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Chapter 1

Navigating Automated Futures: A Framework for Playing and Learning with Imaginaries, Interactions, and Impact



Abstract: This introductory chapter presents an overview and a synthesis of the chapters in the *The De Gruyter Handbook of Automated Futures*. Divided into sections on Imaginaries, Interactions, and Impact, the handbook presents a research agenda that explores futures, automation, and change from social scientific perspectives. These sections serve as heuristic sites for reframing narratives on automation, investigating human and algorithmic interactions, and exploring engaging ways for the social sciences, humanities, and design to participate in shaping automated futures. The Imaginaries section deconstructs dominant narratives of automated futures, emphasising historical antecedents and ideological tensions. Interactions delve into the complex dynamics between humans and automated systems, highlighting strategies to infuse automation with human dimensions and promote inclusivity. Impact focuses on making automated futures sustainable and ethical, advocating for innovative methodologies and interdisciplinary collaboration. Finally, this chapter offers insights into how the handbook can inspire into envisioning, understanding, and shaping automated futures in a playful and designerly manner. It encourages critical reflection, ethical engagement, and participatory approaches to ensure the development of inclusive, equitable, and sustainable automation futures.

Keywords: automated futures, imaginaries, interaction, impact, participatory approaches, design

1 Introduction

Choosing the appropriate image for the cover of *The De Gruyter Handbook of Automated Futures* proved to be quite the challenge. We needed a cover that summed up the gist of twenty-five carefully picked chapters, all about how the social sciences, humanities, and design can critically examine and play into innovation agendas to participate in shaping socially relevant and ethically sound automated futures. After

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much discussion between us editors, we realised something important: notwithstanding the handbook's emphasis on socio-cultural perspectives regarding automated futures, the *machines* remain pivotal in our discourse—how we conceptualise and envision them, how we engage with them, and what this means for society.

So, to create the book's cover image, we prompted an AI wizard to generate a picture not of any ordinary apparatus but of the famous machine from Professor Balthazar, that quirky old-school cartoon from the 60s in Croatia that continues to spark our imagination with the magic of creativity and technological marvels of its time. Within the walls of the Professor's laboratory, adorned with tubes, meters, and extraordinary shapes painted in vibrant colours, perhaps to distinguish its capabilities from an otherwise dull and grey environment, lies his enormous machine of endless possibilities. It's not just any machine but a seemingly infinite source of hope and ingenuity for the townsfolk, solving their problems with a mix of science, human creativity, and magical touch. The machine, a labyrinth of wonders, operates under a veil of mystery, sometimes even to the Professor, as it seems to extract and distil the inherent brilliance of his eureka moments and transform them into a tangible outcome at the end of each episode: a simple act of collecting a few drops of a potion from the machine brings to life solutions to social and societal problems that blend the boundaries between the magical and the mechanical. Just like that classic show, full of retro charm and futuristic vibes, the handbook cover's imagined gadget is like a guide taking readers on a journey through the maze of automated futures.

Like the chapters in this handbook, the Professor Balthazar show goes beyond being a mere collection of techno-solutionist stories of societal change. It highlights the significance of automation and the transformative power of technology and how they are believed to enhance human productivity and future quality of life. Although the whimsical solutions presented in Balthazar's world may seem far-fetched from today's advanced robotics, AI-infused platforms, and systems for automation, they share a common thread of innovation that aims to enrich human experiences while at the same time showcasing how even the most seemingly magical machine builds on and indeed requires human involvement. Re-embedded into contemporary narratives, experiences, and expectations of automation, this story invites us to rethink where the centre of agency lies with automation—from the omnipotent inventor to the openness, autonomy, and, often, fallibility of the machines. It entices us to consider how imagined and potentially endless possibilities connect to tangible encounters and mutual influences on the living.

The *The De Gruyter Handbook of Automated Futures* embarks on a journey to discover just that, inviting readers to learn and engage with the possible futures that the ostensible automation magic lays out before us. The ambition of this handbook is to challenge the view that technology is at the centre of societal change and human behaviour, as such a belief underestimates the influence of social, cultural, and political factors in shaping technological advancements. Much like our reading of Professor Balthazar's inventive solutions, this book underscores the significance of a human-centred under-

standing of automation to acknowledge the complexity of human agency and the necessity for critical examination of technology's societal impact while at the same time showing how these critical insights can contribute to creating socially relevant and ethically responsible future scenarios. In this introductory chapter, we illustrate how the handbook's chapters provide the foundation for a structured framework guiding human-centred research and design endeavours in conceptualising automated futures. Additionally, we outline how this framework has guided us in organising the handbook's chapters into three principal sections: Imaginaries, Interactions, and Impact.

2 In/Beyond Digital Transformations

This handbook, as part of De Gruyter's *Digital Transformation* series, explores the connection between automated futures and digital transformation. It delves into how these new technologies are imagined and employed and explores their impact on society. When we connect these issues to the broader concept of digital transformation—where digital technology is changing how we live, work, and communicate—it becomes evident that the importance of machines goes beyond just what they do directly.

Digital Transformation discourse often relies on the implementation of technologies such as cloud computing, artificial intelligence, big data analytics, and the Internet of Things to simplify operations, enhance customer experiences, and foster innovation. In addition to such an imagined transformation, automated futures point to a world where machines and automated systems accomplish tasks and processes instead of humans. This involves automating routine tasks, decision-making processes, and creative activities through robotics, AI, and other technological means. However, as the chapters in this volume show, such futures do not remove human practices from the equation but instead complicate the relationship between humans and machines. Automation is always more than what the established narratives invite us to believe. Therefore, it is essential to observe how automation embodies a forward-looking gaze and constant transformation that highlights its link to human capabilities, responsibilities, or the relief it may offer them. While often cast within a technological narrative of possibilities and transformation, the concept of automation is rich in potential interpretations but intrinsically lacks a singular, definitive essence. As such, on a conceptual level, automation can somewhat be regarded as an 'empty signifier' that acts as a vessel for a wide array of human hopes (Berg, 2022a, 2022b). The essence and impact of automation are not predetermined by its technological components. Still, they are instead shaped by the surrounding narratives and societal expectations, positioning automation as a concept defined more by its perceived and anticipated implications than its actual features (Berg, 2022c).

The link between digital transformation and automated futures stems from the fact that digital transformation often precipitates increased automation within organ-

isations and daily life. As companies embark on digital transformation, they embrace technologies that facilitate the automation of diverse tasks and processes, leading to a proliferation of automated services that ease the conduct of daily life. Thus, the digital realm emerges as a catalyst for techno-centric visions of automated futures, with organisations leveraging digital technologies to automate and enhance their operations in pursuit of future efficiency and competitiveness. Furthermore, assuming knowledge of the future lulls us into a false sense of security, leading individuals, often cast as ‘users’, to view automation’s interventions in their lives as an unavoidable destiny over which they have little control. However, despite these apparent direct connections between technological design and its purported ability to improve our lives, the unpredictability of life challenges our expectations of certainty. So, how do we navigate such uncertainty? A first and key step is to observe that futures are, as Sarah Pink argues in this volume, unpredictable and uncertain to such an extent that they simply cannot be automated in the broad sense of the word. Rather, as she suggests, we need to consider automated *features*. This idea involves differentiating between futures of various scopes and forms and engaging in social science research that accounts for such multiple futures. Our handbook proposes a path forward that is grounded in a non-predictive approach to understanding futures (Pink, 2022). By activating different perspectives from a broad range of social sciences, humanities, and design, we engage with the uncertainty of automated futures while envisioning possible futures. This strategy aims to challenge the dominant predictive mindset of our era while promoting collaboration with technology-driven innovation agendas. It stresses the importance of learning with stakeholders of such ongoing change, not just about or for them.

Therefore, this handbook invites social scientists and others involved in the intersections of automation and futures to transcend the conventional roles of prediction or foresight. Instead of merely forecasting the shapes and implications of automated systems, contributors to this volume advocate for a shift towards actively engaging with the processes that shape, create, and communalise futures with and without automation. This introductory chapter ends with presenting the handbook chapters through a framework of critical features for *how* this engagement can play out. It emphasises the role of the social sciences, humanities, and design in automation and challenges the simplistic portrayal of emerging technology as either entirely risky or solely beneficial. Instead, it encourages a perspective from the social sciences, humanities, and design that views automated futures as a platform for human ingenuity, co-design, and collaboration—a realm ripe with potential and opportunities for creating positive change. This involves adopting socially sustainable everyday practices and developing methodologies that allow continuous iteration on these futures alongside those who shape and experience them.

3 A Future-Oriented Social Science Agenda

The future plays a significant role in this handbook, not just as a concept and a way to think about the anticipated potentials of automation but also as an entry point for conducting social science research in a way that resonates with how people lead their lives with and through everyday automation technologies (Pink et al., 2022b). The decision to title our handbook *Automated Futures* was deliberate, intending to highlight the plurality of futures shaped by automation and to demonstrate how, reciprocally, these diverse futures will redefine automation itself. With its inherent complexity, the future has occupied a central place in many of the social sciences, not the least due to a broad interest in the emergence and potentialities of the modern world that necessitates a forward-looking perspective to address the pivotal questions surrounding what a society filled to the brim with technological innovations could or should evolve into. The interest in studying and critically engaging with the future is not a new phenomenon, as evident from the classic works of Bell and Mau (1971) and Toffler (1970). However, in recent times, especially with the emergence of the sociology of expectations (Brown and Michael, 2003; Brown et al., 2000), it has gained popularity again. This renewed interest in future studies could be attributed to technological advancements and growing global insecurity, which Richard Tutton (2023) refers to as involving a potential ‘futurelessness’. While these initiatives represent significant strides in integrating the future into social science research, Adam (2010) contends that they fall short of fully bridging the gap between the futurity of social life and the empirical study grounded in the present and past. Traditionally, social scientific engagement with the future, or with the ‘soft’ or human side of tomorrow, as Toffler (1970) frames it, has primarily been concerned with questions of forecasting and skilled guesswork about the trajectories leading us to what might be found beyond tomorrow’s world. Such an orientation builds on a fundamental methodological—and indeed also theoretical—mismatch between how futures are studied versus how they are lived and enacted.

Elaborating on this observation, Adam (2023) critiques the prevailing scientific and social science methodologies for their tendency to project future scenarios based solely on historical data, thereby neglecting the inherent futurity embedded in social life. She argues that everyday life is inherently projective, involving imagination, anticipation, planning, and action within a temporal horizon encompassing both the past and the future. In contrast to such an account, social scientific approaches generally focus on social phenomena as completed acts or present anticipations, sidelining the dynamic and open-ended nature of social futurity. This discrepancy underscores the need for social sciences to embrace a more holistic temporal perspective, acknowledging the ‘not yet’ of the future as it materialises in the present. This emphasis on the emergent aspects of futures aligns with Mike Michael’s (2017) observation that our discussions around futures oscillate between grand narratives and more nuanced, localised stories. Michael differentiates between ‘Big Futures’, characterised by transfor-

mative societal shifts, and ‘Little Futures’, which represent incremental changes within specific contexts. This distinction is crucial for understanding the multifaceted nature of futures, where large-scale societal transformations and everyday technological advancements coexist and shape each other.

Discussions on automation in the social sciences thus reveal a contrast between the transformative potential of ‘Big Futures’ and the tangible, lived experiences of ‘Little Futures’. While ‘Big Futures’ envision a technologically advanced society dominated by AI and robotics, captivating collective imaginations with visions of profound societal change, ‘Little Futures’, in contrast, highlight immediate tech impacts on individuals, prompting reflection on inclusivity and fairness in future trajectories, questioning if we’re moving towards exclusive or collectively crafted, diverse, and equitable futures. In this way, Michael’s framework encourages us to consider the performativity and inter-relationality of futures, illustrating how they can compete and merge. This approach is invaluable for dissecting the dynamics of future-making, particularly through the lens of automation. By concentrating on groundbreaking and mundane technologies, we gain insights into how everyday objects and practices serve as ‘media’ through which broader societal analyses can be conducted. Such an examination bridges the gap between the visionary and the everyday, revealing how grand narratives about automation manifest in daily life (see, for example, Brodersen et al., 2023; Fors et al., 2022; Lindgren et al., 2023) and how they are constructed discursively to make such emerging technologies meaningful in a human world (Berg, 2022d).

Building on these ideas, we advocate for an approach for the social sciences, humanities, and design to engage in automated futures in this handbook that emphasises the need to bridge the gap between, to use Adam’s terminology, the futurity of social life and empirical methodologies. We believe that by integrating the future as a subject of study and a methodological approach, social sciences can better address the complexities of emerging social forms and their potential trajectories. This does not mean that the future is an object of inquiry that is vague or perhaps even impossible to grasp but rather that the future as it unfolds through events and practices becomes a guiding resource that invites us to play with and learn from it. To be able to do this, it requires acknowledging the agency of individuals and communities in shaping these futures and recognising the iterative nature of technological and societal change (Raats, 2023; Pink, 2022) in a way that resonates with how people lead their lives with and through everyday automation technologies (Pink et al., 2022c). These matters are particularly evident when it comes to relating to emerging automation technologies that partake in shaping the everyday of which they are or will become part. Although such technologies are often presented to us as solutions, previous studies have shown that they are equally enmeshed in the processes and practices through which the problems to which such solutions correspond are crafted on different levels (Fors et al., 2020; Berg, 2022c), and how expectations are experienced in relation to digital design (Lindgren, 2022; Lindgren et al., 2018). Such an approach involves more than distinguishing between Michael’s Big and Little futures but also considering the prob-

ability of these futures occurring. These intriguing dynamics of emerging futures are open invitations to engage in creativity and playfulness that can aid our understanding of futures by stepping outside of the social scientific boundaries and finding ways to assure scientific rigour in adjacent intellectual communities, for instance speculative design. For example, Anthony Dunne and Fiona Raby (2013) make distinctions between probable, plausible, and possible futures as methods for examining how futures can be used to comprehend the present and to envisage preferable futures. By engaging with different levels of likelihood, individuals are encouraged to engage with imaginaries, interactions, and impact as ways to give substance to speculative ‘what if’ questions. As some of the chapters in this handbook demonstrate, combining these kinds of design-oriented activities into social scientific inquiry provides a viable bridge between understanding the present and conceptualising possible futures (see also Pink et al., 2022a).

To conclude, the future plays a significant role in this handbook, not just as a concept and a way to think about the anticipated potentials of automation but also as an entry point for conducting social science research. Our handbook presents various approaches to automated futures, from imaginaries and interactions to their actual or desired societal impact. By doing so, we strive to counter the narratives often depicting technology as driving us towards a predetermined future. Instead, we highlight the significance of how automated technologies intertwine with daily life, shaping and being shaped by social practices, cultural norms, and individual choices. Through this approach, we engage with Michael’s (2017) call to reflect on the practices that produce specific futures and to consider the potential for alternative futures shaped by different practices and visions. The chapters in this book encompass the mutual shaping of everyday practices and automated technologies in the present, the interactive processes through which futures and future narratives are being built, and the sites and strategies through which alternative futures may be produced. This perspective not only enriches our understanding of how futures are enacted but also emphasises the need for active engagement, critical reflection, and inclusive dialogue to ensure that the futures we are moving towards are the ones we genuinely desire.

4 Handbook Sections: Tools for Thought

Being part of the series on Digital Transformation, this handbook ventures to examine and unfold the notion of transformation critically. Too often, digital transformation is understood as both self-evident, given technological potentials and as a simplified causal relationship between these technologies and the social worlds they inhabit.

The sections Imaginaries, Interactions, and Impact encapsulate a research agenda investigating futures, automation, and change from an open-ended perspective. Rather than representing separate thematic areas, Imaginaries, Interactions, and Impact can

be understood as different heuristic sites for *re-framing* technology- and innovation-driven narratives on automation, investigating the human and algorithmic *actions* and agencies involved and implied by automation-based encounters, and following the productive instances provided by the friction of ‘sticky’ social and material realities (Tsing, 2005). Within these sites, we gather approaches that bridge the space between Big and Little future scales, between critical examinations of the uses of automated technologies and the norms and narratives that surround their introduction, and the forward-looking co-creative processes and experimentations that may shape what automated futures *may be*. In this way, the handbook aims to be a tool for scholars and students to imagine, realise and anticipate the possible futures of automation while at the same time learning about and engaging with these futures in responsible and ethical ways. By inviting readers to play with and within automation agendas rather than resisting them, this handbook puts forward an agenda that is critical yet also constructive and engaging. Rather than simply being assigned a conventional evaluating and assessing role of already developed technology, the handbook shows how the social sciences, humanities, and design are relevant and valuable in the design and governance of people- and planet-centred sociotechnical systems and the transition towards them. Thus, our ambition is to contribute to more robust patterns of societal change by letting the handbook demonstrate by example how to engage automation as a technology with social dimensions, thereby widening the scope of development beyond the relatively narrow set of interests currently leading future-making processes of this nature (see also Pink, 2022).

In this way, the handbook adopts a fundamentally pedagogical stance, aiming to foster co-learning and co-creation processes alongside individuals and stakeholders rather than prescriptively dictating to them. This approach seeks to encourage readers to embrace novel and alternative research methodologies. Acknowledging the intricate interplay between technological innovation and social dynamics, particularly the imperative for technologies to accommodate the complexities of real-world contexts for successful implementation, underscores a central tenet of the handbook. Consequently, the pivotal challenge lies in facilitating the integration of diverse perspectives, a pedagogical endeavour that forms the nucleus of our work. To facilitate engagement and utility, the handbook’s structure is designed to cater to various learning objectives, thereby furnishing a comprehensive study framework. Thus, the sections Imaginaries, Interactions, and Impact provide a pedagogical platform for the generation and exploration of alternative narratives surrounding automation and its prospective trajectories. The initial Imaginaries section delves into the manifold conceptualisations of automated futures, elucidating their historical antecedents and the tensions inherent in differing ideological frameworks. Subsequently, the Interaction section assembles contributions centred on strategies to imbue automated futures with a human dimension, probing the ramifications of human involvement in automated processes. Finally, the Impact section encompasses chapters elucidating the pathways towards sustainable and ethically sound future developments, underscoring the imperative of desirable outcomes in automation endeavours.

Focusing on these themes, we offer transversal learnings that aim to provide the reader with both understanding and agency over automated futures beyond the social sciences where the authors of this book are situated. The book is an invitation to play, learn, and work with the questions raised by the automation that it addresses that extend beyond the reading of scholarly accounts. These questions, the approaches, and explorations put forward in the chapters below, are meant to be scaled, adapted, and re-invented into other (future) environments.

4.1 Imaginaries: Conceptualising Automated Futures

This section gathers chapters that explore how different and sometimes competing notions of automated futures can be understood and conceptualised while showing how they are rooted in both historical events and friction between different ways of thinking. Although the chapters in this section explore various aspects of imaginaries of automated futures, they have a common interest in deconstructing dominant narratives to go beyond everyday notions of automation. Several chapters aim to de-mystify, re-imagine, expand, and engage in a transformative critique of automated futures to think differently about them. In the chapters' approach to imaginaries, it soon became apparent that they needed to address two equally complex concepts: automation and the future. Combining these concepts adds several levels of complexity. Even though the chapters explore different topics using equally different methodological approaches, their learning outcomes are quite similar in their ambition to illuminate, uncover, and situate what is often regarded as an obscure history or agenda of automation.

In all, these chapters offer varied perspectives on conceptualisations of automated futures, illuminating historical antecedents and ideological tensions. Chapter 3 dissects imaginaries of data-driven decision-making systems, juxtaposing fictional depictions with critical studies in AI. Chapter 4 contrasts hegemonic automated futures with Latin America's current automation capabilities, revealing economic and ideological underpinnings. Chapters 5 and 6 explore sensory experiences and small-scale automation, challenging totalising narratives and envisioning textured futures. Chapter 7 traces the evolution of domestic automation, analysing representations and values over time. Chapter 8 delves into necrorobotic resurrection, probing ethical and legal implications. Chapter 9 navigates ambiguity in medical imaging automation, highlighting the importance of human judgement. Lastly, Chapter 10 scrutinises public–private interaction in European AI, revealing power imbalances and competing interests shaping automated futures.

Together, these chapters provide a comprehensive examination of automated futures through four overarching themes of Imaginaries:

1. Beginning with analysing the imaginaries surrounding automated futures, Chapters 3, 7, and 8 engage with representations depicted in science fiction, historical contexts, and ethical considerations. Through this exploration, readers gain insights into the values, implications, and potential consequences associated with different

conceptualisations of automated futures, fostering a nuanced understanding of how these futures are perceived and contextualised within societal, cultural, and technological frameworks.

2. Moving to societal and economic perspectives, Chapters 4, 6, and 10 dissect the economic, ideological, and power dynamics shaping narratives and policies concerning automation. By contrasting hegemonic narratives with regional capabilities, examining small-scale automation practices, and scrutinising public–private interactions, these chapters highlight the complexities and disparities inherent in discussions about automated futures. Readers are provided with insights into the intersections of automation with broader societal and economic issues, including labour, work, power dynamics, and public policy-making.
3. Sensory and affective experiences are brought to the forefront in Chapters 5 and 9, which focus on exploring how individuals perceive, experience, and interact with automation in urban public spaces and medical imaging contexts. Through examining sensory, affective, and ethical dimensions, readers develop a deeper understanding of the human-centred aspects of automation and the significance of nuanced judgement in decision-making processes. These chapters underscore the complexities of integrating automation into everyday life and stress the importance of considering human experiences and values in the design and implementation of automated systems.
4. Lastly, Chapters 8, 9, and 10 tackle technological and ethical considerations associated with automated futures. By scrutinising aspects such as medical imaging and public–private interactions, critical questions are raised regarding data protection, social norms, ethical dilemmas, and the societal implications of automation. Readers are encouraged to critically evaluate the ethical, legal, and societal dimensions of automated systems, acknowledging the complexities and uncertainties inherent in decision-making processes.

The chapters in the Imaginaries section collectively offer a multifaceted exploration of automated futures, providing insights into the complexities, challenges, and opportunities associated with their development and implementation across various contexts. Through analysing technological, social, economic, ethical, and sensory dimensions, readers are equipped with a deeper understanding of the intricacies surrounding automated futures and their implications for society.

4.2 Interactions: Infusing Automated Futures with Human Dimensions

This section explores the key players shaping automated futures and how prevailing narratives surrounding automation unfold in real-world contexts. Instead of focusing solely on isolated interactions between entities like ‘human’ and ‘computer’ within a

linear framework, it approaches the complex actors and activities at play when automation intersects with intricate environments. Interactions are viewed as sites of friction, productivity, and disruption, with friction serving as an analytical tool and guiding principle. Authors aim to shift focus away from rigid categorisations towards understanding subjectivities and embodiments in automation. They investigate the redistribution of human agency, the influence of automation on decision-making, and the exploration of algorithmic agency. Recognising the historical and temporal nuances of automation, they caution against conflating future visions with reality and advocate for a broader understanding. Finally, the section assesses the potential of automation by examining the value judgements within observed realities and drawing insights from dystopian and utopian perspectives in design practices.

The chapters in this section underscore strategies to infuse automated futures with a human dimension in different ways. Chapter 11 explores the relationship between human and algorithmic agency, emphasising the need to understand their ecological interplay in predictive analytics. Similarly, Chapter 12 advocates for community-driven interactions in law enforcement, challenging biased automation practices. Meanwhile, Chapter 13 draws insights from electronic music to explore automation's contextual understanding, fostering a nuanced approach to its implementation. Chapters 14 and 17 prioritise human-centred approaches, focusing on healthcare and gig work, respectively, and highlighting emerging strategies to empower individuals and communities in the face of automation. Additionally, Chapter 18 critiques frictionless design philosophies and address socio-ethical concerns in automated decision-making, urging for a rehumanised perspective. Finally, Chapters 19 and 20 look at speculative futures and localisation trajectories, highlighting the need to integrate human values and local contexts into automated systems. Together, these chapters offer diverse strategies to ensure automated futures prioritise human well-being, agency, and inclusivity in their design and implementation.

Ranging from resolutely critical perspectives of analysis to exploratory speculative experimentation to the chapters in this section uncover four overarching themes on interactions, each shedding light on distinct aspects of re-humanising automation:

1. Chapters 12, 16, and 18 explore the ethical and societal dimensions of automation. They conduct a critical examination of its application within law enforcement contexts, emphasising the necessity to scrutinise notions of objectivity while acknowledging subjective biases. These chapters advocate for establishing legislative frameworks to regulate automated decision-making processes, cautioning against an excessive reliance on human oversight mechanisms. Additionally, they scrutinise prevailing design philosophies, notably the concept of frictionlessness, advocating for their reconceptualisation to recognise the indispensable role of friction in safeguarding human agency and promoting ecological stewardship in interactions between humans and technology.
2. Across Chapters 11, 13, and 15, a broad spectrum of contexts is explored to elucidate the multifaceted nature of automation. These chapters engage with its rami-

fications across domains such as predictive analytics, electronic music, and news production, offering nuanced insights into its complexities and broader societal implications. They introduce theoretical frameworks like fetishisation to facilitate a more profound comprehension of automated futures, highlighting the importance of ethnographic inquiries in unravelling the complexities of technology development within diverse contexts.

3. In Chapters 14 and 17, a specific emphasis is placed on inclusive approaches to automation. Here, discussions revolve around its impact on critical domains such as healthcare and gig work, urging readers to consider power dynamics and the role of community-driven initiatives in addressing inherent challenges. These chapters underscore the essential role of work-related communities in bridging communication and material gaps prevalent within platform-mediated employment relationships, advocating for a participatory approach to automation.
4. Lastly, Chapters 19 and 20 embark on speculative explorations of future possibilities engendered by automation. They probe into the potential for automated afterlives and the localisation trajectories of science and technology, reflecting on their implications for death experiences and societal innovation. Through this speculative lens, these chapters underscore the significance of social and collaborative efforts of technological innovation, thereby enhancing our understanding of the potential trajectories of automated technologies in society.

Overall, the chapters in this section demonstrate how we can gain a deeper and more forward-looking understanding of interaction when looking beyond the causal effects of the encounter between separate (human and machine) entities determined by their respective characteristics. Instead, they shift the view from users and personas to communities and wider ecologies, from momentary encounters to complex situated processes and from techno-deterministic apprehensions of automated futures to new possibilities for resistance, creation and becoming.

4.3 Impact: Making Sustainable Automated Futures

This section covers chapters that explain how alternative futures can be made sustainable (or not) or developed in a desirable, ethical, appropriate and, in short, pleasant way. Societal impact involves innovative interventions fostering community engagement, critical inquiry, and ethical decision-making, aiming to address complex challenges. The chapters describe straightforward questions around participatory approaches to making an impact, such as Design Labs, Living Labs, Game Making, Education, Participatory exhibits, etc. Automation is here identified as not only concerned with a technology in itself but can also provide a methodology to work with or a problem space to explore feelings, practices, and ideas. Evidently, automation can also be a framework for raising awareness of wicked problems, ethical dilemmas, or health that move beyond the human.

These chapters highlight diverse strategies fostering engagement, critical thinking, and ethical decision-making across housing, gaming, automation, and urban mobility. By promoting inclusivity and social sustainability, these initiatives reflect a collective effort towards a more inclusive, ethical, and sustainable future, enhancing quality of life, equity, and sustainability.

These chapters not only contribute to academic discourse but also hold significant implications for society. By emphasising participatory development, innovative methodologies, and interdisciplinary collaboration, they offer practical insights into addressing the complex challenges of automation. Chapters 21, 22, and 23 provide tools and strategies to engage with communities, stakeholders, and practitioners, thereby fostering inclusive decision-making processes in the development and deployment of automated technologies. Similarly, Chapters 24, 25, and 26 advocate for sustainable and human-centred approaches to automation, aiming to promote well-being, equity, and resilience in future societies. Ultimately, by bridging theory and practice, these chapters strive to make a tangible impact on society by shaping more inclusive, ethical, and sustainable automated futures.

The impact methodologies presented in the chapters can be synthesised into three themes:

1. The first theme, exemplified in Chapters 21, 22, and 23, revolves around innovative methodologies and approaches to engaging with the challenges and opportunities posed by automation. Chapter 21 emphasises the importance of co-making and prototyping community housing futures, highlighting the significance of design practices that align with local ambitions and promote participatory development. In Chapter 22, collaborative tabletop game-making methodologies are employed to facilitate the purposeful exploration of complex issues inherent in automated futures, providing a safe space for experimentation and knowledge co-creation. Meanwhile, Chapter 23 aims to address the socio-ethical unease surrounding automated decision-making, targeting a wide range of practitioners and stakeholders to equip them with deeper insights into the challenges and potential approaches to navigating the evolving landscape of automation technologies.
2. The second theme, evident in Chapters 24 and 25, focuses on leveraging arts-based and sensory methods to envision more-than-human automated futures and promote sustainable urban mobility solutions. Chapter 24 emphasises using multimodal creative approaches to communicate research findings and stimulate engagement in imagining better-automated futures. It highlights the importance of expanding thinking about health and well-being by establishing connections between human bodies and other living entities. On the other hand, Chapter 25 underscores the significance of participatory human approaches to urban mobility, advocating for sustainable development grounded in everyday experiences, values, and desires. It emphasises the need for interdisciplinary collaborations and community engagement to drive impactful change in future mobilities.

3. The third theme, as depicted in Chapter 26, is oriented toward a people-centred approach to technological development and innovation in the context of automated mobility. Chapter 26 explores the applied value of anthropological research in understanding people's mobility practices and values, emphasising the integration of social science alongside engineering development. It introduces the Real-Life Learning Lab methodology as a means to facilitate stakeholder collaboration and ensure the sustainability of automated mobility solutions. The chapter provides practical recommendations for approaching, planning, and evaluating people-centred development projects to foster sustainable futures.

Overall, these chapters offer a comprehensive exploration of automated futures, spanning innovative methodologies, arts-based approaches, sustainable urban mobility solutions, and people-centred development strategies. They collectively contribute to a nuanced understanding of the challenges and opportunities inherent in shaping the future of automation across diverse contexts and disciplines.

5 Participating in Automated Futures

To conclude, we propose that the themes of Imaginaries, Interactions, and Impact can be deployed as a framework for the social sciences, humanities, and design to facilitate envisioning, understanding, and anticipating potential automated futures. As the chapters demonstrate, there are several ways to put the social sciences, humanities and design into play in the innovation agendas of automated futures. We encourage the readers to take play seriously, and seek out how Imaginaries, Interactions, and Impact can help organise ways to learn together with these concepts in a playful manner with design-oriented techniques. In the realm of play and design, imagination serves as a boundless playground where ideas take flight and creativity flourishes. Through imaginative exploration, individuals transcend the confines of reality. Moreover, play and design often involve an element of transgression—a breaking of rules or norms—that allows participants to challenge conventions and explore new possibilities. This act of transgression can be liberating, providing individuals with the freedom to push boundaries and experiment with alternative ways of being. Both imagination and transgression invite researchers to re-frame and question taken-for-granted ideas of automated futures. Central to play is also performat, where individuals take on roles and identities, adopting different personas to navigate the playful landscape. This performative aspect adds depth to the play, allowing participants to embody various characters and express themselves in novel ways. Finally, creativity is intrinsic to play and design, as individuals use their imaginations to invent new games, stories, and worlds, fostering innovation and self-expression. In research on automated futures, these concepts from the realm of play and design offer valuable

insights. Imagination prompts researchers to envision diverse possibilities beyond conventional paradigms. Likewise, the element of transgression encourages questioning established norms and boundaries in imagining alternative automated futures. Moreover, the performative aspect of play allows researchers to adopt different perspectives and explore varied scenarios, fostering creativity and innovation in envisioning the future of automation.

This playful and designerly approach to participating in automated futures aims at taking a more holistic temporal perspective in the social sciences, acknowledging the ongoing emergence of the future in the present, to avoid the critique that current scientific and social science methods rely too heavily or solely on historical data to predict future scenarios (Adam, 2023). This approach advocates for responsible and ethical engagement with these futures, encouraging readers to actively participate in shaping them. By highlighting the relevance of the social sciences and humanities in designing and governing human- and planet-centred sociotechnical systems, it aims to broaden the scope of future-making processes. It promotes more inclusive and socially conscious patterns of societal change.

We have summed up the following four key features of what the chapters in the handbook bring forward as viable ways for social science to participate in forming automated futures in this playful and designerly way.

Firstly, the contributions in this handbook are concerned with how persistent and dominant narratives around automation play out in different functions. Across the chapters, ideologies around automation are confronted with ethnographically observed realities, experimentally probed emergencies, and ethical, legal, and democratic considerations. These discussions juxtapose futuristic visions with current capabilities, highlighting economic, ideological, and technical factors shaping automated futures. Ethical considerations underscore the complexities and potential consequences of realising these imaginaries in practice. This differentiation is pivotal in grasping the intricate dynamics of futures (Michael, 2017), where profound societal shifts and daily technological progressions intersect and mutually influence one another.

Secondly, a core focus revolves around human agency amidst automation, emphasising the delicate balance between automated systems and human judgement. Engaging in ethical dilemmas, particularly in fields like medical imaging and predictive policing, prompts critical reflection on the implications of automation for societal values, individual autonomy, and justice. Discussions on algorithmic bias and the role of communities in mitigating algorithmic management underscore the importance of ethical considerations in shaping automated futures.

Thirdly, the chapters advocate for participatory and human-centred approaches to envisioning and designing automated futures. They highlight the value of interdisciplinary collaborations, design ethnography, and co-creation methodologies in understanding diverse stakeholder perspectives, fostering inclusivity, and ensuring the equitable and sustainable development of automation technologies. By engaging communities

and incorporating their input into the design process, these chapters emphasise the importance of addressing societal needs and values in shaping automated futures.

Finally, creative and sensory methods are employed to explore and communicate the implications of automation, encouraging critical reflection and dialogue. The chapters on game-making, arts-based approaches, and sensory methods offer innovative ways to engage with complex topics, enabling participants to envision and interrogate diverse futures. By fostering imaginative exploration and multidisciplinary dialogue, these chapters enrich our understanding of the potential impacts and ethical considerations surrounding automation.

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