developed and donor nations over less developed and recipient nations. Krishnan (2022b) says:

> Unsettling the coloniality of our governance systems is an act of resistance; an act of resistance to the shackles that have held humanity back from evolving our potential; an act of resistance to the continued practice of designing for privilege rather than for equity and justice. (Krishnan, 2022b, n.p)

This is a call to change the way that UN bodies or governments develop policy—and the way that imaginaries are created as part of this. It could mean acts that those agencies find constitutionally difficult, such as the compiling of context-specific information without standardising it for global consumption. One example from technology policy that is experimenting with this was the African Digital Futures project by the School of International Futures. This was funded by US philanthropists—the Small Foundation and the Omidyar Network—who decided not to determine the questions asked about the future in Nigeria, Morocco, and Kenya, but to let the youth participants in these meetings tell their own stories. The final product is not a write-up of what participants said by a foreign facilitator; Instead, it is a set of stories authored by the participants with the support of local facilitators and the advice of international experts (NGFP, 2022). A version of this kind of project for stories about the future of space technology could be similarly valuable.

Affective Arenas for the Ongoing Negotiation between Different Imaginaries

If space policy is to respect the complexity of the planet and people it serves, there is a concomitant requirement to respect incompatible views or types of knowledge that are not easily combined. There needs to be venues where dissonant positions co-exist. Less well explored in this chapter is the requirement to respect the emergent nature of complexity, and that change over time cannot be avoided. It might be that laws are still written around a type of consensus at a moment in time, but they are also understood as part of a longer iterative process.

One way to think about this process is as a dramaturgical regime (Oomen, Hoffman, & Hajer, 2022, 2025): A performance that is built from storyline, staging and choices about the conventions that it uses—like whether it evokes a play, exhibition or dance. Oomen et al. (2022) illustrate the reasoning for this by talking about the ritual for embedding science into global climate policy through the Intergovernmental Panel on Climate Change (IPCC) reports:

> Its reports depend on widespread media-attention and continual re-enactment for the political authority of its presented futures. As such, analysing the IPCC as a dramaturgical regime would require the analysis of the many facets that contribute to its periodical performances. (Oomen et al., 2022, p. 260)

Rather than analyse another regime, this structure can be used to imagine an ideal one. Starting with the storyline, the discussion above points towards a better space policy if it can hear a wider range of national, regional or community stories for why build a satellite or a spaceship. These would concern anticipation, expectation, destiny or hope for the future (Bryant & Knight, 2019). They are affective—about emotional connection—rather than rational argument for a particular future. In 2014, the author produced a workshop that brought together technical, policy and commercial experts to articulate six different future narratives for the use of nanosatellites that better serves global humanitarian goals. The workshop outline is still available online (Nesta & Hayoun, 2014). Although this represented a narrow set of interests, it illustrated how different future stories can be articulated and co-exist.

One of the reasons that workshop was successful was the use of the conventions of speculative design to create imagined products or services from the future. This built on the move towards creative futures practices that gave designers and curators recognition in the more formal foresight community, with studios like Near Future Laboratory (Authors of Bleecker, Foster, Girardin, & Nova, 2022) and Superflux taking on technology policy projects. Designing imagined future objects makes it easier to communicate across language and cultural boundaries, while remaining connected to the technologies that are emerging.

However, to deliver policy, it is not enough to simply provide a selection of affective narratives as artefacts for discussion. How can these be staged so that they can provide a pathway to a decision rather than just uncomfortable dissonance, and how can that be revisited time and again as technologies and societies change?

Part of the answer will be to allow different roles for these artefacts. Designed experiences of the future can have many purposes: as part of a planning process, as an act of criticism or as a campaign to persuade (Mazé, 2019). It would be important to design an interaction so it could be various, and even disrupted by other participants. The staging could not be one that seems to ask someone to sign-up to a particular future, which can be a risk with the kinds of artefacts that are otherwise sold as consumer products.

Connection between participants without requiring a single narrative is part of the practice of the Shared_Studios portals. The portal is set up as two halves of a shipping container that are facing each other through a digital screen. The occupants of each half are often thousands of miles from each other, but participants feel as if they are in the same room. They share a conversation between the New York UN HQ and Afghanistan or between Paris and Lagos.

In his thesis written while working at the company, Brandon Boyd Ferderer (2019) uses the term atmospheric interface to describe this experience as shared emotional space between individuals who are often otherwise oppositional: "This 'feeling with' suspends user/participants in atmospheres of human connection through the emergence of an imaginative dialogue, and the curating of such atmospheres leads to dialogic transformation. As such, the Portal operates as an atmospheric interface." (Ferderer, 2019, p. i)

It is possible to imagine a portal created between nationals with different relationships and narratives about space, presenting artefacts of their narrative as part of a shared meal. This could be a regular discussion, without the requirement of a decision, allowing a new kind of conversation outside the formalities of UN document-writing sessions or largescale technology conferences.

Summary and an Idea for the Summit of the Future 2024

There are two gaps in the progress of human thinking that need to come hand-in-hand with the technical progress that space technologies can bring. Likely biased by the proximity that comes with being based at the same institution, the author connects these most clearly to two statements often made by Martin Rees.

The first is that terraforming Mars or anywhere else is going to be harder than repairing Earth. The complexities of systems on Earth have taught humanity that progress is not likely just about exploiting resources and engineering our environment; it is about understanding interventions within a system, which can have unpredictable and cascading effects.

The second statement is that technological progress must be "guided by values that science alone cannot provide" (Rees, 2018, p. 227). This is the need to replace technocratic policy and decision making with other systems.

This article argues that each of these points is the starting point for new kinds of technology policy. The need to respond to complexity requires respecting insight of different types at different scales: localised knowledge alongside global scientific

data and models. The importance of being guided by human values requires respect for the variety of those values.

By taking these extra steps, progress in space technology policy will need to come from multiscalar inputs, not all of which can be pressed into standardised global know-how, and admit that decision-making is affective rather than technocratic. What also comes with this is the need to build venues of discussion that allow for different world views, but also that allow those views to change in the way that this planet has taught us that change is constant.

There are some suggestions for how to do this above, but this is a specific, future opportunity that provides a focus for future work.

In September 2024, the UN will host the Summit of the Future, with the tagline 'multilateral solutions for a better tomorrow'. The Secretary General of the UN announced this with the goal to: "forge a new global consensus on what our future should look like, and how we can secure it… a more inclusive and networked multilateralism, to navigate this complex landscape and deliver effective solutions" (United Nation News, 2021, n.p.). his is being touted as the rebirth of strong forms of multilateralism, and much attention is going into how a range of interests are substantively represented in the development of the event and not just as attendees at the eventual forums.

One of the eight streams during the 2 days of talks will be a dialogue on multistakeholder governance of outer space. Much of the agenda for this will be set in advance. On 26 January, the co-facilitators of the UN Summit of the Future, Germany and Namibia published the zero draft of the Pact of the Future to be finalised at the Summit on 22–23 September. It signals that part of that agenda will cover: "an urgent need to increase international cooperation to harness the potential of space as a major driver of the Sustainable Development Goals" (UN, 2024, p. 20).

There is an opportunity to use technology like the Shared_Studio portal to develop a programme of ritual engagement during the six months before the event. This would be an experiment in creating stories and artefacts associated with those stories made inside the shared space. Technology experts, policy makers and communities would come together to sketch out imagined futures focused on what they would want in a new sustainable development agenda for space. One sub or specific aim could be to set an agenda for a future UNOOSA and UNDRR collaboration in the vein of the one suggested earlier: Finding smart ways to combine the universal data satellite technology provides and local understanding about what is needed to reduce the risk from large-scale disaster. By then finding points of consensus between the varied narratives likely to be found in the 70 nations that now have space-faring capabilities, more inclusive policy could be built through story-making without collapsing into a single, familiar story or vision.

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Part IV
Epilogue

Chapter 16
The Knowledge and Space Symposia: Lessons for the Future of Conferencing

Johannes Glückler, Linda Wagner, and Klara Jungkunz

> Because creative milieus cannot be planned and governed, such an endeavor is always risky. It remains to be seen whether and under which conditions the spark will jump over the disciplinary gaps, but the experiment is worth a try, and the Villa Bosch offers everything needed for it. We are very grateful to the Klaus Tschira Foundation for providing the 'venture capital' for this enterprise (Meusburger, 2008, p. 2–3)

The *Knowledge and Space* series officially began in spring 2005, with the first symposium "Clashes of Knowledge" held in April 2006. Geographers at the Institute of Geography at Heidelberg University brought together leading thinkers from all over the world and from disciplines as diverse as physics, religious studies, psychology, sociology, theology, biology, history, philosophy and geography to discuss fundamental questions of knowledge. What is knowledge? What is scientific knowledge? How does it differ from religious knowledge and where are its limits? How is it that theories are considered unconventional, impossible or even unscientific and are ultimately excluded from science? What happens when scientific paradigms shift?

The symposium was organized exclusively around the experts to facilitate an authentic, intensive and unrestricted discussion and exchange of ideas, irrespective of public opinion or the applause of a conference audience. Yet, in order to share the fruits of open dialogue in a closed setting, the first volume of what became a long-term book series was published in 2008 by Springer Publisher. Although the project was initially planned to include ten symposia, each focusing on different aspects of the nexus between knowledge and geography, it continued to expand and ultimately ran for over two decades, with the 20th volume on "Placing the Future" concluding the series in 2025.

In this epilogue, we take the opportunity to assess the merits of the *Knowledge and Space* project in the light of a controversial scholarly debate regarding the

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benefits of academic conferences. After revisiting the origins of the project, we briefly review the scholarly debate about the costs and benefits of conferencing. Subsequently, we appraise the specific event design of *Knowledge and Space* in the light of this debate and elaborate on the methodology used to devise a survey questionnaire, which was distributed to nearly 300 scholars who participated in the 20 symposia held since 2006. Finally, we analyze the responses from our participants to evaluate the merits of this long-term project. We also reflect on their feedback to assess the impact that participants attribute to *Knowledge and Space* in fostering a growing awareness of the role of space in the creation, use, and reproduction of knowledge, as well as in building interdisciplinary scholarly connections across geography, the humanities and the social sciences.

The Serendipity of Place: When Science Meets Philanthropy

The backstory of the *Knowledge and Space* project is one that Johannes Glückler pieced together through personal conversations and shared memories with Peter Meusburger during their time co-organizing the *Knowledge and Space* symposia. The origins of this story trace back to late 1990s. At that time, Peter Meusburger, professor for economic and social geography at Heidelberg University (1982–2008), met Klaus Tschira, one of the five founders of SAP SE, which is among the world's largest software companies. In 1995, Klaus Tschira had established one of Europe's largest charitable foundations using his private funds. The Klaus Tschira Foundation (KTS), headquartered in the villa of former Nobel Prize-winning chemist Carl Bosch in Heidelberg, is dedicated to promoting the natural sciences, mathematics, and computer science.

The personal encounter between Peter and Mr. Tschira fell into the first years of the establishment of the foundation. It was one of those serendipitous occasions that are facilitated in particular places to which Peter later referred to as a "milieu of creativity" (Meusburger, 2009): a localized context characterized by dense communication and inclusive networks that enable actors across different sectors of society to build and "rewire" (Panitz & Glückler, 2017) the relational infrastructure of cross-sectoral relationships (Storper, 2018). Such environments ultimately create new opportunities for commercial and institutional entrepreneurship. During their conversation, Peter took the opportunity to chat about the state of academia in Germany and the need for junior researchers to connect with the international community in their respective fields. Peter acknowledged that while public funding for strong research proposals was readily available in Germany, there was a scarcity of resources for specific initiatives aimed at supporting young scientists in their academic development and fostering their ability to engage with the global academic community. Recognizing the value in addressing this gap in academic professionalization, Klaus Tschira agreed to fund the so-called *Hettner-Lectures* (1997–2006). These lectures and seminars, led by international scholars in geography, had attracted

a total of 328 students and young scholars from 60 universities across 17 countries (Meusburger, 2007).

After the *Hettner Lectures* had made Heidelberg a lighthouse of German geography, Peter identified just another opportunity to further the role of geography in the social sciences. Although scholars across the social sciences had become aware of the "spatial disparities of knowledge" and of the importance of "spatial context for the generation, diffusion, and application of knowledge", Peter recognized great potential in having other disciplines engage with the geography of knowledge (Meusburger, 2008). Again, he approached Klaus Tschira to seek funding for a top-notch symposia series in Heidelberg that would convene leading scholars from multiple disciplines and from around the world to explore a wide range of issues at the intersection of knowledge and space. Initially, Klaus Tschira approved funding for ten symposia. In 2008, upon Peter's retirement from an outstanding career, he invited Johannes Glückler, who had been appointed as his successor to the chair of economic and social geography, to join and gradually take over the series. Together, they applied to Klaus Tschira Foundation for an extension of the series. Johannes was honored to assume leadership of the series, particularly after the passing of Klaus Tschira (Glückler, 2015) and Peter within a span of just two years (Gebhardt & Glückler, 2018).

Since their first personal encounter, Peter Meusburger and Klaus Tschira established an exemplary partnership between philanthropy and academia, grounded in their shared commitment to promoting knowledge and discovery, fostering international and interdisciplinary understanding, and empowering the next generation of scholars. Their collaboration has been a tremendous boon for hundreds of young geographers and has significantly advanced the academic field of geography since the late 1990s. For almost three decades, Klaus Tschira and his foundation generously supported students and young scientists at Heidelberg University (Glückler, 2015).

Since the beginning of the *Knowledge and Space* series, the objective of the symposia was to sensitize the humanities and the social sciences for the importance of geography in creating and reproducing knowledge. Peter had hoped to build a seedbed for the emergence of a creative milieu around the geography of knowledge, wisely knowing that such "cannot be planned and governed"; he had hoped that "the spark will jump over the disciplinary gaps", and he believed that "the experiment is worth a try" (Meusburger, 2008, p. 2–3). Today, twenty years later, we set out in the remainder of this chapter to seek assessment of these hopes: Has the spark ignited? Was the effort worthwhile? How have two decades of engaging scholarly conversations affected the adoption of spatial concepts in the social sciences and the rewiring of an interdisciplinary network of scholarship?

The Benefits of Academic Conferencing: A Controversy

To address the questions posed, we examine the ongoing and somewhat contentious debate regarding the value of academic conferences. Maskell, Bathelt, and Malmberg (2004) held that international gatherings such as conventions can serve as "temporary hubs that stimulate processes of knowledge creation and dissemination" (2004, p. 21). However, scholars are divided on the questions if this applies to academic events as well: some regard academic conferences as essential for professional development, while others question whether the substantial investments of time and money are justified. Proponents of academic conferencing highlight three interrelated benefits.

Knowledge acquisition. Conferences are often viewed as vital arenas for the sharing, exchange, and generation of knowledge (Donlon, 2021; Hatcher, Aalsburg Wiessner, Storberg-Walker, & Chapmann, 2006; Hauss, 2021; Jacobs & McFarlane, 2005; Levy et al., 2016; McCarthy & Boyd, 2005; McCarthy, McDonald, Soroczak, Nguyen, & Rashid, 2004; Ostrowicka & Okońska, 2019; Parncutt, Lindborg, Meyer-Kahlen, & Timmers, 2021; Sousa & Clark, 2017; Verbeke, 2015; Wiessner, Hatcher, Chapman, & Storberg-Walker, 2008). Donlon (2021) describes them as "embodied sites of knowledge production," (Donlon, 2021, p. 367) while Jacobs and McFarlane (2005) characterize conferences as "managed occasions for community learning" (2005, p. 317) fostering both knowledge sharing and knowledge creation. Parncutt et al. (2021) emphasize that conferences reveal new insights across both social and natural sciences, serving as a "marketplace of ideas" (Hansen & Pedersen, 2018). Additionally, academic conferences provide a platform for staying informed about the latest developments within a discipline (Sousa & Clark, 2017).

Networking. Another frequently cited advantage of academic conferences is the opportunity to establish connections with fellow researchers (Donlon, 2021; Hauss, 2021; Jacobs & McFarlane, 2005; Levy et al., 2016; McCarthy et al., 2004; Roggema, 2015; Sousa & Clark, 2017; Tomaszewski & MacDonald, 2009; Wang et al., 2017; Wiessner et al., 2008). Networking not only facilitates knowledge exchange (Levy et al., 2016) but also fosters long-term professional relationships and collaborations (Sousa & Clark, 2017).

Career advancement. Attending academic conferences is also considered a crucial step for career development, particularly for early-career researchers (Donlon, 2021; Hauss, 2021; Jacobs & McFarlane, 2005; Ostrowicka & Okońska, 2019; Tomaszewski & MacDonald, 2009). These events enable participants to establish their academic identities (Ostrowicka & Okońska, 2019), gain valuable professional experience, increase visibility within the academic community, and build confidence (Donlon, 2021). Furthermore, conferences offer a platform for peer validation, which is essential for professional growth (Donlon, 2021; Tomaszewski & MacDonald, 2009).

Despite the recognized benefits of academic conferences, they are not without criticism. Several scholars question the value of these benefits, particularly in light of the substantial costs involved (Hauss, 2021; Huerta Garza, 2022; Kirchherr &

Biswas, 2017; Teixeira da Silva, Sorooshian, & Al-Khatib, 2017). Wiessner et al. (2008) note that professional conferencing is a multi-billion dollar global industry, with significant expenses for presenting at prestigious conferences, such as the annual conferences of the American Association of Geographers or of the Royal Geographical Society. This financial burden can be prohibitive, particularly for early-career researchers (Kirchherr & Biswas, 2017). For many, the experience does not justify the cost. Roggema poignantly asks: "Have you ever found yourself yawning in the back of the room during the sixth academic presentation in the fourth parallel session on the third day of the conference, which, when you initially registered, seemed so exciting?" (Roggema, 2015, p. 63). He argues that the expertise available at such venues is often "underused" (Roggema, 2015) and scarcely accessible to participants. Similarly, Yu and Zhou (2015) contend that the "expected value does not match the real value" (p. 219), and Castronova (2013) suggests that the most significant interactions at academic conferences occur outside the formal sessions. While the networking opportunities provided by conferences are generally acknowledged, the purported knowledge benefits are more contested. Critics argue that conferences are unjustly celebrated as sites for knowledge production (Donlon, 2021) and are, in reality, poorly suited for meaningful knowledge transfer and learning. While some scholars extol the manifold benefits of conferences (Verbeke, 2015) and offer guidance on maximizing conference participation (Sousa & Clark, 2017), others vehemently oppose these venues, as reflected in articles such as "Down with the Dullness" (Castronova, 2013) and lengthy complaints about the tedium of such events (Roggema, 2015).

There is, however, consensus on one point: the topic of knowledge transfer at academic conferences is under-researched (Blumen & Bar-Gal, 2006; Hauss, 2021; Jacobs & McFarlane, 2005; Zhang, Jie & Li, 2022) and, as Hauss (2021) puts it: "There is … no shared understanding of how to measure the impact of academic conferences" (p. 1). It is striking that a search for literature on the subject rarely yields results from renowned social science journals. Instead, the discussion appears scattered across multiple disciplines and is largely concentrated in more technically focused journals (Teixeira da Silva et al., 2017; Jacobs & McFarlane, 2005; Levy et al., 2016; McCarthy & Boyd, 2005; McCarthy et al., 2004).

Verbeke (2015) and Parncutt et al. (2021) have explored what academic events should entail to promote learning, though their recommendations are based more on personal experience than on systematic empirical research. Their suggestions can be summarized as follows: First, expert presentations should offer substantial professional insights and showcase current research. Second, ample time and space should be allocated for in-depth discussions among researchers on the focal topics, including both large plenary discussions and smaller, private ones. Third, parallel sessions should be avoided. Fourth, organizers should facilitate informal exchanges among participants, in addition to the formal sessions. Informal interactions, such as those occurring during dinners, are considered crucial for genuine learning among researchers: "stimulating conversations between participants turns out to be the key aspect" (Verbeke, 2015, p. 100). It is not particularly surprising that some scholars view large conferences as inadequate for fostering effective learning environments.

To accommodate numerous presentations, multiple concurrent sessions are often scheduled, leading to truncated or entirely omitted post-talk discussions. Informal activities are typically left to individual initiative, resulting in participants often socializing with familiar colleagues. Verbeke's (2015) and Parncutt et al.'s (2021) recommendations suggest that the larger the conference, the smaller the knowledge benefits.

Designing *Knowledge and Space*

As a researcher familiar with these challenges, Peter Meusburger aimed to devise a meeting format that would facilitate unrestricted and intensive, meaningful exchange among researchers of various disciplines, and enhance their understanding of the role of geography in the creation and reproduction of knowledge. The symposia series threw spotlight on topics "relevant for all disciplines in the humanities, social sciences and economics focusing on knowledge" (Meusburger, Welker, & Wunder, 2008, p. ii). These symposia were typically held every year for a duration of four days (Knowledge and Space, 2023). The Klaus Tschira Foundation covered all expenses, including international travel and the sojourn in Heidelberg. The symposia were designed according to the following criteria:

World-class speakers. Each symposium was dedicated to a particular topic at the nexus of knowledge and space. The target group of speakers were expert scientists, leaders in their fields of research with international reputation, who already had a track record of influential publications. Together with Peter and Johannes, the *Knowledge and Space* team usually spent many months in advance scouting potential candidates for the forum. This involved attending conferences, researching the internet, reviewing candidates' work, and watching online content and previous speeches. Most participants were already, or soon became, leading scholars in their respective fields.

Small and diverse group composition. Each group was maintained at a scale that facilitated immediate dialogue and individual contributions, avoiding long question lists during discussions. As a result, group sizes varied narrowly between 14 and 20 participants over the years. In terms of composition, the goal was to ensure diversity by inviting "scholars from various disciplines, schools of thought and cultures" (Meusburger et al., 2008, p. ii). First, scholars were invited from *distinct disciplines* of the humanities, the social sciences, and even from the natural sciences, with the aim of preventing any single discipline from dominating the group. Second, scholars were invited from *different geographies*, extending beyond the European and Anglo-Saxon academic systems. Despite these efforts, achieving this objective proved challenging because research profiles and track records from European and Anglo-Saxon institutions are more readily accessible in global data repositories, such as The Web of Knowledge, Scopus, or Google Scholar. While participants from all continents contributed to the symposia, there remains an undeniable bias towards European and Anglo-Saxon universities in the composition of speakers. Third, and

most importantly, the organizers made sure that speakers were unlikely to know each other, fostering a sense of curiosity and the necessity to engage with a largely unfamiliar group of peer researchers over the course of almost a week.

Closed shop for open dialogue. To facilitate unrestricted and authentic exchanges of ideas, the organizers decided to exclude an audience. This approach ensured that speakers did not feel the need to impress a large crowd but could instead engage deeply with a small group of experts. Moreover, it allowed speakers to attentively listen to their peers and engage in meaningful, open discussions. Excluding an audience also helped to prevent strategic rhetoric, such as arguments designed to appeal to or impress an audience (c.f. argumentum ad auditores; Schopenhauer, 2014/1864), and instead encouraged discourse aimed at convincing fellow experts. Occasionally, a small number of students and colleagues were admitted as part of the audience, ensuring that the core environment of free expression remained intact. The symposia were held at the well-equipped and catered Studio Villa Bosch, located on top of the river valley above the old city of Heidelberg. Each scholar presented a 30-minute speech, followed by a 30-minute session of in-depth interdisciplinary discussion.

Conviviality. During the symposia, the researchers were encouraged to engage with each other, both, formally and informally. Several talks were held every day, interspersed with coffee breaks and a communal lunch to foster informal conversations. In the afternoons and evenings, a variety of collective activities were organized, including city tours, walks, excursions to the sites outside the city, and joint dinners. These activities eventually also included spouses and family and were designed to build familiarity among participants and to stimulate both personal and professional exchanges.

To preserve and disseminate the knowledge of scholars from different disciplines and nationalities beyond the singular events, Peter Meusburger initiated the accompanying *Springer Book Series* in 2008. Each participant was given the opportunity to contribute a chapter to the according book. Initially, the series was granted for ten volumes. Upon Peter's retirement, Johannes was invited to join as co-organizer, and the Klaus Tschira Foundation was happy to extend funding to a total of 20 symposia and volumes. In 2015, Johannes fully assumed responsibility for the project and became the series editor. Whereas the early volumes were published under traditional copyright, from volume 9 "Knowledge and Action" (Meusburger, Werlen, & Suarsana, 2017) onward, all subsequent volumes have been published as open access. With the 20th volume, 256 scholars contributed a total of 291 chapters to the book series. The books have garnered global attention, with over 1.6 million accesses and readings to this date. Several volumes have been reviewed in national and international journals, and in 2022, the series was accepted for indexing in Scopus. To date, the books and chapters have accumulated over 1300 citations.

To further enhance the accessibility of the symposia content, we began producing image videos starting with volume 11 "Knowledge and Networks" (Glückler, Lazega, & Hammer, 2017). This was followed by the publication of video recordings of the individual presentations, beginning with symposium 12 "Geographies of the University" (Meusburger, Heffernan, & Suarsana, 2018). All videos are available

on the *Knowledge and Space* YouTube Channel, which has garnered over 33,000 views to date (Knowledge and Space, 2024).

According to the criteria of Verbeke (2015) and Parncutt et al. (2021), the *Knowledge and Space* symposia can be understood as an academic event designed to help researchers get in touch, find inspiration from one another, and, ultimately, enjoy this academic experience. As mentioned before, assessing the quality of academic events in an empirical manner is something that has barely been pursued by researchers. In this context, we take the opportunity to empirically explore the following research questions: First, has the specific design of the symposia series facilitated interdisciplinary exchange? Second, have the symposia helped build an interdisciplinary network of scholarship? And, finally, have the symposia had an impact on in the participants' thinking and works about space and place?

Methodology

Throughout the course of the *Knowledge and Space* symposia, a total of 280 participants had attended the event in the Studio Villa Bosch, 18 of which visited more than once. The 202 male and 78 female researchers came to Heidelberg from 179 universities and research institutes from 28 countries across all continents, yet most frequently from Germany (28%), the United Kingdom (20%), and the United States (17%) (Fig. 16.2). With almost half of all participants, 133 scholars were from English speaking countries (Australia, Canada, Ireland, United Kingdom, and USA). The others predominantly came to Heidelberg from other European countries (133), while 14 came from other non-European countries (Argentina, Brazil, China, Colombia, India, Israel, Japan, and South Africa). Together, all the participants represented more than 50 individual disciplines and fields of expertise, bringing diverse sets of knowledge to the symposia. Combining the disciplinary background of the *Knowledge and Space* participants with their country of origin during the symposia, Figures 16.1 and 16.2 show that most Geographers were from the United Kingdom (25 Geographers of 57 participants total), Germany (16 of 79), Canada (11 of 18) and the United States (10 of 48).

Furthermore, 256 researchers contributed as authors to the *Knowledge and Space* Springer book series. While there is considerable overlap between symposium participants and book contributors, not all participants wrote a chapter on their speech, and some researchers who could not attend the symposia were still invited to contribute chapters.

To assess the research questions, we developed a ten-item questionnaire and utilized LimeSurvey to administer an online survey via email to the 271 attendees of the symposia for whom we had contact information. The survey included a combination of closed and open questions, multiple-choice and single-choice items, and network-generating questions. The questions aimed at exploring the relationships among scholars before and after the *Knowledge and Space* symposia, the impact of the symposia on their research careers, and their experiences with the specific design features of the symposia.

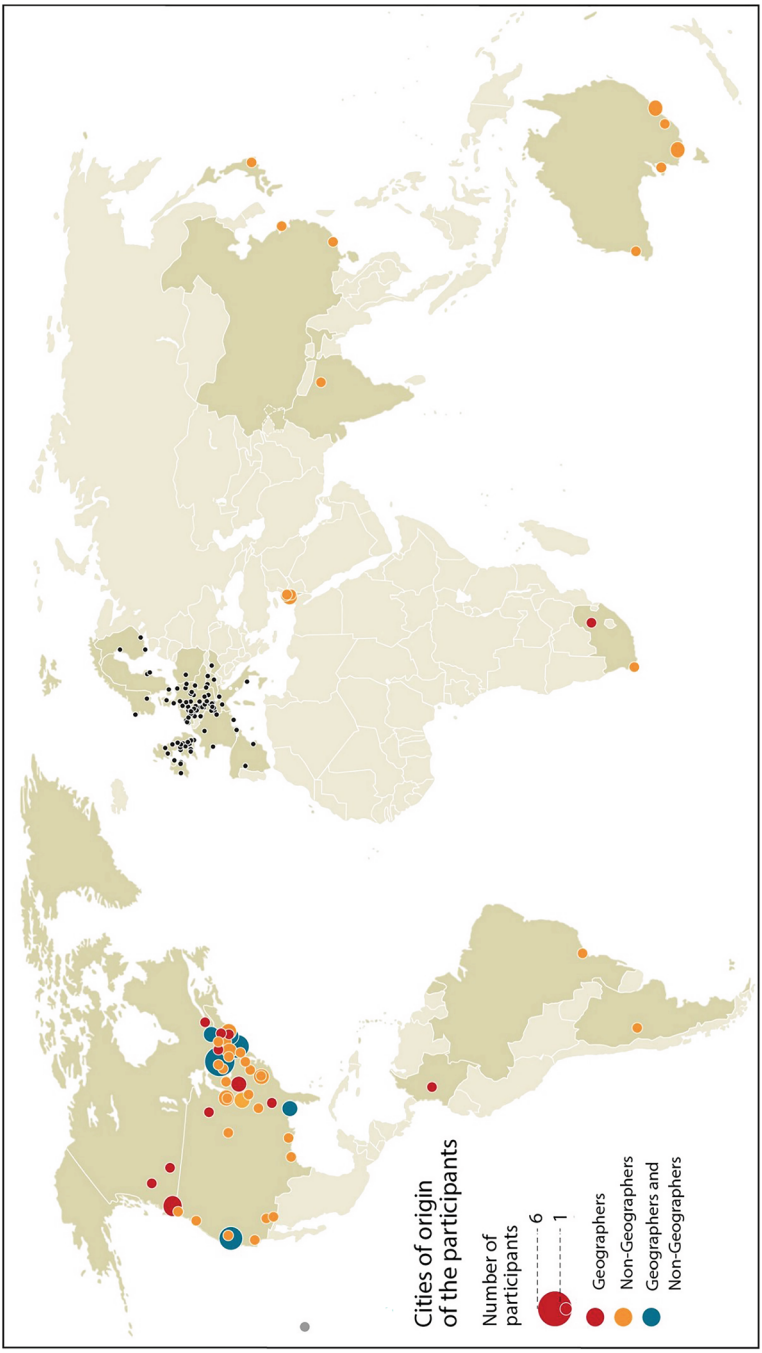

Fig. 16.1 A world map of *Knowledge and Space* participants. Source: Design by authors

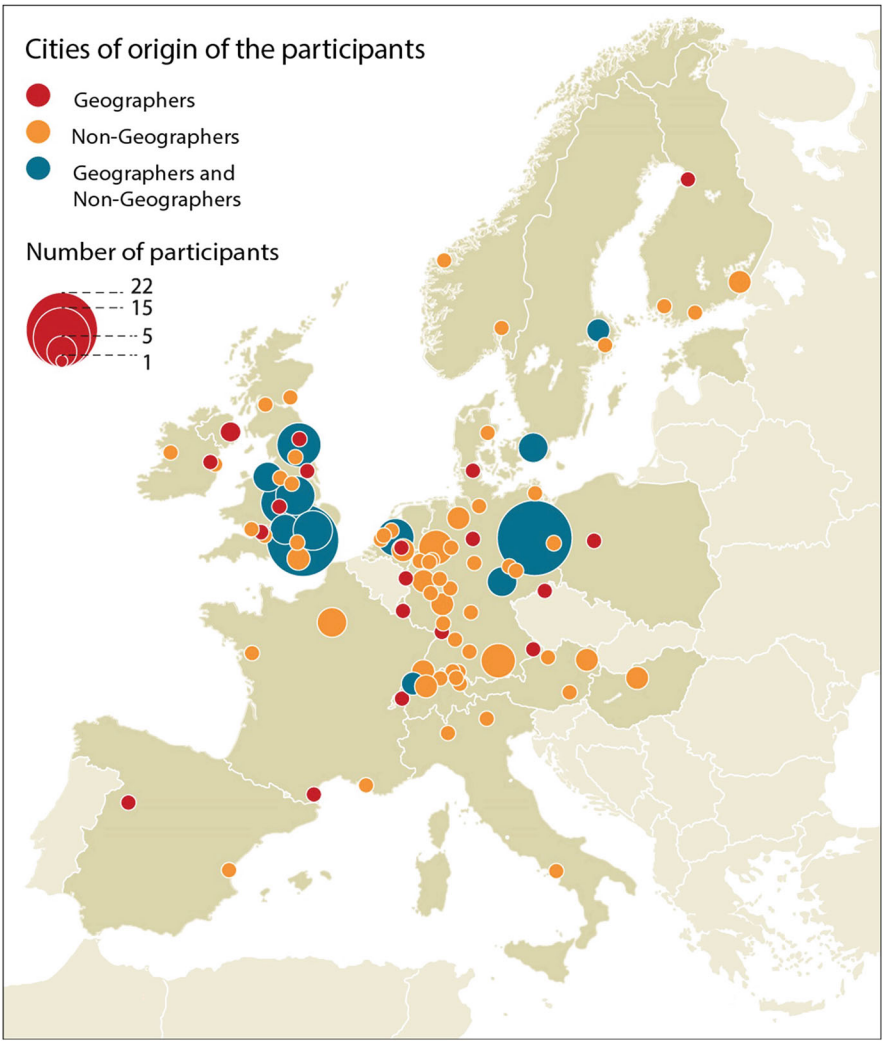

Fig. 16.2 City of origin of the participants coming from Europe. Source: Design by authors

Regarding the network section of the survey, two questions were posed: One asked about the relationships with other participants before the event, and the other inquired about the relationships among participants after the event. It is important to note that researchers were instructed to record only their relationships with scholars from their own symposium, not from the entire event series. The resulting networks represent individuals who either reported a relationship with someone else or were mentioned by others, even if they did not participate in the survey themselves. Those who neither answered the network questions nor were mentioned by others are not included in the network. The survey was conducted from December 2023 to

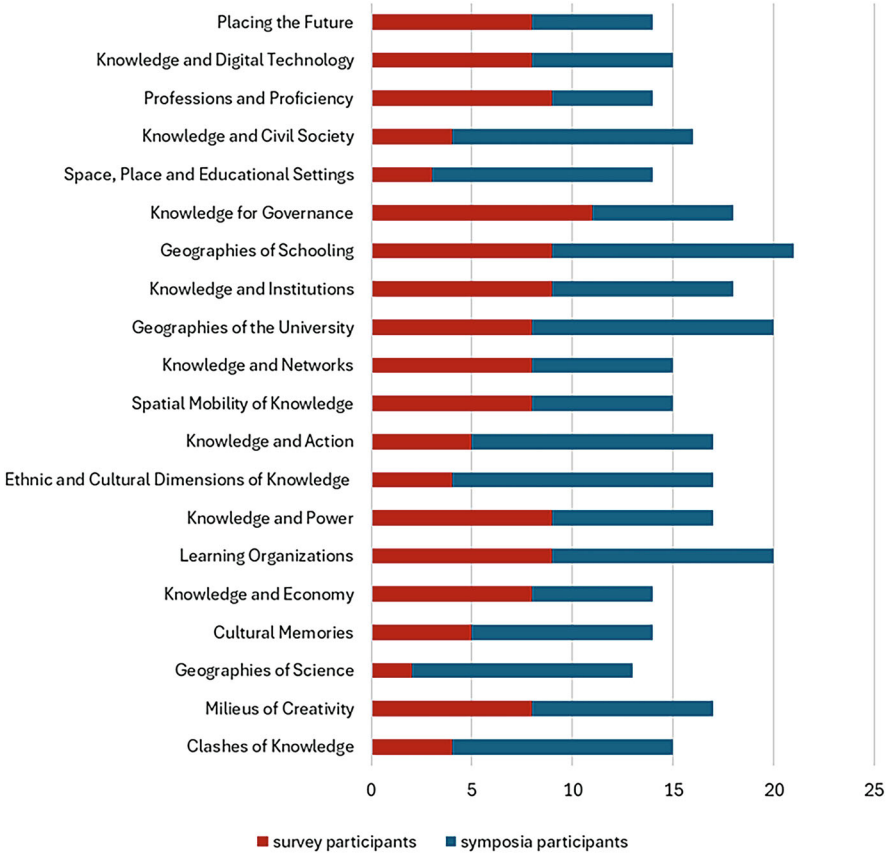

Fig. 16.3 The population of participants and the number of survey respondents by symposia. Source: Design by authors

February 2024, achieving a response rate of 45.5%, with 126 participants (Fig. 16.3), including 13 individuals who had contributed to more than one symposium. We utilized the R programming language and its social network analysis tools to analyze the data and visualize the results (Figs. 16.4 and 16.5).

Networking—Have the Symposia Helped Build Linkages across Disciplines?

One of the primary objectives of the "experiment" of this series was to serve as a seedbed for a creative milieu that facilitates the formation of cross-cutting relationships among interdisciplinary scholarship. In addition, one of the design features of the series format was to invite mutually unacquainted scholars to spur their curiosity

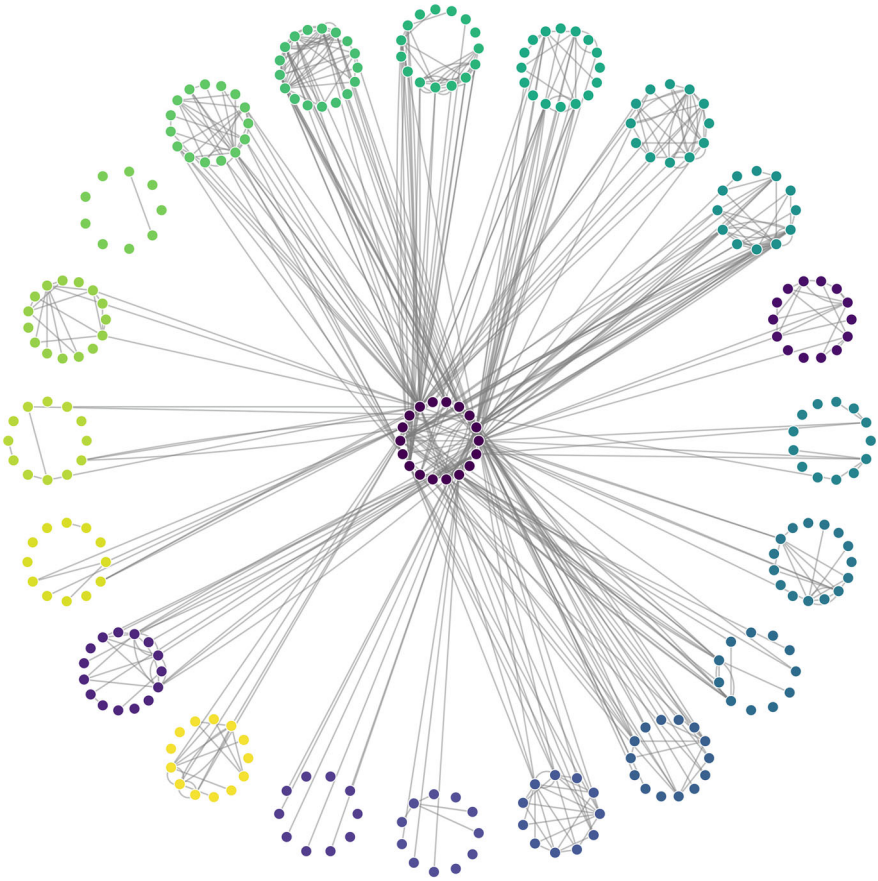

Fig. 16.4 Relations between the participants before the symposia clustered by events. Scholars with multiple attendances are plotted in the center of the network. Source: Design by authors

to discover new people and new ideas. To assess each of these objectives, we take a closer look at the two networks collected through the survey: The one before (network A) and the one after having attended the symposia (network B). Network A displays the pattern of relationships that scholars had among each other prior to the *Knowledge and Space* symposium (Fig. 16.4). It includes responses to the following questions about the quality of relationship[1]:

[1] Because we considered each symposium as a distinct network, and because we received incomplete responses to each network, it is impossible to calculate the percentages of all possible relations for each relation type. Whenever we refer to percentages in the following sections, these refer to the network we constructed from only the responses.

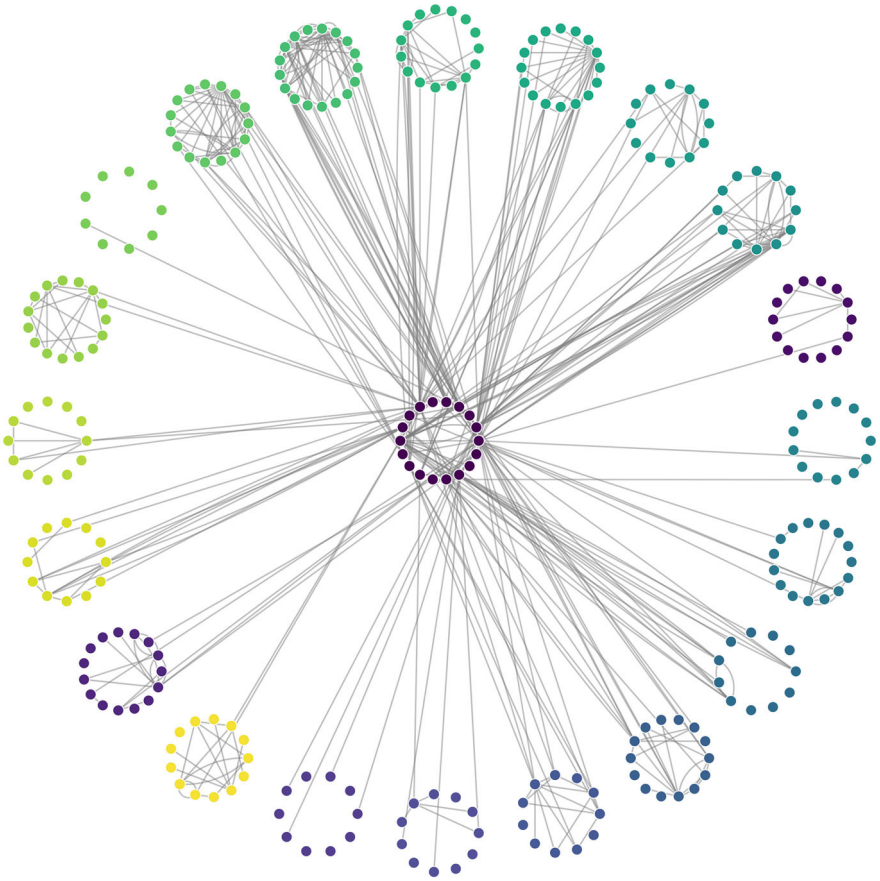

Fig. 16.5 New and intensified relations between the participants created during and after the symposia. Source: Design by authors

- "I have heard of them/their work" (342 relationships)
- "I have met/corresponded with them" (230 relationships)
- "I have worked with them" (169 relationships)

These qualities of pre-existing relationship indicate how much opportunity for novelty the encounters at the symposium offered. Considering the goal of the symposia to spark creativity and new ideas among researchers, low numbers of previous encounters (personal or in the literature) were desirable, especially among the relationship types "I have met/corresponded with them", and "I have worked with them". Of course, we acknowledge that especially within a discipline, highly renowned scholars tended to be at least "heard of" in many cases. In total, the network contains 561 relations between 215 researchers. It is important to note that respondents of the survey were only to report relationships within their own

symposium, technically leading to 20 distinct networks. Due to the organizers—Peter and Johannes, as well as a few repeat participants, however, most of the network is connected.

Ignoring the pre-existing relations, Network B only displays the newly created relationships among participants as well as those relationships that had intensified after having attended the symposia (Fig. 16.5). Questions about the change in relationships from before to after the symposia included the following items:

- "I have studied their work" (253 relationships)
- "I have met them again" (115 relationships)
- "I have worked with them" (145 relationships)

Together, these different types of relationships indicate whether and to what extent connections between scholars were created or strengthened. Because relationships that were already established and unchanged are excluded, Network B illustrates the immediate impact of the symposia on building a scholarly community. It includes 470 connections among 209 researchers and is fully connected, with no isolated clusters. Given that Peter Meusburger and Johannes Glückler were the organizers of the *Knowledge and Space* symposia, it is unsurprising that they are the individuals most frequently mentioned by respondents both before and after the symposia. In Network A, Meusburger and Glückler had a total of 68 incoming connections. This number increased to 101 incoming connections in Network B, indicating that engagement with both researchers grew following the symposia. Additionally, the fact that Network A is more centralized (0.233) compared to Network B (0.174) suggests that new relationships were formed among less central participants, and that the temporary convention in Heidelberg facilitated the development of more diverse new connections.

Apart from visualizing the scholarly networks, a closer comparison sheds light on the magnitude of new or more intensified relations that the symposia stimulated (Table 16.1). Regarding the research objectives, two findings stand out: First, and in line with the objective of the symposia, 61% of all possible pair-wise relationships among participants were reported to be non-existent before the event. Scholars had neither known each other nor had they read about the work or even heard of their peers attending the same symposium. Such mutual disconnection reflects the intended composition of the expert group and serves a prerequisite for creating opportunities to create new linkages across disciplines. It is not surprising that half

Table 16.1 How effective was *Knowledge and Space* in facilitating new scholarly relations?[a]

Relationship before the event	Relationship after the event	
	No change	Change
No relationship	49.77%	11.11%
Pre-existing relationship	16.89%	22.22%

Note. Source: Design by authors

[a]The percentages refer to the actual realized number of 1539 linkages. The total number of possible relations, if all survey participants would have answered all network questions, would be 2164.

of all possible relationships continued to remain disconnected even after the symposium.

Second, it is noteworthy that in one-third of all possible pairwise relationships, scholars reported a deepening of their relationships with other participants, reflecting the positive impact of the symposia on building new and more intensified work relations. A proportion of 11% of previously disconnected ties emerged as entirely new and original. These involved studying the work of other participants (77%), meeting them again (4%), or initiating collaborative projects (19%). Additionally, 22% of those relationships that had already existed before the symposia, did further intensify after attending the symposia. This included more closely studying their work (35%), meeting them again (32%), or engaging in joint research (33%). The open-ended responses in the questionnaire provide further insight into how these relationships developed. Scholars noted that they continued discussions with other participants, received invitations to present their work, and were inspired to collaborate on publications, projects, and organized conferences.

Moreover, it is worth examining the inter-disciplinary relationships that emerged. Although many researchers reported working in interdisciplinary fields, we chose to aggregate affiliations into broad disciplinary groups. A blockmodel analysis, which compares relationships between groups of actors, reveals that scholars from all disciplines most frequently engaged with researchers from Geography. Often, these interactions were as frequent or even more frequent than those with colleagues from their own disciplines. In total, there were 97 incoming relations from other disciplines to Geographers, predominantly from Anthropology and Social Sciences (16), Business, Management and Organization (14), Psychology (10), Educational Science (9), and Political Science (6). Given the large number of Geographers attending the symposia, it is not surprising that Geography is the discipline with the highest number of incoming relationships.

Apart from Geography, researchers from all disciplines primarily engaged with scholars from their own fields. Notable interactions were observed among Geographers (157), Business, Management and Organization (13), Social Sciences (13), and History (4). In terms of incoming relationships, Geography (254) and Social Sciences (49), and the discipline of Business, Management and Organization (32) received the most incoming connections. These connections were mainly from within their own field (13), from Geographers (7), and from Psychologists (5). In total, there are 131 relations among scholars outside the geographic discipline. Geographers themselves built 85 outgoing relations to scholars from other disciplines, primarily with scholars from Social Sciences (18), Economics (16), and History (11). In conclusion, the 470 *new* or *intensified* relationships identified in Network B provide compelling evidence of the positive network effects of the *Knowledge and Space* symposia on participants. The symposia notably facilitated interdisciplinary exchanges, with significant engagement between Geographers and Social Scientists.

Geography—Have the Symposia Spread Understandings of Space into Other Fields?

One of the primary objectives of *Knowledge and Space* was to highlight the significance of geographical context and spatial dimensions in the creation and reproduction of knowledge. The symposia were designed to foster an understanding of the critical role of space and place among disciplines beyond Geography. We were therefore interested in how the new and intensified connections influenced the participants and their work. To assess this impact, we asked participants how a reader might recognize the influence of their participation in a *Knowledge and Space* symposium on their subsequent work. The responses were strikingly positive. Only 16% of participants reported that a reader would not recognize any influence of *Knowledge and Space* on their work. Conversely, 38% indicated that there might have been an implicit influence that they could not precisely identify, while 45%—almost half of all participants—reported with certainty that *Knowledge and Space* had led them to incorporate new literature, ideas, and concepts into their publications. This pattern of responses was consistent among both Geographers and non-Geographers.

As a consequence of attending the symposia, about 70% of non-geographers reported to have drawn on geographical theories and concepts and incorporated spatial dimensions into their research. For example, one Anthropologist highlighted how *Knowledge and Space* enabled them "to elaborate the idea of how the imagination of space extends beyond considering it as merely an inert spatial property." Other scholars noted a shift in their understanding of geography and geographic space, distinguishing between national and geographical contexts, and recognizing that space encompasses not only physical dimensions but also various social dimensions. An architect further elaborates:

> What I found useful in attending the conference and for writing my own chapter was to understand the differences in how geographers see and understand space, and how those terms are discussed in my own discipline. I was fascinated to learn that human geographers have moved away from discussing physical space as an influencing factor and have moved to the concept of "social space". I wasn't aware of those nuances before the symposium and have learnt a lot by participating.

The introduction to new dimensions of space allowed participants to add depth and specificity to their analyses. This was reported consistently by both a Social Scientist and a Psychologist. In other instances, *Knowledge and Space* helped scholars understand the role of space in their research, revealing that their work had significant geographical aspects. This reflects the inherent interdisciplinarity of the geographic discipline, as noted independently by an Educational Scientist and an Architect. Interestingly, the majority of Geographers (85%) who attended the symposia also indicated that *Knowledge and Space* introduced them to new theories and concepts within Geography. They elaborated that *Knowledge and Space* enhanced their understanding the role of space in their research. For instance, one Geographer mentioned that "the spatial dimension has always been central to [their] research.

However, [their] understanding of space has become more complex thanks to the manifold discussions at the symposia and the *Knowledge and Space* book chapters." Another Geographer noted that *Knowledge and Space* helped them realize "how Geography extends well beyond its academic disciplinary home into other fields."

Perception—How Did Participants Experience the Symposia?

A final objective of the survey was to evaluate the participants'experiences of the symposia, assess the factors influencing their learning, and understand their takeaways from the events. Inspired by Peter's assertion that "the experiment is worth a try" (Meusburger, 2008, p. 2), we aimed at scrutinizing individual experiences and perceptions. To achieve this, we employed open-ended questions, allowing respondents to provide critical feedback, offer praise, and highlight aspects they deemed relevant.

First, when asked to assess the event design, all participants acknowledged the value of the discussion-without-audience format and the comprehensive social program. However, they particularly valued the 30-minute presentation followed by a 30-minute discussion ratio. Participants highly appreciated the extended question periods and "intensive discussions that were extremely helpful to broaden [the] own perspective and knowledge and awareness of the field", as one geographer commented. Others highlighted the "time and space dedicated to high level brainstorming" in the "current academic context, which is rushed, pressuring, and not conducive of deep theoretical reflections", as an economist noted. And a sociologist emphasized that *Knowledge and Space* offered "a place and moment out of daily contingencies where you are available for pure and timeless intellectual discussions and exchanges". Table 16.2 illustrates a more comprehensive collection of quotes from the open questions regarding the conference design specificities.

Second, regarding the diversity within each cohort, academic literature emphasizes that intergenerational exchange, international connections, and interdisciplinary discussions contribute to broadening individual understanding and perspectives on their own topics (Kidron & Kali, 2015). Our survey findings reflect this, showing that participants found the disciplinary diversity to be the most beneficial aspect of their learning experience. This interdisciplinary character of *Knowledge and Space* was also evident in the network analysis. Researchers highlighted this benefit, with an Organization Scholar noting how the event's interdisciplinary nature contributed to the development of their own thinking. Similarly, a Business Scholar, a Geographer, and a Linguist emphasized that the combination of academics with diverse scholarly backgrounds, from various fields and countries, provided them with valuable insights. One Geographer valued *Knowledge and Space* for "the quality of the participants and the interdisciplinary nature of the people who were present."

Table 16.2 Credits from the participants on the event design (selected original feedback)

Diversity	Closed shop, open dialogue	Conviviality
"It was a wonderful experience and being exposed to more senior colleagues from various disciplines proved helpful in shaping my own research." (Management Scientist)	"Pleasant atmosphere, thoughtful colleagues willing to share and show vulnerability, and with lots of early career scholars present." (Regional Planner)	"I also happened to spend some time with scholars during lunch, breaks and diners where a sense of collective scientific kinship could emerge." (Management Scientist)
"The depth of discussion was something that I have really missed as academia […] has become more rigidly disciplinary and focused on smaller and smaller topics." (Social Scientist)	"There is something really wonderful about […] the symposia without a non-participating audience, as a protracted conversation among colleagues who do not know one another" (Anthropologist)	"The personal-professional encounters were highly stimulating and there was always enough time for everyone to express their thoughts and for serious discussions." (Cultural Studies)
"It did an excellent job in making anglophone geographers step out of their world. Yes, English was the medium of conversation, but I was exposed to different ideas than I would have been at conferences in the UK, USA etc." (Geographer)	"I appreciated very much being able to listen to everyone's papers and to ask questions in an extended question period. That is stretched over a few days with many opportunities to socialize was a most pleasurable plus." (Geographer)	"Before, I've only been to standard conferences with little time for discussion or relationship building and I really appreciated the time we had to discuss very deeply, the other participants […] and the collegiate atmosphere." (Sociologist)
"I have attended twice, once as a mid-career and once as a later career scholar. Certainly, the early-mid-career was very useful in allowing me to meet with the "well-known" people in the field […] [*continued*] In the second event many years later it was very helpful to meet people outside N. America/Europe. The main benefit therefore is breaking down barriers or opening up silos." (Geographer)	"The type of intensive discussions was extremely helpful to broaden my own perspective and knowledge and awareness of the field." (Geographer) "The events are carried out in a true spirit of enquiry […], where nothing foolish or basic need to be held back for fear of other peoples' judgement." (Geographer)	"The time and space dedicated to high level brainstorming, the top quality facilities and the social event are unique in the current academic context." (Economist) "I think of it as a kind of 'intellectual oasis'. […] I really enjoyed most of it: conferences, long coffee discussions, lunches, dinners and (German) beers in the city." (Geographer)

Note. Source: Design by authors

Finally, many participants referred to the corresponding book series and, a Business scholar, for example, stated that they frequently use the books to help them think beyond the confines of their own discipline. Others, such as an Anthropologist, highlighted that they regularly cited the book chapters, and again others, for example a Political scientist and a Historian, reported joyfully, that their own contributions had already received considerable attention within and across their fields.

Conclusion

Knowledge and Space has been a unique project. Intended to promote interdisciplinary awareness of the critical role of geography in the creation and reproduction of knowledge, and to grow an interdisciplinary network of scholarly exchange and collaboration, a series of twenty symposia has influenced hundreds of researchers from many disciplines and universities around the world. In this concluding epilogue to the project, we have taken the opportunity to assess whether and to what extent these intentions were fulfilled by surveying all of the 280 scholars who participated in the symposia over the last two decades.

Overall, the survey findings confirm a remarkable achievement. First, the design of the symposia according to the three criteria of participant diversity, closed shop for open dialogue, and conviviality, was highly appreciated and proved effective in cultivating an atmosphere for spanning boundaries of thought and cross-fertilizing knowledge among researchers, embracing interdisciplinarity and internationality. Second, the vast majority of the participants confirmed that they benefitted from the events by growing their collegial networks and establishing new collaboration. Compared to the 561 preexisting relations among scholars before their attendance, especially recognizing the 399 relationships between researchers who had already met each other in person or worked with another, the 470 *new* and *intensified* relationships that were created after their attendance provide compelling evidence of the positive effect that the *Knowledge and Space* symposia have had on the interdisciplinary exchanges. Third, an impressive majority of more than 90% of the non-geographers noted that they have learned about geographical ideas and concepts that made a lasting impression on their later work, an advancement that readers would recognize in their publications.

It is important to acknowledge that organizing an academic event according to these principles requires substantial resources. Again, as this project concludes, we owe gratitude to the Klaus Tschira Foundation for the generous support through all these 20 years. Running this project so effectively would have been impossible without the marvelous support by the many colleagues, doctoral and graduate students at the Institute of Geography at Heidelberg University. We are grateful for their help in scouting and assisting the guest speakers, preparing and running the symposia, and doing all the unseen, yet indispensable work associated with the editing of 20 book volumes.

When acknowledging how the symposia embraced disciplinary diversity and how this diversity contributed to the advance of knowledge creation, one participant stated that "it's a shame that the rest of the academic world is so divided and fragmented." In the face of more and larger academic conferences held with ever more sessions in parallel, where discussion times have shrunk to the blink of an eye and are usually only sufficient for "maybe a quick question", *Knowledge and Space* has made a countercultural offering, providing space and time for authentic, extensive and versatile exchange. Peter Meusburger thought the "experiment was worth a try", and our survey has confirmed that it was. We hope that the experiment, now proven, will become a model for the future of academic conferencing.

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