Futures of Work

A Framework to Understand the Directions of Change

By

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Table of Contents

List of Figures

List of Tables

Preface

In a world where all of us, in one way or another, must work, being by nature as Hannah Arendt notes, *homo laborans*, we seek stability. Continuity, though possibly boring, is the promise of security; it is also more illusory than real. One key characteristic of 21st Century life is fluidity where, as Marx predicted long ago, 'all that is solid melts into air'. The bedrock of necessity remains but the superstructure – what work (or life) looks like – is highly unstable. This 'melting-into-air' is multi-dimensional and accelerating, calling for researchers of work futures to become ever more agile in developing analytic tools for probing complexity, ambiguity and uncertainty.

Futurists have for decades worked (no pun intended) to map the conditions and chart the processes faced by individuals, Organisations and society at large. Work, and its potential futures, has been a key indicator of social process and also the social imaginary in this mapping. Futurists are, I believe, useful folk. They are wayfinders at sea, working across disciplines and epistemological boundaries, seeking to generate meaningful and practical directional tools that don't promise land (stability) but rather a sense of confidence that better futures can be achieved; that future generations and the more-than-human world can be assured of futures that will allow for personal and collective flourishing. Futurists as products of their environments of course are also bound by the temporal, epistemological coordinates that they work with. Yet, as we face the flux and discontinuities this spawns, we are being called to embrace wider, more open and flexible lenses to wayfind our way into futures beyond the horizon of the business as usual world we inhabit.

So we ask: What might work be like in the future? Or to be precise: What might work be like in an optimal future? This question has

often provoked me to speculate, but in something of a vacuum. This book, *Futures of Work: The Frame to Understand the Directions of Change* addresses that vacuum by offering a 'wayfinding' model of sufficient complexity and openness to enable constructive reflection and action. The authors Sirkka Heinonen and Veli Virmajoki have developed a sophisticated and elegant analytic tool which they call The *Dimensions and Model* Framework for the Futures of Work. The book outlines in detail how this tool emerged and how it functions. It also examines the current incoherence in work futures that their model seeks to address. It is a great step forward for all of us who work with the Futures of Work. And, I must say, also more broadly as a tool for practicing futures in any complex context. In fact, I cannot think of a context that is not complex.

You will find in these pages a pragmatic vision for unpacking work futures that is flexible and yet instructive. The authors call the tool 'straightforward', but I think that plays down its richness. The *Dimensions and Framework Model* seeks to capture the context of work as a whole, not made up of parts but as an organic evolving system of relations and arrangements. In this they synthesize a wide variety of states as inter-related dimensions consisting of arrangements that are fluid and rooted in specific, often unique, contexts. As they note:

> Changes and transformations come in many shapes and sizes, and we need to be able to discuss them all, if we are to understand what futures of work might look like. That is why, in the rest of the book, we will not discuss futures of work as such but, instead, work arrangements, which can refer to specific jobs, professions, organisational structures, or any aspect of work that can be characterised along the various dimensions we map in this book. Work will change – that much we can take for granted. But what is more important is how work arrangements manifest in the future and how they

shape how, when, why, by whom, and so on, work is done; it
is changes in work arrangements that shape changes in work.

This is necessary and important work that while addressing the field
of work, offers a tool for addressing any volatile and complex social
process. Flexibility of application is important. From general usage
specific issues can be better understood. And understanding is key to
effectively engaging in realizing desired outcomes for future genera-
tions.

Reviewing this book has been an enriching opportunity for me. I not
only get a sneak preview but also a chance to explore the thinking of
my great colleagues, Sirkka Heinonen and Veli Virmajoki, who have
spent years developing a method for engaging complex social issues.
The integrative work here is immense requiring a thoroughly schol-
arly mind set harnessed to a well-honed pair of anticipatory imagi-
nations, both tempered through active engagement with the real-life
issues of work. I am confident that the *Dimensions and Model Frame-
work* for the futures of work will be the gold standard in this area of
applied futures for years to come.

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Chapter 1

Introduction

1.1 Futures of Work and the Need for a Framework

Work has changed throughout history and is now changing rapidly.
What do we do in the future – we need to understand futures of
work. The topic is discussed; in fact, it is discussed in many fields and
contexts. However, for exactly this reason, we have reached a point
where we need clarity and ways to discuss the topic systematically
and in clear terms. Despite decades of research on issues such as auto-
mation, digitalisation, and evolving employment patterns, we still
lack a unifying conceptual framework that can be used to understand
and communicate the systematic nature of work transformation.
While existing research on the topic covers, from almost all possible
angles (ranging from technological determinism critiques through
macro-economic forecasting to scenario-based analyses, as we will see
throughout this book) relevant insights to futures of work, the contri-
butions are given somewhat separately and without a unified picture
of how to conceive the changes toward the future in general.

Consider the following. Recent projections suggest that approximately
one fifth (22%) of global jobs will undergo structural transformation
by 2030, with 14% new jobs created and 8% displaced (WEF, 2025).
This comprehensive analysis focuses primarily on skill requirements
and job categories rather than systemic work arrangements. However,
we need to ask what the numbers present – what does it mean to
speak of *transformation* in the context of work? All work arrangements
change constantly, while some changes are seen as more fundamental
than others and deserve to be highlighted separately. Sometimes the

precision of numbers used to discuss issues such as futures of work conceals within itself many different types of changes. Changes and transformations come in many shapes and sizes, and we need to be able to discuss them all, If we are to understand what the future of work might look like. That is why, in the rest of the book, we will not discuss futures of *work* as such but, instead, *work arrangements*, which can refer to specific jobs, professions, organisational structures, or any aspect of work that can be characterised along the various dimensions we map in this book. Work will change – that much we can take for granted. But what is more important is how work arrangements manifest in the future and how they shape how, when, why, by whom, and so on, work is done; it is changes in work arrangements that shape changes in work.

While research of futures of work covers technological, social, economic, and political dimensions, these areas of study remain largely unintegrated (Santana and Cobo 2020). This fragmentation persists despite the recognition that futures of work is fundamentally sociotechnical and requires frameworks that capture the "web-like arrangement of technological artefacts, people, and the social norms, practices, and rules" (Baym and Ellison, 2023). The web metaphor is suggestive, but it raises its own questions: what kind of web, and what constitutes the threads? In general: what it means to when we say that a web of things is changing? The suggestion is not that there is anything wrong with this type of thinking as such. Current evidence indicates towards the sociotechnical complexity. For example, AI adoption affects not just employment levels but also job quality, work intensity, and worker autonomy in interconnected ways that current frameworks struggle to capture (OECD, 2023a). We need a framework to discuss such changes and more in a single, research based, language.

This limitation that we lack unified conceptual tools to discuss futures of work is more than an academic one, even if we resist too sharp

a distinction between academic and practical concerns. According to our claim a solid conceptual foundation can improve more practice oriented decision-making processes, and we return to this aspect in later chapters. As societies confront artificial intelligence, climate change, demographic shifts and changing cultural expectations about work and life, conceptual gaps lead to a fragmented public debate. Recent analyses indicate this type of fragmentation: for example, while green job creation, displacement of high-emission jobs, and skills transformation occur simultaneously across different regions and sectors, policymakers often address these as separate rather than as interrelated issues and challenges (OECD, 2024). The separation here reflects not merely practical difficulties but also the fact that we lack tools to connect different changes in work arrangements together through a shared language. Approaches that notice and attempt to fill the conceptual gaps are especially relevant as we live in the era where the twin green and digital transitions are shaping the world. Recent works bring out how environmental competence, digital literacy, health literacy, and language skills must develop in tandem for workers to navigate the twin green and digital transitions (OECD, 2023b). In order to do that, we need to understand work arrangements in all their richness.

The absence of conceptual tools that work on the level of systems leaves practitioners without a clear guidance for devising coherent strategies towards futures of work (see e.g., Dries et al., 2025; Kraus et al., 2023). The need for these type of tools – and conceptual framework that provides them – is nicely illustrated by research that shows that successful hybrid work requires coordinated attention to operations, culture, communication, wellbeing, and skills – dimensions that may seem unconnected but, in reality, are entangled (Hopkins and Bardoel, 2023). In a similar spirit, recent scenarios concerning telework suggest how achieving equitable situation in work arrangements require simultaneous alignment of regulation, technology, management

practices, investment, and cultural mindsets (Eurofound, 2023a). Such coordination surely is difficult to achieve, but from a more academic perspective, the problem should not be the inability to discuss these changes together through a shared conceptual machinery. In general, futures of work cannot be treated but through such a unifying conceptual machinery. Otherwise, policymakers risk implementing interventions without a robust view of their systemic consequences (Schlogl et al., 2021), while individuals make career choices on the basis of partial understandings of work arrangements these choices might lead to. These practical difficulties stem from deeper theoretical gaps and lack of conceptual clarity about how work futures have been conceptualised to date – this is what we argue in this book.

An even deeper problem is that we often discuss work as a unitary phenomenon rather than as a complex system composed of interdependent elements that can vary independently while still shaping one another. We, of course, understand there are different types of professions that differ from each other in many ways, but we still tend to focus on very limited aspects of work like whether it happens in an office or not, the amount of income it provides, and so on. These types of discussions, where the focus is on some one aspect of work, while valuable, do not provide us with understanding of work as a phenomenon that has many interrelated components and is related to the whole range of phenomena we face in human life (Reid-Musson et al., 2020). This can be seen especially clearly, for example, when we focus on different regions. The interactions between technology diffusion, firm concentration, skill distributions, and educational quality create self-reinforcing regional patterns where the overall economies of high-adoption areas grow but wealth concentrates among educated workers and large firms, while low-adoption regions face the double burden of economic stagnation and social immobility (World Bank, 2023). What work is done and how it is done is an issue that is built in the spine of any society and human form of life.

There are similar approaches to map the complexity of work arrangements, when it comes to the tricky systematicity of remote and hybrid work that seems to be here to stay (see Aksoy et al., 2025). One particularly notable approach is the *refraction framework* developed by Leonardi et al. (2024) which conceptualises remote work through the metaphor of light passing through a prism. In this framework, four dimensions of physical distance (psychological, temporal, technological, and structural) interact with three office-based resources (material, social, and symbolic). Using this framework, Leonardi et al. (2024) analyse *who* work remotely, *when* they do so, *where* they work, *why they choose* remote arrangements, and how they adapt their work behaviours. This multidimensional approach reveals that remote work success depends not on simple physical distance but on complex interactions between various dimensions of work.

In the same vein, Vartiainen and Vanharanta (2024), while criticising existing discourse of hybrid work, suggest the *hybridizing mechanism* framework where sustainable work design requires coordinating multiple elements – from digital tools and social structures to management styles and employee competencies – into coherent systems tailored to specific organisational goals and employee wellbeing. Similarly, Sivunen et al. (2023) introduce the notion of *boundary affordances* which refers to the possibilities that technology and space/time arrangements create for managing work boundaries. For example, having separate work and personal devices affords strong boundary-keeping, while working from home affords flexibility but might blur the boundaries between work and other aspects of lives. As we will see, the questions of who, why, where, and so on, about work arrangements are the ones that need systematic analysis.

Despite the surfacing of such clear conceptualisation, the exceptions prove the rule. Many studies relevant to futures of work, while extremely valuable and discussed, thereby, throughout this book,

typically focus on a single dimension of work, like spatial arrange-
ments (Thulin et al., 2023), technological integration (Walkowiak,
2021), or compensation structures (Bloom et al., 2024; Gibbs et al.,
2023). However, rarely they offer theoretical tools for understand-
ing how these dimensions are to be combined to understand work
arrangements or generate tensions that create changes as we move
towards the future. This is not a criticism of the studies themselves,
but rather an observation concerning the field.

Methodologically, the study of futures of work incorporates a vari-
ety of views of the timespans, pace, and, in general, the temporal
dynamics of change of work arrangement. There are lines of inquiry
that infer gradual, linear trajectories by extrapolating from current
patterns (see critical discussion e.g. in Kelly, 2023; Bankins et al.,
2024). Others set out far-reaching visions, such as post-work scenarios
(Hines, 2019) or multi-domain outlooks as far as 2050 (Barbosa et al.,
2022). Recently, several studies have challenged linear assumptions.
One reason for this is that, during COVID-19, there were remarka-
ble changes how different groups of people work: while some sectors
experienced permanent transformation, some saw temporary disrup-
tions followed by returns to pre-pandemic patterns, and some, mostly
informal workers (i.e., those working without formal employment
contracts or social protections) faced changes that resisted both grad-
ual and revolutionary change models (ILO, 2022). Changes towards
futures of work cannot be captured by a single temporal order.

Moreover, the variety of temporalities also illustrates how work is
inextricable part of surrounding human systems. For example, Monte
et al. (2023) show how temporary pandemic shocks created perma-
nent changes in some cities' work arrangements while others returned
to pre-pandemic patterns. This demonstrates how identical forces can
produce different outcomes based on underlying differences in the
characters of the system (Derbyshire et al., 2023; see also in Section 5

below). In general, the discussion about linear vs. disruptive changes of work have made explicit several aspects of our way of thinking about work. Interestingly, for example, Kelly (2023) discusses how that automation anxiety – something that we face today with AI – is cyclical rather than linear, with a long history reaching back centuries.

On the other hand, Ross et al. (2024) indicate how impact of technological change are temporal phenomena that are defined by initial negative effects on workers that are reversed in time. Recent evidence provides empirical support for these complex temporalities: for example, displaced high-emission industry workers are estimated to face significant (over one third) income losses over six years, while green jobs grow simultaneously, generating a temporal mismatch between job losses and creation (OECD, 2024). While these studies are not about the complexity of futures of work itself, they raise the question of what underlines these types of temporal phenomena. Continuity and disruption are both there – but how to conceptually tame this apparent paradox (see Heinonen et al., 2025 on paradoxes in futures studies in general)?

To address these gaps, this book introduces a comprehensive framework for analysing futures of work that we term the **Dimensions and Models** approach. Building on relatively stable demands to move beyond binary debates (Williams, 2008) and dichotomous thinking about work futures (Aroles et al., 2024), we construct a multidimensional conceptual space in which any work arrangement can be located and through which changes in different work arrangements can be traced. The approach aims to both address the theoretical limitations of existing research and equip scholars and practitioners with tools for rigorous, system-level analysis and especially discussion on shared conceptual platform.

1.2 Current Approaches and Their Limitations

Contemporary research on futures of work displays several limita-
tions that we wish to remedy in this book. Two of these are so funda-
mental that they have already been discussed above. 1) First, there
is the persistent tendency to isolate single trends or causal variables,
thereby underplaying the systemic character of work arrangements.
2) Second, all sorts of binaries in our thinking oversimplifies the
complex, multidirectional nature of futures work (Williams, 2008). As
already suggested above, one such binary is related to temporalities:
Either we are told to face rapid unprecedent transformation or slow,
continuous change and movement.

3) Third, there is a problem that runs deeper than mere simplification
and binaries. It concerns how we conceptualise the fact that work is a
complex phenomenon that is inserted in human reality that is *complex*
itself. We are not suggesting that the notion of complexity is a novel
one, of course it is not. What we wish to point out is that the notion of
complexity in the context of futures of work is something that requires
attention – our solution is nothing less than to suggest 14 dimensions
according to which work arrangements can be understood. This limi-
tation is also clear when contrasted with emerging conceptual frames
such as the *refraction framework* (Leonardi et al., 2024), the *hybridizing
mechanism* (Vartiainen and Vanharanta, 2024), or *boundary affordances*
(Sivunen et al., 2023) discussed in the previous section.

Consider the post-COVID surge in remote work scholarship. Much of
this work still starts with the spatial question of *where* people work.
These works often discuss hybrid schedules, retention and produc-
tivity effects, employee preferences, or return-to-office policies, while
giving only selective theoretical attention to how the *where* of work
intertwines with issues such as temporal organisation, performance
management, skill development, care responsibilities, and questions

of identity and meaning (see discussion in e.g., Fan and Moen, 2023; Proust, 2023; Thulin et al., 2023). We may notice that the privileging of spatial categories already embodies assumptions about what constitutes the primary issues that define work and its place (quite literally in this case) in human lives. Work is something that produces something somewhere; but again, we need to ask who does it, how, when why, and so on. Certain scenario work illustrates this: in the case of telework implementation, coordination is required across regulatory frameworks, technological infrastructure, management practices, organisational culture, and employee wellbeing. A failure in any single dimension could undermine the entire system (Eurofound, 2023a). Moreover, a comprehensive mapping exercise by De Lucas Ancillo et al. (2023) examined hundreds of indicators spanning multiple strategic categories that measure workplace transformation in response to COVID-19. Surely, the proliferation of indicators raises its own questions, but it shows, at least, how complex issue we are dealing with.

4) Fourth, there is the problem that a wide variety of intellectual traditions are utilised to understand futures of work. For example, in contrast to De Lucas Ancillo et al.'s (2023) mapping of hundreds of indicators, Hegelian dialectical analysis has been used to envision possible futures of knowledge work (Wang et al., 2020). Moreover, just to mention one more example, there are contemporary contributions that identify, through semi-structured interviews five interdependent pillars (operations, culture, communication, wellbeing, and future skills) that are need for successful implementation of hybrid work (Hopkins and Bardoel, 2023). In a sense, while this richness is highly useful for us in the pages to come, understanding of futures of work arrangement remain fragmented due to different intellectual traditions that handle the issue. Similar gaps appear in the automation and AI literature. Technological impacts cannot be understood without examining the social contexts that shape both adoption and conse-

quences (Howcroft and Taylor, 2023). Influential studies continue to foreground net-employment forecasts on whether technology creates or destroys jobs. While relatively recent scenario work and complementarity modelling push beyond numbers-first approaches (see e.g. Halal et al., 2016; Cazzaniga et al., 2024), much of the debate still pays comparatively less attention to how evolving human–technology relations reshape work organisation, skill profiles, reward systems and the meanings attached to work (see The World Bank, 2023; OECD, 2023a). Notice that the focus on quantitative employment effects may itself reflect assumptions about what matters, and especially to *whom* it matters. We need a conceptual framework that can be used to utilise the richness of different intellectual traditions.

5) Fifth, temporal reasoning presents an additional challenge. Literature concerning work arrangements suggests uneven temporalities, as discussed in the previous section: Some characteristics persist for decades, while others shift abruptly in response to shocks or internal contradictions (see Derbyshire et al., 2023). The limitations of linear temporalities are increasingly recognised in recent studies (see Kelly, 2023; Bankins et al., 2024). Interestingly, we face conceptual issues here. Empirical evidence shows that changes in labour-augmenting technology create initial negative employment effects that can take 5-12 years to reverse groups with different skills experiencing opposite trajectories over time (Ross et al., 2024). But identifying these changes as *reversals* rather than a movement towards new phenomena requires assumptions about the *continuity* of certain aspects of work arrangements. Moreover, the green transition destroys carbon-intensive jobs before creating replacement opportunities: displaced workers from high-emission industries face 36% income losses over six years because new green positions emerge too slowly to absorb them (OECD, 2024). Numbers and time walk hand-in-hand toward the future. However, the future is never the same as the world in an earlier stage. Therefore, we should ask a wide variety of questions

concerning work-identity, cultural effects, and so on, that the temporal rhythm implicit in discussions concerning futures of work carry.

Finally, and summarising the discussion above, existing frameworks seldom integrate individual experience, organisational strategy and societal structure in a way that enables us to understand these phenomena together. Many studies remain at one level and offer only limited tools for tracing how micro-level adaptations build into meso- and macro-level change and vice versa. Although calls for cross-level theorising has been developed widely (see e.g., Illegems and Verbeke, 2004; Baym and Ellison, 2023), an overarching conceptual framework is missing.

To be more specific, conceptual framework for systems thinking approaches analysing workplace, governance, economy, and social systems together should guide us toward the kind of integrated analysis that overcomes the limits that remain in studies focused on specific issues rather than offering general frameworks (see Kwan, 2022). Again, we should notice that relevant research does exist. For example, the so-called sustainable system-of-systems framework, used by Sigahi et al. (2023) to study how work-from-home systems exist as nested hierarchies spanning from such immediate issues as individual workstations to global scale, such as pandemic responses, indicates the potential of such unified approaches. Their framework reveals how changes at one level cascade to other levels. Moreover, other studies also point toward similar cross-level dynamics. For example, firm-level technology adoption decisions aggregate to create regional market concentration, which in turn shapes educational system responses and individual skill development pathways – this is a cascade of effects par excellence invisible to single-level analyses (World Bank, 2023).

Despite the fact that the discussions of futures of work are reaching increased sophistication, the theoretical limitations discussed above

have tangible consequences. Fragmented concepts leave empirical findings scattered across disciplines and methods, hinder the accumulation of shared insights, and weaken the capacity of research to inform wider debates on other complex social issues to which work is deeply connected to (see also Singh et al., 2022; Santana and Cobo, 2020). The fragmentation may not be merely an accident of academic specialisation but a reflection of deeper difficulties in grasping systemic phenomena. We suggest that one remedy to this state of affairs is to build, on a conceptual level, a novel and comprehensive way of thinking and communicating futures of work and issues related to futures of work arrangements.

Interlude: What about AI?

Before we proceed any further, we wish to be explicit about something. This is not a book about "futures of work in the era of AI". While we discuss the developments in AI where relevant, and while we – as well as most who are interested in futures of work – are aware that new works on the topic are published constantly, we are explicitly not highlighting it. There is a simple reason for this.

In this book, we try to provide the reader with understanding of how multidimensional issue the futures of work arrangement are, given the different nature of how people work. We provide 14 dimensions with 3 models each, which, in itself, already is 42 different items itself (and billions when combinations are created). The very reason for this is that everything in work is related to other aspects of life, society, economy, technology, and so on. In order to understand how work arrangements will respond to AI, someone needs to provide at least partially covering framework about work arrangements and their possible trajectories. Without such frameworks, we will miss several key questions; and reports on AI and work cannot cover all nuances. For example, in a recent report, WEF (2026) provides us with a valuable

scenario analysis that describes four plausible futures for jobs in 2030 (Supercharged Progress, Age of Displacement, Co-Pilot Economy, and Stalled Progress) by crossing an AI advancement vector (exponential versus incremental technological progress) with a workforce readiness vector (widespread versus limited AI-related skills among workers). While useful for strategic planning – especially combined with many other such reports, this work exemplifies one shortcoming: The high-level vectors simplify complex phenomena into single variables: *workforce readiness* vector bundles together items such as education systems, individual skills, training infrastructure, and capacity to adapt, and *AI advancement* vector bundles together several technological trajectories. This level of abstraction, while appropriate for the report's aims, leaves open questions about several questions about work arrangements, and may even obscure the questions by bringing to the forefront AI and two vectors related to it.

To see this, we only need to understand that, given enough attention to nuances, each person, even sharing the exactly same job, lives within a unique work arrangement – they have different experiences, psychological features, background, a different set of people they are responsible for taking care for, and so on. This means that, before we start asking grand questions about AI and work, we need to be aware of these issues. In this book, we attempt to provide such framework. We need to first understand work arrangements and only then ask questions about whether this or that aspect of work will change in this or that way due to AI (which is not monolith itself, we need to remember).

In this book, we wish to go back to the nuanced questions and, therefore, we do not "free" AI to dominate the discourse about the futures of work. AI needs to be discussed, that is for sure, but in this book, we attempt to provide something a bit different than a report on AI and work.

1.3 The *Dimensions and Models* Framework: Core Innovation

Our approach introduces conceptual tools to understand and discuss how work arrangements change in a way that (i) brings together rich insights generated on the topic, and (ii) allows them to be understood as describing the same 'map for the future'. The core theoretical contribution is the identification of a set of fundamental *dimensions* that capture central aspects of work arrangements that are discussed in the literature on futures of work. The core methodological contribution, on the other hand, is the analysis of how the dimensions interact to produce coherent configurations or generate internal tensions – how they define change and inertia of certain work arrangements. The approach is developed through six linked analytical steps.

1) First, we define explicit criteria for selecting dimensions. To be sure, we are not claiming that the architecture we build in this book is the only possible one. Different dimensions can be found and different types of spaces created. Still, we are confident that our work is relatively exhaustive and fruitful. However, no matter what the chosen dimension exactly are, each dimension must display historical and cross-contextual variation which shows that it represents a genuine plane of possibilities rather than a universal constant (Reid-Musson et al., 2020). Moreover, dimensions must capture genuine diversity, a plane, rather than false dichotomies (see Williams, 2008). To understand this idea, we can draw, again, inspiration from the *refraction framework* developed by Leonardi et al. (2024) that shows how, in their case, remote work's different aspects of physical distance – psychological, temporal, technological, and structural – vary independently across contexts and interact with organisational resources to create different work experiences. The variety of outcomes is, therefore, determined by genuine differences in different aspects of physical distance and their interaction with other aspects of work arrange-

ments, such as organisational resources. Moreover, dimensions must also be applicable across different occupations and sectors (but must remain conceptually independent even while acknowledging their empirical interdependence, an issue we discuss in detail later). Variation and cross-sectoral applicability are by no means in contradiction. For example, broadening digital access is a macrotrend that is estimated to reduce the share of tasks performed by humans alone across all industries: Still, telecommunications companies expect over 95% of their shift away from human-only tasks to occur through automation (i.e., replacement by machines), while healthcare organisations expect nearly 50% of their shift to occur through augmentation (i.e., human-machine collaboration) (WEF, 2025).

2) Second, within each dimension we identify three archetypal models that serve as idealised reference points constituting that dimension. These models function as conceptual anchors that, through various combinations and blends, generate a dimension where the full spectrum of real-world work arrangements can be located in when it comes to this or that issue in futures of work. For example, *where work happens* is one such dimension (see below), and it is constituted by three models, as we can define three archetypical reference points to the question of where work happens: (i) work may be concentrated in specific locations, (ii) work may require both presence in specific locations and remote working, or (iii) work may be independent of particular location altogether. In general terms, while each model represents a qualitatively distinct organisational logic[1], actual work arrangements typically, or almost always, exist inside the triangular space formed by these archetypes as the work arrangements constantly change and, thereby, move between the models. This type of approach draws inspiration from scenario methodologies that use distinct configurations as analytical tools. For example, World Economic Forum (2018) has used

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[1] See discussion on similar logics in e.g., Cazes (1976) and Leonardi et al. (2024.)

such scenario methodology to explore how different combinations of technological, social, and economic variables create several possible futures. It also builds on research that indicate how work arrangements naturally blend different models. For example, Hopkins and Bardoel (2023) identified five distinct hybrid patterns mixing office and remote work in various proportions, and Monte et al. (2023) showed how cities developed different remote work patterns after the COVID-19 pandemic – different cities settled into different patterns (larger ones staying more remote, smaller ones returning to offices). However, by using three, and *only three*, models per dimension, we create a conceptual space rich enough to capture the heterogeneity of work arrangements while maintaining analytical clarity and avoiding binary thinking (see criticism in Williams, 2008). In the rest of the book, we develop additional concepts to enrich this dimensions-with-three-models approach to futures of work that makes it more suitable for nuances we face when dealing the issue.

3) Third, and related to the previous point on additional conceptual resources, we provide conceptual tools for assessing how particular combinations of locations in different dimensions cohere – or, sometimes more importantly fail to cohere. We identify mechanisms that produce the coherences (and through which the coherences operate), such as *functional complementarity, value consistency, and infrastructure compatibility*. Some combinations reinforce one another through these mechanisms. When there are such reinforcements, stable, self-maintaining arrangements may appear. On the other hand, some combinations contain contradictions that destabilise systems. These incompatibilities arise when combinations of models of different dimensions pull in opposing directions. For example, Liu et al. (2024) argue how algorithmic management systems designed to optimise efficiency undermine the improvisation capability that is needed for creative and adaptive performance. Similarly, Giacosa et al. (2023) suggest that digital surveillance intended to enhance productivity creates technos-

tress and distrust that ultimately reduce the very performance it seeks to improve.

To be more specific about these resources, to which we return in later sections in more detail, we can say the following: i) First, functional complementarity refers to a situation where elements of different models enhance effectiveness of one and another. For example, remote work and the integration of technology may go hand-in-hand, if the technology enables the workers to communicate and perform tasks that would otherwise require being tied to specific social or other organisational space. ii) Second, *value consistency* occurs when the positions in different dimensions are in accordance with the same set of values. For example, to give a somewhat negative example, surveillance and requirement for large quantities of work, no matter what that quantity is about, can come in the same package of values that downplay privacy at the expense of material measurement.

4) Fourth, infrastructure compatibility occurs when the same material and technological conditions are built in different models. Compatibility is a neutral notion here, as both positive and negative work arrangement can carry such compatibility. For example, remote working and scattered income structures may be compatible through certain digital and organisational infrastructure that distribute work on an ad hoc basis and lacking long-term planning.

Again, the idea of such stabilities and incoherencies is far from a novel one. In a pioneering work, Cazes (1976) already analysed how certain combinations of work scenarios reinforce each other while others are more incoherent[2]. What is novel is the more nuanced conceptual discussion on the issues we wish to provide. To illustrate why such heavy conceptual machinery is needed, consider the tensions that can

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[2]   Though the specific finding that only four of sixteen combinations identified were coherent reflected the societal and economic context of the era we no longer live in with digitalisation and so on.

be made visible through the notion of boundary affordances discussed in a previous section (Sivunen et al., 2023). By using this notion, one can see, for example, that maintaining rigid work-home boundaries may conflict with the technological and spatio-temporal affordances of remote work. We need more conceptual machinery like this in order to see what types of futures of work arrangement exist and which of them create tensions or opportunities (in the neutral sense of the word, as opportunity may also be opportunity for non-preferable arrangement) for reinforcements.

5) Fifth, we map the forces that drive the movement of work arrangements through the multidimensional space we create with the *Dimensions and Models*. Technological capabilities, economic pressures, cultural shifts, demographic change, environmental limits, political climate and choices, and so on all change the world constantly. Therefore, no work arrangement remains in the exact same location of the conceptual space long periods of time. It is important to repeat the point made already above: These forces do not have uniform effects, i.e., how they affect the changes in a work arrangement depends on where that arrangement is in the conceptual space. For example, demographic change affects schooling system and healthcare in rather opposite way; there is no direct causation between drivers and outcomes in the sense that a driver always pushes all work arrangement in the same direction.

Moreover, in our field, futures research, we need to be constantly aware of external shocks. Other forces create, and are affected by, the shocks and shake how work arrangements exist. In general, the forces that drive change interact. Just to mention a few examples, the COVID-19 pandemic – an external shock par excellence – revealed how cities depend on energy infrastructure, care systems, and time organisation to sustain their work patterns (Curry, 2021). Moreover, successive waves of technology continuously define and reshape –

rearrange, to use our terminology – which skills are valued in global labour markets (Li, 2024). These types of forces produce different outcomes depending on context, for example, whether societies dismantle labour protections, assume technological change is inevitable, or pursue environmental transition. The forces and their context produce a variety of consequences for work arrangements and, thereby, the worker themselves (Méda, 2019). This is especially clear when it comes to AI: It has been suggested by Frank et al. (2025) that predicting which jobs AI threatens requires combining many different analytical methods, as each method alone captures only a fraction of how AI actually affects workers.

6) Sixth, we use the *Dimensions and Models* framework to conceptualise cross-level dynamics and feedback loops. We show how understanding and discussing work through the conceptual space we create can be used track how individual, organisational, and societal changes influence one another through phenomena such as (i) bottom-up pressure (for example, when worker preferences accumulate into organisational policy changes; see detailed discussion in Fan and Moen, 2023), (ii) top-down constraint (for example, when environmental regulations shape organisational strategies and individual choices; see Paul et al., 2023; Méda, 2019), and (iii) lateral diffusion (for example, when innovations spread through competitive imitation and professional networks; see Rhisiart et al., 2017; for a situation where limitations rather than successes drive innovation, see Zirar, 2023). Moreover, we are able to track (iv) feedback loops between different work arrangement changes, for example, in situations where weakening ties to workspace location weaken traditional organisational identities, which in turn strengthen preferences for even greater spatial flexibility; and the cycle is ready (see discussion in Kingma, 2019). Notice that issues described by (i)-(iv) can lead both to changes or preservation and inertia in work arrangements (see Aroles et al., 2024

for nuances). In this way, we are able to handle both continuity and disruption within a single framework.

Throughout the book, we wish to maintain critical reflexivity about our own analytical assumptions. The notions we employ carry, like all notions, hidden metaphors within them (see Inayatullah, 1998, as a classic of such analysis). The notions we use, such as *forces* driving change, *mechanisms* of interaction, and *cascades* of effects, each carry implicit assumptions about causation and agency that requires reflective attention and understanding of how such notions are inspired, mostly implicitly, from other fields. For example, we may notice that the notion of *force* driving movements in the conceptual space (that can be translated as change in work arrangements) imports an impersonal physics metaphor that may obscure the constitutive role of human agency and interpretation in work arrangements we will have in the future. Similarly, the language of *mechanisms* and *cascades* may carry particular assumptions about causation, as if changes in work arrangements propagate through systems like one billiard ball striking other causes several movements.

Despite this need for self-reflectivity, we dare to point out that the unique contribution of our framework is its systematic attention to cross-level dynamics. Using the framework, we can trace how individual, organisational, and societal changes influence one another through multiple pathways when discussed in terms of dimensions, models, space, forces, and so on. For example, we are able to discuss issues such as bottom-up pressures and top-down constrains. *Bottom-up pressure* is a useful notion to discuss, for example, a situation where large numbers of workers express preferences that accumulate into changes in organisational policies. On the other hand, *top-down constraint* is a useful notion to describe, for example, a situation where ecological limits set boundary conditions that shape organisational strategies and individual choices. Finally, *lateral diffusion* is a useful