Innovation, Technology, and Knowledge Management

TEXTBOOK

Donatella Padua

Digital Cultural Transformation

Building Strategic Mindsets via Digital Sociology

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Innovation, Technology, and Knowledge Management

Series Editor

Elias G. Carayannis
George Washington University
Washington, DC, USA

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Donatella Padua
Università per Stranieri di Perugia
Perugia, Italy

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To Mario.

Series Foreword

The Springer book series *Innovation, Technology, and Knowledge Management* was launched in March 2008 as a forum and intellectual, scholarly "podium" for global/local, transdisciplinary, transsectoral, public–private, and leading/"bleeding"-edge ideas, theories, and perspectives on these topics.

The book series is accompanied by the Springer *Journal of the Knowledge Economy*, which was launched in 2009 with the same editorial leadership.

The series showcases provocative views that diverge from the current "conventional wisdom," that are properly grounded in theory and practice, and that consider the concepts of ***robust competitiveness***,[1] ***sustainable entrepreneurship***,[2] and ***democratic capitalism***,[3] central to its philosophy and objectives. More specifically, the aim of this series is to highlight emerging research and practice at the dynamic intersection of these fields, where individuals, organizations, industries, regions, and nations are harnessing creativity and invention to achieve and sustain growth.

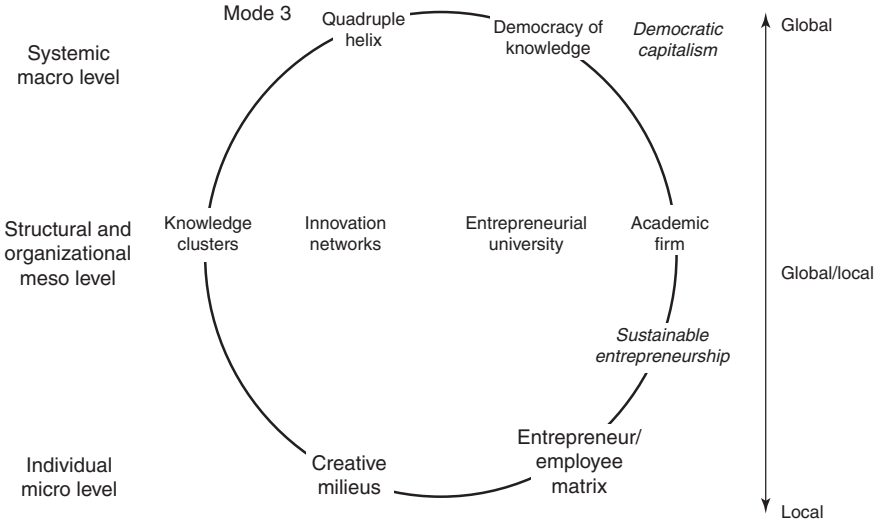
Books that are part of the series explore the impact of innovation at the "macro" (economies, markets), "meso" (industries, firms), and "micro" levels (teams, individuals), drawing from such related disciplines as finance, organizational psychology, research and development, science policy, information systems, and strategy, with the underlying theme that for innovation to be useful it must involve the sharing and application of knowledge.

Some of the key anchoring concepts of the series are outlined in the figure below and the definitions that follow (all definitions are from E.G. Carayannis and D.F.J. Campbell, *International Journal of Technology Management*, 46, 3–4, 2009).

1 We define *sustainable entrepreneurship* as the creation of viable, profitable, and scalable firms. Such firms engender the formation of self-replicating and mutually enhancing innovation networks and knowledge clusters (innovation ecosystems), leading toward robust competitiveness (E.G. Carayannis, *International Journal of Innovation and Regional Development* 1(3), 235–254, 2009).

2 We understand *robust competitiveness* to be a state of economic being and becoming that avails systematic and defensible "unfair advantages" to the entities that are part of the economy. Such competitiveness is built on mutually complementary and reinforcing low-, medium- and high-technology and public and private sector entities (government agencies, private firms, universities, and nongovernmental organizations) (E.G. Carayannis, *International Journal of Innovation and Regional Development* 1(3), 235–254. 2009).

3 The concepts of *robust competitiveness* and *sustainable entrepreneurship* are pillars of a regime that we call "*democratic capitalism*" (as opposed to "popular or casino capitalism"), in which real opportunities for education and economic prosperity are available to all, especially – but not only – younger people. These are the direct derivative of a collection of top-down policies as well as bottom-up initiatives (including strong research and development policies and funding, but going beyond these to include the development of innovation networks and knowledge clusters across regions and sectors) (E.G. Carayannis and A. Kaloudis, *Japan Economic Currents*, p. 6–10 January 2009).



Conceptual profile of the series *Innovation, Technology, and Knowledge Management*

- The "Mode 3" Systems Approach for Knowledge Creation, Diffusion, and Use: "Mode 3" is a multilateral, multinodal, multimodal, and multilevel systems approach to the conceptualization, design, and management of real and virtual, "knowledge-stock" and "knowledge-flow," modalities that catalyze, accelerate, and support the creation, diffusion, sharing, absorption, and use of cospecialized knowledge assets. "Mode 3" is based on a system-theoretic perspective of socioeconomic, political, technological, and cultural trends and conditions that shape the coevolution of knowledge with the "knowledge-based and knowledge-driven, global/local economy and society."
- Quadruple Helix: Quadruple helix, in this context, means to add to the triple helix of government, university, and industry a "fourth helix" that we identify as the "media-based and culture-based public." This fourth helix associates with "media," "creative industries," "culture," "values," "life styles," "art," and perhaps also the notion of the "creative class."
- Innovation Networks: Innovation networks are real and virtual infrastructures and infratechnologies that serve to nurture creativity, trigger invention, and catalyze innovation in a public and/or private domain context (for instance, government–university–industry public–private research and technology development coopetitive partnerships).
- Knowledge Clusters: Knowledge clusters are agglomerations of cospecialized, mutually complementary, and reinforcing knowledge assets in the form of "knowledge stocks" and "knowledge flows" that exhibit self-organizing, learning-driven, dynamically adaptive competences and trends in the context of an open systems perspective.

- Twenty-First Century Innovation Ecosystem: A twenty-first century innovation ecosystem is a multilevel, multimodal, multinodal, and multiagent system of systems. The constituent systems consist of innovation metanetworks (networks of innovation networks and knowledge clusters) and knowledge metaclusters (clusters of innovation networks and knowledge clusters) as building blocks and organized in a self-referential or chaotic fractal knowledge and innovation architecture (Carayannis 2001), which in turn constitute agglomerations of human, social, intellectual, and financial capital stocks and flows as well as cultural and technological artifacts and modalities, continually coevolving, cospecializing, and cooperating. These innovation networks and knowledge clusters also form, reform, and dissolve within diverse institutional, political, technological, and socioeconomic domains, including government, university, industry, and nongovernmental organizations and involving information and communication technologies, biotechnologies, advanced materials, nanotechnologies, and next-Generation energy technologies.

Who is this book series published for? The book series addresses a diversity of audiences in different settings:

1. *Academic communities:* Academic communities worldwide represent a core group of readers. This follows from the theoretical/conceptual interest of the book series to influence academic discourses in the fields of knowledge, also carried by the claim of a certain saturation of academia with the current concepts and the postulate of a window of opportunity for new or at least additional concepts. Thus, it represents a key challenge for the series to exercise a certain impact on discourses in academia. In principle, all academic communities that are interested in knowledge (knowledge and innovation) could be tackled by the book series. The interdisciplinary (transdisciplinary) nature of the book series underscores that the scope of the book series is not limited a priori to a specific basket of disciplines. From a radical viewpoint, one could create the hypothesis that there is no discipline where knowledge is of no importance.
2. *Decision makers – private/academic entrepreneurs and public (governmental, subgovernmental) actors:* Two different groups of decision makers are being addressed simultaneously: (1) private entrepreneurs (firms, commercial firms, academic firms) and academic entrepreneurs (universities), interested in optimizing knowledge management and in developing heterogeneously composed knowledge-based research networks; and (2) public (governmental, subgovernmental) actors that are interested in optimizing and further developing their policies and policy strategies that target knowledge and innovation. One purpose of public *knowledge and innovation policy* is to enhance the performance and competitiveness of advanced economies.
3. *Decision makers in general:* Decision makers are systematically being supplied with crucial information, for how to optimize knowledge-referring and knowledge-enhancing decision-making. The nature of this "crucial information" is conceptual as well as empirical (case-study-based). Empirical information highlights practical examples and points toward practical solutions (perhaps remedies), conceptual information offers the advantage of further-driving and

further-carrying tools of understanding. Different groups of addressed decision makers could be decision makers in private firms and multinational corporations, responsible for the knowledge portfolio of companies; knowledge and knowledge management consultants; globalization experts, focusing on the internationalization of research and development, science and technology, and innovation; experts in university/business research networks; and political scientists, economists, and business professionals.

4. *Interested global readership:* Finally, the Springer book series addresses a whole global readership, composed of members who are generally interested in knowledge and innovation. The global readership could partially coincide with the communities as described above ("academic communities," "decision makers"), but could also refer to other constituencies and groups.

Elias G. Carayannis
Series Editor

Foreword

Digital Transformation, as we are now used to calling it, is actually a profoundly human phenomenon. Although we usually refer to 'artificial intelligences', it is not technologies which govern this profound change, for these are still under way. Artificial intelligences have profoundly altered numerous aspects of our lives, both personal and professional, but the choices that human beings make and have made will continue to leave their mark. These are uncomfortable, challenging choices, questioning habits and behaviours from which new scenarios, new perspectives and new configurations have arisen, each time leading us to think of a catastrophe. It is called innovation, and it is unstoppable. In fact, the most common reaction is fear, the fear that the radical change in the situation, undergone or, even worse, imposed, could harm us, could upset our certainties, our beliefs, or even very own life.

Indeed, to achieve innovation, the first step is to face these fears, taking into consideration humanity as a whole, not only as *homo-technologicus* or *oeconomicus*: whether one is a developer of technologies or promoter of business models, in both cases s/he is still the 'social animal', bearer of individual and collective, personal and work-related needs, of interests, and of passions, as well as emotions.

Donatella Padua's book accurately speaks to the overcoming of a one-dimensional approach, be it that of business strategy or algorithms, to develop an integrated model. In the following pages, Padua masterfully illustrates a method for generating digital innovation that primarily focuses on the social and cultural mindset, a perspective found to be in perfect harmony, as further explained in the book *L'innovazione non chiede permesso* (Luca Tomassini), in which it is defined that the digital revolution is a cultural and social revolution, not limited to the use of particular devices or technologies, but rather involving approaches, behaviors, and, more generally, all the elements that occur in the construction of what is emerging more and more as we enter a new world.

As a sophisticated researcher, Padua certainly does not propose to set aside the 'toolbox' based on traditional business strategies, which is currently in vogue, but to integrate it with a new perspective starting from digital sociology. Sociology continues to be her main field of study after many years, specifically oriented in a humanistic and holistic sense. Without ceasing to apply the economic and technological categories, in the light of which digital transformation is read today, organizations can take advantage of four new paradigms, gathered in an original model, which allows them to activate a broad and multifaceted understanding of phenomena. Therefore, they are able to activate the transformative process by making use of newer and deeper social, cultural, and managerial levers.

If we wish to frame Padua's framework in familiar terms, we could define it as a 'humanist' perspective, in the fullest sense of the word, for this view is crucial to acknowledge when successfully facing the challenges ahead. Indeed, it is believed that nothing less than an evolutionary leap awaits us: a 'great leap', not to abandon our current status as human beings, but to express it in its highest meaning. Exactly as happened during the Renaissance, a flourishing age for the development of all

arts and sciences, a new Humanism, indeed, was born to free the human being, to display all his faculties, while making the most of opportunities offered by the digital and not forgetting that it is all about means, and not about ends; of possibility, and not of necessity; of opportunities, not of condemnations.

The harmonious growth of Humanity can and must combine the advances in science, techniques, and research with progressions in reasoning, civilization, and awareness; in this sense it is believed that the text you are about to read is extremely relevant to achieve this degree of congruence in the interpretation and consequently of the transformative realization ahead.

Luca Tomassini
Luca Tomassini Founder, Chairman, and CEO of Quibyt
Orvieto, Italy
Adjunct Professor, LUISS Guido Carli
Rome, Italy

Preface

We live in a digital world. For nearly a decade, Donatella Padua has drawn upon the principles of digital sociology to frame the content of her teaching and research activities. The role and value of culture along with social organizational change theory are the main thrusts of her work to examine the causes and effects of the interplay between digital technology and society. This is clearly and persuasively laid out in the book *Digital Cultural Transformation*. Padua presents the concept of a 'digital transformation social mindset' as a necessary precondition to realize the full benefits of organizational change brought about by digital technology. The book is built around the question of whether organizations, institutions, businesses, and government entities are culturally ready for the ever-expanding digital transformation of society. It offers a comprehensive methodological and conceptual framework for gauging whether key economic institutions have achieved the right mindset for success. The implication of her work is clear: any institution that is not culturally ready is unlikely to reap the full benefits of the digital revolution.

The introduction of digital technology forces organizations to redefine their business models, rethink leadership and management structures, and adapt to changes in customer relationships. For example, Uber is the world's largest taxi company, yet it owns no taxis. Digital technology allows Uber to provide customers with a personalized service. Customers have a one-to-one, direct relationship with the provider (in this case, a driver) without first experiencing a structural or organizational system. Similarly, Amazon is one of the largest retail providers, yet it produces no goods and services and owns no retail stores. Here again, the business model is designed to change the paradigm, from forcing customers to visit a physical retail location to bringing the shop to the people. Amazon's customer relationships rely on predictive analytics that ensure customer satisfaction by allowing a customer's own previous choices to drive the process of customer service. Another example is Netflix, the largest movie theatre in the world yet it owns no physical movie theatres. Customers provide the physical environment and technology—at home. Netflix brings cinema into the household and, as part of customer relations, has developed a machine learning model to identify one's preferences, choices, and tastes to recommend appropriate content that reflects previous experience. Because there is a one-to-one relationship between Netflix and the viewer, Netflix can provide a personalized service to the customer.

The disruptive nature of digital technology is exacerbated by the speed at which technology changes and evolves, often unpredictably. Adapt, or fail. Embracing this constant innovation successfully will separate winners from losers across virtually all industrial sectors of the economy. For example, the health care system is perhaps one of the most rapidly evolving sectors due to the constant introduction of new digital technology. Delivery of medical care has evolved from the doctor's office, to telemedicine, and now to personalized medicine in which digital devices monitor remotely the health conditions of patients and provide real-time responses to address changing health conditions. Similarly, education has changed paradigms

from a classroom teaching model, to long-distance learning, to personalized education. Another example of the impact of digital technology is in the area of providing workforce services to job seekers. In light of COVID and a more transitional labour market, public and private providers of workforce services have been forced to change organizational focus to facilitate a direct and continuous contact with employees and clients, providing services through the use of digital technology such as mobile and web-based systems.

Digital technology opens up endless opportunities for businesses, institutions, organizations, and government while at the same time raising serious challenges. For example, perhaps the most critical challenge is the need for a more skilled or qualified workforce to meet the demand of highly specialized occupations, many of which are completely new. This forces a rethinking of how to structure education, workforce development training, and professional development.

Digital technologies cannot work without data. This has raised the issue of how to handle *big data*, calling for new strategies to safely collect, store, and transmit data. Protecting the data lifecycle from external interference requires devoting stronger attention to cybersecurity. Because data are produced and consumed by the digital technology that makes new business models possible, data assets have become the essential fuel for business operational success. As a result, cybersecurity has become an essential component of national security. Digital technologies also force businesses to consider how to store and analyse large amounts of data with the use of high-performance computing. The industrial sector cannot separate big data, artificial intelligence, and cybersecurity from their business models. Finally, issues around data privacy and confidentiality require the development of data governance policy models that ensure the protection, at all times, of individual privacy and identity.

In the current socioeconomic environment, digital transformation is seen as the number one risk for business failure. Recent studies suggest that two-thirds of digital technology initiatives to improve efficiency and customer relations fail to reach their goals. Digital initiatives fail to succeed because people and organizations lack the right mindset to support change. When this happens, the cultural environment is unprepared to support the organizational changes induced by digital technology. Businesses in this state are simply not culturally ready for the chaotic, nonlinear process of digital transformation that requires sensitivity to all the issues that may emerge as a result of adopting digital technology as a strategy for business development and growth.

In this book, Padua develops a comprehensive approach to digital transformation that explicitly recognizes the importance of *culture* and *mindset* transformation for success. Culture is a powerful force that shapes attitudes, norms, and social behaviours. Culture helps members of an organization develop a mindset that drives social behaviours aligned with achieving a common interest. When everyone in an organization acts with the same mindset, digital transformation becomes everyone's interest. In Padua's model, organizations that embrace a culture-based strategy to prepare for and work through a digital transformation exemplify the digital transformational social mindset.

Padua offers the first real attempt to profile the successful digital transformational social mindset of an organization. She maintains that an organization desiring digital success needs to design a strategy that is holistic, long term, and sustainable. Digital success requires a fast culture of innovation in which failure is accepted. Failure is not final, but rather serves as a catalyst for continuing innovation. To drive innovation, there must be a culture that stimulates curiosity, productive and challenging conversations, diversity of thought, and independent perspectives. To be sure, failure can generate new and better ideas. The ability to adapt is also another important attribute to succeed. A culture of flexibility that supports new initiatives and challenges the status quo along with a culture that appreciates data as a key fuel for success are key pillars of the digital transformational social mindset of an organization.

An important contribution of the book is a discussion of how the digital transformational social mindset operates at different levels in a complex digital ecosystem. For example, Netflix users must be culturally ready to fully enjoy the services provided through the digital technology (micro), and Netflix must be culturally ready to change its organizational structure and business operations to be sensitive to customer needs (macro). Padua helpfully depicts how the complexity of the digital ecosystem necessitates approaching the ecosystem from a multidisciplinary perspective. Successfully understanding and addressing issues that arise within the ecosystem from multiple perspectives requires radical collaboration across many different disciplines.

Another important contribution is the recognition that the digital transformational social mindset is multidimensional. Its social boundaries can dynamically expand, cross, and blur based on the issue at hand. Padua offers four major paradigms that help describe how the digital transformation social mindset can be achieved or developed depending upon the context in which an individual or an organization is situated. Padua also proposes an innovative tool to assess the digital transformational social mindset of institutions, organizations, and businesses.

The book not only addresses a very complex and timely issue, it does so in a very creative and innovative way. *Digital Cultural Transformation* is a clear expression of Donatella Padua's commitment to advancing the field of digital sociology for students, scholars, and practitioners. Padua has created a convincing account of the importance of appreciating culture to fully reap the benefits of digital transformation for individuals, institutions, organizations, and government with human progress in mind.

Parisi Domenico
Professor of Sociology and Senior Advisor for European Development
Mississippi State University
Starkville, MS, USA

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Therefore, a special thanks goes to the students attending the Master COMPSI – Communication, Advertising, Storytelling and Business Culture, at the University for Foreigners of Perugia; to the students of the course Digital Marketing Transformation & Customer Experience at LUISS; to the students of the Trade Management Master at the LUISS Business School; and to the students of the Master CESMA – Customer Experience, Statistics, Machine and Artificial Intelligence at the Tor Vergata, University of Rome.

A special thanks also goes to the several companies that have participated in the Four Paradigm Radar interviews: SAS Institute, Vetrya Group, PI Datametrics, Accenture, Unilever, Loccioni Group, and several small European businesses, to name just a few. Their feedback has been invaluable.

The book has been enriched by interviews with digital experts, whose remarks close ► Chaps. 2, 3, 4, and 5: my deepest gratitude for the relevant intellectual and experience-based contributions of Garry Titterton, Chair of the Board of PI Datametrics (UK); Adam Riccoboni, author of *The AI Age* and CEO of Critical Future; digital heavyweight Neil Borer; and, last but not least, Search Engine Optimisation (SEO) expert John Earnshaw.

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I wish also to thank my foreword writers. Luca Tomassini, Founder, Chairman, and CEO of Quibyt, Adjunct Professor at LUISS Guido Carli, is a reference point for my studies given his long-term successful entrepreneurial experience. He is always a source of intellectual motivation and a driver of enriching discussions. Also a warm thank you goes to Domenico Parisi, Professor of Sociology and Senior Advisor for European Development, Mississippi State University, for his

precious contribution in guiding readers through the whys of the book and the overall value of the topics tackled.

A final expression of gratitude goes to my brother Fabrizio Padua, Regional Head of Customer Success at SAS, Italy, for his continued and experienced support, and to my friend Michele D'Ambrosio, digital expert of the Industrial Policies of Confindustria, the Italian Manufacturers' Association. The books he gave me sparked cultural challenges and activated reasonings that have nurtured the book's contents.

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Introduction: Looking for a *Social Soul* to Transform

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Chapter Overview
By reading this chapter, the reader is guided to the aims, contents, and structure of the book. It is explained why the book was written and to whom it is thought. The conceptual and theoretical interdisciplinary framework required to tackle the following chapters is provided. A general illustration of the basic values of the Digital Transformation Social Mindset and of the Four Paradigms Model are introduced as a basis to tackle the following chapters.

1.1 Introduction

This chapter guides institutions (business, government, NGOs, and media), professionals, scholars, teachers, and students to understand the deepest levers of a successful Digital Transformation (DT). It explains the meaning of success for DT in the current digital-analogic transformative scenario, deeply affected by environmental, social, and economic disruptions and demonstrates how, nowadays, profit has to cope with a sustainable social impact. In this direction, it explains the culture and the mindset required by DT. To achieve these aims, the Digital Transformation Social Mindset (DTSM) is introduced as a cultural, organizational, value-based set of 'social markers'. Rooted on the DTSM's guidelines, the Four Paradigm Model (FPM) is introduced to the reader as a tool to analyse, also in comparative terms, an institution's DT strategy. Within the FPM, the FPM Radar measures the level of DTSM, indicating areas of strength and improvements to institutions.

1.2 The Book's Aims

This volume, targeted to institutions (business, government, NGOs, and media), professionals, scholars, teachers, and students, has three innovative purposes. The first, is to become a guide to gain a holistic understanding of the digital socio-techno-economic environment. This comprehensive framework appears not to be easily achievable via traditional business books or university texts on digital transformation. The second function, is to explore, in an original way, the social and cultural profile of institutions engaged in digital transformation processes with the aim of understanding the role that social culture plays in the overall success of the process. The third, is to provide a tool to analyse and measure the level of DT of an institution under a socio-organizational angle. These three aims match needs that have clearly arisen through 10 years of research and teaching activity. Specifically, during teaching, it often emerged, on the students' side, a quest for systematization, for a comprehensive knowledge and learning of the digital landscape; on the organizations side, through the several exchanges I experienced for research reasons, a need to grow in awareness and self-analysis often revealed.

The result is a volume that tries to serve as a compass to cross the turbulent waters of the digital archipelago. Through an elevated number of case histories,

analogies, and examples, the book provides indications to institutions and it drives students across the demonstration of how the traditional toolbox of business models, strategies, and skills has to evolve to overcome the traditional models of transformative management and organization. The 'Digital Transformation Social Mindset' (DTSM) and the 'Four Paradigm Model' (FPM) introduced by the volume, via their operative tool, the FPM Radar, allow the reader to go in depth into the social DNA of institutions, to understand its value, to analyse it, and identify the areas of strength and improvement. In other words, the model allows us to obtain a mirror of the 'social soul' of institutions and to verify their mindset, or, that mental scheme leading the internal organizational-cultural transformation.

The FPM Radar becomes a tool to test how effectively institutions have embraced or less a social role of sustainability, responsibility, and social innovation, behind the digital transformation process and has a 'digital mindset'. In a context in which social impact investment, B-Corp, green investing, and other evolutionary forms of social responsibility are reinforcing the bond between the social dimension and the economic realm, the implication of the FPM is very important: it verifies how well the institution is carrying out that 'social' role, currently necessary in the integrated socio-techno-economic system, to generate social impact with a digital mindset.

1.2.1 Why Was the Book Written?

The book matches two author's needs:

The first is to share with other teachers and students the results of an interdisciplinary research run across 10 years of scientific and teaching activity, and a number of publications. These outcomes were tested via co-creation activities with more than 1000 students from different universities and various international geographies, via companies' interviews (from multinationals such as SAS Institute, Accenture, Unilever, to international groups as Vetrya Group, Loccioni Group, to medium–small European businesses). As students will be the next generation of global managers and professionals, it becomes particularly valuable to gain a comprehensive understanding of the socio-techno-economic digital paradigms.

As outlined above, across the years, topics have been refined, enriched, and improved by a collaborative research work with students, providing examples, case studies, and relevant feedbacks in terms of interest and comprehension. Current year teaching contents students' evaluations achieved a 9+/10 of 'very interesting' and 9+/10 of 'stimulating/mind opening' (spontaneous mentions). These students attended three different courses taught by the Author (Digital Sociology at the University for Foreigners of Perugia, Perugia; Digital Marketing Transformation & Customer Experience at LUISS Guido Carli, Rome; General Management at Tor Vergata University of Rome). Responding students were attending studies in the area of Communication, Digital Sociology, Marketing and Economics, 'Statistics, Machine Learning, and AI'. In the book's Conclusive Remarks, an interview to students from three universities illustrates their learning experience in studying the digital transformation by applying the Four Paradigm Model (FPM) and its tools.

The second need matched is the will to share with institutions and C-Suites a new cultural approach and an innovative perspective of strategic analysis that the book proves to provide with rich and innovative insights. The Four Paradigm Model (FPM) and FPM Radar represent tools of self-assessment and comparative analysis based on different possible methodologies: an in-depth self-directed analysis of the organization; and/or an organization's web corporate content analysis, or, an analysis run via interviews to C-Suites. As said above, the topic of digital transformation tackled under a wide global perspective brings C-Suites down to their 'institutional' social responsibility. But why do we use the attribute 'institutional'? The reason has to be found under a socio-political perspective. Since the welfare state crisis, starting the end of last century, behind the progressive shrinking of government budgets and public resources, the exclusive role of 'public institutions' has been progressively integrated by the private and non-profit sector. Nowadays, the innovative policy of Social Impact Investing (SII), involving private investors, finance intermediaries, and non-profit organizations, feeds a new culture and new expectations of social investment behind a wide evidence that social growth stimulates the growth of real economy. As in this book (► Chap. 4), we discuss the topic of blurring borders, this is an additional case where we can observe a blurring border between two realms: the social and the economic. This is an important evolution of the public–private systems bringing a cultural evolution of mindset and a moral responsibility. While sustainable finance, climate finance, and green investing reinforce a culture of integration between social and profit, B-Corporations[1] appear to embody the mindset of commitment to sustainability in a deeper way than those companies just paying lip service to people-planet-profit values and principles. It is not time anymore for this. It is time to take one's responsibilities for next generations. The DTSM looks for those institutions able to do it.

1.2.2 To Whom Is It Thought?

As above outlined, the volume is thought for academic, government, and corporate end users. It is a resource for accelerating research and learning for students, researchers, and professionals, as highlighted in the students' interviews displayed in Conclusive Remarks.

Specifically, the book is addressed to university teachers and students interested in understanding the digital landscape in an innovative and comprehensive perspective, embracing those social values that provide a deeper meaning to the digital

1 The B Corp business model looks to balance profit with purpose by reducing inequality, advocating for a healthier environment, and encouraging stronger communities with purpose-based jobs. When employees and businesses work towards a greater common end, there will be a positive impact on human well-being, as well as on the environment. Certified B Corporations pride themselves on being purpose driven for all stakeholders, as opposed to a traditional model which works exclusively for shareholders. For further investigation, see ► https://bcorporation.net/about-b-corps, ► https://www.researchgate.net/publication/338905570_Consumer_motivations_to_purchase_from_benefit_corporations_B_Corps.

transformation analysis, aiming to question the social consequences of decisions and framing processes in a wider human-technology perspective.

At the same time, the book is addressed to those enlightened institutions sensing the need of a value-based change of mindset, looking for new organizational and business models to drive the institution, its people, and its ecosystems to a sociocultural innovation to cope with the new digital environment. These are institutions sensitive to their social role of respecting the environment, in its wider meaning, of preserving society's well-being and work and to the need to evolve their mindset into new mental schemes.

Last but not least, the book is targeted to C-Suites, to all people viewing the organizations where they work as communities, embedded in socio-techno-economic ecosystems, bearing a relevant 'institutional' role at global level in terms of sustainable growth.

1.2.3 The Conceptual Framework

Today, the vast problems of social, technological, and economic nature are determined by the exponential pace of the digital revolution, reinforced in their disruptive thrust by the impact of the Coronavirus pandemic. The governmental institutional world, together with public, private and non-profit organizations, and the media, are involved in an integrated process of 'managing' this transformation. NextGenerationEU, a €750 billion temporary recovery instrument aiming to help repair the immediate economic and social damage brought about by the coronavirus pandemic, is a remarkable example that reflects this joint effort. This instrument is for the survival not only of a region, Europe, but of a whole connected world, sharing the recognition – although not evenly distributed – of the urgent need for a push towards digital, sustainability, and resilience. It is understood that the ability to respond to the pandemic challenges will be played out on this global systemic level. Behind these three words: digital, sustainability, social, to which we add the concept of antifragility, that is, the ability to leverage a crisis to improve (► Chap. 4), there are the problems that affect us all. These are issues concerning our present and our future, next generations, the geopolitical context, and relations between the regions of the world; we refer to the educational and value growth of young people, of work and the great change taking place due to AI technologies; to the survival of our planet and human species, the ability to face pandemics and new global catastrophic events; to the sense of our individuality and social relationships. With this reflection, we are, in reality, bringing into play the biggest issues brought to the forefront by the great transformation taking place. Transformation implies an effort of creativity and imagination, a strive of destruction, of reconstruction, of evaluation, of solution, and replacement. This transformation calls for new imagination and culture that is, a new value-symbolic approach, and for the appropriate tool to apply it: the mindset. It is a new way of thinking that can drive the transformation towards educational goals, value, work, balancing the human–technology relationship, respect for the dignity of personal privacy, social inclusion, and environmental and human sustainability.

We ought to understand, thus, which are the real protagonists, the players of this positive change. Institutions, that is, governments, public and private organizations, ONGs, and the media, nowadays, are called to become the bearers of the social values and skills of the 'Digital Transformation Social Mindset'. This means that they have in their DNA community values, attention to human relationships and inclusiveness; a long-term time horizon to allow sustainability to have its course and not to be just a social washing activity; an internal organizational culture of 'freedom and responsibility' and 'fail fast' and becoming a cultural promoter of it within its communities; it is the culture of not escaping uncertainty and risk but facing them with the right tools, that is, an adequate mindset, of being adaptive; the attitude to promote external and internal people participation, because they value people; a culture of data and of having data management skills, with the aim of understanding the context in depth and delivering services and products with a win-win approach with stakeholders, respecting their privacy and security; institutions that know how to innovate their organizations making the most of the evolution of the surrounding environment to generate value through new ways, in order to solve real-world problems; the DTSM refers to social organizations that provide opportunities beyond hierarchies; that promote, especially within young people, passions and positive values. This is the texture of the 'social markers' that define the profile of institutions bearing the DTSM within their DNA: a special cocktail of values and abilities, visions and intuitions, models, and organizational principles. In synthesis, the DTSM represents the most powerful weapon of this transformative digital age.

1.3 The Value of the DTSM and of the FPM

We have just seen how this book is born to provide a new, deeper meaning of DT, and an innovative model of evaluation to comprehend which organization has in its DNA these values and this mindset (the DTSM) or how much it is distant. As illustrated in ► Chap. 3, this new mindset is originally expressed by the DTSM as follows: '*The DTSM is the social value of DT, aiming to generate a sustainable innovation and a new social role of institutions. It is a transformational mindset providing new visions, values, and abilities to dynamically analyse the context, to courageously challenge the status quo, generating innovation based on sociality by connecting people and technology to create a social value that is aware of the environment, of ethical values, of women, and future generations*'. As illustrated in ► Chap. 3, the DTSM profiles a set of 'social markers' obtained by the application of digital sociology to anthropology and cultural studies theories. The FPM groups and systematizes the values, approaches, and visions described by DTSM social markers (the elaboration of the 'cultural markers' of the anthropologists Halls, Trompenaar, Hofstede, see ► Chap. 3) into four complementary and synergic different 'paradigms': Bottom-up, Connecting the Dots, Horizontality, and Sharing.

For example, in the first paradigm of the FPM, the Bottom-up at macro level (see ► Chap. 5), the analysis starts from a question: which are the social phenomena enabled by the digital technology, rising at global level from the bottom (bot-

tom-up), that is, from people? The Bottom-up (BU) paradigm at macro level answers to this question by taking the empirical evidence of global social movements rising across the world, such as #fridaysforfuture, #blacklivesmatter; the following question is: which are the institutions embracing these global social movements, that is, that have taken a proactive position to this global quest? The BU paradigm matches this second question by analysing the strategies of those organizations that have understood the power of this social drive and have embraced it to transform it into an element of identification within their stakeholders' social community. Patagonia, Heintz, and Uber are examples of BU at macro level as they embrace global social movements. By choosing this strategy, these brands have gone beyond traditional Corporate Social Responsibility, as they are not just joining social causes as poverty and homelessness, but advocating for real social movements, that is a much less controllable phenomena. This reflects into specific social markers belonging to the DTSM as openness to risk, a community approach, a long-term sustainability vision, an approach that values people, of resilience, and adaptivity. By adding up paradigm after paradigm, at the three level for each one of it, up to reach 12 profile points (three levels – macro, meso, micro – multiplied by the four paradigms), the FPM designs a board of the DTSM of an institution (FPM Board, ► Chap. 6).

Finally, with an easy evaluation grading process, by answering to the FPM Radar questionnaire, an at-a-glance visualization of the profile is provided: the FPM Radar is a 12 profile points empirical graphical display visualizing the position of an institution with respect to a maximum evaluation benchmark.

In synthesis, the FPM model in its entirety (the DTSM or the set of social markers at the base of it, the FPM Radar and the FPM Board, the evaluation tools) allows us to extract a novel social, cultural, and organizational profile out of an institution, to analyse it and individuate the areas of strength and improvement.

In the above paragraph ('Why the book is written?'), we have said that there are various methodologies of retrieving information to feed the FPM analysis, from interviews to scientific literature or web official contents. Interestingly, when information comes from the corporate website contents, the FPM represents a unique opportunity to verify one's ability to transmit this DNA to the wide public, to grow in the awareness of the role of an institution's reputation on the web and to spur new ideas to improve communication. The FPM analysis, in fact, becomes not only an opportunity of analysis of the above mentioned elements but also a chance of internal reflection run by C-suites, executives and all people taking part to the strategic process, on the values that are communicated, and their alignment with the company mission. As we said, ultimately, the FPM is a 'mirror' of an institution's soul.

There is an observation to be made: when taking information from an institution's website, the methodology trusts the integrity and truthfulness of the official web contents. Showing an edulcorate reality that does not reflect reality becomes an extremely dangerous boomerang, a betrayal of the global audience, concerning the website transparency and the company as a whole. Current age is not a time to betray people. Reality comes out easily in such a connected world and the reputation backlashes, across the vastity and exponentiality of the web connectivity, bear heavy economic consequences. On these bases, the model trusts what it finds

declared, providing additional possibilities to cross it with scientific literature, white papers or other sources of web information.

In synthesis, in terms of value, we have to say that the implications of a high level of DTSM for a government, a public institution, a company, an ONG, and a media are very relevant. As illustrated above, the FPM radar becomes an instrument for institutions to self-evaluate how much they *effectively* have embraced a social role of sustainability, of responsibility, and social innovation under its deepest meaning and how much they have the right mindset, skills to apply it; when applied to other institutions, it gives back the sociocultural and mindset profile of competition. To companies, the acknowledgment of a social mindset is relevant, as it highlights their institutional function in terms of social impact, but it also verifies, by the analysis of the official contents on the web, how much they are aware of it. This is a very relevant aspect, as awareness becomes a driving force for value growth; a taking of responsibility on much they contribute to sustainable growth; how much they become agents of change, effectively operating for the survival of our planet and of people, that is, how much they value people and work, respect rights, how much they contribute to technological and social innovation; which competences, skills and which mindset they will have to enable a role of active engagement towards a technological sustainability. The FPM Radar, therefore, becomes a form, still *in nuce* (at its early stages) but, certainly, an idea, of 'certification', of real commitment for a sustainable future.

1.4 A New Social Role for Institutions and Organizations

As mentioned in the previous paragraph, the gravest social and environmental problems faced by society in the current socio-techno-economic transformative era cannot simply be addressed by governments, individuals, and non-profit organizations. The coronavirus pandemic has further reinforced social and economic issues and pushed forward the transformative role of digital technology and the social perception of it. In this revolutionary time, any institution, public, private, or not for profit ought to collaborate for an inclusive and sustainable global society and economy.

Across the chapters, the book explains how digital transformation is forcing a change of the social and economic roles of institutions into new patterns, cultures, and values behind new socio-technological forces. We have already mentioned in several points in the previous paragraphs the meaning of the 'institutional' role of organizations in terms of Social Impact Investment (SII) and B-Corps. However, there is another perspective of looking at this concept. If connectivity, AI and big data drive new models of global competition and new organizational networked models, indeed, a strong drive for transformation comes also from society and people, changing their behaviours and social patterns behind the pervasiveness of digital technologies. As they represent the stakeholders of public and private bodies and as the level of interaction and dialogue based on new collaborative models is increasing (see bottom-up and sharing paradigms, in particular, ► Chap. 5), institutions have to acknowledge a new position of responsibility in terms of

impact on society. This traces back to the fact that institutions and organizations with networked structures, by facilitating interactions with people, tend to transform into large 'communities' (Tönnies, 1887).

The sociological network paradigm underlying the DTSM and the FPM, by stressing the metaphor of belonging (Di Nicola, 2015), strengthens a new concept of institutions able to generate social value, that is 'social capital'. Social capital (Putnam et al., 1993; Putnam, 1994; Fukuyama, 1996; Donati & Colozzi, 2006) founds its value on *relational goods* that are generated by social relationships: providing health and care information in a pandemic, sharing ideas on improving the viability of a city, and promoting waste recycling methods initiatives are just some simple examples of the enormous value of relational goods that may be generated in institution–stakeholders exchanges. A new responsibility towards an 'educational' role is foreseen, but also a new culture of dialogue and social listening is used to organize, generate value, create economic fluxes, and impact the way people socialize and care for the environment.

This process has to start from a cultural and mindset transformation which is the deepest meaning of digital transformation inside the DTSM concept. If institutions get a new positive role in influencing society while pursuing their profit purposes, they will be able to transmit new values of consumption and usage that are respectful of society and environment. They will become cultural and mindset activators to support a sustainable growth of the socio-techno-economic system. If people's mindset changes, then, profit, social, and environment value grows.

As mentioned above, certified B-Corporations hone in on this culture shift, embodying the understanding that the world requires people to be dependent on one another, and therefore, means that everyone is responsible for their neighbours and for future generations. This concept echoes the theories of classical sociologists such as Durkheim (1893), Parsons (1937), and Luhmann (1995, 1996), conceiving a systemic, functionalist vision of society, where each element is dependent on the others. This dependence entails new social endeavours. Importantly, it is up to the stakeholders themselves, consumers first, to look for these values and missions. According to a global study conducted by the Zeno Group in New York City, consumers in 2020 are 46 times more likely to purchase, protect, and champion purpose-driven companies.

The interesting aspect is how these organizations confirm the projection towards a community-based model. B-Corp Ben & Jerry's and Patagonia, who have both made their social and environmental agendas part of their business model and have undergone the rigorous process of becoming a B-Corporation, show the intent of building an impactful community surrounding their brand.

It is this sense of 'global community' to pervade the DTSM, reflected in social markers such as 'Collective', that is, in the meaning of people-centred or 'diffused' in the sense of ecosystem-structured. Edelman Trust Barometer (2021) shows a different picture, though: if the glue of a community is relationships and trust, with Covid-19, the trust map shows a widespread mistrust of societal institutions and leaders around the world. The whole system appears to chart a new roadmap. The FPM model appears, then, as an opportunity of gaining back societal trust. Yet, an SWG Research (Grassi, 2019) shows that 70% of interviewed managers believe

that capitalism is at a crossroad: either it puts the person at the centre or it dies. As we will see in ► Chap. 3, putting people at the centre of processes is a core value of the DTSM.

1.5 The Digital Sociology Paradigms Behind the DTSM

At the beginning of the 1980s, many signs indicated the slow transition to new models of analysis of social reality. The widespread diffusion of a reticular terminology (width, density networks, support networks, networking of services, etc.) can be considered as some of the various examples of the maturation of a new and different perspective of reading social reality. Today, it appears the pandemic has brought back again the need of a pluralization of the care system in welfare programmmes, the fine-tuning, in the field of services to the person, of new methodologies of intervention that can be labelled as 'network intervention'.

In this framework, this book tackles concepts such as complexity, environment, ecosystems, organizational patterns, social capital, relational goods, customer behaviour, trust, engagement, and value building. These concepts are studied within the scientific framework of 'Digital Sociology'. Digital Sociology is a subdiscipline of sociology, a field of science investigating the impact, development, and use of digital technologies and their incorporation into social worlds, social institutions, and concepts of selfhood and embodiment' (Lupton, 2015, p. 1). This recent discipline born in the digital age is still evolving (Lupton, 2015; Neal, 2010; Orton-Johnson & Prior, 2013; Deuze, 2012; Daniels et al., 2016). Indeed, two main areas may be identified: on the one hand, *Digital Sociology* deals with the understanding of the use of digital media as an integral part of the everyday life and the relationship among digital technologies and patterns of human behaviour, social relations, and concepts of the self (Lupton, 2014); *Web Sociology*, on the other hand, studies the application of the sociological method to the Internet as a research tool, for example, applying the methods of online surveys and interviews, as a discussion platform and as a research topic.

The DTSM and the related model, the FPM, needs a double basic theoretical clarification. The first one specifies that the FPM is an empirical model that detects the emergence of new mechanisms of functioning of reality (phenomena, processes, parts, or segments), in the digital-analogue dimension. The main underlying paradigm is the sociological network paradigm, intimately related to the relational paradigm (Luhmann, 1995, 1996; Simmel, 1908; von Wiese, 1959; Donati & Colozzi, 2006) in a Digital Sociology framework. To explain a complex socio-techno-economic reality, merging digital with analogic patterns, it should be noted that different theories are applied. Besides sociological, also cultural, organizational, management theories are used as a theoretical basis to explain the DTSM and the FPM. The second specification concerns the term 'paradigm' used in the FPM. Introducing the empirical theories of the four Bottom-up, Connecting the dots, Horizontality, and Sharing models (we will illustrate them in ► Chap. 5) as new paradigms would appear a risky or scientifically hazardous operation. This traces to the philosopher Thomas Kuhn's definition of paradigm. In fact,

with the term 'paradigm', Kuhn (1996, see the 'Sociological Box' in ► Chap. 5) wants to indicate 'universally recognized scientific achievements, which, for a certain period, provide a model of problems and solutions acceptable to those who practice a certain field of research'. What happens if we are in front of an interdisciplinary nature of empirical theories? The debate around interdisciplinarity, in didactics and scientific research (Morin, 1991), is alive, with supporters (UNESCO; EU; OECD[2]) and mixed positions (Chettiparamb, 2007; Dogan & Pahre, 1991). The interdisciplinary nature of the emerging assumptions of the FPM, which is sociological, cultural, organizational, management, limits that wide acknowledgement of the scientific community that is still mainly anchored to a traditional boundary-based approach to science domains.

The FPM composite structure, made up of metaphysical beliefs (values as sustainability, respect of people, environment) and assumptions (the assumptions synthesized by the FPM Board and FPM Radar, ► Chap. 6), as well as scientific models of explanation (The FPM model, ► Chap. 5) reflects four empirical theories that absorb the experience of a multitude of cases and deductively synthesize them; they capture the essence of trends, capitalizing on the past to inductively project a general future guideline; they absorb the culture, as a common factor to any kind of time-space, human-technological, socio-business-economic dimension. As seen in ► Chap. 4 (Par. 'Fractals'), the digital realms appears as a 'fractal' realm, where a same pattern tends to replicate at macro as in micro dimension. Indeed, if, on the one side, each 'paradigm' of the FPM finds its justification in the underlying sociological network and relational paradigm, at the same time, it represents a stigmatization, a sort of 'fictious geometric representation' of a constant pattern: each *FPM Check list* (► Chap. 5) constitutes a set of constants that applied to various examples can confirm the 'geometry of the pattern'. The FPM is a set of interdisciplinary principles recognized at the empirical level founding on an acknowledgment of different 'scientific communities': sociological, via the works of sociologists as Putnam, Fukuyama, Luhmann, Weber, Simmel; cultural, via the works of Halls, Trompenaars, Hofstede; organizational, management, via the several works of Drucker, Bennis, Kotter, to mention the main scientists; for this reason of different scientific domains, and different scientific communities, such an interdisciplinary approach is in progress and left open to critic and progresses. Kuhn maintained that a paradigm's cultural and scientific basis, its methodological procedures, its methods of communication, and transmission of theories which inspire the work of the 'scientific community' are anchored to extra-scientific factors of a given epoch. Any model, therefore, is not ahistorical and it is abstract. And we are witnessing a revolutionary time, an extremely unpredictable one. Kuhn, a Karl's Popper scholar, used to say that science proceeds on the basis of discrete evolutionary steps and not by a continuous progression. When something unexpected happens, the current paradigm, the set of rules and values shared within the scientific community, breaks down and is overtaken by a new paradigm

2 OECD published the seminal volume Interdisciplinarity, which sought to promote interdisciplinarity in teaching and university organizational structures.

(Kuhn, 1996). If Kuhn would have witnessed the digital age we are living in, he would have been impressed by the revolution in act. In fact, across the chapters, many are the evidences of a revolutionary age: in ► Chap. 4, we describe the analogy with the French Revolution; in ► Chap. 5, we indicate the 'hockey stick' model as a representation of the exponential pace of the digital transformation taking place; and in ► Chap. 2, a leap of science and culture is described here.

For this reason, to provide the FPM model with a solid scientific basis, we may say that there are two levels of reading of it: one refers to Digital Sociology and it is sociologically supported by the paradigm of network within the relational paradigm; the second is interdisciplinary, to be submitted to a process of acknowledgement by an interdisciplinary scientific community, and is still in process.

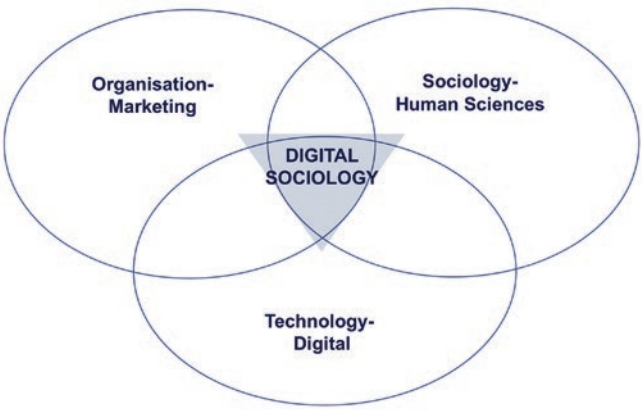
1.6 Structure of the Book

1.6.1 Why Is the Book Unique?

The book's uniqueness lies within its innovative interdisciplinarity, original analogy-based approach, and within its differentiated and actionable tools provided throughout the text. It demonstrates how digital sociology may represent a powerful, valuable science, able to open minds to achieve a better understanding of socio-techno-economic phenomena at macro, meso, and micro levels.

1.6.2 What Are the Scientific Domains of the Book?

The book tackles the topic of digital transformation under a digital sociology perspective by integrating the mainstream techno-business-organizational approach with a human sciences holistic perspective to illustrate the new mindset required by organizations for an effective digital transformation (◘ Fig. 1.1).



◘ **Fig. 1.1** The book's key scientific domains. (Source: The Author)

The result is a new specific ground of application of this sub-science of sociology in the organizational field. As said, in this perspective, this study concentrates the focus of theoretical and practical analysis on multiple organizational-business issues at the macro context dimension, at the organizational meso level, and at customer micro level.

Seeing how sociology and digital sociology are at the core of the whole scientific and theoretical approach, while adding an interdisciplinary approach, the volume also encompasses scientific areas such as sociology of organization, anthropology and cultural studies, management, marketing, and social psychology, among other intersections with more distant scientific areas (e.g. biology, ethology).

1.6.3 How Is This Book Effective in Developing a New Mindset to the Reader?

We may answer because of its methodology and approach to topics, besides its contents: for example, a deeply – often disruptive – interdisciplinary approach, intersecting managerial topics with different perspectives; a holistic, that is, a 360° approach, as ancient Greek Sophists used to do: topics are analysed via different (relativistic) point of views. A new mindset is stimulated also because of a disruption of linear, traditional thinking, as we will explain in ► Chap. 4: analogies work to shift the thought from a logic, problem-solving pattern to a 'connecting dots' approach; a case-history approach: starting from theory and grounding it to real cases.

In each chapter, the Sociological Boxes will provide deepenings of specific topics under a sociological perspective.

1.6.4 What Are the Contents of the Book?

The book is composed of two sections.

The first, entitled 'The Digital Transformation Social Mindset', frames the concepts underlying the FPM in a broad Digital Sociology perspective, where the institution is people-centred and viewed as an organization embedded in a network of social relations and in an environment with new dynamics. In this section:

► Chapter 2 illustrates the key challenges of our era: the changing socio-techno-digital landscape, accelerated by the impact of the Covid-19 pandemic on digital transformation processes; the need for a 'technological responsibility', the search for an equilibrium between technology and human.

► Chapter 3 provides the reader with the *DTSM profile* that an institution or an organization should achieve. After illustrating the scientific methodology and related cultural theories, the chapter explains the *social markers designing* the DTSM profile. A conceptual definition of DTSM and a focus on the pillars of the DTSM is provided as well.

The second section is entitled 'The Four Paradigm Model' (FPM) and it provides the reader with the FPM mainframe and with tools to apply it to an institu-

tion, which means understanding the level of DTSM. It illustrates its components and the social markers that are to be improved to better achieve it.

► Chapter 4 explains in an original transdisciplinary, analogy-based approach, the digital ecosystem as the context where an institution operates. In other terms, this chapter represents a 'cultural gym' to acquire a flexible and multidimensional mindset, open to innovative connections of dots.

In ► Chap. 5, the FPM hypothesis and methodology is introduced. The analysis of each paradigm follows: Bottom up, Connecting the dots, Horizontality, Sharing. All paradigms are illustrated starting from the socio-techno-economic context, to the impact in terms of value chains; a *FPM checklist* to recognize the paradigm and an application of the *social markers* to each paradigm is also provided; the paradigm at macro, meso, micro level is illustrated here as well. Cases and examples help in the comprehension of the model.

► Chapter 6 illustrates the FPM in action. It takes back the FPM Checklists, the social markers applied to the paradigms, and the FPM discussed in the previous chapter for an holistic analysis. It provides, then, the two relevant tools of the DTSM Board and DTSM Radar, with applied case studies.

Summary

This introductory chapter has guided the reader through the aims, contents, and structure of the book, the whys the book was written, and to whom it is thought. The illustrated conceptual and theoretical interdisciplinary framework will help the reader to navigate through the following chapters. Specifically, the conceptual framework and a general illustration of the basic values of the Digital Transformation Social Mindset and of the Four Paradigms Model have been introduced. In this frame, it has been cleared the meaning of the new social role for institutions and organizations. An explanation of why and under which meaning we use the term 'paradigm' is a relevant premise to understand the FPM that is illustrated in the second section of the book. Finally, we understood the uniqueness of the book, the scientific domains covered, and a short description of each chapter has been provided.

References

Chettiparamb, A. (2021). *Interdisciplinarity: A literature review*. Retrieved March 25, 2021, from https://www.researchgate.net/publication/323845917_Interdisciplinarity_a_literature_review

Daniels, J., Gregory, K., McMillan Cottom, T. (2016) *Digital Sociologies*, Policy Press

Deuze, M. (2012) *Media Life*, Polity Press

Di Nicola, P. (2015). *La rete: Metafora dell'appartenenza. Analisi strutturale e paradigma di rete*. Franco Angeli.

Dogan, M., & Pahre, R. (1991). Creative marginality: Innovation at the intersections of social sciences. *American Political Science Association, 85*(3), 994.

Donati, P., & Colozzi, I. (2006). *Il paradigma relazionale nelle scienze sociali: le prospettive sociologiche*. Il Mulino.

Durkheim, É. (1893). *De la division du travail social*. Félix Alcan.

Edelman. (2021). *2021 Edelman Trust Barometer*. Retrieved May 1, 2021, from https://www.edelman.com/trust/2021-trust-barometer, date of access April 24, 2021.
Fukuyama, F. (1996). *Trust: The social virtues and the creation of prosperity*. Simon & Schuster.
Grassi, R. (2019). Companies facing changes in power dimensions. *Conference 'less artificial, more intelligent, always human'*. EY Capri Digital Summit.
Kuhn, T. (1996). *The structure of scientific revolutions*. University of Chicago.
Luhmann, N. (1995). *Social systems*. Stanford University Press.
Luhmann, N. (1996). *Modern society shocked by its risks*. University of Hong.
Lupton, D. (2015). *Digital sociology*. Routledge.
Morin, E. (1991). *The Emergence of Thought*. Diogenes. *39*(155), 135–46.
Morin, E. (2001). *I sette saperi necessari all'educazione del futuro*. Raffaello Cortina.
Neal, R. (2010) (Eds. Dawson F. and Neal S.), *Expanding Sentience: Introducing Digital Sociology, Temetic Research*. Silicon Prairie News.
Orton-Johnson, K., Prior, N. (2013). *Digital Sociology. Critical Perspectives*. Palgrave Macmillan.
Parsons, T. (1937). *The structure of social action*. McGraw-Hill.
Putnam, R., Leonardi, R., & Nanetti, R. Y. (1993). *La tradizione civica nelle regioni italiane*. Mondadori.
Putnam, R. D. (1994). *Making democracy work: Civic traditions in modern Italy*. Princeton University Press.
Simmel, G. (1908). *Soziologie*. Duncker & Humblot.
Tönnies, F. (1887) *Gemeinschaft und Gesellschaft: Abhandlung des Communismus und des Socialismus als empirischer Culturformen*. Fues, Leipzig.
Tönnies, F. (2011). *Comunità e società*. Laterza.
von Wiese, L. (1959). Die Deutsche Gesellschaft für Soziologie: Persönliche Eindrücke in den Ersten Fünfzig Jahren. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 11*, 11–20.

The Digital Transformation Social Mindset

Contents

An Unpredictable Era at the Time of Covid-19

Contents

D. Padua, *Digital Cultural Transformation*, Innovation, Technology, and Knowledge Management,
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2

Chapter Overview

In this chapter, you will learn about the key challenges of this era, reinforced by the SARS Covid-19 pandemic wave and their impact on the equilibrium between human and technology; in this light, the reader is driven through some of its consequences, in terms of a new need of data culture, of a sustainable technology and mindset framework, of transformation not only of jobs but, indeed, of the meaning itself of work. A whole culture of digital transformation is being revolutionized. The '5 Covid 19 pandemic challenges' close the chapter.

2.1 Introduction

In the digital-analogic transformational scenario, the SARS Covid-19 pandemic has not only accelerated digital transformation, but has generated an even deeper change: it has forced institutions (public, private, NGOs) towards a new 'technological responsibility', concerning the impact of technology, of AI, and of big data on people and society; moreover, it has turned the need for data literacy into a need for data culture; has changed digital skills and human abilities, by turning them from a competition into a complementarity; it has changed model assumptions and the meaning of socio-economic phenomena such as work and education. In this light, institutions need to redefine their role, connecting technologies with humans in an ethical, sustainable way. A new sustainable mindset driving an appropriate 'digital culture' appears, then, to be the most forceful drive to source value from technological innovation. The 5 Covid-19 pandemic challenges synthesize such a leap of culture that institutions have to undertake for a successful digital transformation.

2.2 The Challenges of Our Era

In the complex multidimensional and dynamic scenario of the digital age, the SARS Covid-19 pandemic wave has exacerbated complexity and uncertainty. The challenges we are facing in this historical moment, nowadays, are enormous.

First, the health of our planet and of all living species The pandemic has shed light on the consequences of this threat that puts the whole survival of the planet in danger. Climate is being disrupted by pollution in every form. Animal species are dwindling and human lives are being put in danger. We are touching,with our hands, how all animal and vegetal realms are connected.

The future of work It is not just the kind of works that are changing. It is the nature of work that changes. Disruptive technologies such as digitization, automation, and artificial intelligence unite with demographic forces to continue transforming the nature of work, how it gets done, and by whom. The resulting job displacement could

be massive – think to Industrial Revolutions – affecting as many as 800 million people globally by 2030 and requiring up to 375 million of them to switch occupational categories and learn new skills (McConnell & Schaninger, 2019). Companies are ready to face the wave. In a recent McKinsey survey, 60 percent of global executives expect that up to half of their organization's workforce will need retraining or replacing within five years. As we will see in next paragraph on the impact of the Coronavirus, the pandemic has dramatically pushed ahead the digital transformative wave.

Connectivity The next generations of high-speed fibre, Wi-Fi, cellular networks, low-power wide area networks, near-field communication between devices, and low-earth orbit satellite constellations are about to make the world more connected. The convergence of these technologies will give internet users greater speed and reliability, as well as lower latency, but deployment will require billions in capital investment from providers and this is likely to be uneven across geographies (McKinsey Social Institute, 2019, p. 29).

Healthcare Since post World War II, little has changed in the healthcare system. Nowadays, the pandemic has transformed the idea of healthcare, not as a cost but as an investment with sound returns, and a driver of economic growth. It has transformed the public policies concept of a close system into a global ecosystem of coordinated health systems. New needs have emerged for a resilient management able to face unpredictable surge in patient volumes, integration of in-person and virtual medicine intervention, key supplies reserves strategies, policies on critical healthcare; infrastructure, and contingency production facilities for critical medical equipment will all need to be addressed (McKinsey, 2020).

Bio-tech Advances in biological sciences and computing, data processing, and AI are revolutionizing once unimaginable sectors, including agriculture, consumer markets, materials and energy, defence and law enforcement (McKinsey, 2019, p. 29).

In this transformational and networked scenario, it emerges how we are connected human beings. The pervasiveness of the integration of the online and offline upsets the perception of our relationships and our expectations. We are not in a time of change but rather in an era of change, which is deep and fast. That is why, starting the 2000s, we are experiencing a revolution, and not an evolution: the pace of it is exponential. The impact is pervasive. In ► Chap. 5, we will extensively describe across the Four Paradigm Model this shift of paradigm: possess and usage of a good dissociate; production and consumption integrate; position and action dissociate, as in remote working or video chats; content production merges across multimedia patterns – think about the way we can produce videos, texts, audios, and pictures. The model of technology evolution is so networked and so accelerated that the timeline is not linear anymore. Many futures are possible a holistic mindset, connecting technologies with humans and their needs to create new opportunities. From nanotechnologies to bio-technologies to genetic engineering, there will be technologies enabling unpredictable opportunities based on AI, Cloud and Quantum Computing, robotics, and geo-engineering. This

will result in a deepening and acceleration of phenomena, impacting our global societies, and our way of living and value creation. All dimensions of human life will become more disintermediated, augmented, virtual, robotized, personalized, digitized, automated, datafyied, cognified, smarter. Convergence, a concept at the basis of the Horizontal paradigm (see ► Chap. 5), between technologies such as Artificial intelligence and Neurosciences, Robotics, and Genomics, will change our patterns of thinking. Intelligent cars, computers that can learn, think, and take decisions autonomously, impact the way we work and are changing dramatically our lives. Sensors embedded in objects generate networks of connected cars, cities, homes, organizations across domains as culture, home furniture, education, tourism, agriculture, food, and many more. These new systems based on digitation, mobilization, and augmentation will, in turn, be connected and amplify each other, revolving around us. A new Digital mindset has to be adopted to cope with this landscape.

Cloud computing, a principle at the base of the Connecting the Dots paradigm (► Chap. 5), changes the business scenario as it introduces innovation and agility for any institution, regardless of industry. Cloud platforms become powerful artificial intelligence (AI) tools and services accessible to a large base of users. These tools allow and spur experiment, 'democratize' innovation, boost agility, and create engaging digital transformation journeys.

Ground breaking technology, itself, in its innovative drive is a value. Deloitte's most recent Flexible Consumption/XaaS (Experience as a Service, that is, on demand) Survey bears this out. Survey respondents rated 'access to newest technology' as their No. 3 XaaS objective. In addition, for companies in which more than three-quarters of the enterprise IT is XaaS, and in companies that have been using flexible consumption for more than 3 years, 'accelerated innovation' has overtaken 'reduced costs' as a key priority for their XaaS initiatives.[1]

In this light, from the immediate to the medium term, future becomes unknown. The relationship between human and technology raises questions and splits scenarios. On the one side, a 'singularity[2]' future (Shanahan, 2021), where technology will overcome humans, is going out of control, where machine intelligence grows in power higher than human brain; this scenario puts at the fore front ethical, social, political issues, today, under discussion by policy makers. For example UN has been called to discipline emerging technologies in the area of lethal autonomous weapons systems[3]; on the other side, a future where human traits, such as creativity, feelings and emotions, intuition and counterintuition, ethics and wisdom, and

1 Technology Industry Outlook Cloud platforms can provide a gateway to powerful AI tools that fuel agility and innovation, Deloitte Center for Technology, Media and Telecommunication.

2 Singularity is a theoretical condition merging machines with human up to a condition of transcending human intelligence blurring the respective borders. The cyborg represents this occurrence.

3 See at: ► https://www.un.org/en/un-chronicle/role-united-nations-addressing-emerging-technologies-area-lethal-autonomous-weapons

values, make humans distinct and irreplaceable by machines. It is true that these qualities enable humans to uniquely solve complex issues with non-linear nor predictable patterns, therefore making them not replaceable by machines. These human features go even beyond ambiguity, a target that machines are progressively matching, following patterns which may give priorities to empathy or other values which are not programmable, to imagination and humanity. Under these principles, it appears that very few jobs will be fully automatable. We will rather become less routinary, used to act just in time, be discomforted, in a constant change. The 'good technology' may help the human species to perform real positive progress, helping, for example, humans in sustainable programmes. Global Forest Watch programme of the Witness the World Resources Institute is a web-based app that, adopting pervasive computing, uses satellite, sensor, and user information to create customized maps of land use, deforestation, and conservation. Global Forest Watch lets government officials remotely monitor woodlands in real time and helps supply chain managers ensure the origins and sustainability of purchased timber (Segars, 2018).

At the base of this transformation, there is *Digitation*, or the conversion of analog information in any form (text, photographs, voice, audio) into digital via electronic devices, that is, microchips. This process is at the base of data production which feeds AI and web analytics. *Digitalization*, instead, refers to the integration of digital technologies into the everyday life: hyper-connectivity allows IOT, which, in turn, fuels the Internet of Everything: everything becomes smart, fuelling Intelligent Assistants, which, in turn, feeds Artificial Intelligence via a massive production of data. Quantum Computing, the next generation of data elaboration, fuels big data, the IOT fuels Artificial Intelligence and deep learning, which fuels robotics.[4] Business models transform, giving sense to the concept of Digital Transformation.

After this gallery of hyper-technologies, we ought to ask ourselves which mindset can cope with a form of 'technological responsibility' concerning the impact of technology, of AI, and of big data on people and society. As we will see in next ► Chap. 3, DTSM implies having a holistic sense of responsibility, an environmental awareness to 'develop a working knowledge of their associated drivers, which range from the data fed into AI systems to the operation of algorithmic models and the interactions between humans and machines'. In this perspective, DTSM, as we will see, means having a 'sustainable mindset', that is, also being aware of AI unintended consequences, building skills to recognize the risk patterns and working to engage the whole institution in creating a data culture aware of potential perils. The real issue is the lack of preparedness to face these unintended consequences, as they are not predictable and evolve along the technological revolution. As illustrated in the Digital Transformation Social Mindset across the social markers, in this historical phase, there is a strong need for data culture. This does not just imply being data literate, but having a holistic knowledge and awareness of the impact of data on all realms, from social to economic – think to the impact of AI on finance.

4 See Gerd Lehonard from ► https://www.futuristgerd.com/topics/core-topics/?gclid=CjwKCAjw47eFBhA9EiwAy8kzNPwXOlyx2AVv-bF3k0M_IqcoyyHv-irhgTU8-nrS91KDOKGWL7gBPBoCMNsQAvD_BwE

2.3 The Digital Transformation of Work

Among the numerous challenges generated by the transformative impact of digital technology, the evolution of work represents one of the most urgent social consequences calling for the need of a new mindset.

It is commonly shared that work will change in the near future. An OCSE study indicates that by 2025, 10% of jobs will disappear. But what is more impressive is that 30% of jobs will change. For instance, shop assistants will become a sort of consultants or supervisors, due to the direct web access of customers to information on products' performances and prices; price comparison websites and community forums; e-commerce; so supermarket cashiers, bank tellers, and bus drivers will face the same. The FPM (► Chap. 5) shows how in the Connecting the Dots and Horizontality paradigm, the shop experience evolves into a more disintermediated and personalized journey. However, new works will be created thanks to the opportunities unlocked by convergent technologies. The balance between the jobs that disappear and those that arise has always been positive in all previous industrial revolutions: for example, in the past, farriers have given way to car mechanics and the replacement process has led to many more jobs. Continuous learning will be the key to the door of the job market of tomorrow, to fill the gap between the skills people have and the skills needed by organizations. As mentioned above, a McKinsey survey (McConnell & Schaninger, 2019) projects a strong need of retraining or replacing the workforce within 5 years. Along the DT processes, as the introduction of AI-enabled automation, a concept of 'lifelong employability' (Davies et al., 2019, p. 109) appears more effective versus the traditional 'lifelong learning'. This evolved concept focuses more on learning adequateness to the evolving organizational processes, and to new models, as the peer-to-peer learning model illustrated in the Horizontal Paradigm (► Chap. 5) and a new culture, namely, the DTSM which we will illustrate in ► Chap. 3. Systematic, structured, conventional learning, aiming to 'retraining' and 'reskilling' sound 'episodic' and related to a specific process or new piece of equipment installed. Lifelong Employability, instead, refers to a continuous and successful adaptation to the evolving economy and to the aim to being employable. Flexibility and adaptation appear as passwords to the future of work in the future institutions' culture and mindset; microlearning, self-directed online learning, and AI make the provision of training more flexible.

The theme of the professional well-being and the Career and Learning Advisor figures are missing. In the future, they will therefore have to think about creating formal mentoring programmes to advise workers on how to progress in their careers and on how to move into a new sector or innovate it. Besides this, not only will jobs change, but the work also changes: the meaning of doing business changes: not only profit but social impact. The meaning of work changes: it is no longer just a means of sustenance, but an opportunity to discover one's talent and self-development. Today, the digital revolution opens the doors to the great opportunity to create human-centric companies: the ability to 'keep learning', ensuring future employability with new knowledge and new skills. The first step? Making the CEOs the protagonists of this transformation, to reach, then, all workers and young people.

Digital and human skills must be increasingly considered complementary and not in competition with each other. There is a need for practises combining the best of human and digital skills that create extended minds (human–digital). It becomes essential to support every professional to develop and integrate new skills, thus allowing everyone to become the architect of their own extended (augmented) mind, with an integrated 'Human–Digital' approach. It is important to emphasize that the 'Human–Digital' approach does not aim to replace organic parts with artificial organs, but it represents an integrated relational vision (ELIS, 2019). This concept confirms the relational, networked nature of society, as illustrated in ► Chap. 4.

In this pandemic time, remote working has twisted minds, pushing companies ahead towards a gig and freelancing economy: employer–employees physical bonds are fading (see ► Chap. 4, par. Indian Ocean routes) and the on-demand work is suddenly emerging as an advantageous possibility to be explored for many companies. In other words, it appears that the pandemic has forced organizations to re-think their 'physical' bonds composing their workforce. We are obviously going to face a progressive deregulation of the job market towards a gig economy that demands, urgently, a new regulation to balance profit with social needs. In this book, we extensively stress the social role of organizations, and this is a relevant ground where they can demonstrate real intents.

In sum, the nature of the evolving workplace confronts leaders with the need to think quite differently about people's relationship with their work. As mentioned above, a 'lifelong employability', helping people to successfully adapt, even more than once, as the economy evolves, may be an answer to a shifting competitive landscape.

We illustrate, across the description of the DTSM and of specific social markers in ► Chap. 3, the importance for transformed institutions to understand the context. Understanding the ground on which new skills have to be raised is fundamental: for example, to plan an effective retraining of the whole transforming organization.

This shift in the nature of work requires a new mindset. As we will see in ► Chap. 3, the DTSM synthesizes an agile mindset, changeable, dynamic, adaptable which recognizes the fluid contexts and situations that a digital environment generates. A mindset with an holistic vision, a long-term projection, a fail-fast attitude in innovation, data savvy, is a resilient one.

2.4 The Impact of Covid-19 on Digital Transformation

It is intuitive that behind DT there is digital technology and that technology is behind the transformational drive. When we think about digital technology, our thought goes to microprocessors and computers, or digital devices. But could you ever think that behind a global, world-wide technological transformation, there was a very little sparkle? Beyond any scientific debate on the origins of the Covid-19 sparkle, which goes definitely out of the book's topics, it appears there has been a leap from one realm – the source realm of the coronavirus – to another one: the

human one. Covid-19 has proven, today, to have been a key driver of global change in organizations, society, economy, politics, and education. Covid-19 is the greatest challenge the world has faced in decades. It has impacted people's lives on an unprecedented scale, across every industry, and it has engaged enterprises in new transformational drives. The pandemic has not slowed innovation, it is amplifying it to historic levels. As we will see across the book, the pandemic is also driving a new vision of connectivity, bringing with it a new environmental awareness, and a renewed sense of responsibility. In this time, all realms, from science to politics, across work, technology, and society, have experimented new tight dynamics of interaction. This fresh reality demands a renewed holistic culture, where borders between socio-techno-economic realms are progressively fading and exchanges at any level are being facilitated. Behind these new pushes, a new wave of Digital Transformation is taking place. Never as in this moment a new institutional culture and a new mindset is required. Indeed, an appropriate 'digital culture' appears to be the most forceful drive to source value from technological innovation. Due to the pandemic's environmental upset (taking the concept of environment in its broader sense), the concept of *value* has acquired a new meaning and a new definition. The broader aim of this volume is to shed some light on these issues, by delving inside the complex framework of Digital Transformation.

It is evident how this pandemic event, unpredictable to the large public, impacts the established and shared concept of global society, generating group social awareness and influencing individual and group's behaviours. This phenomenon involves every entity on our planet: from you, me, to our families, to institutions, governments, organizations, and companies across all sectors. As a paradox, it is just the simplicity of the virus structure, simpler than bacteria, which creates enormous difficulties for the humans to defeat it, given that there are 'fewer vulnerabilities to exploit' (Yong, 2020). On the contrary, it is the complexity of human systems, both biological and social, which makes them vulnerable. Complexity generates a vulnerability from the inside (i.e. a virus inside a body, easily attacking different connected organs), but it defends itself from the outside (i.e. the difficulty of diagnoses).

With the Covid-19 pandemic, the awareness of being all connected has become tangible. At global scale, new products and new services never tried before have been experienced (i.e. food delivery). New feelings of fear have crossed the globe, bonding people of diverse cultures: new solidarities, new relationships. It is true that, as today nobody is able to grasp the historic implications of this moment, only in the future, when we will look back to this complex time, we will be able to understand the full scope of it. For the moment, we are just able to catch only a few tangible signs and some initial reflections may be carried out based on them.

Opposing to our unpredictable future and present (we, as single persons, miss the full spatial scope of the global situation, instant by instant), we strive to look for a new 'normal'. This is very human, as it attains to a primary need of safety (Luhmann, 1996), that, in conditions of uncertainty, claims for a strong need of 'normality'. The simplest case of a normal distribution is known as the 'standard' normal. Indeed, we are grasping at new linearities, for rationality, for 'standard' or known, events and news, showing a reassuring consequentiality and possibility to predict. In our perspective, we are looking for safety. In reality, it is clear

how predictability is facing growing difficulties. Statistical modelling of reality is a very complex process, requiring a massive amount of real time data (Big Data), as phenomena are constantly changing, variables are multiplying, and cannot be crystallized in static models. Alan Greenspan, at the sparkling of the 2008 crisis, admitted in front of the American Congress how econometric models failed in providing an interpretation of reality. Too much faith had been put in numbers and econometry. However, on a long term, the 'new normal', at the individual and collective level, will be based on a higher awareness that we are not in a safe, stable world. This means that we will encounter both gray rhinos (Wucker, 2020), and black swans (Taleb, 2007).[5] 'Gray rhinos' refer to a highly likely, yet ignored, threat; a 'Black Swans' event is a term used to define highly improbable events, impossible to predict, which have a massive impact on the world. It is the risk of the unknown unknowns that an unpredictable future brings. In synthesis, gray rhinos are 'unexpected expected' events, while black swans belong to the category of 'expected unexpected events'. We will have, then, to get used to recognizing gray rhinos and we will have to be aware of black swans. Will they be new rhinos or new black swans? We have to see how Covid's aftermath 'new normal', intended as an adjustment of our lives and behaviours to the post-emergency phase, will cope with the will to recover the 'old normal', to take back our lives and behaviours, on which the repercussions in terms of change still have fully to be measured. Up to today, we do not know the long-term impacts of Covid-19 on our lives, at neither the collective level nor the individual level (Bouvier, 2010): it is difficult, today, to predict its long-term effects on global and regional economies, on politics, on technologies progressions, and social evolutions in terms of inequalities and digital gaps; it is complex to imagine the repercussions on local territories, on communities, and institutions. At an individual level, there are us and our lives. Here, we have to understand a subtle, though relevant, watershed: we have to identify the threshold after which a new behaviour tied to the Covid emergency is introjected and transformed into a personal stable behaviour. In other words, if the time-length of the new behaviour forced by the contingent need, for example, online purchasing, has been sufficient to radically change our purchasing behaviour or not. In other words, if we keep online purchasing at a 'new normal' behaviour.

With this concept, that is actually a question left open, we introduce the next chapter, where we move to the cultural effects of the Covid-19 pandemic.

2.4.1 The Cultural Leap

For all that has been said above, some reflections on the cultural side have to be made. Besides the different hypotheses on the source of the sparkle of the SARS Covid-19,

5 The term 'Gray Rhinos' was coined by Michele Wucker, speaker and author of 'The Gray Rhino: How to Recognize and Act on the Obvious Dangers We Ignore. The term 'Black Swan' is coined by the philosopher and writer Nassim Nicholas Taleb in his 2007 book "The Black Swan".

it is undiscussed how there has been a leap from an unidentified source to the human species and that institutions and individuals have reacted with a 'leap of culture'.

2

First consideration: we are talking about a 'leap'. Any leap, for definition, as, for example, a leap of species, is not a predictable event. It does not follow a linear, cause-effect progression; it is a 'jump' from one point to another, one that happens at an undetermined moment. You may assign a probability to the occurrence of it, but it is not possible to know where and when it will exactly happen, and from whom to whom (an expected unexpected, a black swan). Here, we focus on the patterns of the spread of the phenomenon within a complex environment (see ► Chap. 4, 'The 2008 Financial Crisis' paragraph) and its multidimensional impacts. Any leap of species may be seen as a 'normal accident', the inevitable result of 'multiple and unexpected interactions of failures' (Perrow, 1993). As Perrow specifies, the odd term 'is an expression of an integral characteristic of the system, not a statement of frequency' (Perrow, 1984/1999, p. 5). Moreover, by following chaos theory laws,[6] it is not only unpredictable in its essence, but also in its evolutionary path (De Marchi, 2020).

The interesting part of the matter is that to an unpredictable fact and context, many institutions, associations, and organizations of any nature reacted with a similar unpredictable pattern, showing unsusceptible, original, and agile driving forces. A transformation of products and processes was totally out of the blue, out of defined strategies for innumerable organizations. But the market, in many sectors, due to the striking impact of Covid, had been suddenly disrupted and new demands had raised. Public and private managers, entrepreneurs' talents, creativity pushed ahead the agility and resilience of their organizations, which had been suddenly tested by converting internal systems and processes into new needs and demands. Some of them interpreted these as profit opportunities, others as a call for responsibilities. Companies in the automotive, household appliances, clothing, perfumes, and fabrics sectors converted their businesses into production of masks, disinfectants, respirator fans, essential medical equipment for first responders, etc. Dechatlon, Dyson, Armani, Ramazzotti, H&M, Nordstorm, GM, and L'Oreal and many other companies across the globe acknowledged this sudden external push to an agile, collaborative, and flexible change. This change has activated a new *culture of transformation* within the organization and in the entire stakeholders' ecosystem. Not only companies, but also schools, universities, and public offices have showed, although at different levels, their ability to activate fast responses, signalling a cultural change, a primary factor for DT. We will extensively explore the meaning and socio-techno-economic implications of such a cultural transformation in organizations and their social implications via the description of the social markers in ► Chap. 3.

Indeed, the pandemic impacted not only institutions, but also people and society. Actually, Covid has worked as an accelerator of trends that were already in

6 Many commentators applied Taleb's influential metaphor of the black swan to the pandemic, but the author repeatedly insisted (notably in his tweets) that it is not correct. Indeed, by no means can the pandemic be considered a totally unexpected or unpredictable event.

place, as the evolving relationship between technology and people. Society is changing; people are changing; clients, customers, and users are changing their values and habits towards new normal. Behind this, there is the evolving relationship with technology. The pandemic has reinforced an existing trend of people's progressive inclination to use technology. Before Covid-19, according to the Technology Vision Consumer Survey,[7] 52% of consumers say that technology plays a prominent role or is ingrained into almost all aspects of their day-to-day lives. In fact, 19% report that technology is so intertwined with their lives that they view it as an extension of themselves. Globally, people spend an average of 6.4 hours online daily (Salim, 2019), up to be defined as post-digital (Accenture, 2020) individuals, considering technology as a basic expectation, not as an advantage.

This process, at both institutional and social levels, is not even worldwide, because of several economic, political, and also cultural reasons. In many countries, the pandemic pushed and compelled people to the adoption of an intensive use of digital technology in specific sectors that were not used to this: Consider, for example, teachers in the education sector or to distance and smart working in Public Administration. In others, the unmatched pandemic digital requirement has generated harsh social inequalities and disparities (developing countries). As this process has been unpredictably fast, institutions and organizations that already showed to be lagging, today, prove to be less prepared than ever.

This transformation, named 'tech-clash' (Technology Vision, 2020), generates a misalignment between institutions and civil society, stakeholders and institutions with digital-age technology models, making them out of sync with people, customers, and clients: people can't cope with such high rhythm of technological innovation.

An initial lesson from Covid-19, which is just a confirmation of a trend which was already in place, is that people and their cultural evolution, their expectations towards technology and human experience, will be the roadmap for the next generation of products and services. As it is clear how expectations and experiences are highly subjective, there will not just be one roadmap.

Behind these considerations, starting from the pandemic experience, institutions, organizations, and their ecosystems of stakeholders' communities need a rethinking of the core assumptions about their models and a redefinition of their roles, positions, services, and products, at the intersection between people and technology (Accenture, 2020). This assumption helps in reframing an institution as a 'community' within a social network. For social network, we mean a global network of connected communities, deeply diverse across different countries, with different access to technologies (digital gaps) and different propensions to the use of digital technologies as some countries in Africa or some Asian regions. The

7 It is a global survey of 6074 business and IT executives, across 25 countries and 21 industries on the adoption of emerging technologies, and 2000 people in four countries with respondents representing different age and demographic groups, run in Nov 19–Jan 2020. The survey asked consumers about their viewpoints and use of technology in their daily lives, including voice assistants, robots, and connected products.

development of technological digital infrastructures, then, becomes a main prerequisite to the creation of a people-tech interaction. What is also clear is that the new models that organizations must build to overcome a tech-clash share one thing: they are based on a culture of collaboration (Accenture, 2020).

After these reflections on the cultural dimension of the transformation are in act, we try to summarize the challenges generated by the pandemic experience. These points will prepare the ground for a more extensive reflection on the socio-cultural framework of the DTSM.

2.4.2 The 5 Covid-19 Pandemic Challenges

As highlighted at the beginning of this chapter, the challenges we are facing in this historical moment, in a complex multidimensional scenario, are made substantially more complex and uncertain by the pandemic wave. Among the greatest ones, it appears the health of our planet and of all living species is most important. The pandemic has shed light on the consequences of this threat that puts in danger the whole planet's survival. Climate is being disrupted by pollution in every form. Animal species are dwindling and human lives are being into danger. As we are touching with our hands how all animal and vegetal realms are connected, as never before, the connection between the preservation of the natural ecosystem is perceived as directly related to the safety of the human species.

In this paragraph, we aim to highlight how the impact of Covid-19 calls for new responsibilities and values by institutions to rebuild trust, to balance new social, economic, gender, countries inequalities generated by the pandemic, to improve processes and upgrade competences to face risks in the future.

Scientists say that the Covid-19 pandemic has shifted the focus from environment to people.

As a confirm of this vision, in the 'Covid 19 pandemic key learnings' we introduce below it emerges how clearly people and society are at the centre of it. We summarized them into the following: a disruption of pre-established social order; a rise in social awareness of vulnerability and risk; social rise of responsibility on the environment; a push towards technology.

A disruption of pre-established social order To understand the pandemics' impact at the social level and the disruption it has generated, sociology helps in providing an explanation of its dynamics and consequences.

The topic of social order under the pandemic is a very complex issue that sociologists are still trying to understand. It is evident, however, how the coronavirus' destructive wave has heavily impacted the social texture, due to its impact on the economy: the closing down of many sectors; the rise of unemployment; social distancing leading to social isolation; restrictions on free movements and mobility; the closing of schools, universities, and workplaces. These phenomena lose social bonds and alter individuals' norms of relationships. As the classical sociologist Emile Durkheim would argue (Durkheim, 1857), Covid has brought with it a status of lack of norms. We don't just refer to governmental norms, but

also to those norms ruling individual action and its relationships with society, as Durkheim would maintain. This state of absence of norms is named *anomy*: a state of moral confusion and indetermination which involves the individual, determined by a social and economic upheaval, like the pandemic one. This state impacts social emotions, leading to melancholy, insecurity (mobilization of consciences). As a consequence, during Covid-19 pandemic, society has experimented an alteration of trust levels, showing a widespread mistrust of societal institutions and leaders around the world. This adds to a trust ecosystem that appears to fail towards an epidemic filled with misinformation. This situation leaves the four institutions, business, government, NGOs, and media a tough mandate to rebuild trust and envision future roadmaps to reconstitute social cohesion (Edelmann, 2021), also based on digital technology. Digital agendas, EU programmes, are an example of it.

A rise in social awareness of vulnerability The declaration of the pandemic by the WHO (World Health Organization) took place on March 11, 2020.

As we mentioned with the 'black rhynos' unexpected expected, a very delicate point of the start of the SARS Covid-19 narration relates to a general miscalculation of risk, traceable not only to a failure in using available scientific information and to a widespread misinformation on web accessible sources but, also, to a more subtle psycho-behavioural reason: a lack of acknowledgment of being at risk, which, in turn, has prevented people from using the available information. No memory of historical epidemics, no 2015 SARS (Severe Acute Respiratory Syndrome), no 2003 MERS (Middle Easter Respiratory Syndrome), and no outbreaks in underdeveloped countries helped in estimating the weaknesses of industrialized countries, in an exponentially connected planet.

But this was not the only vulnerability. An objective, tangible inadequateness of national health services to cope with unexperienced peaks of demand for health services fueled in turn the vulnerability of the social system, amplifying each other with a cascade effect (De Marchi, 2020). As for people, the social imaginary of fiction movies, from Contagion to Letal Virus, instead of alerting people, had somehow the effect of objectifying the threat, relegating it into a distant fear. This contributed to make the idea of the pandemic a real remote one. In effect, this made us more vulnerable.

According to the sociologist of risk, Ulrich Beck, where social inequalities and disparities are results of risks, the risk of being hit by the virus Covid-19 has been distributed unevenly. Just think about the distribution of the Covid-19 vaccines. As Beck maintains, risks don't distribute evenly and tend to concentrate in social and geographical areas which are weaker under health assistance, welfare protection, and educational support. In fact, the vulnerability to the hazard and the ability to cope are strongly dependent on socio-demographic and economic features. This has been confirmed to be the case by extensive social science research on all kinds of crises. The present one will be no exception, as some preliminary findings are already showing (Prainsack et al., 2020). When the sociologist Ulrich Beck in year 1992 wrote about a 'risk society' (Beck, 1992), he couldn't think about the Covid pandemic, but he connected past pandemics with the progressive level of global interconnection to highlight the rising risk to which we all are exposed to. Beck argues that the social pro-

duction of wealth is, nowadays, inseparable from risk production. We are aware that no institution may protect from nowadays risks, as our more vulnerable conscious environment is moreover characterized by those risks. However, the will to cooperate to reduce inequalities and reinforce health systems and social systems to face a growing turbulence is mostly in the institutions' hands. In the next chapter, we will highlight the concept of a 'social role' on the side of institutions. Digital transformation requires a new mindset based on the awareness of the connected socio-techno-economic network where we are embedded in our social sensibility and values.

Social rise of responsibility on the environment There has already been speculation that we will all have to become a little more frugal once we get out to the other side of this pandemic, but there is also a good chance that sustainability will still be at the forefront of people's minds as they think about being more responsible with their lives. According to Statista (PI Datametrics, 2020), electric car sales surged 220pc from Q1 2010 to Q4 2019 and ► Booking.com noted Gen Zers say the environmental impact that travelling has is an important factor when deciding where to go. With those key pieces of information in mind, let us see where the top eco-conscious and sustainability trends were going in 2020, according to a PI Datametrics research:

1. The rise of veganism. Interestingly, the volume of searches in the Covid breakdown period Feb–April 2020 has substantially increased, with a decline in social discussion. This suggests a shift in intent from discussion to action.
2. Sustainable smart shopping. One of the main trends that emerged from the end of last year was sustainable consumption. In a world where the word 'plastic' has become so misaligned, people are turning their attention to materials and products that are longer-lasting, and that have a less damaging effect on the environment.
3. Stay-cation, no-flight vacations: even before the Covid-19 pandemic reached the UK, there was already a massive trend towards no-flight staycation searches. There was a 500pc increase in no-flight holiday searches from February 2017 to January 2020. And while this number is obviously significant, a further meteoric rise in these types of holiday searches can be expected in the next future.

These indications show the rise of a new social culture of sustainability and responsibility.

A push towards technology Let us imagine we are in the fourteenth century, during the black plague epidemic. As, indeed, it took place at that time to stop the infection, in Florence, the closing of the markets was ordered, funerals were forbidden in Venice, and in Milan, the homes of the first plague victims were bolted, with the sick inside.

What does this story have to do with pandemic-driven DT challenges? A lot. If we compare the two pandemics, there are deep similarities and profound distances. As then, nowadays, the pandemic has generated an absolute, imperforable, total physical isolation. The big difference, instead, obviously is the web. And, thus, Skype, Facebook, email, video conferencing platforms such as Teams, Webex, Zoom, and Meet emerge. In short, it is digital technology that has allowed us in this epoch, to get by, and to keep in touch with the world. Via distance learning, students could keep attending lessons (with inequalities here as well), and workers

could work remotely. However, another similarity has to be pointed out. It is based on the theory of the sociologist Ulrich Beck: the pandemic condition generates a 'community of destiny' (Beck, 2012). In the crisis that has overwhelmed our world by uniting it into a single destiny, people tend to move towards what Ulrich Beck calls an 'existential community of destiny'. There are some feelings like fear, which are 'universals', that is they appear to be the same across all cultures and ethnicities. Images of the 2005 Kathrine hurricane's displaced people or of victims of terrorist attacks have entered the houses worldwide, generating a widespread feeling of sorrow and terror (which is the main aim of it). 'Global risk […] forces us to consider others culturally, in our assessments of the world. From the omnipresence of risk, a force of social cohesion is therefore generated' (Beck, 2012, p. 86). And it is just this feeling of recognition of the Others experiencing the same condition of yours, in a community of destiny, that allows society to get out of the 'reality' of fear.

A disruption of work models In 'The digital transformation of work' paragraph, we have highlighted some aspects of the evolution occurring to work. Here, we ought to put again in evidence a specific aspect of socio-economic utmost urgency. In this pandemic time, remote working appears to have pushed companies ahead towards gig economies and freelancing: employer–employees physical bonds are fading and the on-demand work is suddenly emerging as a favourable possibility to be explored for many companies. In other words, it appears that the pandemic has forced institutions to re-think their 'physical' workforce and bonds composition. We are obviously going to face a progressive deregulation of the job market towards a gig economy. Consequently, a new regulation is urgently demanded to balance profit with social needs. This is a current global challenge.

After the '5 Covid-19 pandemic challenges', we ought to make a reflection on the main framework of this topic: the transformative relationship between human and technology. We will do this via an interview with a digital expert.

Interview with Adam Riccoboni[8]

This interview provides an interesting, deep, intellectual contribution and insightful vision of the human-technology equilibrium transformation. We definitely agree this transformation is opening new opportunities to young generations. As for the challenges, for example, new jobs, it is up to us and to our education system. These opportunities are based on a new pattern of competences and skills: on the ability to connect data, information, different cultural perspectives, and patterns of thinking. It is quite interesting and agreeable the fact that education plays a key role to forge new ways of thinking and the ability to connect knowledge. This topic relates to the fact that the 'linear and rational' thinking of AI will never cope with our complex, ever-changing, irrational, and instinctual leaps of thoughts, with our counterintuition, our creativity, our unique genius, and with our values (think to ethical and moral side of self-driving cars decisions).

8 Author of the AI Age, CEO of Critical Future.

Based on these premises, the interview first question follows:

Question: Digital transformation has stressed the human-technology challenges, in particular, the ones brought ahead by AI. Under this light, how a transformational mindset should culturally tackle this topic?

Answer: Ned Ludd's thick black hair caught the wind as his fist raised. 'Smash the machines!' Cried the General, 'let no machine ever take a man's job again!'

Upon his command, two thousand true believers mobbed a mill in Manchester, England, the year 1816.

At least as legend has it, as Ned Ludd was more urban myth than historical figure. The Luddites themselves were quite real, but cared more for workers rights than destruction of the machine economy. Their enduring notoriety speaks to a long history of struggles to find technological sustainability: a human man and machine.

The Inferiority of Man

Deep-seated fears about the impact of machines on jobs go back a long way; *Man is losing work to machines; man's usefulness is being replaced by machines; human beings are becoming obsolete; machines are taking over.* As Samuel Butler put it eloquently in 1863:

» 'Day by day, however, the machines are gaining ground upon us; day by day we are becoming more subservient to them, more men are daily bound down as slaves to them …. The time will come when the machines will hold the real supremacy over the world and its inhabitants. [This] is what no person of a truly philosophic mind can for a moment question…In the course of ages, we shall find ourselves the inferior race.' Samuel Butler, Darwin Among the Machines, The Press, 1863

These fears have manifested themselves in our cinema beginning with Stanley Kubrick's iconic 1968 film 2001: A Space Odyssey. The supercomputer HAL 9000 defeats astronaut Frank Poole at chess, before the intelligent machine kills him. The film, the Terminator, then, created a new AI Armageddon genre.

Academics have warned about the potential of artificial intelligence to cause mass job displacement. Debate has even moved onto the need for a universal basic income to provide sustenance for all the idle human workers replaced by machines. Business heavyweights such as Sir Richard Branson, Mark Zuckerberg, and Elon Musk have discussed universal basic income as a serious policy proposal.

Some see the advent of mass unemployment by machines positively, creating a 'Digital Athens', a term coined by MIT computer science professor Erik Brynjolfsson. Ancient Athenians enjoyed new advantages such as leisure and democracy, because they had slaves to take care of manual work. In the same way, AI could provide robot slaves that would take over the monotonous, repetitive work and free us to fulfil ourselves. Incredibly, over 2300 years ago in Athens, Aristotle (384–322 BCE) extraordinarily foresaw this potentiality. In his book Politics, he wrote:

» For suppose that every tool we had could perform its task, either at our bidding or itself perceiving the need, and if, like—the tripods of Hephaestus, of which the poet (that is, Homer) says that 'self-moved they enter the assembly of gods'—shuttles in a loom could fly to and fro and a plucker (the tool used to pluck strings) play a lyre of their own accord, then master craftsman would have no need of servants nor masters of slaves.

But alas, a life free from work may not be arriving anytime soon. Since the Industrial Revolution, for every job lost to a machine, a two more have been created. In the journal article, 'Why Are There Still So Many Jobs: The History and Future of Workplace Automation,' MIT economics professor David Autor makes a strong case that fears about AI job displacement are overblown. Autor shows that people underestimate the adaptability of the market and workforce. For example, in 1900, 41 percent of the US workforce was employed in agriculture; by 2000, that share had fallen to 2 percent, mostly due to a wide range of technologies, including automated machinery. But during that period, jobs were created in other sectors, such as industry, and the average standard of living improved massively.

Changing Mix of Jobs

Likewise, AI will not cause mass unemployment, but it will cause a shift in the mix of jobs. In the AI Age economy, the shift will be based on where machines and humans have comparative advantage over each other. As the brilliant Herbert Simon describes:

» If computers are a thousand times faster than bookkeepers in doing arithmetic but only one hundred times faster than stenographers in taking dictation, we shall expect the number of bookkeepers per thousand employees to decrease but the number of stenographers to increase. Similarly, if computers are a hundred times faster than executives in making investment decisions but only ten times faster in handling employee grievances (the quality of the decisions being held constant), then computers will be employed in making investment decisions, while executives will be employed in handling grievances.

Frank Levy and Richard Murnane put it succinctly in their book, The New Division of Labor: How Computers Are Creating the Next Job Market: 'At any moment in time, the boundary marking human advantage over computers largely defines the area of useful human work.'

Human Edge

The question is: What is the human comparative advantage over AI? In the AI Age, what fields, skills, and types of work will human beings shift toward? My belief is that our competitive edge over machines is our general intelligence. Machines can learn narrow capabilities even those that appear innately human, such as empathy or even narrow creativity (see GANs). Indeed, as many human versus machines tournaments show from Chess, to Scrabble and Go, machines can best us in any

narrow competence. So, in a mixed economy with AI, the human competitive advantage is general intelligence. We can use our floodlight cognition to solve new problems, think of new ideas, and connect the dots. We can be more versatile and adaptable than machines.

Don't Be Narrow, Be Human

Being a success in the AI Age means being more human. Educate yourselves and your children in the humanities, poetry, music, history, and art. Make versatile, creative human beings who can adapt and thrive in any environment. AI cannot engage in cross-domain thinking. We should all have an interdisciplinary education; children should learn philosophy, history, politics, and not just coding and other technical skills. Focus on building human relationships in your career. Have passion. Love. Stop working like a machine; the machines are here to do that for us now. Be the human being you were always meant to be.

Summary

In this chapter, we have learnt the key challenges of this digital and pandemic era. New cultural needs have been generated and a general rise of sensibility towards sustainability issues. Particularly, in the topic of work, the impact of Digital Transformation has been deep. In this scenario, we have seen how the SARS Covid-19 pandemic has influenced the equilibrium between human and technology. The pandemic leap of culture has generated new challenges impacting social and economic order, and has risen the level of social perception of vulnerability, responsibility, technology, and work. Given these premises, the need of a new mindset is strong. This concept is further highlighted in the interview with Adam Riccoboni, author of the AI Age, CEO of Critical Future, who sheds light on the human and AI challenges and the transformational mindset. This prepares the ground for the next chapter that illustrates this mindset in depth: the DTSM.

References

Accenture. (2020). We, the post-digital people. *Technology Vision 2020*.

Accenture Technology Trends. (2020). We, the post-digital people. Technology Vision 2020. Retrieved April 24, 2021 from https://www.accenture.com/us-en/insights/technology/technology-trends-2020#trend-1

Beck, U. (1992). *Risk society: Towards a new modernity*. Sage.

Beck, U. (2012). *L'amore a distanza*. Laterza.

Bouvier, A. (2010). Individualism, collective agency and the "micro–macro relation". In *The Sage handbook of the philosophy of social sciences*. Sage.

Consorzio ELIS, Bureau Semester GENERALI, Bureau program 2020–2021. (2019). *Setting people in the fourth industrial revolution, "the mindset revolution". How to develop a lifelong passion for learning*. An alliance founded on experience circulation between Enterprises, University, School. Retrieved November 25, 2020 from https://www.teleborsa.it/News/2019/11/23/consorzio-elis-al-via-mindest-revolution-che-fara-incontrare-manager-di-oltre-40-aziende-e-studenti-1.html#.YK5PkKgzbD4

Davies, B., Diemand-Yauman, C., & van Dam, N. (2019). Competitive advantage with a human dimension: From lifelong learning to lifelong employability, *McKinsey Quaterly*. Retrieved June 20, 2020 from https://www.mckinsey.com/featured-insights/future-of-work/competitive-advantage-with-a-human-dimension-from-lifelong-learning-to-lifelong-employability

De Marchi, B. (2020). Societal vulnerability and resilience in the COVID-19 crisis. *Culture e Studi del Sociale-CuSSoc, 5*(1), Special issue, 163–174.

Durkheim, É. (1857). *The suicide*. Routledge.

Edelmann Trust Barometer 2021. (2021). Retrieved May 3, 2021 from https://www.edelman.com/trust/2021-trust-barometer. Date of access 25 May 2021.

Luhmann, N. (1996). *Sociologia del rischio*. Pearson.

McConnell, M., & Schaninger, B. (2019, January 15). Are we long—or short—on talent? *McKinsey Quarterly*. Retrieved February 9, 2021 from https://www.mckinsey.com/business-functions/organization/our-insights/are-we-long-or-short-n-talent

McKinsey Global Institute. (2019). *MGI in 2019. Highlights of our research this year*. Retrieved 10 September 2020 from https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Innovation/Ten%20highlights%20from%20our%202019%20research/MGI-in-2019-A-compendium-of-our-research-this-year-vF.ashx

McKinsey Global Institute. (2020). *The path to the next normal*. Retrieved November 5, 2020 from https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Navigating%20the%20coronavirus%20crisis%20collected%20works/Path-to-the-next-normal-collection.pdf

Perrow, C. (1993) *Normal Accidents: Living with High Risks Technologies*, Princeton University Press

PI Datametrics. (2020). Why sustainable consumption will be the new post-coronavirus normal. *The Telegraph*. Retrieved May 25, 2021 from https://www.telegraph.co.uk/business/search-marketing/sustainable-consumption-the-new-post-coronavirus-normal/

Prainsack, B., Kritzinger, F., & Boomgaarden, S. (2020). *From acute crisis to long-term coping? Further insights from the Austrian Corona Panel Project*. Retrieved December 9, 2020, from https://bit.ly/2Z603Rf

Salim, S. (2019). More than six hours of our day is spent online. *Digital Information World*. Retrieved March 7, 2020 from https://www.google.com/search?q=Salim%2C+S.+(2019%2C+February+4).+More+Than+Six+Hours+of+Our+Day+Is+Spent+Online.+Digital+Information+World&rlz=1C1JZAP_itIT857IT857&oq=Salim%2C+S.+(2019%2C+February+4).+More+Than+Six+Hours+of+Our+Day+Is+Spent+Online.+Digital+Information+World&aqs=chrome..69i57.1077j0j15&sourceid=chrome&ie=UTF-8

Segars, A. H. (2018). Seven technologies remaking the world. *MIT Sloan Management Review, 58*(3), 1–21.

Shanahan, M. (2021). *The technological singularity*. The MIT Press.

Taleb, N. N. (2007). *The black swan: The impact of the highly improbable*. Random House.

Wucker, M. (2020, March 17). No, the coronavirus pandemic wasn't an 'unforeseen problem'. The coronavirus pandemic isn't a 'black swan.' It's a gray rhino. *The Washington Post*. Retrieved March 20, 2020 from https://bit.ly/3cqW8lP

Yong, E. (2020). Our pandemic summer. *The Atlantic*. Retrieved April 20, 2020 from https://bit.ly/2K8spBm

The Digital Transformation Social Mindset

Contents

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Chapter Overview
To define what a DTSM is, this chapter starts from an illustration of the different interpretations of Digital Transformation across various scientific literature, to evidence how the sociocultural dimension is actually missing in the DT models. After the explanation of the applied methodology, the chapter goes in depth into the notion of culture, explaining why in this reflection we focus on the concept of 'mindset'. It is explained, then, why this concept matches, better than the notion of culture, an in-depth analysis of the DT phenomenon. To design a DTSM profile of an institution (governments, public and private organizations, ONGs, media), we illustrate the cultural markers and their sociocultural evolution, the 'social markers'. Under a Digital Sociology perspective, which provides them depth and flexibility, the social markers are able to provide insights to DT and enrich its meaning. They interpret the digital landscape complexity, embed culture and values able to drive DT towards success while elevate its meaning to a higher social value. Finally, the DTSM profile unveils the value of a humanistic and people-centred vision as a new perspective of the digitally transformed mindset. Case studies provide a solid ground to the application of the social markers and DTSM.

3.1 Introduction

This chapter aims to illustrate that there is a social value of Digital Transformation that has to be pursued in coordination with an economic value. The Digital Transformation Social Mindset (DTSM) is a new way to innovate in a complex and dynamic environment; it is an adaptive, flexible, imaginative mindset to cope with the dynamic complexity of the digital-analogic environment. The DTSM is keen on balancing technology with human, profit with planet, business with people. In one word, it is a mindset for a sustainable transformation.

DT is a complex phenomenon, involving a varied range of actors, from institutions (governments, public and private organizations, ONGs, media) to people and society at large; it engages any industry and sector, either private, public, or not-for-profit. Regardless of geographies, it pervades any angle of the world where there is connectivity. It may generate unthinkable opportunities as deep inequalities. If we ask a professional or a student, 'what digital transformation is', she or he would answer: digital technologies, business models, strategies, operations. Indeed, mainstream organizational and management scientific literature appear to confirm this approach (see ► Chap. 5).

This chapter aims to illustrate that besides an economic value, there is a social value of DT that has to be pursued in coordination, with a new approach, namely, the DTSM. The DTSM reflects nowadays institutions' new social roles: people and society expect it and the planet needs it. It is also a new way to innovate in a com-

plex and dynamic environment: an adaptive, flexible, imaginative mindset to cope with the organic[1] and dynamic complexity of the digital-analogic environment. The DTSM is keen on balancing technology with human, profit with planet, business with people. It is a mindset that comprises technology with the human and its relationships with society to thrive in the digital environment. In one word, it is a mindset for a sustainable transformation. In summary, the DTSM, a multidimensional frame of work supported by a Digital Sociology theoretical approach, operates an integration of the organizational with the social, of artificial (i.e. an organisational structure, technologies) with natural (i.e. spontaneous human relationships, and communities). But while managing an organization requires specific and codified competences, managing social relationships is a much more complex matter, given their intangible value dimension and their constantly liquid (Bauman, 2005)[2] evolution. Integrating in a same vision the organizational with the social dimensions, in a technological mainframe, though, allows to obtain a much deeper vision and value (Carayannis & Campbell, 2018).

To anticipate a definition of the DTSM that we will design through this chapter, we may say that: '*The DTSM is the social value of DT, aiming to generate a sustainable innovation and a new social role of institutions. In a Digital Sociology perspective, the DTSM is a transformational mindset providing new visions, values, and abilities to dynamically analyze the context, to courageously challenge the status quo, generating innovation based on sociality by connecting people and technology to create social value that is aware of the environment, of ethical values, of women, and future generations'*.

To tackle this topic, we start from an illustration of the different interpretations of the phenomenon of the DT across various literature. This analysis is useful when considering how the 'cultural' dimension is underestimated in most cases. Following this study, we will go in depth into the notion of culture and we will understand why we focus on the concept of 'mindset' instead of culture. Notably, when we talk about a mindset, we do not refer just to a single individual, but to the mindset pervading collectively the whole organization and to the related culture that extensively permeates it in depth. We will define, then, what 'social markers' are and what are their impacts on the shaping of the digitally transformed mindset. Ten social markers will be defined, as an evolution of cultural markers. To confirm their being a variable of success, they will be tested with successful digital mature organizations. These concepts, outlined in ◘ Fig. 3.1, will unveil the value of a humanistic and people-centred vision as a new perspective of the DT.

1 The organic principle is rooted in a sociological family of theories that stem from the bio-organicism. From the sociologist Herbert Spencer, across the theory of 'organic solidarity' of É. Durkheim, into the organicity concept of T. Parson's functionalism, the concept of organic indicates a tight integration among a societal structure (Spencer, 1876; Durkheim, 1893, Parsons, 1937).

2 Zygmunt Bauman in his book 'Liquid life' (2005) coined first the term 'liquid' to express the dynamic and many-sided post-modern society.

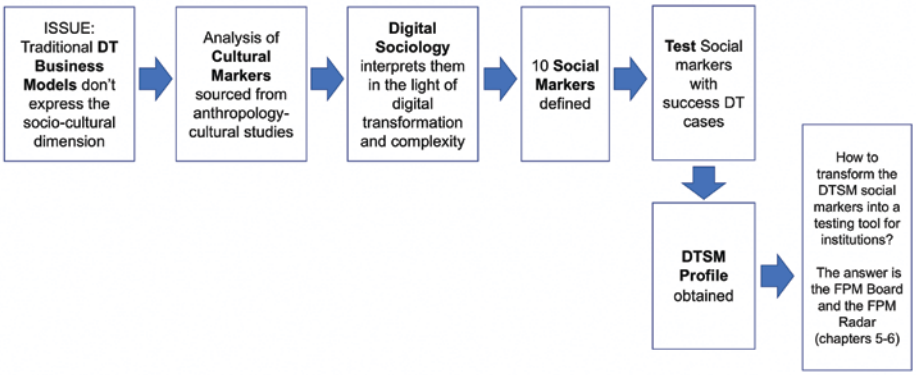

Fig. 3.1 The DTSM design flow. (Source: The Author)

3.2 Research Aims and Methodology

The research *thesis* that the book aims to demonstrate is that 'to reach a successful DT, institutions (governmental, public, private, ONGs, and media) have to achieve a new cultural mindset based on values of sustainability, on a people-centred vision, on a data culture, on new organizationally transformational models'. Given that the Four Paradigm Model, based on the DTSM social markers, synthesizes such a culture and mindset, the consequent *hypothesis* is that successful digitally transformed institutions comply with the DTSM social markers and that the FPM Radar results show high grades across the 12 profile points.

To demonstrate the above hypothesis, the methodology follows a research method that finds its origin in an extensive transdisciplinary study of scientific literature as a conceptual and theoretical foundation. Overall, the methodological steps are: *a*. to define what DT is via organizational, technological, sociological theories; *b*. discuss the meaning of culture and mindset in a technological frame, via cognitive psychology, sociology theories c. identify an integrated set of cultural markers, via cultural studies and anthropology theories; *c*. evolve the traditional 'cultural markers' into an interpretation which is more comprehensive and more coherent with the concept of Digital Transformation: the 'social markers'. These are new multidimensional indicators, not only related to organizational approaches but also to socio-humanistic cultural attributes and new qualities, skills, creative visions. The social markers are obtained via a socio-organizational interpretation and verified on successful DT case studies. In essence, as we need a method to profile a DTSM, social markers appear as scientifically justified conceptual points matching the objective *d.* provide a final DTSM profile definition. This methodology aims to demonstrate the *hypothesis* that successful digitally transformed institutions comply with the DTSM social markers-based profile.

To demonstrate the second part of the hypothesis, that is, that successful digitally transformed institutions do not only comply with the DTSM social markers, but also perform high grades of the FPM Radar across the 12 profile-points, the research methodology implies a further leg. This part of the process is illustrated in

► Chap. 5, along with the explanation of the Four Paradigm Model and ► Chap. 6, via the FPM radar. *In fact, the DTSM itself is not sufficient to demonstrate the hypothesis, representing, though, an essential ground for the development of the FPM. In an original way, the FPM brings the analysis at a deeper, holistic level, linking the social markers to the real social environment of institutions* via *the three macro-meso-micro levels to which institutions define their digital strategies*.

The 4 PM Radar, by providing indications on which institution has a higher or lower level of DTSM and in which area, detects those institutions that appear digitally transformed but, in reality, have deep areas of improvement in terms of DT culture. In this two legs-based methodology, we may see an open iterative circular process: each time the empirical approach of the FPM Radar confirms the correspondence between a high DTSM and a digitally successful institution, the hypothesis is reinforced. This point gives shape to the idea, as we argue in the conclusive remarks, that this volume is not only a research, but a 'FPM project'. It has to be conceived as an open platform, whose bases are being established by the present research, but are definitely susceptible to be further reinforced by a higher number of applications.

3.3 Digital Transformation: What It Is?

It is commonly shared as DT is a very complex phenomenon globally involving the socio-techno-economic and political dimension, impacting institutions, organizations, and society.

Under an organizational angle, according to a broad mainstream business interpretation, DT is the integration of digital technologies across all organizational areas, deeply impacting strategies, operations, and value generation. DT deploys, at any business level, as organization, marketing, communication, finance, R&D.

Finally, under the perspective of the single individual, DT changes people's behaviours and the everyday life of each person.

These are three levels of the digital-analogic complex environment, bearing different though interrelated dynamics, as we will discuss in ► Chap. 4. We will see how these three levels will correspond to the macro, meso, and micro levels of our analysis.

It is intuitive how behind DT there are digital technologies. These new layers of connected intelligence revolutionize business models and the ability of brands and organizations to offer digital services (Accenture, 2015). Under a more technology-oriented perspective, DT may be considered as the third of three evolutionary steps of which the first one is *digitation*, or the conversion of analog information in any form (text, photographs, voice, etc.), to digital form with suitable electronic devices (i.e. microchips); the second step is *digitalization*, concerning the integration of digital technologies into the everyday life by the digitization of everything that can be digitized (i.e. vocal assistants); the third is the creative step of *transformation* (i.e. digitally mature organizations). All these technological, organizational, cultural perspectives, indeed, have to be framed within their context. To give sense to

a phenomenon, any person, as an executive, a professional, a student, a scholar, looking to understand or make decisions on complex matters, needs a background, that is, a perspective to frame those decisions, reflections, and further studies. As we will see in the chapters below, particularly ► Chap. 4, being aware of the context is key to activate reverse engineering analyses and improve intelligence.

Behind these initial considerations, now, we are going to explore the concept and its different angles.

DT has a broad spectrum of interdisciplinary definitions (Andriole, 2017; Bounfour, 2016; Chanias & Hess, 2016; Chanias et al., 2019; Li et al., 2018; Matt et al., 2015; Mergel et al., 2019; Nambisan et al., 2019; Vial, 2019; Ustundag & Cevikcan, 2017; Westerman et al., 2012; Rogers, 2016). A commonly shared one in the business sector is 'DT is the use of new digital technologies that enable major business improvements and influence all aspects of customers and clients' life' (Reis et al., 2018). Within this broad frame of work, three distinct realms may be identified: 1. Technological – DT is founded on the use of new digital technologies such as social media, mobile, analytics, or embedded devices; 2. Organizational – DT requires a change of organizational processes or the creation of new business models; 3. Social – DT is a phenomenon that is influencing all aspects of human life by changing the way we book restaurants, shop, care our health, socialize, receive information. Under a customer (or client) perspective, it enhances customer's experience (Reis et al., 2018, p. 419).

The theme of DT also classifies differently according to distinct key socio-economic realms: in education, DT is mainly intended as education technology to train and educate to add new skills (Richert et al., 2016); within an Industry 4.0 perspective, Information Systems categorizes DT as an IT/IS integration process (Lee et al., 2017); in business economics, within a digital business enterprise architecture, it refers to the development of new business models (Horlacher & Hess, 2016); in government, public sector transformation focuses on ramification to other sectors (Kokkinakos et al., 2016); in management (Dremel et al., 2017), it is intended as processes and operations management; in society, it refers to the adoption and use of digital technology in the everyday life, to the empowerment that people have to voice their own ideas and organize actions, to create new social forms as P-to-P[3] communities to exchange passions and information. As we have already explored this dimension of the phenomenon in ► Chap. 2, here, we can only confirm how all these different interpretations design a real revolution of the socio-economic system.

However, within this comprehensive set of definitions, something that is lacking emerges: most definitions appear not to evidence a crucial dimension tied to the concept of transformation which is 'culture'. Only in very few cases, culture is mentioned. The few times in which it is represented it is defined as a different way of 'thinking and connecting everything, as people, processes, Intellectual Property (IP), systems, insights, and so on' (Gale & Aarons, 2018).

This general absence of a cultural perspective offers an opportunity of exploration of the concept of DT under a new light, providing a richer view of the evolu-

3 Peer-to-Peer.

tion not only of DT models, behind the technological drive, but also of the 'intangible' complex variables driving these forces from behind. The awareness of this dimension may provide the reader, whether they are governmental representatives, executives, professionals, scholars, teachers, or students, with inspiration for new reflections, new decisions, or strategies.

Once we have provided an interdisciplinary overview on definitions of DT and have evidenced a lack in the cultural dimension, we move to make a reflection on the notion of culture, on the concept of mindset, and how technology may integrate in those constructs.

3.4 Behind a DTSM: Culture, Mindset, Technology

According to the mainstream definition, culture is an asset composed, first of all, by *values, norms, definitions, languages, symbols, signals, behavioural patterns, mental and body techniques,* bearing a function which is *cognitive, affective, valuative, expressive, regulatory, and manipulatory*. All these essential social elements are connected and regulated by humans.

The complex side of the matter is when we insert in this definition the variable 'digital technology'. What happens to the relationship between the human and its culture when technology pervades all the realms of society, of the everyday life, and of institutions? Who has the power over all these variables? The revolution we are facing today, the difficulty we, as individuals, as global society, and institutions are facing, regards a question which has been the object of reflection for many authors, from Orson Welles to Pierre Levy to Jeremy Rifkin, from Edgar Morin to Zygmunt Bauman. Adam Riccoboni, at the end of Chap. 2 offers an insightful view of the relationship between AI and the human. So, which implications for a digital transformational mindset? Let us shed light a bit more in depth in the meaning of culture, to provide an answer.

The term culture has several interpretations. The most ancient one refers to the etymology of the term, originating from the Latin verb 'colere' or 'to cultivate' as in the cultivation of a vegetable, from the seeds to the mature plant, which produces fruit, this concept reflects the process of humanization, that is, the acquisition and the gradual deployment of h/is most elevated faculties, achieved by education, philosophy and art. How technology may impact this process? In terms of relationship with technology, across literature, there have been subjective and objective stances, the first one, attributing positions of power to the human over technology, and the latter giving predominance to technology (see ◘ The Sociological Box 3.1). It is difficult, today, to provide an answer to this complex balance, as the rhythm of technology innovation is so fast that hardly it is possible to understand its impact on individuals. Organizations, on their side, strive to harness the techno-socio-economic transformation taking place around them and the volume of data generated by AI, IOT, 5G. In this complex frame, a digitally transformed mindset and its cultural frame, with all its human values and variables, may become a pivot to strategies which may better match the individual needs and soci-

The Sociological Box 3.1: The Culture within Human and Technology

According to the philosopher Max Scheler, culture is essentially *humanization*, that is, an expression of ontological intellectual independence from 'nature and society'. This stand positions the human over all technological products.

If we integrate this subjective perspective into a digital transformation mainframe, specifically into the sociological and philosophical perspective of the relationship between human and technology, it would mean that digital technologies contribute to the humanizing process of building individuals' highest faculties and it results in them. It is a subjective interpretation, centered on the supremacy of the human on technologies. The individual uses technology for his human growth.

On an opposite position, the sociologist Werner Sombart illustrates the concept of culture under an objective way, as an autonomous asset. The sociologist concentrates on the idea 'that culture exists beyond the individual, whose duration overcomes the life of the individual and it 'objectifies' in any object'. This interpretation, while stressing the collective character of outcome of social interaction, stresses the idea of culture as preexistent, exterior, autonomous and restraining towards the individual subject.

Also this conception provides an interesting reflection about the concept of digital cultural transformation. The high rate development of digital technology has operated, via AI, deep learning, and 5G technologies, a progressive dislocation of the objective technology output towards its subjective root. Technology, nowadays, tends to be more and more autonomous from the human. This means that the 'humanizing' pattern tied to the subjective interpretation is being disjointed from the objective output.

With AI technologies, the progressive autonomy of technology, which assumes an idea, as the philosopher Francis Bacon maintains, of "mechanical arts […] growing and perfecting every day", counterposed to philosophy, which is "perpetually still, as a statue" is being upset. Technology, today, via data and information manipulation, via search engines information manipulation, influences our values and ideas, and, ultimately, our social interaction. Output of work and social interaction don't follow free patterns, but are deeply affected by technologies providing insights to a restricted oligopoly of large digitals.

etal challenges at large. The sociocultural markers described in the next paragraphs, and the cases illustrated across them, justify this argument.

It is clear, however, how the sophistication of technology, nowadays, overcomes traditional subjectives (i.e. behaviours) – objective (i.e. symbols) dimensions of culture, impacting our mindsets. This phenomenon affects not only human internal needs (i.e. Alexa anticipating a music or providing an indication on the purchase of a book) but also objects useful to our social action and interaction (think how 5G influences the symbolic value of a self-driving car vs. a human-driven car or of a smart home object). By upsetting a human-technology balance, we mean that if

traditional marketing strategies were able to influence latent needs, nowadays, likewise search engines, AI impacts our internal needs in a much more sophisticated and autonomous way. We know the ability that machine learning has to anticipate our needs based on past behaviours. This yields into a re-productive pattern reducing any creative, instinctual, illogic, or counter-instinctual behaviour, which is, instead, a human wealth. Or, taking the previous example, think to the accelerative thrust of 5G, and its cultural impact in the automotive or human-technology power-control balance of smart homes.

An interesting insight, useful to deepen this picture, is offered by the sociologist Sorokin. He would maintain that technology is affecting our civilization process. In fact, the sociologist argues that what is not cyclical, what has a progressive trend, does not belong to the realm of culture but of civilization. To reinforce this interpretation, according to McIver (1945), the realm of civilization encompasses all objects having utilitarian characteristics, while the realm of culture includes the expressivity of things looked for and generated for the internal human need. In our current scenario, it appears that technology is deeply influencing the information and values which tend to dominate both our culture and civilization realms. This conclusion confirms that the DTSM, and the correlated FPM, affect not only values, norms, definitions, languages, symbols, signals, behavioural patterns (an organization's culture, a leader's thought and decisions), but also what has a utility, that is, tools (business models, strategies).

Also the theory of social action sheds light on the pervasiveness of technology in our lives. According to this theory, the classification of cultural elements has to be related to the function of *satisfying human needs*. In particular, *cognitive needs*, or the need to establish *identities* and *differences between signs*, are matched by cultural definitions of true/false, by logical systems, by intellectual and by empirical investigations. Think how AI technologies, as machine learning, affect cultural elements, such as cognitive and identity needs. A PC screen saver may open up with an image and asks you to react to it. If you like it, next time, it will fascinate you with another picture, created according to your values, mental needs, passions, and emotions. This process certainly influences and reinforces your identity, since the proposed image is specifically tailored for you and is different from any other. Another example evaluates the impact of a *virtual social environment* on the positive or negative affective value of an object, for instance, a picture in the *Instagram social media network* which refers to norms of value attribution. Not to talk about the regulation of interpersonal and inter-collective relationships, requiring relational and regulative norms and how they may be upset, for example, by the use of *emoticons*. Emoticons are symbols of expression of internal states. To keep social cohesion, a culture tends to transform emoticons into shared codes. Also technology alters the hierarchical structure of behavioural models, over which there are relational and regulative norms and, over these, more comprehensive values (just think how the identity and affective value of some laptop (not all of them) changes when it pleases us with tailored images welcoming you any time you open it). In synthesis, across our simplified examples, we have an idea of how technology affects our culture: identity, affective values, and interpersonal and inter-collective relationships.

Given these various observations, it seems that in such a complex landscape, a technological determinism tends to overcome the human. Advanced technologies risk to upset the balance of the relationship between the cultural (internal human needs) and civilization (utility) realms of our global society. This does not mean paying a negative or positive judgement. Rather, it has to be seen which new equilibrium is going to be achieved between human and technology and how culture is going to be shaped.

This book wishes to provide a new model of understanding of this scenario by enhancing the role of human creativity and imagination, of values and healthy organizations made up of people with digitally transformed social mindsets, able to generate a new human-technology equilibrium. This new balance has to be founded on values, to let the planet survive and to preserve the human uniqueness of counterintuitive, unpredictable, brave ideas, able to give innovation a new meaning.

After having framed the topic of culture and its relationship with technology, we move to our next step regarding what a mindset is and what are its connections with culture. This will help to achieve one of the book's objectives of understanding the meaning and value of 'mindset' inside an institution.

Across the variety of definitions provided in dictionaries and literature[4] at the intersection of cognitive psychology and socio-psychology, a mindset is related to thinking, attitudes, dispositions, and intelligence. Interestingly, it is deeply connected with talent. A mindset is a mental representation, that is, a specific psychological entity of each subjects, 'an internal representation of external reality' (Lakoff, 1988, p. 135), keeping intact the figural aspects of objects that are inscribed in memory and then activated under certain circumstances. Indeed, figural elements are filtered by culture, by its symbols, and their interpretations.

3.4.1 What Is the Difference Between Culture and Mindset?

Based on above definitions, we may say that if culture is the toolbox, a mindset is a way to use the tools or, the 'applicative' dimension of a culture. A mindset is conditioned by a culture: different cultures usually bring different mindsets.

The aspect of this notion, relevant and functional to our topic of DT, is the inclination of a mindset to *change*. In fact, in its traditional meaning, a mindset relates to a 'typical' way of thinking, acting, solving, relating, approaching, and stabilizing within a culture. It could refer to an organizational culture as well. This means a mindset represents a mental scheme, or a fixed mental frame that replicates a way to act or give an interpretation of reality. It is a *pre-determined* way of thinking that influences action in an established cultural ground. Here is the critical point: a pre-determined mindset cannot cope with the dynamicity and complexity of the digital environment. A shift of mindset is required, then, to achieve a real digital transformation. As we will demonstrate via the Four Paradigm Model, a *transformational mindset refers to an agile mindset, which is changeable, dynamic,*

4 Cambridge Dictionary from ► https://dictionary.cambridge.org/; Merriam Webster from ► https://www.merriam-webster.com/; Collins from ► https://www.collinsdictionary.com/

and adaptable to fluid contexts and situations that a digital environment generates. We refer to an organization's mindset as to employees mindsets. Thinking of a DT organization as an 'enterprise organization', where all members act with a range of self-responsibility and freedom, may be an effective perspective to imagine an organization's transformational mindset.

Under this angle, the intent of the book is not to provide the reader with determined tools to digitally transform its organization or grow in applicative knowledge; it means something different, that is, providing the reader with a mindset able to view situations and analyse fluid contexts in a different way, able to adapt to the ever-changing environment which an institution copes with, offering transformational tools to see reality under different perspectives at the same time. As we will case study in ► Chap. 6, Microsoft states that 'We fundamentally believe that we need a culture founded in a growth mindset. It starts with a belief that everyone can grow and develop; that potential is nurtured, not pre-determined; and that anyone can change their mindset'.[5]

Notably, the DTSM affects also competences, by providing an enriched definition: the pre-determined toolbox may not be sufficient in current complex and dynamic scenarios. What has to be transmitted are not the tools, but the ability to connect them, to configurate them in a way that adapts to the context. In a few words, it is the *ability to read the context* that has to be taught. Not fixed formulas nor business models, but uncovering the personal special intuition, imagination, and sensitiveness to connect different models together, to analyse situations differently, to challenge the status quo, and generate innovation. This approach requires a spirit of an explorer and the braveness of a vessel captain going against the stream, to create new models such as Netflix or Airbnb, or designing new models as the Anderson's Long Tail (Anderson, 2008), or successfully launch a Digital Native Vertical Brand.[6] In this way, the DTSM approach focusing on the mindset and cultural dimension of the organization becomes a solid frame of reference to design the vision, mission, and strategies of their company. The application of the DTSM social markers and FPM to case studies analysed in ► Chaps. 5 and 6 evidence that such a pattern of cultural framework emerges in the most currently shared concept of digital maturity (early, developing, maturing) (Kane et al., 2017), confirming that a high grade of DTSM is behind successful digital maturity.

After having started to shed light on what a mindset is and on the meaning of a transformational mindset, we ought to complete the picture by focusing on the value it generates to an institution.[7]

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5 ► https://www.microsoft.com/en-us/about/company

6 A Digital Native Vertical Brand is a brand that designs their own products and sells them through their own website or brick-and-mortar location. Therefore, a digitally native vertical brand is just a brand that started online and controls their entire customer experience from factory to consumer. Some businesses can be digital native but not be vertically integrated, while others can be not digitally native but be vertically integrated. From ► https://www.klaviyo.com/blog/dnvb-digitally-native-vertical-brand#:~:text=A%20brand%20that%20designs%20their,experience%20from%20factory%20to%20consumer

7 To go deep into this construct, we will also use the tools provided by sociologists as Max Weber and Pitrim Sorokin.

A digitally transformed mindset *is an asset*. First, value stems from innovation pervading internal and external strategies aiming to build profit. The big player Netflix, whose mindset's features are analysed below, in the 'social markers' paragraph, but also Microsoft or Starbucks, the cases we analyse in depth in the DTSM Radar, the tool to measure the level of Digital transformation via the FPM illustrated in ► Chap. 6, clearly clarify the value generation behind their drive to innovate. The success of these brands confirms how it is an asset. Value stems also from the agile character of a DTSM, given the fact it refers to a flexible mindset, adapting to changing contexts, in a socio-technological environment with a high level of turbulence, that seems to accelerate in this historical phase.

3.5 Identifying an Integrated Set of Cultural Markers

After having discussed the definition of DT, culture, mindset, and their relationship with technology, we now move to the explanation of what *cultural markers are*. As indicated in the research aims and methodology, in this paragraph, we identify an integrated set of cultural markers; then, in our next paragraph, we will apply a socio-organizational interpretation to the set of cultural markers in order to build the social markers.

Cultural markers are the connotative elements of a culture. Some organizational literature defines cultural markers as 'aspects of a culture that create a feeling of belonging and identity'. Others define them as 'the direction for the culture of an organisation, similar to core values, but more unique' (Fridman, 2017). Notably, also the field of organizational culture captures the same set of shared values, norms, beliefs, and traditions identified in sociology to distinguish one organization from others (Teczke & Buła, 2017, pp. 33–41).

With the aim of achieving a theorization of the concept of 'digital transformation social mindset', typical of an institutional-organizational style and of a socio-digitally transformed organization, we found the theoretical bases of our study in the assumptions of the anthropologists Hall (1989), Victor (1992), Hofstede (1997) and Trompenaars and Hampden-Turner (2001). The Cultural Markers indicated in these theories represent the starting point. Each Cultural Marker is defined by cultural attributes that identify similarities and diversities within and between user groups of different nationalities. This selection of theories is confirmed both in organizational culture (Teczke & Buła, 2017) and cultural design (Alostatha et al., 2011).

To define a comprehensive final set of cultural markers to cover key complex digital phenomena, an integration of the attributes of the three theories has been operated. Specifically: Hofstede attributes included are: Power Distance Index (PDI), Individualism versus Collectivism (IDV), Uncertainty Avoidance Index (UAI), Long-Term Orientation versus Short-Term Normative Orientation (LTO), Indulgence versus Restraint (IVR). Hofstede's Masculinity versus Femininity (MAS) has been excluded, as the relationship and care dimension to which Hofstede refers (Hofstede 1997), within an organisation, is included in a 'collectivist' undifferentiated approach.

Hall's attributes included are as follows: High Context versus Low Context, Monochronic versus Polichronic. Spatial orientation (prossemic or personal space) has been discarded as exclusively applicable to tangible contexts, so not viable for a digital dimension.

As for Trompenaars attributes, Specific versus Diffuse, Achievement versus Ascription, Internal Direction versus Outer Direction, and Neutral versus Emotional have been included.

Trompenaars' excluded terms are: Communitarism versus Individualism as overlapping with Hofstede's. For same reasons, Universalism versus. Particularism, Sequential Time versus Synchronous have been excluded as overlapping to the Hofstede's attributes of Ivr and Hall's High Context versus Low Context.

The results are below synthesized in ◘ Table 3.1.

3.6 From Cultural Markers to Social Markers

As seen above, to achieve a DTSM, in this paragraph, we have to evolve the traditional cultural markers into an interpretation which is more comprehensive and more coherent with the concept of Digital Transformation. To this aim, by a socio-organizational interpretation, we apply a humanistic approach to the set of cultural markers to transform them into social markers and verify them on successful DT case studies. Following this, we will provide a final DTSM profile definition.

◘ **Table 3.1** The integrated set of cultural markers

Culture/mindset components	Functions	Cultural markers
Values	*Cognitive*	Individualism vs. collectivism
Norms	*Affective*	Long term vs. short term normative orientation
Definitions	*Evaluative*	Indulgence vs. restrain
Languages	*Expressive*	Uncertainty Avoidance Index (UAI)
Symbols	*Regulatory*	High Power Distance (HPD) vs. Low PD
Signals	*Manipulatory*	High context vs. low context
Behavioural patterns		Specific vs. diffuse
Mental & body techniques		Achievement vs. ascription
		Internal direction vs. outer direction
		Neutral vs. emotional

Source: The Author

Table 3.2 Relevant industries, sectors, and sampled firms

Relevant industry and business sector	Identified firms
Consumer (automotive, consumer products, retail, wholesale & distribution, transportation, hospitality & services)	IKEA Starbucks
Energy (resources & industrials, industrial products & construction, mining & metals, oil, gas & chemicals, power, utilities & renewables)	Ecolab
Financial services (banking & capital markets, insurance, investment management, real estate)	JP Morgan Chase Mastercard
Life sciences & health care (health care, life sciences)	J&J
Technology, media & telecommunications (technology, telecommunications, media & entertainment)	Verizon Microsoft

Source: The Author

This methodology demonstrates the *hypothesis* that digitally transformed institutions are successful when they abide by the DTSM social markers.

The case study methodology operates the sampling through different steps: first, key industries have been identified and the ones with the highest levels of digital maturity have been selected[8]; main sectors were aggregated into 6 macro-areas: (1) Consumer, (2) Energy, (3) Financial Services, (4) Life Sciences and Health, (5) Technology (6) Media and Telecommunications. Second, in order to identify the top digitally mature firms for each sector, an interdisciplinary analysis has been run across organizational, managerial and scientific sources (Barbour, 2020; Camhi et al., 2021; Marr, 2018; Anthony et al., 2019; Capgemini, 2020; Forbes, 2021), taking into consideration top global rankings, revenues, and market values. Out of this analysis, eight companies have been individuated for the final sample (see Table 3.2). A further methodological step has been the application of all 10 social markers to each unit of the sample. Each social marker is explained, and results of their application to sampled cases are reported below. The social markers analysis has been run via applying social markers to corporate website contents, social media content intersected with interdisciplinary literature. Results

8 The selection has been made via a Structural Analysis Database (STAN) proposed by OECD, ► http://www.oecd.org/sti/ind/2stan-indlist.pdf, accessed April 7, 2021, intersected with business researches as a report produced in 2015 by MIT Sloan Management Review in collaboration with Deloitte University Press. In that report, the authors assessed the digital maturity across various industries (Kane et al., 2017, p. 9).

are illustrated across the specific social markers descriptions. At the end of the analysis, a full example of application to the IKEA Case study is provided to receive a complete perspective of a DTSM profile organization.

The Sociological Box 3.2: The Hofstede Cultural Indexes

Toland Frith and Muller, by applying the Hofstede model to organizations, identify variables as: time, content, power, distance, individualism/collectivism, maschilism/feminism, refusal of uncertainty and short time vs. long time orientation (Toland Frith & Mueller, 2007, p. 12). The authors explain that there are *monochronic* cultures and *polichronic* cultures, that is, cultures that carry on one thing at a time and cultures doing more things together (multitasking). This concept appears to be true, If we consider the culture of an organization, and to different regions and ethnicities across the world. Based on Hofstede's concept of power distance, the authors also examine the level of acceptance that society has towards power and organizations. In this sense, cultures with *high Power Distance* Index (PDI) are defined as those that tend to accept hierarchical and autocratic powers with more tolerance. These are companies in which everyone has their own place in a social hierarchy and in which the exercise of authority is considered normal. Hierarchic organizations have a substantially higher power index vs. flat and unstructured companies. Imagine how digital native companies may position along the high-low power index: their unstructured and dynamic shape even overcome the *lowest power index* (think to crowdsourcing platform ecosystems). Just as there are cultures that give great value to words (*low-context*) - in this case, communicators must be direct, precise and never ambiguous - and cultures that look more at the global message and not just at the value of words (*high -context*). For example, Japan is considered a country with a high-context culture, while the USA is characterized by a low-context culture. Under a geopolitical view, Japan has the highest *high-context* culture whereas German and Swiss have the lowest.

The same differentiation applies to cultures characterized by individualism (*individualism*) and for those characterized by collectivism (*collectivism*), in relation to the importance that a certain culture gives to the group or individual. For example, Americans are considered highly individualistic, while Japanese are more group oriented.

It is very interesting to note the difference between *long-term / short-term* orientation cultures: 'In general, people from East Asian countries, such as China, Japan, and Korea, tend to get a high score in the long-term index. Those with a long-term orientation appreciate tradition and history and tend to look to the past for inspiration. By comparison, many Westerners, such as Americans and Northern Europeans, have a short-term orientation. People with a short-term orientation are more likely to perceive that the past is over. The old is easily discarded and the new is quickly adopted, and there is an emphasis on planning for the future (Toland Frith & Mueller, 2007, p. 46)'.

In the following, we start to analyse each 'social marker', by applying the above indicated cases. We start with the 'Collectivist' Social marker, taken from the cultural marker: Collectivist versus Individualist.

Collectivist versus individualist According to prevalent sociological theories (from Max Weber to Raymond Boudon), individualism corresponds with lose social bonds, a need of self-realization, and independence strongly felt among people. A collectivist mindset, instead, aims to build interdependence among people, solid social relationships, loyalty to the group, collaboration, exchange, and engagement participation. Under collectivism, we have absorbed the Hall's marker polichronic, that is, not linear, not sequential. It refers to a cultural attitude to attend multiple events simultaneously and to value human interaction. For this cultural marker, we prefer to replace it with Trompenaars' definition of Communitarism, as this concept better sociologically expresses the higher level of cohesion inside a networked institution (see ► Chap. 5, the Connecting the Dots paradigm). A community organization is polichronic as it tends to deploy tasks in an integrated way, with particular attention to human relationships. Inclusiveness, diversity, and teamwork emerge throughout the cases as strong values. It also aims to make people (any stakeholder) feel cared for (i.e. customer's and clients' participation and collaboration, exchange and engagement; information exchange via clouds, connecting employees, team building, diverse team work). Credit card giant Mastercard, a digitally transformed global payment company (INSEAD, 2020), does this by claiming to 'foster an inclusive culture because diverse perspectives build stronger teams'[9] and this shows a communitarist mindset aiming to build interdependence among people, tight social relationships, loyalty to the group, collaboration, exchange, engagement, and participation. Johnson & Johnson, the digitally mature American multinational corporation[10] that develops medical devices, pharmaceuticals, and consumer packaged goods, states that 'enormous problem-solving potential gets unleashed when diverse minds work together. That's part of the reason we prize cross-functional teamwork'. Verizon, one of the largest communication technology companies in the world and leading providers of technology, communications, information, and entertainment products and services, expresses its communitarist mindset by stating 'We know teamwork enables us to serve our customers better and faster. We embrace diversity and personal development not only because it's the right thing to do, but also because it's smart business.'[11] Microsoft clearly affirms to be a strongly communitarist organization, claiming inclusiveness, being open to learn on biases and changing behaviours to tap into the collective power of everyone. Microsoft does not just value differences, they seek them out to improve. They also define themselves as a family of individuals united by a single, shared mission, with a strong ability to work together.[12] JP Morgan Chase &Co. stresses inclusiveness by stating 'You're a member of a team: You'll be a part of our diverse, inclusive, and supportive culture.

9 ► https://www.mastercard.co.uk/en-gb/vision/who-we-are.html
10 ► https://digital.hbs.edu/platform-digit/submission/johnson-johnson-embracing-digital-transformation/
11 ► https://www.verizon.com/about/our-company
12 ► https://www.microsoft.com/en-us/about/company

We listen to and support each other.'[13] Starbucks claims inclusiveness, diversity, equity and accessibility, valuing the sense of community via their stores, and committing to strengthening neighbourhoods: 'Starbucks has built a capability to foster a relationship-driven, employees-first approach, which encourages staff to form close bonds with each other'(Leinwand & Davidson, 2016). Ecolab, an American corporation that develops and offers services, technology, and systems that specialize in water treatment, purification, cleaning, and hygiene in a wide variety of applications, appears aligned, maintaining that it provides equal employment opportunities and encourages diversity and inclusion throughout their operations.[14]

Long-term versus short-term normative orientation This social marker has relevant implications in terms of sustainability strategies. A long-term orientation reflects a vision in which investments are made to achieve results in the future, favouring long lead times. Only such a DTSM strategy allows a sustainability culture and mindset to flourish. In this sustainability mainframe, innovation performance improves success levels (Ardito et al., 2021; Carayannis & Campbell, 2010; Carayannis et al., 2015). The short-term orientation, instead, typical of traditional management systems and culture, invests for the present, in order to achieve rapid results. This is often speculative. The sociological concept of 'normative orientation' means that the value has been absorbed by all components of the organization (people and philosophy, processes, and procedures) up to transform into a norm of compliance (Cesareo, 1998). The long-term orientation is a cultural and strategic issue across the whole organization, from its mission to strategies and processes.[15] Ecolab embeds sustainability in its core values (Milliman et al., 2012), by advancing a positive environmental and social impact.[16] Seeing as sustainability is at the core of a DTSM, a long-term normative orientation becomes a real challenge in value building. For the moment, we may say that a long-term normative orientation is a new paradigm of longevity of the organization, a new vision, where the company takes part in a sustainable process of survival of the whole planet, of people, while generating profits (Carayannis, 2013). Making the territory grow, making people grow in competences and business (McKinsey, 2019), requires organizations to play a new ethical role in the global society.

Within this culture, DCT leaders are linked to sustainability and care about the communities in which they operate and intend on improving the quality of life. They care about the welfare of their employees and invest in safe working conditions. Their 'investment mentality' (Ready et al., 2020, p. 13) leads them to deepen their commitments to, and understanding of, their customers. When it matters to the planet, communities, and the welfare of employees and customers, they take their time to get things right.

13 ► https://www.jpmorganchase.com/about/our-business/business-principles#
14 ► https://www.ecolab.com/sustainability/people/workforce-development
15 In an interesting interview of Mc Kinsey 'Ten years at the top of a telco: An interview with Vittorio Colao', Vittorio Colao, the former CEO of Vodafone (McKinsey Quarterly, 2019 Number 2, p. 59), argues that good investors think in the long term. To this aim, corporate-governance people and the investment managers should not be split. Paying executive-board members in shares, which they should not be allowed to sell for ten years, would be a viable possibility.
16 ► https://www.ecolab.com/sustainability

For their position and role, companies are close to persons and heavily impact the social, technological, environmental, and economic ecosystem. Researches show that certain leadership behaviours and attributes, such as honesty, integrity, inspiration, and trust (attributes tightly connected to mindset's values), have been successfully correlated to healthy and successful organizations that have withstood the test of time, regardless of the respondents' country, age, cultural context, or industry. And evidently, there cannot be a convinced sustainability strategy if there are not such values permeating an organization's culture and mindset. There is, in fact, a sustainable way to make profit. Against the digital era short-term real-time mainstream approach appearing to justify a short-sighted approach to actions, only a leaders' driven culture may upset such barriers. A McKinsey research shows how only less than 5 per cent of CEOs who operate with the long term in mind make more bold moves early in their tenure and tend to be more experienced. Adopting a long-term strategy leads to outperforming the short-term result, but the risk is to receive results in a later perspective, past to her/his tenure. The only way out is a dynamic company culture and an evaluation system awarding such strategies, acknowledging the long-term expected results.[17] Short-term results in tactical actions result in a chaser position, rather than leading a change from the inside (Webb, 2019). Moreover, it ends up in a loss of control of the whole ecosystem. For example, a long-term vision in the evolution of smartphones cameras and their purchasing possibilities would have meant foreseeing that anyone would have posted photos and videos and there was an entire mobile gaming ecosystem on the verge of being born. An outstanding business opportunity. This is to say that a long haul vision is anyway an opportunity.

A McKinsey research highlighted ten crucial questions CEOs and leaders need to ask about how they operate in an increasingly complex world. The topic of the questions highlight how sustainability is key in a twenty-first-century company (McKinsey, 2019, p. 26): What is our mission and purpose as a company? How far do we go beyond shareholder capitalism? How are we accountable to different stakeholders? Who benefits in our economic success? How? What is the time horizon for managing our economic success and impact? What is our responsibility to our workforce, especially given future of work implications? How do we leverage data and technology responsibly and ethically? What are our aspirations for inclusion and diversity? What is our responsibility for societal and sustainability issues involving our business, and beyond our business? What are our responsibilities regarding participants in our platforms, ecosystems, supply and value chains, and their impact on society? How should we address the global and local (including national) imperatives and implications of how we compete, contribute, and operate?

The mission statement of Mastercard already involves its long-term and risk-prone culture: 'Always moving forward'. Moreover, the company has a strong

17 The first is a database of almost 600 CEOs and the details of their tenures and performance. Earlier research using this data showed how the companies of new CEOs who make bold moves early on are likely to outperform their counterparts. 1 The second source is data from our colleagues at the McKinsey Global Institute (MGI) in collaboration with FCLT Global (Birshan et al., 2019).

sustainability mindset[18]: 'we're passionate about promoting human safety, empowerment, and global sustainability' (Mastercard Sustainability Report, 2019). Johnson & Johnson has signed up for the 2030 UN Sustainable Development Goals. Verison is committed to become fully carbon neutral in their operations by 2035, taking concrete steps to reduce emissions, invest in renewable energy, and purchase carbon offsets. Microsoft fosters a sustainable future where everyone has access to the benefits and opportunities created by technology. JP Morgan's commitment to helping address pressing social and environment challenges. Starbucks has a high commitment for the future, doing business responsibly, with ethically sourced coffee, partnering to make coffee the first sustainable agricultural product: planning to invest in training and financing for coffee farmers, providing coffee trees, building greener retail stores, improving the recyclability of cups, and investing in 100% renewable energy. Ecolab's mission is centred on sustainability.[19] It generates positive environmental and social impacts. 'Within our own facilities, we work on reducing our water consumption, carbon emissions and waste stream, and supporting a safe, diverse, and inclusive workforce'.[20]

Indulgence versus restrain In sociology as in cultural studies, Indulgence is synonymous with a society that allows for the gratification of human behaviour and tends to forgive behaviours that damage society. At the opposite, restrain stands for a society that suppresses need gratification and rule by means of rigid social norms. In this perspective, neither indulgence nor restrain appear to reflect a positive impact on society, in terms of building social value. However, indulgence, if taken as the opposite of restrain, that is, applying rigid social norms, thus, controlling people, may shed light into how this feature unleashes value. The meaning of a 'savvy indulgence' in a DTSM framework extrapolates some concepts present in the Hall, Hofstede, and Trompenaar cultural marker. From the example below presented, 'freedom and responsibility' may, instead, appear to be very pertinent to the DTSM.

The Netflix case (or, better, the Netflix mindset) sheds light on the meaning of Indulgence and how it became a key success factor. Netflix has made indulgence its cultural trademark, deeply embedding it into their culture. On the opposite side of the spectrum, companies adopting a restrain policy showed to fail. It appears Blockbuster, Nokia, Kodak, AOL were not able to introduce such a freedom and responsibility (indulgent) mindset and failed. Indulgence, as the opposite of restrain, pivots on people (talented ones!), their value and trust in their abilities, responsibility, and commitment. At the basis of the competitiveness of Netflix versus Blockbuster, there was its 'indulgence' towards people. Valuing people more than procedures, innovation versus efficiency, providing people with the 'context'

18 ► https://www.mastercard.co.uk/en-gb/vision/who-we-are.html
► https://www.mastercard.us/content/dam/mccom/global/aboutus/Sustainability/mastercard-sustainability-report-2019.pdf
19 ► https://www.ecolab.com/about
20 ► https://www.ecolab.com/sustainability

and letting them be free to decide, instead of controlling them (in a high-density of talents), resulted in the winning formula. It allowed the company to grow and transform, along an evolving society. Behind this new approach, Netflix's people had to drive the change from the bottom: they had to be put in the best conditions to think differently, out of the schemes, to entail creativity, imagination, innovation. The Netflix culture has a rule: its absence of rules (Hastings & Meyer, 2020, p. 11). In Netflix, indulgence means creating an environment with rules and constrains limited to the minimum (if not, absent) in which people are free to dream, can express themselves, and run risks. The safer the atmosphere, the higher is the innovation. Favouring vacations and free time is a freedom & responsibility policy that translated into happier and more productive employees. For this reason, Netflix became, in 2018, the company with the happiest employees.[21] An indulgent culture generates a 'freedom and responsibility' culture and mindset, which speeds up innovation. Valuing the ability to judge, increasing the critical thought of people, means sparkling value throughout the organization. Netflix is a disruptive company, whose disruption came from an enlightened, visionary entrepreneur (Reed Hastings, CEO) with an exceptional dose of braveness. In fact, the culture he instilled in his organization was a culture diametrically opposite to all what was confirmed by mainstream psychology, business, and human behaviour. Digitally transformed organizations like Mastercard claims 'Results, not hours, count' and 'our workplace allows the kind of scheduling flexibility that helps balance work demands with personal responsibilities'.[22]

Additionally, we may say that 'indulgent' organizations may correspond to 'fail fast' companies, where error is conceived as part of the innovation process and accepted as a source of experience to improve the process or the result. Mastercard says 'A flexible corporate structure and '*fail fast*' mentality encourage ideas to bubble up and harness the innovation of junior workers.[23] Error overtakes the concept of 'failure' with its negative social impact and is considered part of action. We will more extensively talk about errors in next paragraph, within innovation in ► Chap. 4. In general, companies that are open to innovate, to experiment, are used and always ready to face and manage mistakes. These are companies that value human contribution and motivate others to provide incentives to reward employees in several ways: prizes, incentives, acknowledgments. Verizon claims it respects and trusts each other, communicating openly, candidly, and directly since any other way is unfair and a waste of time.[24] Ecolab 'Assume Full Responsibility: Assuming (or being given) full responsibility for a project or difficult business situation builds skills for analyzing situations and initiating action. It also conveys trust and confidence.'[25]

21 Based on more than 5 million anonymous employees reviews. On a 2018 Hired survey, Netflix has also been indicated as the best place to work.

22 ► https://www.mastercard.ca/en-ca/about-mastercard/careers/life-at-mastercard.html

23 ► https://www.mastercard.com/news/perspectives/2020/girl-on-fire-when-coronavirus-hit-one-young-employee-fought-back-with-enthusiasm-and-elbow-grease/

24 ► https://www.verizon.com/about/our-company

25 ► https://gr-gr.ecolab.com/uploads/media/IN_OUR_OWN_WORDS.pdf

The Sociological Box 3.3: Artificial Intelligence and Societal, Organizational, Individual Risks

Artificial intelligence and neurosciences, robotics e genomics, IOT, IOE, and hyper-technologies influence people's lives and the social environment (i.e. IOT domotics, voice assistants supporting the everyday tasks), the way we behave and think. In this context, we ought to ask ourselves which mindset can cope with a form of 'technological responsibility' concerning the impact of technology, of AI, of big data on people and society. The DTSM explained in this chapter implies that institutions, public or private, ONGs need to have a holistic sense of responsibility, an environmental awareness to, as Cheatham et al. (2019) maintain, "develop a working knowledge of AI associated drivers, which range from the data fed into AI systems to the operation of algorithmic models and the interactions between humans and machines". As a result, executives often overlook potential perils ("We're not using AI in anything that could 'blow up,' like self-driving cars") or overestimate an organization's risk-mitigation capabilities ("We've been doing analytics for a long time, so we already have the right controls in place, and our practices are in line with those of our industry peers"). It's also common for leaders to lump in AI risks with others owned by specialists in the IT and analytics organizations ("I trust my technical team; they're doing everything possible to protect our customers and our company")'. However, besides the behavioural side, an adequate mindset to face a digital transformation requires a culture and a responsibility as risks are huge. 'The most visible ones, which include privacy violations, discrimination, accidents, and manipulation of political systems, are more than enough to prompt caution. More concerning still are the consequences not yet known or experienced. Disastrous repercussions including the loss of human life, if an AI medical algorithm goes wrong, or the compromise of national security, if an adversary feeds disinformation to a military AI system – are possible, and so are significant challenges for organizations, from reputational damage and revenue losses to regulatory backlash, criminal investigation, and diminished public trust'.

(From: Cheatham et al., 2019)

A Holistic Responsibility: DTSM means having a different sense of responsibility, which overcomes traditional areas of CSR regarding the survival of the organisation with all its implications as economic, social, environmental, as seen above when we tackled the sustainability issue. Indeed, there is another responsibility which we could define a 'technological responsibility'. The use of AI requires the need to develop a 'working knowledge of the associated drivers, which range from the data fed into AI systems to the operation of algorithmic models and the interactions between humans and machines'.[1] The pace of the evolution of digital technologies create difficulties in leaders in estimating the real scope of risks and responsibilites. Sometimes leaders tend to overlook potential perils (accomunating AI to known risk of self-driving cars for example) or underestimate them, assigning an unrealistic risk-mitigation capabilities of one's organisation;

some other times leaders mix responsibilities of different areas as AI risks with others owned by specialists in the IT and analytics organisations (i.e. technical team and protection of customers and company).[1] Like in the Fable of the bees of Adam Smith,[1] today it's not capitalism but AI technology that generates unintended consequences, which expands in different realms: from legal to IT, security, analytics, for example. The multidimensionality of advanced AI technology requires a multidimensional responsibility involving skills, competences for leaders, C-Suites and across the company.

Uncertainty Avoidance Index A Low Uncertainty Avoidance Index (vs. High UAI) is typical of institutions that are aware that the current environment is turbulent, uncertain, and unpredictable. As we will see in ► Chap. 4, when we will discuss the topic of resilience (► Chap. 4, par. 'The reef'), institutions have to react to a risky context with resilience and agility. For example, Microsoft claims 'We need to be always learning and insatiably curious. We need to be willing to lean in to uncertainty, take risks and move quickly when we make mistakes, recognizing failure happens along the way to mastery.' Differently from the Microsoft culture, the dimension 'avoiding uncertainty' expresses the degree to which members of a society feel uncomfortable with uncertainty and ambiguity. Countries that exhibit strong UAI need to control events, exhibit rigid codes of beliefs and behaviours, and are intolerant of unorthodox behaviours and ideas. Weak UAI societies, instead, show a more flexible attitude in which practice matters more than principles. In the aforementioned paragraph, we illustrate two opposite 'cultural models': the western one, rigid and in need of control, and the eastern one, resilient and agile. Verizon indicates its antifragile culture by stating 'We are more agile than companies a fraction of our size, because we act fast and take risks every day. We see crisis and change as opportunities, not threats. We run to a crisis, not away. Change energizes us. We work hard, take action and take personal accountability for getting things done. Our actions produce measurable results'.[26] Change implies being able to experiment and having the courage to make mistakes. Also JP Morgan Chase indicates in their corporate website an antifragile culture: 'We cannot promise specific outcomes or risk-free results. From time to time, we may fall short in our efforts and if that happens, we will renew our commitment to these principles and re-double our efforts'. Mastercard, as well, claims in its Corporate sustainability report[27] 'We attract and recruit those who are change-makers, those who want to own their path and dare to go further'.

Organizations willing to be open to change need an adequate culture to sustain experiment. Within experimentation, errors are implicit variables. Organizations

26 ► https://www.verizon.com/about/our-company
► https://www.verizon.com/about/news/cultural-transformation-deeper-change
27 ► https://www.mastercard.us/en-us/vision/corp-responsibility.html

do not have to be afraid of them, but rather, they have to understand the background opportunities needed to improve, grow, and achieve a solid position in the market; when an error occurs, it is not enough to consider it simply a negative element, or an accident to be removed forthwith while concentrating on its causes to restore the system. Thomas Kuhn, in the 1960s, offered an interesting interpretation of error, considering it as an engine for the evolution of scientific paradigms. Science, according to Kuhn, proceeds on the basis of discrete evolutionary steps and not by a continuous progression. When something unexpected happens, the current paradigm, the set of rules and values shared within the scientific community, breaks down and is overtaken by a new paradigm (Kuhn, 1996). Indeed, James Joyce called mistakes 'the portals of discovery', a designation that applies to the business world as well as the literary one. In this direction, Ecolab states: 'Learn from mistakes: view mistakes as tools to learn and grow. You will be free to take action, not bound by fear. Often, more is learned from mistakes than successes.'

There is, indeed, another aspect of mistakes: a positive recovery from a product failure is an excellent opportunity to build trust.[28] Customers having the highest engagement levels are often those who have experienced a problem with a brand that had been appropriately solved by the company. When good problem handling is in place, 48 per cent of customers are engaged with the brand compared with just 31 per cent of customers when a problem has been handed poorly (Feather, 2011). In the organizational realm, quality certification systems (ISO 9000) have made a strong contribution to using customer complaints as a tool for improvement. Complaints worked to push ahead changes in productive processes and in the organization. Any stakeholder complaint is an error inside a process. Indeed, restoring the good functioning of the process is not enough. This approach is a 'resistant' one, not a 'resilient' one. A resilient approach implies a rethinking of the process, not just fixing it. It might imply a product improvement. Web 2.0 exponentially increases the contacts between an institution and its stakeholders, reporting comments on product quality, on failures of products, or on customer needs. This helps the institution to improve. Errors have a relevant role within the process of building value, because they reinforce valued features like transparency, promotion of dialogue, improvement, benevolence, integrity, competence, and congruence of values; this all builds trust and, through trust, comes engagement. As a matter of fact, an antifragile strategy means engagement, trust building, relational goods, and social capital and are all considered to be important. Johnson & Johnson appears to apply such a course by supporting employees to cope with the stressing environment of the workplace via the launch of Corporate Athlete® Resilience. This new in-depth training solution takes a different approach to stress management by supporting an individual's ability to redefine and strategically leverage stress for growth and improved performance. J&J's strategy shows to be antifragile. In fact, as antifragility leverages difficulties to positively grow: J&J leverages stress to find an opportunity to strengthen employee's engagement (it generates social capital via

28 The 2010 People Metrics's Most Engaged Customers (MEC) study has analysed more than 15,000 customer ratings of 67 different brands, to understand the rules of engagement.

relational goods). They are represented by trust as a value flowing within the company–employees interactions.

Based on this frame, it becomes clear how a 'fail fast culture' supports innovation. Shoprunner,[29] an annual membership that grants subscribers free two-day shipping, free returns, and exclusive benefits on orders they place with retailers in the ShopRunner network, promotes innovation, requiring people to fail fast, acknowledging that most innovations fail. Another company, Starbucks, claims the company innovates constantly, never standing still. Ecolab states: 'Take Some Risks: You (or others) can find a million reasons why something won't work. You can talk yourself out of things that you know are right. Instead, use your energy to do your homework, build support, move forward and stop worrying about things that could go wrong'.[30] In fact, a fail-fast culture is reinforced by constantly talking about executive failures, even CEO failures. Communication plays an important role.

A low UAI (Uncertainty Avoidance Index) implies also an adaptive management strategy (Holling, 1973), which consists in learning by doing, eliciting all resources and forms of knowledge available, acknowledging diversity of values, and continually monitoring the results of decisions that cannot be postponed but may affect unequally the different components of the social system. Feedback is imperative in order to introduce the rectifications necessary to correct the unfair distribution of privileges and disadvantages.

Adaptation refers to dynamic capabilities of institutions to integrate, create and constantly transform internal and external knowledge resources and utilize those resources in rapidly changing environments (Teece & Pisano, 1994). In their view, in order to sustain their competitive advantage, firms should renew their resources to the extent that reflects the changes in their environment. Dynamic capabilities are what ensures that the 'renewal' processes are highly effective (Teczke & Buła, 2017).

In this scenario of cultures, mindsets, values, and strategies, the DTSM takes shape as a mindset typical of explorers. Explores are extremely open to change and are endlessly flexible in different situations.[31] Explorers are curious and creative, and they operate well in ambiguous situations. They engage in continuous experimentation and learn by listening to many, and varied, voices. Interestingly, a low UAI institution and its leaders are also indulgent' institutions, favouring experiment. This means being tolerant and encouraging failure, showing a deep curiosity about how the forces of digitalization are reshaping the competitive environment.[32]

29 Sam Yagan is the CEO of ShopRunner and former CEO of Match Group. Building an innovative, data-driven culture (Mckinsey Quarterly, 2019, p. 113).

30 ► https://gr-gr.ecolab.com/uploads/media/IN_OUR_OWN_WORDS.pdf

31 Erik Gatenholm, cofounder and CEO of Cellink, a public bioprinting (Schrage et al., 2020).

32 David Schmittlein, the John C. Head III Dean and professor of marketing at the MIT Sloan School of Management (Schrage et al., 2020).

Low PD versus High Power Distance In a society, High Power Distance corresponds to an acceptance of hierarchical structures with predetermined roles (Weber, 1922). Wirtschaft und Gesellschaft. Mohr, Tubingen At large, this index describes the orientation towards an acceptance of inequalities and diversity. A Low Power Distance Index, instead, indicates that power is distributed and inequalities are to be justified. Sociology explains that inequalities require strong normative rules; otherwise, they lead to social conflicts. Since we argued that a limitation of rules is a component of a DTSM, a Low PD appears to be the correct dimension to be pursued. In an organization, a high HPD Index would compare to a hierarchical weberian model; a LPD index, instead, is characteristic of a flat organization, a platform, a native digital company, where power is distributed, there are possibilities which grow in the job role and change one's position. Information, thus power, thanks to the structure, circulates and it is shared. Participation with regards to decisions and processes is stimulated. In a Digitally Transformed Company the LPD index is high. In crowdsourcing platforms, as we will see in the Topcoder model (► Chap. 4), the whole concept of hierarchy is upset by participation. In co-creation models, as described in the first Bottom-up paradigm, the concept of power is upended by bottom-up models. In J&J, employees are encouraged to take part in processes by feeling free to make suggestions and complaints.[33] Verizon voices opinions and exercise constructive dissent, encouraging different views regardless of title or level and states that Bureaucracy is an enemy, to be fought every day to stay 'small' and keep bureaucracy out. JP Morgan Chase CEO Jamie Dimon explains that 'bus tours' are fielded to listen to employees and customers'. Starbucks claims: 'We call our employees partners because we are all partners in shared success'. Ecolab has a low power distance culture, showing a flat organizational hierarchy. The flatter organizational hierarchy allows more visibility and easier access to management. This promotes a sense of trust and belonging for the employees and increases their motivation towards optimal performance.

High context versus low context This dimension concerns the context, that is, the information that is related to an event that gives it meaning. Opposite to a Low Context communication, where most of the information is implicit and very little is explained directly in the message, a communication or a High Context message is one

33 ► https://www.jnj.com/caring
► https://www.jnj.com/about-jnj
► https://www.jnj.com/innovation
► https://digital.hbs.edu/platform-digit/submission/johnson-johnson-embracing-digital-transformation/
► https://www.nytimes.com/2013/04/25/business/media/trying-to-burnish-its-image-johnson-johnson-turns-to-emotions.html
► https://www.jnj.com/media-center/press-releases/johnson-johnson-human-performance-institute-launches-corporate-athlete-resilience-program
► https://www.careers.jnj.com/careers/how-teamwork-and-innovation-help-us-lead-the-fight-against-cancer
► https://jlabs.jnjinnovation.com/

where the message is accompanied by a broad description of the context, requiring in-depth information and background. In DTSM, data plays a key descriptive role and companies are High context. It is not an pre-determined data culture but a data-focused culture calling for data-savvy institutions. Examples are machine learning processed big data, that contextualize a customer behaviour or, clouds, that design useful informational contexts; also context data related to the place, occasion, or mood in which a customer is experiencing the product: a same content may be enjoyed at home or on the go. In another perspective, contents generate contexts and are sources of information: think to social media. In this picture, High Context companies massively adopt Big Data Analysis to understand customer behaviours, mitigate frauds and understand shopping behaviours. It is the positive, value-oriented utilization of data that makes the difference in a DTSM organization. Anyone in the company, leaders first, need data literacy, not only the CIO or the analytics division. This does not mean that everyone has to be a data scientist, but there must be a shared language within the organization to unleash the potential of a discussion that includes an adequate culture of data. This allows for potential collaboration and 'connection of dots' as we will see in ► Chap. 5, to generate innovation, and let anyone participate in discussions. Mastercard uses Decision Intelligence. It is a new way of solving an old problem using sophisticated algorithms to provide a predictive score to the issuer, based on intelligent analysis. They, then, incorporate that information into their existing fraud mitigation efforts. Alternatively, issuers can activate the holistic Mastercard tool which makes data-driven, real-time decisions tailored to the account, including defined alert and decline thresholds. The smart technology behind Decision Intelligence examines how a specific account is used over time to detect normal and abnormal shopping spending behaviours. In doing so, it leverages account information like customer value segmentation, risk profiling, location, merchant, device data, time of day, and type of purchase made (Mastercard Newsroom, 2016). [34] J&J gets information from external context with several apps providing data from patients: wearable trackers to collect behavioural and health information RA-RA (Remote Assessment in Rheumatoid Arthritis), mobile apps to track glucose levels of diabetic patients, and they also use to help them visualize trends in their numbers and share data with doctors (One-touch Reveal) or digital ecosystem that helps accelerate surgical consults for people with knee pain using the results and predictive analytics to provide personalized treatment advice. Surgical candidates will be able to download another app to help prepare them for surgery and recovery with targeted tips.[35] Verizon contact centres integrate all customer touch points and innovations like speech recognition, artificial intelligence (AI), machine learning, and data analytics to personalize their service and create a seamless connection'.[36] 'Microsoft analyses

34 ► https://newsroom.mastercard.com/press-releases/mastercard-rolls-out-artificial-intelligence-across-its-global-network/

35 ► https://digital.hbs.edu/platform-digit/submission/johnson-johnson-embracing-digital-transformation/

36 ► https://www.verizon.com/business/en-nl/products/contact-center-cx-solutions/

data to enhance user (internal and external) experience, along with user feedback, using data science, machine learning, and algorithms – key phrase extraction, deep semantic similarity, and sentiment analysis – for insights to help people be productive'.[37] Another case is JP Morgan Chase: Banks are now more focused than ever on how to use the huge amount of data they possess to enhance their clients' experience'.[38] Starbucks mobile app has more than 17 million and the reward programme has 13 million active users. These users alone create an overwhelming amount of data about what, where and when they buy coffee and complementary products that can be overlaid on other data including weather, holidays, and special promotions'.[39] At Ecolab, 'Data is digital currency. And, without good quality data, we cannot create the insights or the applications that help make work easier or improve the bottom-line potential for our customers'.[40]

Specific versus Diffuse In an interconnected, complex (Luhmann, 1995) networked environment, all phenomena tend to be diffused. The rhythm of socio-techno-economic exchanges and interactions is massive. It refers to the concept of convergence and blurring borders. It happens when elements overlap, integrate, and blur their borders. Diffuse is when company and clients, employer, and employees overlap. It refers to informal, destructured organizations, diffused in power and geography: in ► Chap. 4, Topcoder case study clearly evidences this fact. Crowdsourcing platforms integrate the role of the company with the clients and customers. Mastercard, by empowering employees, encourages them to take an active role in their own development. Cross-functional projects, volunteering in offices around the world, participation, co-creation, are just some examples (Corporate Sustainability Report, 2019, p. 16). 'Our technology fuels connection around the world. Our network features an intelligent architecture that adapts to the needs of each transaction by blending two distinct processing structures – distributed (peer-to-peer) and centralized (hub-and-spoke)'.[41] J&J's JLABS is a global network of open innovation ecosystems, enabling

37 ► https://www.microsoft.com/en-us/itshowcase/microsoft-uses-analytics-and-data-science-to-enhance-the-user-experience#:~:text=Our%20scope%20is%20enterprise%20data,devices%20and%20apps%E2%80%94and%20facts

38 ► https://www.jpmorgan.com/commercial-banking/insights/leading-through-innovation-data-opportunity

39 ► https://www.forbes.com/sites/bernardmarr/2018/05/28/starbucks-using-big-data-analytics-and-artificial-intelligence-to-boost-performance/?sh=388483d65cdc

40 ► https://www.ecolab.com/news/2019/06/helping-our-customers-thrive-with-digital-technology
► https://www.ecolab.com/-/media/Ecolab/Ecolab-Home/Documents/DocumentLibrary/Healthcare/FROM-PERCEPTION-TO-MEASURED-REALITY-pdf.pdf

41 ► https://www.mastercard.com/switching-services/our-technology-and-vas/network-architecture.html

and empowering innovators across a broad healthcare spectrum.[42] 'Microsoft has, in recent years, increasingly partnered with companies wishing to transform their businesses by leveraging data and technologies, thus becoming an influential player in the digital transformation eco- system'(Correani et al., 2020). Microsoft also claims 'We will better serve everyone on the planet by representing everyone on the planet'. JP Morgan Chase launches co-creation challenges to develop new ideas, improve processes, solve real-world problems for social good organizations engaging students together with employees. Starbucks calls their staff 'partners' rather than employees and even part-time staff (in the United States) receive stock options and health insurance' (Leinwand & Davidson, 2016). Also, MyStarbucks Idea is an example, by enabling users to share ideas with the firm and vote on ideas offered by others. The project yielded over 70,000 ideas during its first year; dozens have been rolled out, including new drinks and flavours, food items, updated loyalty programmes, and splash sticks to prevent spills through the opening in coffee cup lids. It uses outbound messages, promoting customer-catalyzed innovation. It provides metrics on activity, idea popularity, and drill-down for exploring conversation thread detail (Gallaugher & Ransbotham, 2010, pp. 203–205). Ecolab states: 'Read our success stories to learn how we've partnered with our customers to enhance their business results and make the world a better place'.[43] Findings from the 2020 Future of the Workforce Global Executive Study evidence how businesses are rapidly migrating from an emphasis on products to platforms. The transformation likely bears with it the creation of an ecosystem environment, a complex array of partnerships with users, customers, and suppliers. The transformed business culture and model might even bring the company to partner periodically with competitors when mutual benefit overshadows the core rivalry (co-petition, ► Chap. 5). This ecosystem is nurtured on exchanges between the network members. Network effects are key – facilitating a process in which users are creating value for other users. This approach contrasts the more traditional view of creating strategic advantage, which overwhelmingly focuses attention on optimizing organizational capabilities to win, rather than optimizing the efficacy of interactions among users to create more valuable communities. This is an eastern approach, as we will see in ► Chap. 4.

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42 ► https://www.jnj.com/caring

► https://www.jnj.com/about-jnj

► https://www.jnj.com/innovation

CASE HBS ► https://digital.hbs.edu/platform-digit/submission/johnson-johnson-embracing-digital-transformation/

► https://www.nytimes.com/2013/04/25/business/media/trying-to-burnish-its-image-johnson-johnson-turns-to-emotions.html

► https://www.jnj.com/media-center/press-releases/johnson-johnson-human-performance-institute-launches-corporate-athlete-resilience-program

► https://www.careers.jnj.com/careers/how-teamwork-and-innovation-help-us-lead-the-fight-against-cancer

► https://jlabs.jnjinnovation.com/

43 ► https://www.ecolab.com/expertise-and-innovation/success-stories#sort=relevancy

Achievement versus Ascription In this social marker, performance wins over hierarchy.[44] Achievement implies meritocracy[45]: a person is being judged based on her or his work and performance; Ascription, instead, refers to a person valued for her/his hierarchic position and professional status. Some examples: Mastercard brings ahead the Employee Recognition Program (Corporate Sustainability Report, 2019, p. 53); Verizon states that 'Ideas live and die on their merits rather than on where they were invented'. JP Morgan Chase 'Maintains an Open, Entrepreneurial Meritocracy for All'. Ecolab confirms this line by stating that the company 'emphasizes the importance of meritocracy in motivating employees to carry out business goals. People watch who gets promoted' and public acknowledgment matters even more than financial incentives over time'.[46]

Outer Direction (Outside-In) Versus Internal Direction In the Internal Direction, there is a convincement and attitude to control the outer environment and reach objectives. In the Outer Direction, there is dependence on the outside and an outside-in approach is adopted (Beck, 1996; Giddens, 1991). As we have depicted in ► Chap. 1, and as it will be more extensively illustrated in ► Chap. 3, 'The Digital Ecosystem' is not controllable, given its complexity and environment is not controllable. The starting point, then, has to be the outside, by strictly monitoring it. An outside-in, Outer Direction, implies context-driven reverse engineering processes, driven by data and context analysis, as digital native vertical brands leverage social sharing up to say that they are social media driven. Glossier, Away, and Bonobos are examples. Their outside-in approach allows them to leverage external data feeds (social sharing) to evolve their offerings and business model appropriately in a customer-centric approach. This outside-in approach blurs the borders among customer, vendor, and service providers as organizations become digital companies in the digital economy. A digital-native enterprise conducts business like a partnership rather than a supplier relationship.[47] Verizon claims they focus outward on the customer, not inward. Microsoft: 'We listen and learn from the world around us'; JP Morgan Chase: 'We are field and client driven; we operate at the local level'; Ecolab: 'Our experts employ a rigorous process to gather data, apply advanced technology, rethink processes and provide solutions to address our customers' unique economic, social and environmental challenges.

44 ► https://www.jstor.org/stable/24650311?seq=1

45 With "merit" – as Georg Simmel already observed at the end of the 1800s – "it is not understood a property of action that, so to speak, remains in itself or characters it without relation to anything else, without coming out of itself [...]; deserving action and its reward are not concepts that are independent of each other and to be put only in synthetic connection; on the contrary, those actions to which a reward has generally been reacted" (Simmel, 1908) have been given the name of deserving. The same etymology refers to this relational character: merit (merere, having part, earning, from the Greek meris, piece, portion the Italian 'merenda' or 'snack') is directly the part of reward to which you are entitled.

46 Available at ► https://hbr.org/2016/04/culture-is-not-the-culprit

47 ► https://www.onlinewhitepapers.com/information-technology/what-is-a-digital-native-enterprise/

Behind every field representative is a team of researchers, scientists, engineers, regulatory specialists and other experts working diligently to tackle customer challenges, develop new solutions and meet emerging needs'.[48] In synthesis, an outer direction involves a holistic approach, reflected in the need to understand the multidimensional context of a specific CJ touch-point (see ► Chap. 4, par. Customer Journey and complex ecosystems), or the trans-sectorial technological competitive context in which a company operates its trends. Institutions must be aware that their decisions impact the larger ecosystem of stakeholders.

Neutral Versus Emotional Neutral implies rationality and logic prevails on emotions and feelings. Emotional refers to emotions that prevail on rationality. DT companies give a lot of importance to emotions, as emotions are the drivers of customer engagement. The role of emotions is key to generate loyalty (Simmel, 1908; Pareto, 1916; Parsons, 1937). Mastercard relies on 'emotional and experiential connections' and it is anchored to nine consumer passions – sports; entertainment; music; travel; art and culture; culinary and dining; philanthropy; shopping; and the environment. This focus reflects the understanding that people connect through events and moments in their lives and with the people they love'.[49] At J&J trust is highlighted to be extremely present. Verizon says trust is critical to the relationships we have. Microsoft states: 'empowerment begins with trust'. Starbucks states: 'Consider the product emotions of Starbucks. Starbucks products provide emotions such as tranquillity, the feeling of being well cared for, and the feeling of refreshment. You may be thinking about Starbucks coffee but that is not really their product. […] The emotions provided by Starbucks, experienced at the point of delivery, have created value that has fostered growth of the enterprise to over 15,000 stores in only 20 years' (Boatwright & Cagan, 2010, p. 29). 'Reaching People by Provoking Emotion through Artistic Content. Content, truly effective content, nurtures relationships and deepens trust'.[50]; Ecolab also appears to nurture a culture of trust by the emotional response of customers, joining the effort to sustain our world's limited resources[51].

Results The research outcomes indicate that all sampled digitally mature companies show correspondences with the principles expressed by social markers. Specifically, all 10 social markers were clearly reflected at organizational, business, strategic, process, and operations levels. Therefore, the research provides indications to define the DTSM profile of an institution, reflecting the social markers embedded in it.

48 ► https://www.ecolab.com/about
49 ► https://www.mastercard.co.uk/en-gb/vision/who-we-are.html
► https://www.mastercard.us/content/dam/mccom/global/aboutus/Sustainability/mastercard-sustainability-report-2019.pdf
50 ► https://esultants.com/blog/2014/07/18/provoking-emotion-through-content
51 ► https://www.youtube.com/watch?v=Ra5Nznbjr14

Table 3.3 The DTSM 10 profile-points

Attributes	The 10 DTSM profile points
Individualism vs. Collectivism (IDV)	Collectivist (Community)
Long term vs. short term normative orientation (LTO)	Long term (Sustainability)
Indulgence vs. restrain (IVR)	Indulgent (Freedom and responsibility)
Uncertainty Avoidance Index (UAI)	Low UAI (Resilience and agility)
High Power Distance vs. Low PD (PDI)	Low Power Distance (Participation)
High context vs. low context (HCO)	High context (Data culture)
Specific vs. diffusive (SPE)	Diffusive (Ecosystems)
Achievement vs. ascription (ACH)	Achievement (Performance)
Internal direction vs. outer direction (INT)	Outer direction (Context driven)
Natural vs. emotional	Emotional (Trust driven)

Source: The Author

Specifically, a DTSM organization bears Community values (Collectivity), operates within a sustainability framework (Long-term horizon), promotes freedom & responsibility (Indulgent), appears resilient & agile (low Uncertainty Avoidance Index), has a participative mindset (Low Power Distance), has a data savvy and data intelligence culture (High Context), has an ecosystem structure (Diffused), is oriented towards performance (Achievement) and is context driven (Outer direction), and is trust oriented (Emotional). All the social markers defining the DTSM are listed below (see Table 3.3).

The DTSM Profile is useful to picture a synthetic profile of an organization that is coherent with a digital culture social environment.

After having described the DTSM profile, that we will deepen in the FPM and measure via the FPM, we illustrate the DTSM profile of IKEA via a case study to have a comprehensive view of a DTSM organization.

The application of the full set of social markers to the case demonstrates a full DTSM profile.

The IKEA Case Study

IKEA is an acknowledged digitally transformed company, constantly improving stakeholders-centric strategies.[52] By analysing all contents extracted from its corporate website, scientific literature and white papers, this case study highlights how IKEA is not only a digitally transformed organization according to the traditional meaning provided by scientific literature, but it also shows a remarkable DTSM profile: by applying the whole set of social markers, a high level of coherence emerges. This fact has many implications for the company in terms of value, as it means that the transformation is rooted into the deepest cultural values of the institution; that a new mindset is becoming pervasive, that new models of building value are being adopted, new ways of analysing the context, of building engagement with internal and external stakeholders; that the organization has opened to a long time horizon and sustainability is within the organization's DNA. In one word, the company has embraced a new role of sustainability within the global society, responsibility and social innovation; of sustainable transformation for the future of people and our planet. This translates into a care for people and their work, the respect of rights, and a contribution to technological sustainability.

Below is the application of each social marker of the DTSM with a brief comment, to let the company express itself and directly illustrate its DTSM philosophy.

1. The first social marker of the DTSM is *Community* (vs. individualism). IKEA shows a high level of communitarism by stating the following in its corporate website: 'Togetherness is at the heart of the IKEA culture. We are strong when we trust each other, pull in the same direction and have fun together.'. A strong sense of community is behind trust and a relationship approach to team-building is stressed by the frequent use of the term 'together'. IKEA claims that every individual has something valuable to offer 'We're a diverse group of down-to-earth, straightforward people with a passion for home furnishing. We come from all over the world, but we share an inspiring vision: "to create a better everyday life for the many people". How we realize this vision is based on our shared humanistic values. These values guide our work and build our inclusive, open and honest culture.' The company shows an intent to apply technology to support pleasant collective experiences inside its stores, overcoming a superficial digital transformation approach, while going in depth: 'IKEA will have a more in-depth focus than just becoming digital its processes. (…) The intent for IKEA is to create a living and breathing space for families to come and spend a day investigating what new ideas in the household would

52 ► https://www.forbes.com/sites/forbesinsights/2020/04/21/how-ikea-has-embraced-ai-and-digital-to-create-a-deep-human-experience-part-1/?sh=47e346642a17

look like and feel like. Being able to embed (virtually) these ideas also opens up other possibilities for the consumer experience inside the store. That level of intimacy should be the norm by 2030 for IKEA, where we are as keen to find out about the environmental and community-building impact of the brand and its products. What was once a retail experience transforms into a fun day out with the family that is highly creative and engaging. IKEA shows also an inclusive attitude by making efforts toward gender-equal pay goal by achieving gender balance in the leadership of all functions, locations, boards and committees.[53] The company is part of the first UN high-level panel on Women Economic Empowerment to help unlock potential for women to fully participate in the economy and achieve financial independence.'

2. *Sustainability* (Long Term): IKEA shows "We want to be a force for positive change. We have the possibility to make a significant and *lasting impact* – today and for the generations to come." "These steps to transform into a technology company show IKEA's commitment to stay relevant and competitive in the future. The company's technology commitment will allow them to reach a broader and younger consumer base, including urban dwellers". "Sustainability is becoming the defining issue of our time, and the younger generation, in particular, is calling for more and urgent action – and rightly so". [54]

   'In order to turn our strategic goals of becoming more affordable, accessible and sustainable into concrete actions, we're focusing on what we call '10 jobs in three years.' Accelerating growth through investments 'Through Ingka Investments, we make strategic investments and acquisitions that secure our long-term financial strength and support our growth, business transformation and sustainability goals. 'We also invest in circularity, renewable energy and forestland. We work closely with all areas of Ingka Group to align our investments with our business needs, and we want to make a positive difference in the societies where we invest.

3. *Freedom and Responsibility* (Indulgence): A freedom and responsibility' approach is confirmed by the following statement: 'We believe in empowering people. Giving and taking responsibility are ways to grow and develop as individuals. Trusting each other, being positive and forward-looking inspire everyone to contribute to development.'
4. *Resilient and Agile* (vs. High UI): An antifragile approach is revealed

53 *Bringing IKEA to more people in new ways*. (2019). ► https://www.ingka.com/wp-content/uploads/2020/01/Ingka-Group-Annual-Summary-Sustainability-Report-FY19_WeAreIngka-Group.pdf

54 ► https://www.thedigitaltransformationpeople.com/channels/people-and-change/culture-digital-transformation-building-a-culture-of-transformation-at-ikea/

by the following statement: 'We are constantly looking for new and better ways forward. Whatever we are doing today, we can do better tomorrow. Finding solutions to almost impossible challenges is part of our success and a source of inspiration to move on to the next challenge. We like to question existing solutions, think in unconventional ways, experiment and dare to make mistakes – always for a good reason.' 'Internally, the digital ways of working, with agility, iterations and being outcome oriented is a way of managing the fast-moving reality and the high-level of uncertainty we must all manage. Again, the current situation we're all facing highlights that uncertainty'.[55]

5. *Participative* (LPDI): An anti-hierarchical, low PDI is evident as the company claims 'We are informal, pragmatic, and see bureaucracy as our biggest enemy.' Every individual has something valuable to offer. 'We see leadership as an action, not a position. We look for people's values before competence and experience. People who 'walk the talk' and lead by example. It is about being our best self and bringing out the best in each other.'
6. *Data Culture* (vs. low context): IKEA shows exactly that data-driven and data-savy DTSM culture is a way of using data in a transparent and positive way: 'Driving change with digital and data: Digital is at the very core of our transformation. Driven by data and analytics, we're quickly becoming a more accessible company. With new digital capabilities, we can improve people's lives at home and connect with more people, wherever they are and whenever they want'. 'Companies need to see that there is no separation between people and their data. This [..] will put a clear connection between the two and avoid negative possibilities. This will make retail a digitally thriving but very people centric ideal where visits to stores will be a combination of co-creation, learning, and extremely personalized events. The use of the word people centric pushes us way beyond the idea of customer centricity, too, as it holistically brings whole human experiences into the formula. In a world of increasingly urban living, retail should be an experience that brings new forms of enjoyment and a sense of community where we can share, participate, and learn, not just purchase'.[56] And more is stated: 'In order to be successful digital needs to be embedded in every aspect of IKEA. Digital is a way of working, making decisions and managing the company. The reality remains that

55 ► https://www.thedigitaltransformationpeople.com/channels/people-and-change/culture-digital-transformation-building-a-culture-of-transformation-at-ikea/

56 ► https://www.forbes.com/sites/forbesinsights/2020/04/21/how-ikea-has-embraced-ai-and-digital-to-create-a-deep-human-experience-part-1/?sh=47e346642a17

80% of all customer journeys start online. (…) At IKEA we've divided our digital transformation into four main areas: (A) Meeting the customer; (B) Empowering co-workers (C) Digital Foundation (D) Digital DNA'. 'In the bigger perspective, IKEA Place is not about AR or AI. It's about making IKEA home furnishing expertise more accessible. To do so, we are looking into the newest technologies, not for the sake of technology, but to create a better everyday life for the many people'.[57] The company's position on the positive use of technology, a key point behind DTSM, is also stressed by the following: 'Retail becomes something much more around the idea of converging a virtual and physical world of possibilities. The key to this, in other words, the digital glue, is how data is used for the benefit of the consumer and the experiences a consumer would want to have. AI for IKEA must be focused on the consumers' needs first before it can be examined for its commercial values. This is a crucial compass focus for IKEA so that the company sustains and expands its focus on the application of AI to every aspect of the consumers' experiences'.[58]

In synthesis, IKEA appears as a data-driven organization, and they make it clear that trusting data enables better decision making and predictions. And we're using data to optimize how we operate internally and to personalize and create a more relevant offer for our customers–like recommending products and tailoring the inspirational feed in the new IKEA app. 'Digital brings amazing opportunities for us. With the range at the core, fuelled by digital, we can adapt to consumer needs faster than ever before.'

7. *Ecosystems* (Diffused): 'Digital becomes a core part of the experience because it allows for infinite levels of personalization at the moment (online and in the store). This opens up possibilities for much more in-depth conversations around environmental responsibility and sustainable products as well as moments for very personalized co-creation between the consumer and the company'.[59] We're also continuing to invest in our Ingka Centres, meeting places and blue box IKEA stores, turning them into festivals – full of home furnishing knowledge and inspiration, food and activities that give people even more reasons to come and visit us.[60]

57 ► https://newsroom.inter.ikea.com/news/ikea-sparks-home-furnishing-ideas-and-inspiration-through-artificial-intelligence/s/77ed5adf-d6bb-4262-90c0-61b02821d04e

58 ► https://www.forbes.com/sites/forbesinsights/2020/04/21/how-ikea-has-embraced-ai-and-digital-to-create-a-deep-human-experience-part-1/?sh=47e346642a17

59 ► https://www.forbes.com/sites/forbesinsights/2020/04/21/how-ikea-has-embraced-ai-and-digital-to-create-a-deep-human-experience-part-1/?sh=47e346642a17

60 *Bringing IKEA to more people in new ways*. (2019). ► https://www.ingka.com/wp-content/uploads/2020/01/Ingka-Group-Annual-Summary-Sustainability-Report-FY19_WeAreIngka-Group.pdf

8. *Performance* (Achievement): We are informal, pragmatic, and see bureaucracy as our biggest enemy.
9. *Context Driven* (Outer Direction): The company shows to attently monitor the evolution of the digital environment, of purchase experiences, of urban contexts, of social attention on sustainability initiatives and values. This is demonstrated by statements like: Creating a new IKEA- 10 jobs in three years 'To succeed with the transformation of our business, we've identified the 10 most important tasks we need to complete in three years.[61] One year in, we are seeing strong movements in digital development, store transformations, city expansion, services and sustainability initiatives. We know that in order to meet new and changing customer behaviours, we need to offer great customer experiences, deliver seamless services and reach people where they are. We're investing heavily in new sales channels, innovative IKEA formats and improved services. The Chief digital officer at IKEA Retail states: 'For us, our transformation is about meeting the fundamental change happening in society and the retail industry. Some of those changes have become even more profound since the global pandemic has struck and business and consumer behaviour has changed in significant ways'.[62]
10. *Trust* (Emotional): 'Swedish society is known for being open, innovative, caring, and authentic. A unique IKEA culture and set of values have developed from our roots in Sweden.'

    Emotions are also communicated through retail experience: 'Retail technology further enhances sensory experiences among fashion brands. Among the examples (…) IKEA's "virtual reality experience", with which consumers can customize the layout of home spaces that they have created' (Kim & Sullivan, 2019). In the next paragraph, we will highlight the meaning of trust and the above elements will be clearly connected.

After illustrating the enlightening IKEA case study, which confirms a full adherence to the principles of the DTSM, we move to a founding element of the DTSM, that is, trust. Trust is at the base of a DTSM, as it represents the door to build relationships. And relationships are behind any pillar of this social mindset. In fact, if we go through the key pillars, collectivity regards people, sustainability refers to people, indulgency refers to people's freedom and responsibility; resiliency and agility is empowered by people, a Low Power Index relates to people-based participation, High Context refers to the topic of trusting data owners (an institution), Diffused relates to organizational but also human networks; Achievement is tied to the concept of individuals' and

61 ► https://www.ingka.com/what-we-do/ikea-retail/

62 ► https://www.thedigitaltransformationpeople.com/channels/people-and-change/culture-digital-transformation-building-a-culture-of-transformation-at-ikea/

teams' performance; Outer Direction, instead, relates to context, that is also stakeholders' behaviour driven decisions, and, finally, Emotions relates to trust.

The complex construct of trust has many interpretations in scientific literature. However, it is commonly shared how it has two components: a rational one, based on data, information, evidences, calculus, evaluation; it is a feeling of confidence, reliability or calculated risk on an event or a person. An example may be the purchase of a well-established brand's item or a donation to a non-profit organization about which I have extensive information. On the other side, trust has an irrational side, leading a person to a leap of faith, to assign trust by emotions, without any calculation, evidence, data or information: it is an irrational impulse, driving the action. For instance, purchasing an item you get to know for the first time on the web, as being hit by the striking images of a website, by a video; or, taking part to a petition for the values it supports. Experience tells us reality is in the middle and that trust is a very complex construct to be built. It takes a long time to become reliable, and in a sudden moment, we may lose our trustworthiness. Trust is so valuable, as it is so volatile.

However, there is a way to plan a strategy to build trust. In the following paragraph we are going to illustrate it.

3.7 The Role of Trust

Relationship building is a key ground on which institutions and brands compete. Relationships are bridges between institutions and stakeholders. If they are solidly built, institutions will have channels that can transfer information, goods, services, ideas, and values to stakeholders. Bridges have to be built genuinely, with competence, sharing attitude, and goodheartedness – that is on the four trust beliefs that we will below explain. Here, the concept of sustainability becomes particularly relevant in support of the institution–stakeholder relationship, which it opens to other categories of relationships that the institution maintains in the environment with stakeholders and members of other constituencies. In the offline realm, it is easy to understand what the environment is: it is all about nature, resources, society, and territory. In the online realm, the environment is essentially made of relationships. If sustainability in the offline realm relates to respect for the environment, in the digital realm it means respect for the person – that is, the individual in relationships with others (Cesareo, 2006). Indeed, relationships exist to enable the sharing of contents, emotions, and goods – all human forms of expression. This relational orientation is furthermore fuelled by web connectivity and the typical profiles of the web users, characterized as they are needed for individualism, protagonism, and experience, which all express the need of relations. The content you produce on the web is not just for yourself – otherwise a pencil and paper would do. Any action on the web is driven by a desire to share. In order to satisfy its customers by meeting their particular needs, any brand must first adopt the new role of relationship enabler.

Studies conducted on stakeholders' trust (Mayer et al., 1995; Pirson & Malhotra, 2008, pp. 43–50) revealed that trust has its own rules and that a lack of knowledge may lead to huge mistakes.

Let us explore the four Trust beliefs, evidencing some sociological links (Padua, 2012, pp. 179–183).

Competence Competence is a broad concept, taking various forms that include managerial competence, which is related to an executives' ability to increase the business overall in an effective and efficient way, creating value in the short and long runs; and technical knowhow, such as the ability to produce quality goods and services and handling processes efficiently. Competence in human resource management is another key area, where managers and CEOs show relational abilities to drive a motivated workforce cohesively towards a goal. Competence has a positive impact on the future because it exercises ability, is easily validated and deals with a specific area, and hence is easily trusted (Cofta, 2007, p. 40).

Identification Identification is also called 'value congruence' (Pirson & Malhotra, 2008), a sociological expression of the relation between identification and integration or sharing. According to Simmel, identity is tied intimately to differentiation: differentiation from other human beings is behind our identity. Indeed, for Simmel, the logic of differentiation is the reason behind the creation of community. The atomization of individuals (the separation of individuals, with no relations) excludes any of the contact and interaction of which society is made up (Simmel, 1908, pp. 500–1). In truth, however, identification is tied to the concept of integration, while it is individualization that is behind the need for differentiation; the 'shape' of association is made up by the conflict between these two principles of action. This is the idea of 'ambivalence' as formulated by Simmel, and it characterizes his 'shapes' (Cotesta, 1996, pp. 20–3). According to relational theory (Donati, 1991), identity stems from the relationship between the self and otherness or 'alterity'. Therefore, identification is the process implying a relation, which, over time, produces interaction and sharing. Apple has been able to create a distinctive identity, through a strong personality and a creative approach to the idea of 'digital', meeting that need for sociality and freedom of expression which is required by its customers. In fact, the Apple revolution in the fruition of music, of content, the provision of an extreme personalization of products, results in an effective brand–customer relationship, based on strong identification with the Apple brand.

Integrity Integrity implies that the trustor perceives the trustee (an institution, organization, OG, media company) as adhering to a set of principles (personal integrity) considered acceptable (that is, to display moral integrity) by the trustor, including honesty, fair treatment, and the avoidance of hypocrisy (Mayer et al., 1995, p. 718). The concept of integrity is tied to ethics, that is, moral norms and standards, which encompass consistency in the trustee's past actions, credible communications about the trustee from others (their reputation), belief in the trustee's strong sense of justice, and congruency between the trustee's words and actions. In the United States, supporting social causes is perceived crucial to gain trust. A recent PRWeek/Barkley Cause Survey[63] suggests that a full 88 percent of Americans

63 The Guardian, Social media: how to engage the new consumer, Dec 2010 from Social media: how to engage the new consumer | GSB Editorial Network | The Guardian.

say it is crucial for a brand to support a social cause. In the DTSM framework, transparency emerges in the High Context social marker: valuing data and information and having a transparent management of private data is a key to becoming trustworthy.

Transparency Transparency may be interpreted as the possibility of the trustor to acquire information about the trustee's integrity. Communication management plays a relevant role in this aim, because it enforces the goodwill of the trustee to be open and it enables people to 'look inside' what happens. Moreover, effective communication will allow the trustee to cope with the different strata of the web's ' multi-layered network of relationships' (Cofta, 2007), acting directly with the client and not being hidden behind poor websites or intermediaries. The most transparent way to act is to show one's physical identity and communicate it in an open way. Organizations do not have a physical identity, but their employees do. Human interaction at specific brand–customer touchpoints helps in building trust, because face-to-face communication is perceived as the most transparent form of connection (Alexander, 2002). Transparency is the opposite of blind trust: it allows access to information and its evaluation in a rational way. In the DTSM perspective, the social marker Freedom & Responsibility implies a transparent employer–employee agreement: freedom, fail fast, are no rules that exchange transparency and fairness with responsibility on the employee's side.

The Sociological Box 3.4: The Meaning of Gift

The meaning of 'gift' has been studied by numerous authors across different disciplines. Among them, Alain Caillè, who stresses its non- utilitarian character. Notably, according to the French philosopher and sociologist, the act of giving, through the social relationship, guarantees both individual and collective interests: to Caillè, social relationships are founded on reciprocal obligation, that is, on giving, which is performed at different levels among individuals (Caillè, 1998). In the Caillè theory, giving, however, has a specific meaning. To understand it, we have to refer to the role of giving in the relational dynamic, from an anthropological point of view, where it becomes an expression of power: 'The more I give, the more I am'. This concept traces back to the Latin munus, meaning 'role', 'function' or 'position'. In this anthropological conception giving contains a sense of 'duty'. As Caillè maintains, to assign a full sense of relationship in the social structure, the idea of giving has to be freed from the meaning of a gift as an expression of duty or as an expression of power over a recipient unable to reciprocate. Genuine reciprocity lies, instead, in the gesture centred not on 'I' but on 'you'. The Latin word gratia, from which the noun 'gratitude' comes, implies that the one who gives, receives from the other the possibility of giving back: thus, giving implies reciprocity and receiving (Zamagni, 2007). Giving without a sense of duty, being a tool of reciprocity between two persons willing to transmit something to each other, activates that fundamental circularity of giving and receiving, opening the doors of one person's world to another one.

Benevolence 'Benevolence is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive' (Mayer et al., 1995). It is all about bigheartedness, and suggests a form of attachment and positive orientation between trustor and trustee. If an organization is perceived as benevolent, then customers will easily open themselves up to interaction, since the disinterested attitude of the organization allows them to perceive a genuine approach. While integrity represents the moral side of behaviour, benevolence is not ruled by any ethical norm, but it depends entirely on the goodwill of the trustee. Benevolence represents the voluntary and intentional side of the action with no objective of profit. Indeed, it reflects a degree of kindness and a genuine concern for the trustor's welfare. Benevolence is giving (see ◘ The Sociological Box 3.4). The paradigm of gratitude, being based on reciprocity, implies a circulation of goods or actions (Ricoeur, 2005). Within the DTSM framework, we find Benevolence in the Long-Term vision, where such a wide time horizon confirms an effective will of care for people, substantiating into a sustainable strategy.

This chapter ends with a conversation with a digital expert, Garry Titterton, to provide a further relevant reflection on the above tackled topics.

Interview with Garry Titterton[64]

After this focus on the relevant topic of trust, we close this reflection with a conversation with a digital expert, *Garry Titterton, Chairman of the Board, PI Datametrics, UK, on the topic of the chapter: 'The Digital Transformation Social Mindset'.*

The insights and reflections provided by this interview are an excellent reflection on the responsibilities of digital transformation, on the human–technology relationship and the role of the big players. It provides really interesting insights on the various facets of sustainability and how the acknowledgements of responsibilities by corporations would substantially save our planet: Profit versus Planet and the future of society.

The first question follows:

Question 1: Do you think in the current scenario a Digital Transformation Social Mindset is needed?

Answer: Transformation is within our nature and nurture. We moved from the primeval soup to landing on the moon; from walking the savanna to riding horses to driving cars to riding aeroplanes; writing on clay tablets to communicating with smartphones; seeking knowledge in libraries to searching the internet. We are creative and social creatures. The digital revolution can both liberate and restrict us, depending upon our mindset.

With liberation, we have to accept the responsibilities that come with it: to ourselves, our families, friends, colleagues, companies, society in general, and our home – the planet we live on. We can categorize these responsibilities into four

64 Chairman of the Board, PI Datametrics, UK.

broad areas: social, economic, technological, and ecological. When considering digital transformation, at its core is strategy, authored by highly talented and inventive people working for organizations, either governmental, academic, or commercial. Each has its own objectives and strategic intent, but the challenges are the same: how to conceal the complexity to enable the user to produce an easily navigable process to reveal clarity of information and rich insights to implement. Speed and depth of data mining combined with pattern recognition are at the core of machine learning.

This organizational transition is complex and difficult. It goes beyond breaking down silos in organizations and automating routine tasks. It requires a mindset shift to encourage people to base their thinking and decision making on a rich stream of data to enable strategic and implementational agility. In a survey in 2020, PWC asked which of the following AI and analytic applications will be most important to your company in 2021? Top ranked was managing risk, fraud, and cybersecurity threats. Second, improving AI ethics, explainability, and bias detection. Third, helping employees make better decisions. Fourth, analysing scenarios using simulation modelling. Fifth, automating routine tasks.

This research demonstrates the dynamic role of AI in organizations. New needs will appear and be satisfied by the manipulation of algorithms through machine learning that will enlighten and empower people to work more effectively and efficiently. Jobs that are repetition-based will be lost, but eventually, new roles will be created through growth in the economy that are more satisfying and inspiring. In technology, it is estimated that by 2030, there will be an additional 50 million jobs created. Removing low paid, repetitive jobs, such as those in the gig economy, will create economic and societal issues. Those with higher education will benefit whilst those in the middle range of pay will have declining opportunities if current pay structures persist. According to McKinsey, in the report *Jobs lost, jobs gained*, these wage trends are not universal: In China and emerging economies, the most employment growth will be in middle-wage occupations such as service and construction jobs, thus boosting the middle class.

A McKinsey scenario suggests that by 2030, 75 million to 374 million workers (3 to 14 per cent of the global workforce) will need to shift occupational categories. This places the emphasis on education in schools and universities and re-skilling of the existing workforce.

As McKinsey states, history shows that many countries have successfully adapted to technological change by adapting policies and modes of operating that have met the needs of the new environment.

An example of this is the growth in an aging population that will create significant demand for healthcare workers such as nurses, technicians, and doctors, many of whom will be using technology in all aspects of running an effective and efficient healthcare sector.

Post Covid, many new technologies are focusing on the hybrid future of work. In 1994, Charles Handy, a Professor at the London Business School and Broadcaster, wrote The Empty Raincoat. It is a book that could have been written today, it is that visionary. It speaks for choice. How we can lead our personal and business lives through working with others to create things of value through a

sense of connection. He wrote that lifetime jobs would not be the norm and that people would be working more in project-based employment and would be free to choose how and when to work.

Choice is a word that could be ascribed to what technology provides. Take for example, Broadcast media. Once the handset was introduced, it provided an easier and quicker way to switch to the channel of choice. But with broadcast media, you are still passive to the content. When the internet was introduced, choice became exponential and you could be interactive with content too, through your computer and handheld devices. These new pieces of technology provided previously unthought of channels of communication. Now you can phone a friend or family member in a distant country whilst waiting for a bus or a taxi. You are also able to enter a website and research; then purchase, brands, and services from your device and pay for it through PayPal or another facility. You can watch your favourite sports team too without having to attend every game in person. More importantly, we can be contacted to attend a Covid inoculation appointment. This is choice and opportunity that digital connectedness has provided.

Yet, the downside to this connectivity is the potential security breaches where people can steal your money and your identity. Such criminal and antisocial activities are on the increase and are not restricted to individuals. Rogue groupings and States are involved in cyber activities to destabilize and create 'fake news'. Other technologies employed exacerbate this problem, creating deep fake videos and photographs that have a corrosive effect on trust and well-being. Cyber commercial spying is prevalent and affects individuals, organizations, and States. No wonder Cybersecurity is the number one focus of organizations in the PWC survey!

Trust in technology is increasingly front of mind for purveyors and users. Users will refrain from engaging with any digital experience that doesn't grant trust. Any brand or service recognizes that to build a relationship with a B2B customer or a B2C consumer, you have to be considered to be ethical in your dealings and trustworthy. That emanates from delivering what you promise and over time developing an emotional link through compelling service and consistently good products. Companies that are brand builders are aware that consumers are increasingly motivated to purchase brands and services that are environmentally friendly. Unilever has been a champion of sustainability for some time, and its Sustainable Living Brands have accounted for more than 75% of the company's growth in recent years.

Another example of customer engagement through the use of technology is Amazon. Jeff Bezos created Amazon around the central premise of understanding the customer. At the centre of his famed Flywheel is the person who is buying Amazon products and services. The Flywheel continues to focus on each customers' needs and anticipates them through clever techniques of engagement based upon emotional intelligence, where empathy and trust are central to the relationship. Without the massive investment in brilliant and reliable technology that informs, engages, delivers products on time and then repeats the process, the flywheel would not function. The benefits to the customer through this disruptive breakthrough are clear. However, there are issues that Amazon and other large tech behemoths have to address.

After the efforts of public and environmental pressure groups, many large companies like Amazon, Apple, and Microsoft are rethinking their supply chains and carbon footprints. In August 2020, Apple became the latest Tech company to promise to reduce the emissions of greenhouse gases. They announced that by 2030, every Apple device sold would have net-zero climate impact. According to an article on the Environmental Protection website, this idea of 'net-zero climate impact' involves both direct changes in systems and indirect, reallocation of funds outside the company. Apple stated that they will reduce emissions by 75 per cent in its manufacturing chain by recycling more components of its products and encouraging its suppliers to use renewable energy. For the remaining 25 per cent, the company plans to 'balance' them by funding reforestation projects and improving energy efficiency in its operations. However, climate activists note that these offsetting, funding efforts are inadequate, as they do little to actually change and redefine the systems the companies utilize. Companies that offset emissions through external funding allow emissions to 'grow at a time when the scientific consensus demands that emissions be cut in half by 2030 in order to avoid the worst effects of climate change – and be reduced to zero by 2050.'

Many of the machines and devices we use in our digital activities have to be disposed of in some form. Responsible recycling is essential if we are to keep the planet a sustainably healthy place to live. Gia is already coughing and showing signs of discomfort from irresponsible and feckless emissions and waste disposals. Extending obsolescence cycles would have a measurable beneficial impact. More recently, the increasing use of cryptocurrencies has a significant impact on the environment due to the electrical power used in the mining of them. In many ways, Corporations play a massive role in the climate crisis. The focus on sustainability is sharpening. In 2020, The World Economic Forum in Davos, Switzerland, chose '*how to save the* planet' as its theme. Increasingly, the corporations of the world are starting to recognize their responsibilities.

In The Digital Transformation Social Mindset, Professor Padua reveals the importance of creating an ethically centred social digital mindset. There are responsibilities inextricably attached to it. The concept of sustainability, placing people and the planet front of mind, grows in importance with every photograph and film clip of forest fires, outlandish storms, melting ice caps, and dying species. Technology can be a saviour, not a contributing cause, if those of us responsible adopt the right strategies and above all else, an ethical mindset.

Summary

In this chapter, we have demonstrated the *hypothesis* that digitally transformed institutions are successful when they abide by the DTSM social markers. Via a humanistic and interdisciplinary approach, we have applied a socio-organizational interpretation to the set of cultural markers to allow a meaningful adaptation to the DT framework. The ten social markers define a precise profile for institutions obtained by a scientific and business literature study, scientific theories, and case study analysis. They are 1. Community; 2. Sustainability; 3. Freedom & Responsibility; 4. Resilience & Agility;

5. Participation; 6. Data culture; 7. Ecosystems; 8. Performance; 9. Context driven; 10. Trust. The case study methodology has been applied to eight successfully digitally transformed companies selected across key industries and has extensively confirmed the correctness of the social markers and of the resulting profile. Finally, the DTSM profile has been applied to the IKEA case study to provide a final applicative ground to DTSM social markers. A final focus on trust allowed us to shed light on this key social marker. This chapter closes the first Section of the book dedicated to the DTSM and opens the doors to the second section, aiming to explaining the Four Paradigm Model and its tools, the FPM Board and the FPM Radar. The chapter ends with a remarkable interview with Garry Titterton, Chairman of the Board, PI Datametrics, UK, on 'The Digital Transformation Social Mindset'.

References

Alexander, P. M. (2002). 'Teamwork, time, trust and information'. In *ACM international conference proceedings series, Vol. 30, proceedings of the 2002 annual research conference of the South African Institute of Computer Scientists and Information Technologists on enablement through technology*.

Alostatha, J. M., Metleb, M. K., Al Alic, L., & Abdulhadi Abdullahd, L. R. (2011). Cross-use pattern language: Cross-cultural user interface development tool, science direct. *Procedia Computer Science, 3*(2011), 1541–1550.

Anderson, C. (2008). *The long tail: Why the future of business is selling less of more*. Hachette Books.

Andriole, S. J. (2017). Five myths about digital transformation. *MIT Sloan Management Review, 58*(3).

Anthony, S. D., Trotter, A., & Evan, I. S. (2019). *The transformation 20, strategic change rankings for 2019*. INNOSIGHT report. Retrieved May 7, 2020 from www.innosight.com/wp-content/uploads/2019/09/Innosight-Transformation-20-Final.pdf

Ardito, L., Raby, S., Albino, V., & Bertoldi, B. (2021). The duality of digital and environmental orientations in the context of SMEs: Implications for innovation performance. *Journal of Business Research, 123*, 44–56.

Barbour, H. (2020). *Culture & digital transformation: building a culture of transformation at IKEA*. Retrieved February 10, 2021 from: https://www.thedigitaltransformationpeople.com/channels/people-and-change/culture-digital-transformation-building-a-culture-of-transformation-at-ikea/

Bauman, Z. (2005). *Liquid life*. Polity.

Beck, T. (1996). *The structure of scientific revolutions*. University of Chicago.

Birshan, M., Meakin, T., & Strovink, K. (2019). Short-term pain for long-term gain: The new CEO's dilemma. *McKinsey Quaterly, Resilience, 2019*(2).

Boatwright, P., & Cagan, J. (2010). *Built to love: Creating products that captivate customers*. Berrett-Koehler Publishers.

Bounfour, A. (2016). Digital futures, digital transformation. *Progress in IS. Cham. Springer International Publishing, 10*, 978–973.

Caillè, A. (1998). Il Terzo paradigma: antropologia filosofica del dono. *Bollati Boringhieri*, Turin.

Camhi, J., Gurumurthy, R., & Schatsky, D. (2021). Uncovering the connection between digital maturity and financial performance. *Deloitte Insights*. Retrieved September 5, 2021 from https://www2.deloitte.com/us/en/insights/topics/digital-transformation/digital-transformation-survey.html

Capgemini. (2020). *Digital leadership: An interview with Barbara Martin Coppola, IKEA*. Retrieved September 5, 2021 from https://www.capgemini.com/it-it/research/digital-transformation-review-12th-edition/barbara-martin-coppola-ikea/

Carayannis, E. (2013). *Creating a sustainable ecology using technology-driven solutions*. IGI Global.
Carayannis, E. G., & Campbell, D. F. J. (2010). Triple helix, quadruple helix and quintuple helix and how do knowledge, innovation and the environment relate to each other? A proposed framework for a trans-disciplinary analysis of sustainable development and social ecology. *International Journal of Social Ecology and Sustainable Development (IJSESD), 1*, 41–69.
Carayannis, E. G., & Campbell, D. F. J. (2018). *Smart quintuple helix innovation systems: How social ecology and environmental protection are driving innovation, sustainable development and economic growth*. Springer.
Carayannis, E. G., Sindakis, S., & Walter, C. (2015). Business model innovation as lever of organizational sustainability. *The Journal of Technology Transfer, 40*, 85–104.
Cesareo, V. (1998). *Sociologia. Concetti e tematiche*. Vita e Pensiero.
Cesareo, V., & Vaccarini, I. (2006) *La libertà responsabile: soggettività e mutamento sociale*. Vita e Pensiero, Milan.
Chanias, S., & Hess, T. (2016). Understanding digital transformation strategy formation: Insights from Europe's automotive industry. In *PACIS*.
Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems, 28*(1), 17–33.
Cheatham, B., Javanmardian, K., & Samandari, H. (2019). Confronting the risks of artificial intelligence. *McKinsey Quarterly, 2019*(2), 38.
Cofta, P. (2007). *Trust, complexity and control: Confidence in a convergent world*. Wiley.
Correani, A., De Massis, A., Frattini, F., Petruzzelli, A. M., & Natalicchio, A. (2020). Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review, 62*(4), 37–56.
Cotesta, V. (1996) 'Sull'intimità' di G. Simmel, Armando, Roma.
Donati, P. (1991) *Teoria relazionale della società*, Franco Angeli, Milan.
Dremel, C., Wulf, J., Herterich, M., Waizmann, J., & Brenner, W. (2017). How AUDI AG established big data analytics in its digital transformation. *MIS Quarterly Executive, 16*(2), 81–100.
Durkheim, E. (1893). *De la Division du travail social*. Alcan.
Feather, K. (2011) *Customer engagement is the new competitive advantage*. Retrieved September 10, 2011.
Fjord – Accenture. (2015). *The era of living services*. Retrieved June 27, 2020 from https://fjordnet.com/conversations/the-era-of-living-services/
Forbes, The Just 100: Companies Doing Right by America. (2021). RANKING. Retrieved April 8, 2021 from https://www.forbes.com/just-companies/list/#tab:rank. Date of access: 04/08/2021.
Fridman, A. (2017). *What are cultural markers and how do you maintain them throughout change*. INC. Retrieved May 20, 2018 from https://www.inc.com/what-are-cultural-markers-how-do-you-maintain-them-throughout-change.html
Gale, M., & Aarons, C. (2018, Fall). Digital transformation: Delivering on the promise. *Executive Forum*.
Gallaugher, J., & Ransbotham, S. (2010). Social media and customer dialog management at Starbucks. *MIS Quarterly Executive, 9*(4).
Giddens, A. (1991). *Modernity and self- identity: Self and society in the late modern*. Stanford University Press.
Hall, E. T. (1989). *Beyond culture*. An Anchor Book.
Hastings, R., & Meyer, E. (2020). *No rules rules: Netflix and the culture of reinvention*. Virgin Books.
Hofstede, G. H. (1997). *Cultures and organizations: Software of the mind*. McGraw-Hill.
Holling, C.S. (1973), Resilience and Stability of Ecological Systems. *Annual Review of Ecology and Systematics. 4*(1), 1–23.
Horlacher, A., & Hess, T. (2016). What does a chief digital officer do? Managerial tasks and roles of a new C-level position in the context of digital transformation. In *System sciences 49th Hawaii international conference* (pp. 5126–5135).
INSEAD Business Case. (2020). *How does digital transformation happen?* The Mastercard Case.

Kane, G. C., Palmer, D., Nguyen-Phillips, A., Kiron, D., & Buckley, N. (2017). Achieving digital maturity. *MIT Sloan Management Review, 59*(1) in MIT Sloan Management Review in collaboration with Deloitte University Press Research Report.

Kim, Y. K., & Sullivan, P. (2019). Emotional branding speaks to consumers' heart: The case of fashion brands. *Fashion and Textiles, 6*(1), 1–16.

Kokkinakos, P., Markaki, O., Koussouris, S., & Psarras, J. (2016). Digital transformation: Is public sector following the enterprise 2.0 paradigm? In *Digital transformation and global society* (pp. 96–105). Springer International Publishing.

Kuhn, T. (1996). *The structure of scientific revolutions*. University of Chicago.

Lakoff, G. (1988). Cognitive semantics. In U. Eco, M. Santambrogio, & P. Violi (Eds.), *Meaning and mental representation*. Indiana University Press.

Lee, M., Lee, Y., & Chou, C. (2017). Essential implications of the digital transformation in industry 4.0. *Journal of Scientific and Industrial Research, 76*, 465–467.

Leinwand, P., & Davidson, V. (2016). How Starbucks's culture brings its strategy to life. *Harvard Business Review*, 1–5.

Li, L., Su, F., Zhang, W., & Mao, J. Y. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal, 28*(6), 1129–1157.

Luhmann, N. (1995). *Social systems*. Stanford University Press.

Marr, B. (2018). *The digital transformation to keep IKEA relevant: virtual reality, apps and self-driving cars*. Forbes. Accessible at: https://www.forbes.com/sites/bernardmarr/2018/10/19/the-amazing-digital-transformation-of-ikea-virtual-reality-apps-self-driving-cars/?sh=631c764376be. Date of access 04/02/2021.

Mastercard Newsroom (2016), accessible at: https://newsroom.mastercard.com/eu/2016/12/16/the-road-to-inclusion-in-europe-is-digital/ date of access: Oct 11, 2021.

Mastercard Corporate Sustainability Report (2019), Doing well by doing good. accessable at: https://www.mastercard.us/content/dam/mccom/global/aboutus/Sustainability/mastercard-sustainability-report-2019.pdf. date of access: October 11, 2021.

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & Information Systems Engineering, 57*(5), 339–343.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review, 20*(3), 709–734.

McIver, R. M. (1945, January 1). *Civilization and group relationships – a series of addresses and discussions hardcover.* Institute for Religious Studies.

McKinsey Global Institute MGI in 2019. (2019). *Highlights of our research this year*.

McKinsey Quarterly 2019. (2019). *Ten years at the top of a telco: An interview with Vittorio Colao*, p. 59.

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly, 36*(4), 101385.

Milliman, J., Gonzalez-Padron, T., & Ferguson, J. (2012). Sustainability-driven innovation at Ecolab, Inc.: Finding better ways to add value and meet customer needs. *Environmental Quality Management, 21*(3), 21–33.

Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy, 48*(8), 103773.

Padua, D. (2012). *Trust, social relations and engagement understanding customer behaviour on the web*. Palgrave Macmillan.

Pareto, V. (1916). *Trattato di Sociologia generale*. Edizioni di Comunità, Milan.

Pareto, V. (1988). *Trattato di sociologia generale*. Busino G. (Ed.), Utet, Turin [or. Ed. 1916].

Parsons, T. (1937). *The structure of social action*. McGraw-Hill.

Pirson, M., & Malhotra, D. (2008). Unconventional insights for managing stakeholder trust. *MIT Management Review, 49*(4), 43–50.

Ready, D., Cohen, C., Kiron, D., & Pring, B. (2020). The new leadership playbook for the digital age. *MIT Sloan Management Review.*

Reis, J., Amorim, M., et al. (2018). Digital transformation: A literature review and guidelines for future research. In Á. Rocha, et al. (Eds.) *WorldCIST'18 2018, AISC 745* (pp. 411–421). Springer

International Publishing AG, part of Springer Nature 2018. https://doi.org/10.1007/978-3-319-77703-0_41.
Richert, A., Shehadeh, M., Willicks, F., & Jeschke, S. (2016). Digital transformation of engineering education. *The International Journal of Engineering Pedagogy, 6*(4), 23–29.
Ricoeur, P. (2005). *Percorsi del riconoscimento*. Cortina Raffaello.
Rodrigues, C., & Brandão, A. (2021). Measuring the effects of retail brand experiences and brand love on word of mouth: A cross-country study of IKEA brand. *The International Review of Retail, Distribution and Consumer Research, 31*(1), 78–105. https://www.forbes.com/sites/forbes-insights/2020/04/21/how-ikea-has-embraced-ai-and-digital-to-create-a-deep-human-experience-part-1/?sh=47e346642a17.
Rogers, D. L. (2016). *The digital transformation playbook: Rethink your business for the digital age*. Columbia University Press.
Schrage, M., Schwartz, J., Kiron, D., Jones, R., & Buckley, N. (2020). Opportunity marketplaces aligning workforce investment and value creation in the digital enterprise. *MIT Sloan Management Review* research report, in collaboration with Deloitte Insight.
Simmel, G. (1908). *Soziologie*. Duncker & Humblot.
Spencer, H. (1876). *The principles of Sociology*. Williams and Norgate, London.
Teczke, J., & Buła, P. (Eds.). (2017). *Management in the time of networks, cross-cultural activities and flexible organizations*. International Management Foundation, Cracow University of Economics, Cracow.
Teece, D. J., & Pisano. (1994). The Dynamic Capabilities of Firms: An Introduction. January 1994 *Industrial and Corporate Change. 3*(3), 537–56.
Toland Frith, K., & Mueller, B. (2007). *Advertising and societies: Global issues*. Peter Lang.
Trompenaars, F., & Hampden-Turner, C. (2001). *Riding the waves culture understanding cultural diversity in business*. Nicholas Brealey Publishing.
Ustundag, A., & Cevikcan, E. (2017). *Industry 4.0: Managing the digital transformation*. Springer.
Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 28*(2), 118–144.
Victor, D. A. (1992). *International business communications*. NY HarperCollins.
Webb, A. (2019). *Strategic thinking: How to do strategic planning like a futurist*. From https://hbr.org/2019/07/how-to-do-strategic-planning-like-a-futurist
Weber, M. (1947). *The Theory of social and economic organisation*. Free Press, New York.
Weber, M. (1978). In G. Roth & C. Wittich. *Economy and society* (Vol. 2). University of California Press [or. Ed. 1921–2].
Weber, M. (1922). *Wirtschaft und Gesellschaft*. Mohr, Tubingen
Westerman, G., Tannou, M., Bonnet, D., Ferraris, P., & McAfee, A. (2012). The digital advantage: How digital leaders outperform their peers in every industry. *MITSloan Management and Capgemini Consulting, MA, 2*, 2–23.
Westerman, G., Bonnet, D., & McAfee, A. (2014). The nine elements of digital transformation. *MIT Sloan Management Review, 55*(3), 1–6.
Zamagni S. (2007). *L'economia del bene comune*. Città Nuova, Rome.

The Four Paradigm Model

Contents

The Digital Ecosystem

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Chapter Overview

This chapter introduces an innovative approach to the study of the digital landscape, which prepares the reader's mindset to the understanding and active use of the FPM. Via ten original analogies drawn from distant realms, it guides the reader to the comprehension of the digital-analogic context. Two case studies close the gallery and provide a relevant and comprehensive applicative ground. Finally, an appendix to the chapter offers an in-depth focus on the theme of multidimensionality.

4

4.1 Introduction

Before you read this chapter you must be aware that it adopts an original, transdisciplinary approach to the understanding of the digital ecosystem. Assumptions, theories, and reflections tackled appear quite distant from traditional topics and far away from the usual lexicon of sociology, business, organizational, and management books. If we want to innovate in depth, we have to transform a single-minded efficiency-at-any-cost approach into a lateral thinking, opening to multidimensionality and transdisciplinary. We don't have to fear any cultural, humanistic intersections with business and technological realms; don't have to be afraid of 'losing time'. Linear thinking is at an end. We have to transform our mindsets into multidimensional mindsets. The challenge behind this chapter is to exercise our mind to connect dots, use analogies, be transdisciplinary, hybridize concepts, and develop abilities to analyse with a wide angle the context around an organization. In other terms, this chapter represents a 'cultural gym' to acquire a flexible mindset, open to innovative connections of dots. In this transdisciplinary chapter, we intersect sociology with other domains such as organization, economics, biology, and physics. We hope you enjoy this journey abroad.

4.2 Understanding the Context

Understanding the complex, chaotic nature of our world can give us new insight, power, and wisdom. As understanding the complex, chaotic dynamics of atmosphere, a balloon pilot can 'steer' a balloon to a desired location,[1] by realizing that our ecosystems, our social systems, and our economic systems are interconnected, we can hope to avoid actions which may end up being detrimental to our long-term well-being. We may just consider the connection between financial systems and the spreading of the 2008 financial crisis or of nuclear disasters and how poison clouds' journeys end up in geographical areas very distant from the place of the disaster. Similarly, by understanding the complex, chaotic structure of the digital environment where organizations operate (and where communities nurture), more effective strategies may be shaped. In this scenario, the new discipline of Digital Sociology (see ► Chap. 1,

1 The example is taken from 'The fractal foundation', available at ► https://fractalfoundation.org/.

Paragraph 'What Is Digital Sociology') makes it possible to observe strategic organizational phenomena from an innovative perspective, in order to identify new interpretative variables and indicate new implementation tools to gain competitive advantages.

In an effort to try to understand the complex scenario of the Digital Age, to grasp its sense and its dynamics, in this book, we often adopt a Sophist approach[2] by analysing the phenomenon under a multiple standpoint. Such a relativist perspective appears appropriate to gain a clearer and effective picture, rich in nuisances, open to further personal reflections from the reader, who is solicited to apply these challenging perspectives to gain original insights of social, organizational, and business scenarios.

In this perspective, the first part of this chapter is dedicated to an illustration of the key triggers of cultural change in the digital age impacting the context into which organizations operate, briefly run through analogies and challenges, and described in a narrative format. Narrations are tools to point out the different emerging variables. As Bruner maintains, narrations or stories[3] are the primary interpretative and knowledge tools used by humans, considered as culturally situated subjects, that is, individuals in their context, defined by time and space (Bruner, 1988).

The first analogy is the XXI Century Gold Rush, demonstrating how brilliant competitive mindsets (organizations and their leaders with a ground-breaking vision and ability to gain deep insights, often via technologies) fight for the new gold; the second is the Linearity Revolution, started with the 2008 financial slump, implying the need of new multidimensional predictive models; the third, the French Revolution, describes the rise of digital free access, participation, peer-to-peer relationship, and the following decline of its democratic achievements. The fourth is the new Renaissance and Humanism, implying a new algorithm and human centricity paradigms. The fifth is the Konrad Lorenz aquarium, as an analogy to understand the concept of ecosystems. The sixth is the reef and its resilience and agility concepts. The seventh is Space and time digital dimensions. The eighth is Caravaggio vs. the multidimensional Braques fruit dish. The nineth is Fractals, as a way to justify paradigms by a 'geometry of the pattern'. The tenth is Routes across the Indian Ocean, to explain blurring boundaries. After this introductory phase, in ▶ Chap. 5, we will move to a deeper exploration of the digital ecosystem by adopting the original perspective of the Four Paradigms Model (FPM), leading to four models, designed by the author: Bottom-up; Connecting the dots; Horizontality, and, finally, Sharing.

2 In ancient times, Sophists offered an interpretation of the complexity of the world via the art of 'the variation of the viewpoint': this key process led to the identification of new solutions, overcoming the patterns of the traditional thought, apparently not efficient in the solution of problems. This reflection was strongly reinforced by the sociologists and philosophers of complexity. Edgar Morin, the eminent French sociologist, emphasizes the relevance of a global approach to knowledge (Morin, 2001), by connecting elements, that is, the specific disciplinary fields, to the totality of knowledge. Based on similar premises, Ilya Prigogyne (1986), the Nobel Prize winner, has developed a Theory of Complexity explaining phenomena via equations able to design relationships and interactions not accessible to traditional linear mathematic models (see below paragraph 'The 2008 Financial crisis').

3 We will use the terms narrative and story interchangeably (Polletta et al., 2011, pp. 110–111).

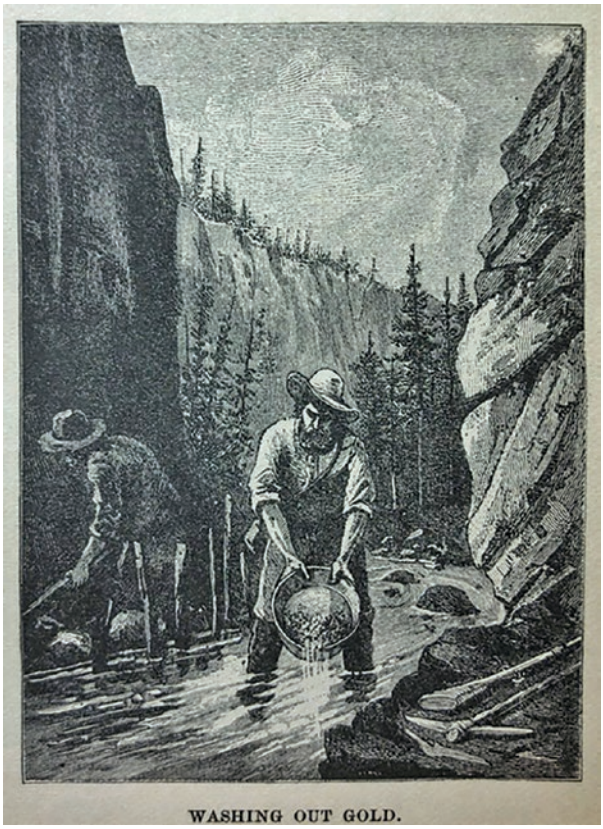


Fig. 4.1 The XXI Century Gold Rush. (Source: Istock)

Below, the initial analysis of the complex digital ecosystem, briefly run through the first analogy of the XXI Century Gold Rush is introduced (Fig. 4.1).

4.3 The XXI Century Gold Rush

When in the 1990s the Internet started to pervade our lives, its intensity impressively burst across the global society, changing people's daily life habits and behaviours, impacting in organizations' visions and strategies, and opening unexplored doors to new opportunities of making business; in politics, introducing new ways to build consensus and voicing people's ideas. In a surprisingly short span of time, human expressions and relationships accelerated their speed and production pace, introducing new actors in the social, political, and economic scene, setting unknown patterns. New frontiers for innovative pioneers opened up: original virgin territories, novel spaces, unfolded to challenging conquests, and ground-breaking conquerors: search engine's page one positions became new conquering territories where companies succeeding in occupying top-page positions became the winners; also, online communities, whose borders, designed by peer-to-peer relationships, shaping space in an inedited way, started to represent dynamic clusters providing companies with

new opportunities of engagement; moreover, distant, non-competitive industry sectors started to experience once unsuspected risks as digital platforms introduced disruptive competitive models to invade them; meanwhile, innovative social media, recomposing human relationships, designed new social spaces within new ecosystems, whose norms and behaviours showed to require sophisticated technologies to be discovered; and crowdsourcing: it opened new territories for world class talents (freelancers), or enabling companies to innovate faster and create better products and solutions. The impression was that of a new *gold rush era* in unexplored territories, where freely brilliant pioneer companies, political parties, and professionals could conquer new online 'territories' in a condition of 'anarchy'[4] (Schmidt, 1999) and where virtually anyone could have a chance to run for gold.

Today, after three decades, it is quite clear how this scenario has transformed into a daily battle and how the rush quickly has turned into a harsh struggle to grab the precious resources of those territories. These lands were rich in gold, a special gold: data and information. Those ones (as organizations, search engines and social media, plat-firms[5]) in the best positions, the most advanced ones, quite probably the smartest ones, have solidly conquered them. Today, the gold is in the hands of a restricted oligopoly of a few corporations, strongly concentrating the property in their hands. Nowadays data are the key product object of transaction.

Indeed, a further 'gold rush' is undergoing: the fight between superpower countries is on 5G. Undoubtfully, a country with a 5G technology may enjoy substantial advances in the military, scientific, and health sectors and not only those ones, up to say that 'who will control 5G will control the world'.[6] In fact, this progress translates into competitive advantages towards countries not having it. Any 5G antenna in any corner of the globe, then, appears as a flagship symbolizing the conquer of a new portion of world. The Gold Rush is still going ahead with seizing territories and its gold. Within several other advantages (as 5G-based innovation on, i.e. health, smart cities), their conquests allows absorbing geo-localized data (Tomassini, 2020, p. 165).

In the search for gold, however, it is not enough to find rich territories. Gold must still be extracted from inert and worthless matter through careful work.

This is what happens with data. Let's see how.

By strongly simplifying the concept, we may say that, in the digital realm, the producer–seller–customer traditional value chains have been replaced by ecosystems of actors, among which search engines, advertising companies, and customers

4 Eric Schmidt, the CEO of Google, once said: 'The internet is the first thing that humanity has built that humanity doesn't understand, the largest experiment in anarchy that we have ever had'. This August 2010 quote came as part of a warning from Schmidt concerning the amount of data we share online, suggesting that some people may even have to go as far as changing their identities to avoid an embarrassing online past. ► https://www.oxfordreference.com/view/10.1093/acref/9780191826719.001.0001/q-oro-ed4-00017947.

5 HBR, July 2016 Open Knowledge, 'Platfirms' are the companies organized in a platform ecosystems, redesigning the value co-creation, markets competition, organization and leadership. ► https://2016.socialbusinessforum.com/hbr/.

6 Barbaro (2019), in: Tomassini (2020).

play relevant roles. Behind and beyond it, platforms (e-commerce or of different nature) and social media make the rest. In traditional marketplaces, the producer sells the product (with or without trade intermediaries) and the customer pays to purchase the product. In the digital realm, instead, most times, the user directly accesses information, the king product. A relevant and free good is easily obtained. The quantity of it is huge: continuous access at zero cost eliminates any rational obstacle, as there is no cost–benefit calculation to be done to get that piece of content. Except for serendipity[7] events, searches reflect a need, with a rational component and an emotional one. It's like a shop where you can buy anything without paying. And often, goods appear very attractive. But what is the sustainability of the model? What is the shop seller revenue? The answer is quite known, nowadays: your data. But not only it. It's the information extracted from those data that makes data relevant: behaviours, inclinations, emotions, and values. It's the aggregation of these data that help to design your personal profile: the more precise it is, the more the products in the shop will look attractive and so 'specially' tailored for the consumer, matching their needs and even anticipating future needs. This is the magic of the algorithms. Organizations are keen on profiles to select and adapt their products and services to one's inner needs: the more the profile is deeply respondent to the real personality of the user, the more the organization will be certain about the success of the transaction. This is pure marketing. Think of an ad on sport shoes that, with a click through, drives to an e-commerce platform. Here, yes, there is a transaction, a good or service vs. money. The point, then, on the extraction of gold from other matter is the *relevancy* of the content presented to the user, which corresponds to the anticipation that the platform can make about the user's needs. AI Algorithms modelling, based on a number of 'data points', can design the user's future behaviour. Maybe you remember in traditional marketing about the 'latent need'. Working on the human latent side has always been made. The difference in the digital era is the level of sophistication of the psychological modelling process, as the amount of information about each of us in the hands of the best 'pioneers' is massive.

These new micro-targeting business models disrupt the way organizations produce, advertise, market, and sell in an under-regulated environment. If business pivots data and algorithms, a new culture, a new awareness has to be gained and a new value-based, sustainable way to conceive the market. In fact, the multiplicity of our behaviours is determined by the multiple contexts, physical and digital, in which we are.

Let's move to the second analogy.

4.4 The 2008 Financial Crisis

The twenty-first century is a time of deep change affecting all sectors of the human life. The year 2008 represented a turning point where a financial global crisis marked a disruption of the mainstream way to interpret social–political and eco-

7 Serendipity is a happy faculty or luck of finding something by 'accidental sagacity' or, casually discovering unsought things (Campa, 2008).

nomic phenomena. In October 2008, at a hearing at the American Congress, the former Federal Reserve Chairman Alan Greenspan admitted he had failed to anticipate the self-destructive power of subprime mortgages causing the 2008 financial crisis.[8] At the Congress, Alan Greenspan[9] claimed 'Yes, I've found a flaw. I don't know how significant or permanent it is. But I've been very distressed by that fact'. And to the following pressing question by the congressional committee's Democratic chairman:[10] 'You found that your view of the world, your ideology was not right, it was not working?', he answered: 'Absolutely, precisely. You know, that's precisely the reason I was shocked, because I have been going on for forty years or more with very considerable evidence that it was working exceptionally well'.[11] The hearing represented an historical step towards the disruption of mainstream neoliberal thought stigmatized by the monetarist econometric models (Bresser-Pereira, 2010). Indeed, behind the Rational Choice Theory principles (Archer & Tritter, 2000) inspiring monetarism, mainstream rational linear models appeared to fail the task to provide explanations of the whole economic, social, and political complex techno-system (Magatti, 2009). If a linear model is characterized by only one dimension (Takahashi, 1942), a complex system is composed of a number of interconnected sub-networks characterized by many dimensions and multiple variables (Bar-Yam, 2002).

However, the repercussions of this official disruptive acknowledgment, within the 2008 slump, were massive, not only in the political and economic field but also, although more subtly, in relation to sparkling a cultural change in the ground of predictability. It was the dawn of a reconsideration of cultural *patterns* of thinking, about their effectiveness in terms of interpretation of the world around us and ability to predict environment dynamics apparently different from the past modern age.

Far from any strictly economic analysis, which is not the field of the author, there is one aspect of the classical economic monetarist pattern of the School of Chicago, on which Alan Greenspan based his policy, which appears crucial: trust in the power of econometric models to faithfully represent (thus control) reality via numbers and formulas. Econometric models are statistical representations of the structure of an economic phenomenon that usually take the form of systems of equations, representing their model-builder's view of the economy's structure

8 ► http://www.nytimes.com/2008/10/24/business/economy/24panel.html?_r=0

9 Alan Greenspan, American economist and chairman of the Board of Governors of the Federal Reserve System, whose chairmanship (1987–2006) continued through the administrations of four American presidents.

10 Government Reform Committee Chairman Henry Waxman.

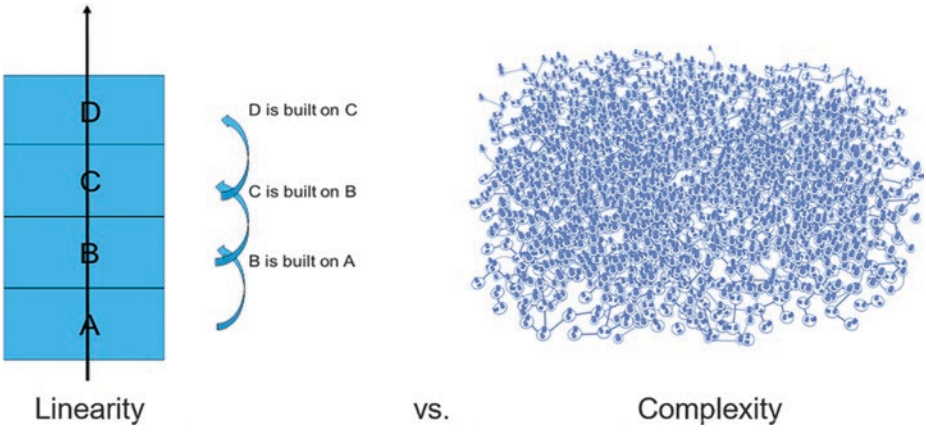
11 This is an excerpt from the hearing of Alan Greenspan and Government Reform Committee Chairman Henry Waxman, California Democrat on Capitol Hill. For years, a Congressional hearing with Alan Greenspan was a marquee event. Lawmakers doted on him as an economic sage. Markets jumped up or down depending on what he said. Politicians in both parties wanted the maestro on their side. But on Thursday, 23 October 2008, almost 3 years after stepping down as chairman of the Federal Reserve, a humbled Mr Greenspan admitted that he had put too much faith in the self-correcting power of free markets and had failed to anticipate the self-destructive power of wanton mortgage lending (Irwin & Paley, 2008).

(Federal Reserve Bank of Richmond, 1973). Their intrinsic characteristic is linearity and a rational approach to the interpretation of reality. This approach follows the rational choice theory, on which the mainstream rational mindset, valid for over three centuries, since the nineteenth century, was rooted. Representing one of the paradigms of the neoclassic economy, the rational choice theory aimed to provide monetarists with a consistent basis to their predictive models. Today, the complexity of the digital-analogic landscape doesn't allow anyone to adopt these linear models. Rather, control and prediction are the fighting ground of organizations. We may just consider the revolution brought by Netflix and Amazon Prime to streaming services in TV and film industries or Spotify in the music sector. How do these giants harness the massive complex amount of data generated by users? Basically, only continuously deployed AI-related solutions, technologies applied to petabyte or greater measure units of data may support modelling to provide users with tailored products with high affinity to their tastes. It is a whole disruption of linear (rigid one-to-many, top-down models) broadcast models, film viewing and music listening habits. This disruption of business models and users' behaviours and expectations make it necessary for institutions to develop a new agile and technology adaptive mindset to leverage new digital technologies opportunities.

But why does linearity coincide with rationality?

Linearity coincides with rationality, with problem-solving, and with cause–effect. To understand how linearity coincides with a cause–effect pattern, try to remember when you were in high school and had to solve a mathematic problem. You started from data, then, you wrote down an equation, and then you passed to the second step of solution of that equation. This second step was built on the previous one, and, ahead, you wrote the third step, based on the previous one (◘ Fig. 4.2).

If we should design the process, it could appear as one block over the previous one (see ◘ Fig. 4.1), where B is built on A, C is built on B, D is built on C. How is the process? Well, look at the vertical line, representing the process. It's a linear



◘ **Fig. 4.2** Linearity vs. complexity. (Source: The Author –complexity image: Adobe Stock Licence)

vertical process. Indeed, there are some considerations to be done, and they are crucial to understanding the essence of this rational model. First, one block depends on the previous one; therefore, it embodies the 'cause–effect' relationship or, in other words, the 'problem-solving' format. As we will see when we will tackle the complexity paradigm of the Digital Age, the complex structure of relationships and interactions between nodes of different nature makes connecting effects to its cause unviable. Consider hackers, haters, and all disguised 'fake' identities; think of a cyberattack or of a viral message impacting positively or negatively a brand. This evidence confirms the ineffectiveness of modern linear models which describe our online–offline complex environment, as admitted by Alan Greenspan. And the problem-solving model or the 'make-or-buy' model scarcely provides a valuable answer to today's complex issues.

This cultural change represents a shift of mindset, from a rational and linear model to a different one, able to provide new tools for grasping a sense of new reality, which individuals and corporations, organizations, and institutions are coping with. It is a new holistic mindset more apt to capture the big picture. Any simplification of the complex reality, like the monodimensional linear model, is unable to represent it.

To better understand this shift of mindset from linearity to complexity, a specific paragraph is dedicated to complexity, and another art-based analogy is adopted to explain the shift from monodimensionality to multidimensionality.

The Sociological Box 4.1: Holistic Vision. Indications from Economics and Sociology

As in the digital-analogic realm, increasingly with greater evidence, also any simplification of the complex reality strictly related to the monetarist econometric models appears unable to represent reality. It is intuitive, for example, how the price of a bond or of a good might influence the price of another bond or good, thus evidencing a non-linearity; just as it is true that economic actors don't behave in a totally rational way. Daniel Kahneman won a Nobel Prize in Economics in 2002 by demonstrating the fallacy of the assumptions behind the rational behaviour shown during the 1970s; Joseph Stiglitz (Nobel Prize for a work of 1975) maintains that markets are fully efficient only in extremely rare circumstances and might considerably drift away from the 'equilibrium' point (Magrassi, 2011, p. 63). Keynes, having analysed complexity in economics via its macro-economics theories, appears to embrace a systemic and holistic vision. Also sociologists, from Zygmunt Bauman to Manuel Castells, from Ulrich Beck to Amartya Sen, appear to agree on the idea that the economic realm is intrinsically related to the social, political, and institutional one. This implies that the consequences of the economic, political, and social decisions at a global level are connected one to the other. This fact has a deep meaning and severe implications: these decisions impact issues such as development, distribution, and redistribution of wealth, inequality, and freedom (Padua, 2014).

4.5 The French Revolution

The Bastille was a fortress in Paris, known formally as the Bastille Saint-Antoine. On the afternoon of July 14, 1789, a storm of crowd captured it, giving origin to a symbol of disruption of the ancien régime, of the absolute monarchy, and of the aristocracy control of economic and political power and introducing the first French Republic. This historical change was an extremely complex and articulated event, involving a social, political, and cultural upheaval that ended in 1799. Historiography takes it as the temporal watershed between the modern age and the contemporary age.

This revolutionary time has several analogies with the Digital Age Revolution. Following our Sophist approach, let's try to use this analogy to shed light on the complex concept of digital age. First, what a Revolution is and what is its deep essence? We have often heard about a 'revolutionary' age, but are we sure we master its meaning? A revolution differs from an evolution by two main variables: first, *speed*. A revolution has a definitely faster pace than an evolutionary process, which is much slower. A revolution may burst suddenly, starting from a sparkle that generates an explosion propagating at an exponential rate. Exponentiality is a key prerogative of the digital revolution. As we will tackle this concept below in a dedicated paragraph, the scale of any event in the digital environment proceeds at a geometric acceleration, following the laws of virality. *Second, a revolution is not a linear process*. As in a volcanic eruption, a chaotic process develops, with change bursting from different points, after energy has built up over time. It's a sudden uncontrollable massive event. Again, no linearity, no predictability, and no control (◘ Fig. 4.3).

Within this perspective of 'digital revolution', analogies with the French Revolution emerge. The 'anarchy' experiment mentioned by Eric Schmidt, CEO of Google, is based on *freedom*, as in the French revolution. Freedom to express, voice, act, share, join, get information, and participate is constantly demonstrated

◘ **Fig. 4.3** The French Revolution. (Source: WikiImages)

on the web: the possibility to rate, vote, write as a journalist, publish, listen in different contexts, personalize, and in general, communicate. It is under the eyes of everyone that in this moment I may write a comment on a social media and communicate virtually to a global audience of millions of people. But the digital revolution encourages, at least in its initial intent, also *equality*: a free access to participate into a social media and a democratic approach to open access models convey an idea of equality. Finally, *brotherhood* may be found in peer-to-peer communication, evidenced by deep sincere relationship among communities, sharing same interests, in sincere likes and in digital intimacies (Kreps et al., 2016). Trust among peers is an example.

History tells that, however, the French Revolution was followed by the Restoration backlash to re-establish the power of absolute sovereigns in Europe and the return to the Ancien Régime, preceding the French Revolution. While freedom, equality, and brotherhood revolutionary inspiring values appeared like an illusion, a new era was defined and the seeds for modern constitution were put. A similar process may be found in the evolution of the digital waves. Even though we may certainly talk about a Digital Revolution, given the fast pace of change, today, freedom, equality, and brotherhood may yet to come to fruition. How can we talk about freedom of access to information if search engines select information for us and offer a limited scope of information, based on our interests and past experiences? How can we talk about freedom if governmental censorship is applied in several countries around the globe? How can we talk about freedom of access if the zero-cost model reproduces a transaction model where information-access is exchanged with personal data? And how about equality if an equal access to the web is subjugated to the existence of infrastructural networks? Or, if people are not in the conditions to use devices? Or, if there are keys to the access of information which some can access to and others don't? And, finally, brotherhood. Brotherhood in the sense of 'virtual proximity' that allows everyone a conversation, an exchange of judgement, ideas, and trust was the initial spirit. But fake news grew and pervaded the web, disrupting the trustworthiness and reliability of people. Progressively, we tend to be critical towards information that, today, has to be subjected to the power of doubt. The dream is over. It is clear how Eric Schmidt is unable to reinforce his claim that 'the Internet is an experiment of anarchy'. Today, new rules are governing the web.

On the other side, however, it is still true that we continue to possess *a form* of freedom, a *form* of equality, and a *form* of brotherhood. Freedom coexists with censorship, equality coexists with inequality, and brotherhood coexists with distance, access with barriers, openness with closure and gaps of power: this 'multidimensional polarization' demonstrates that the Internet is a complex multidimensional ecosystem, where opposite patterns coexist. Yet, the consequences for brands of these openings of freedom on the people side are massive: freedom of expression is a key driver of Word of Mouth (WOM) heavily influencing brands' reputation; freedom to communicate, at zero cost, generates viral processes, which impact brands' value; freedom to participate is able to generate web movements and bottom-up forces, influencing organizations' policies.

Yet, the theoretical concept of 'living in an age of renaissance and humanism' appears to be valid and maybe, today, even stronger, reinforcing the notion of the twenty-first-century Digital age as a complex age.

4.6 The New Renaissance and Humanism

In the Renaissance, fine arts, painting in particular, reinforced its pattern of conformity to ancient Greek classical geometry. This was behind the drive of the diffusion, starting from the twelfth century, of the manuscripts of Euclide, Tolomeus, and Archimedes, scientists originating from the Greek mathematics schools. Geometry, one of the disciplines of the *enkýkliospaideía*, since ancient times, was considered the ultimate criterion of objective truth. Besides geometry, mathematics appeared the key to understanding the universe (◘ Fig. 4.4).

The Renaissance paradigm is mathematics. However, also in our digital age we may say that, as said in the Renaissance, mathematics is a key to understand the universe, to explaining social–economic–political facts, human behaviours. We are in the age of algorithm. There is no doubt that logic, arithmetic, and geometric progressions are more and more part of the global web texture, of our everyday life, and of companies' strategies, thanks to connectivity and growing technologies, leveraging data, and algorithms as AI, IOT.

Opposed to this quantitative dimension, the paradigm of humanism is qualitative, placing the individual at the centre, being his/her a unique and creative entity, opposing homologation and aiming to communicate to other individuals. According to a SWG research, 70% of managers interviewed believe that capitalism is at a turning point: either capitalism puts the person at the centre or it dies (Grassi, 2019).

4.7 The Konrad Lorenz Aquarium

As our global society cannot be explained by studying its single components separately and a holistic and systemic vision helps to comprehend the whole, the impact of the complexity of the digital network on marketing and organizational strategies makes it essential to concentrate the analysis starting from the context, that is, from the ecosystem within which the organizations operate and on the relative dynamics that condition the organizational morphology. As we have seen, this is a pillar of the Digital Transformation Social Mindset (DTSM).

In the following discussion, we will highlight the chaotic nature of complex systems, the dimensions of time and space, the meaning of ecosystems, and other features helping to comprehend how the digital follows dynamics which are different from traditional offline paradigms. This will represent a mindset mainframe to design the Four Paradigm Model (◘ Fig. 4.5).

Konrad Lorenz was an Austrian zoologist, ethologist, and ornithologist, regarded as one of the founders of modern ethology, the study of animal behaviour. In his delightful booklet 'King's Solomon Ring', he describes how to create an aquarium: sand first, water plants, a few pints of tap water and a sunny window-sill to leave it

Fig. 4.4 The new Renaissance and Humanism. (Source: Wikimedia Commons)

Fig. 4.5 The Aquarium (Source: Adobe Stock). "*The aquarium is a universe, where, as in a pond or in a natural lake, as in any other place of our planet, animal and vegetal creatures live together generating a biological balance*". (K. Lorenz, The Ring of King Salomon)

on. Then, 'put in some little fishes. You have created a new world, a living community that regulates its own equilibrium' (Lorentz, 2004). The great cycle of life starts. It consists of three interlocking links: the constructors – the green plants, the consumers – the animals, and the decomposers – the bacteria. The carbon dioxide which the animals breathe out is assimilated by the plants which, in turn, exhale oxygen. Moreover, plants are able to assimilate (digest) the products of dead bodies decomposed by bacteria. Organic and inorganic life finds their own balance. You don't have to do anything but just not touch it, as fish are able to subsist on the natural microfauna of the aquarium. It goes by itself as it even needs no biological care. As long as the right equilibrium is maintained, the aquarium itself even needs no cleaning. In the restricted space of the aquarium, this natural cycle of metabolism is easily disturbed, and such a disturbance has catastrophic results for our little world. If you are tempted to pour more fish, the oxygen balance will be upset and some fish will die.

The deeper meaning of this natural cycle of metabolism lies in the fact that this little water-world is self-supporting due to the complex exchanges made between all the members of the new community with the outside: air and light. The sociologist Nicklas Luhmann would say it is an autopoietic entity. We will see how this autopoietic model, assimilated to the organic cell example, fits the Topcoder case study, a successful crowdsourcing platform.

In reality, we are in front of a complex system (see ► The Sociological Box 4.3).

The Sociological Box 4.2: Max Weber's Explanation and Comprehension

The etymology of the word 'complexity' origins from the Latin verb complector (composed of: cum-plecto), which means to fold together, to roll up (◘ Fig. 4.6). This verb opposes the verb explicare (ex-plicare), which means to unfold or disclose, in the sense of 'opening'. What is 'complicated' (from the Latin cum-plicato) hides something, what is 'disclosed' (ex-plicato) is intelligible. The verb 'comprehend' (in Latin, cum-prehendere), instead, means to embrace, to cum-prehend, that is, to embrace the totality of the elements altogether. This is the verb that under a conceptual standpoint links itself more consistently to the understanding of our concept of complexity, as illustrated below. The opposition between explanation (Erklären) and comprehension (Verstehen) is a core topic of sociology, fully addressed by Weber (1921). The distance between the two concepts marks a clear-cut boundary between two sociological realms: the first is rational, logical, and positivistic. Through the process of the scientific experiment it succeeds in achieving the understanding of reality and in explaining, reconstructing it to reach knowledge; the second is the irrational one, 'comprehending' (cum-prehending) reality by embracing it in its entire expressive totality, to offer an interpretation of the emotional and irrational side of human action, not traceable by the scientific experiment. Weber maintains that knowledge might be achieved only by putting together explanation and comprehension, by embracing both the rational and irrational side of the individual, coupling a logical–mathematical process along with an interpretative approach (Fornari, 2002).

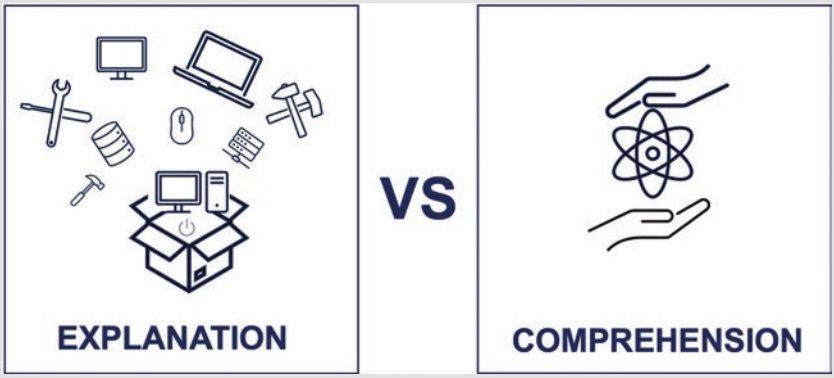


Fig. 4.6 Explanation vs. comprehension

We have examined the analogy of the aquarium to complex systems. To go deeper into the concept of complexity, it helps describe the experiment of the sand pile run by the scientist Bak, the author of the 'Critical Structural Instability' theory. Bak constructed a conical sand pile through slowly dropping sand and observing the moment in which the conical sand pile collapses (Bak & Chen, 1991, pp. 46–53). This process led the scientist to formulate hypotheses on the 'Critical Structural Instability' of the sand pile cone. Instability is such that the addition of a single sand grain may initiate an avalanche involving the whole structure of the cone, as, reversely, being uninfluential on its totality. As the philosopher Fichte, in his 'The Vocation of Man' (1800), said, 'You could not remove a single grain of sand from its place without thereby […] changing something throughout all parts of the immeasurable whole'. Stability is only just apparent, while the reality of facts lies within the full unpredictability of its dynamic: being impossible to understand and predict which grain of sand and in which moment it makes the cone collapse, and by using traditional scientific methods and tools it is not viable to connect a cause to its effects. Complex systems, in fact, evolve through a 'critical phase' in which a minimal interference on the balance may trigger an event of any entity, just as the Konrad Lorenz aquarium balance. The conclusions drawn from the Bak sand pile experiment drive us to the awareness that a complex system such as an institution or our global society cannot be explained by studying its single components separately. Indeed, only a holistic *and systemic vision* helps to comprehend the entirety. Just like the FPM analyses the complexity of the digital. In fact, the single grain or the single individual cannot provide any explanation of an institution or of the social context: postmodern processes of subjectification, that is, the further differentiation of the processes of individualization of people (Touraine, 1997), do not allow us to comprehend the order of a society or of an organization and their principles by analysing the single element. In the same way, for instance, we may maintain that the instability of financial prices and social investments is due to the unfeasibility of being able to provide an explanation of what has occurred before

and after the moment of the investment decision. For example, social networks evolve and change their morphology by adding new groups and participants to achieve their different purposes. Communities (Rheingold, 1994) grow effectively by adding participants involved in the community theme (by wikis, online chats); organizations use crowdsourcing to develop new projects (Kickstarter, Indiegogo), while hackathons models (Accenture, Telecom, Intel Edison) and online challenges (► challengeonline.com) are spreading within institutions to develop new 'contest' application models or IT solutions (► Devpost.com). As we will see below in the Topcoder case study, the agile organization systems dynamically adapt to this environment, creating ever closer and more stable relationships with the outside, reinforced by two-way communication. They dynamically modify their boundaries through the selection of their temporary participants and their structure changes their morphology according to active relationships. In this way, the system 'reduces risks', that is, as the theory of Nicklas Luhmann maintains (1995), protects itself from the 'contingencies' of the external environment by acting proactively through the creation of channels of dilation and interaction. Agility means 'reducing risks'. An example is the case of Unilever Open Innovation platform,[12] a community opened by the company and populated by customers and enthusiasts of the sector where new product ideas are presented or improved by the public, where comments are sent and information is exchanged. Up to today, more than half of Unilever research projects involve external collaboration. The ideas are voted by the community and the best ones examined by the company in order to turn them into reality. In Unilever, the acquisition of a product idea promoted by a member of the community generates a strong relationship between the company and the promoter, who, virtually and transiently, acts in the role of an operator of the R&D department of the company. This example, as many others across the book, helps us to understand how the position of the client-creator outside the company ideally extends the organization boundaries to the subject involved, who plays a temporary 'internal' active role. The organization, through this open innovation process, as well as opening up to participation on social networks (let's think of Facebook company pages, Twitter, Instagram, or Linkedin followers), is increasingly acquiring a dynamic network structure, as a result of biological processes similar to those of organic systems of dynamic differentiation in an ecosystem in continuous mutation: connections and interactions, personal reference systems, and transactional processes constantly modify their internal patterns and general communication patterns.

All these considerations provide the following relevant indication for the comprehension of the digital context, that is, the need to frame information and knowledge inside their context, their complexity, and environment. Today, many financial experts, with this mindset, follow this route. They analyse the stock exchange fluctuations and the effects of economic measures by the totality of the sociopolitical events, assumed to be useful indicators of economic behaviour.

12 ► https://www.unilever.com/brands/innovation/open-innovation/

The Sociological Box 4.3: Complexity in a Transdisciplinary Perspective

There are several interpretations of the term 'complexity' in scientific literature (Lloyd [2001]). Cybernetics and systems thinking are the main theoretical foundations of studies of complexity. The first attempt to define and study complex entities goes back to the works of Weaver [1948] (disorganized complexity and organized complexity), Simon [1962] – The Architecture of Complexity, and Ashby [1963] – The Law of Requisite Variety. A very convincing picture of intricacy of the field of complexity science can be also found in the scheme proposed by Castelani [2014]. In other writings, numerous definitions of complexity have been formulated and scrutinized – Prigogine and Stengers [1984], Waldrop [1992], Gell-Mann [1995], Kauff man [1993, 1995], Holland [1995], Bak & Chen, [1991], Bar-Yam [1997], Biggiero [2001], Prigogine [2003], Andriani and McKelvey [2009], and Mesjasz [2010] (for an extensive study and references, see Management in the time of networks, cross-cultural activities and flexible organizations. Scientific editors: Janusz Teczke Piotr Buła Edts, International Management Foundation, Cracow University of Economics, Cracow 2017).

Touraine argues, reversely, that it is required to start from the ability of human systems to produce norms, or what are called 'values', and to build up its functioning. Social facts are neither subjective nor objective but relational (Touraine, 1997). In fact, the interdependency of the parts within the system guides us towards different ways of comprehending the complex reality surrounding us. As we already mentioned, in ancient times, Sophists offered an interpretation of the complexity of the world via the art of 'the variation of the viewpoint': this key process led to the identification of new solutions, overcoming the patterns of the traditional thought, apparently not efficient in the solution of problems. This reflection was strongly reinforced by the sociologists and philosophers of complexity. Edgar Morin, the eminent French sociologist, emphasizes the relevance of a global approach to knowledge (Morin, 2001), by connecting elements, that is, the specific disciplinary fields, to the totality of knowledge. Based on similar premises, Ilya Prigogyne (1986), the Nobel Prize winner, has developed a Theory of Complexity explaining phenomena via equations able to design relationships and interactions not accessible to traditional linear mathematic models. The chemist and physicist have achieved these results through the study of entropy, a process belonging to thermodynamics explaining how the phenomenon of self-realization is a complex occurrence in nature. Prigogyne's theory succeeds in integrating traditionally incompatible viewpoints such as the humanistic culture, the culture of art and human sciences, and the realm of the scientific knowledge. Along this pattern, an apparently distant science such as thermodynamics is adopted to explain phenomena applicable to social, economic, and political contexts. Biology, instead, is the springboard used to define the concept of complexity for Nicklas Luhmann, who defines a system as a self-referent entity, in a constant self-reproducing activity and in osmosis with the environment

(Maturana & Varela, 1987, p. 713). Also Ulrich Beck, in his studies on risk (Beck, 1999, p. 35), contrasts the legitimacy of the statistical approach as the concept of 'average' overrides the uneven distribution of risk within society. Statistics, moreover, don't take into consideration the factor of human variability: indeed, the economic or social system appears to behave as an 'adaptive complex system', characterized by a heterogeneous presence of actors interacting one with the other. Through relationships, they generate an 'emerging' global system, representing something new and different against the sum of all relationships. This model of an 'emerging' system, adopted by the recent Relational Sociology (Donati, 1991), implies that it is not possible to understand the system only by observing some parts disjointedly.

4.8 The Reef

We're not anymore architects of the world, we're gardeners. For hundreds of years we've been architects of a system we thought to be able to control. Nowadays, we are gardeners of an ecosystem always alive and variable (von Hayek, 1988). Given the unpredictability of the complex socio-techno-economic environment, it is not possible to manage phenomena and events, as crowds, for instance, to overcome their strength: following the time-honoured maxim 'if you can't fight it, join it', we may argue that joining is not enough: we have also to adjust to it. Coca-Cola is a brand which has understood this. Coke's Facebook presence was started by an actor and a screenwriter in Los Angeles, gathering a few hundred thousand fans on their page. Coke, instead of opposing them, smartly decided to join them, building on the existing audience (Sviokla, 2011). Today Coke has one of the most popular pages on Facebook. Coca-Cola has understood the value of adopting a *resilient* model rather than a *resistance* one. In the Internet age, the democratic process leading to the upsetting of the balance of forces between organizations and stakeholders has enabled the public to gain huge power: in many cases, opposing it may be either impossible or else would require a huge and unaffordable amount of resources. The Chinese philosophical approach, suggesting a progressive and constant adaptation, the opposite to the Western costs– benefits relationship maintained by rational choice theory, indicates a new strategy. As argued in the classic 'The Art of War' by Sun Tzu, the exploitation of 'propensity' means to help, without forcing, the process of natural transformation. Adopting 'resilience' rather than 'resistance' means to attempt to be prepared for any possible event, which requires one to have a constantly reactive attitude while waiting to be attacked. Poorly adaptive systems lead to failure, as they are unable to change or adjust quickly to the unexpected (Ramo, 2009, pp. 217–19). In substance, this stance transforms dangers into opportunities (Padua, 2012, p. 39). Thus, just as in Chinese culture, F. Jullien argues that 'the main worry of the Chinese strategist consists of not stopping the flow of facts, to let transformation operate to one's advantage' (François, 2008, p. 67). This implies assigning a different value to time – being able

to wait, not relentlessly battling conditions, but instead, transforming them over time and in an imperceptible way. Action is momentary, local, and subjective; transformation is global, extended in duration, progressive, and continued (ibid.).

The two mindsets are dramatically different, as the Eastern approach is based on the paradigm of 'advantage', while the Western (economic) method is based on 'utility'. In the first, the focus is on the process, in the second, on the goal. We found a deep alignment of the DTSM with the eastern approach across the concepts of long-term normative orientation, indulgence, Low Uncertainty Avoidance index, adaptation, high context, diffused, outside-in, and holistic.

The concept of resilience and its many manifestations in nature helps in understanding the need of agility in business. To capture its essence and build over the eastern–western analogy, we will adopt the Darwin's paradox on the coral reef. This analogy, while shedding more light on the DTSM concept, will stimulate further reflection on the wider concept of the digital environment.

To start the illustration of this concept and its usefulness in business, we have to start from a new vision of the market which is different from the traditional one that you find in the books of economics and business. According to mainstream theories, the definition of market is 'the space of exchange, where demand matches offer'.[13]

If we use, instead, a different perspective, which is the digital sociology perspective, we may say that a market may also be conceived as 'a social environment composed of people, institutions, organisations and products in relationship one to the other, and that share information and experiences' (Padua, 2012). This is a basic concept that will help in understanding the mainframe to which the idea of resilience takes shape.

The digital, being a new, complex, and dynamic techno-socio-economic-cultural phenomenon, calls organizations, institutions, and people for an adoption of a new mindset. To understand this shift, let's see ◘ Fig. 4.7: the first picture represents a log. If a wind gust arrives, it stays rigid, the wind won't change it. It appears strong and robust. The second is a grass blade. More gently, it immediately bends over a wind gust; as the wind stops, it goes back to the initial position. The third is a reef. Consider a Polynesian island and its atolls. In his 'The Structure and Distribution of Coral Reefs', the ethologist Charles Darwin (1842) observes an exceptionally high level of diverse life forms (biodiversity) nurturing in these defined areas, as opposed to other areas characterized by scarcity of nutrients. Coral reefs cover less than 0.1% of the surface of the world's ocean, about half the land area of France, yet they support over one-quarter of all marine species.[14] These data contrast with the highly difficult life conditions of this portion of

13 There are several definitions of market across scientific and business literature. A comprehensive definition is the following: a market is 'some space or sphere where the forces of supply and demand are at work to determine or modify price, the ownership of some quantity of a good is transferred, and certain physical or institutional arrangements may be in evidence' (Houck, 1984) from ► https://core.ac.uk/download/pdf/7044026.pdf.

14 ► iucn.org

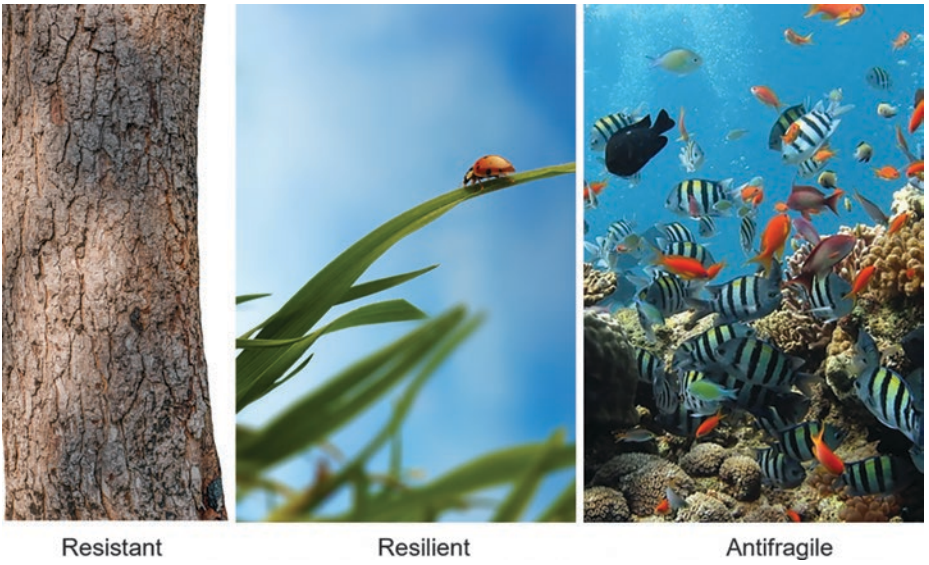


Fig. 4.7 Resistant, Resilient, Antifragile. (Source: Tree trunk, grass blade: Adobe Stock; Reef: Pixabay)

oceans. In that sea areas, in fact, the microorganisms building up the coral reef 'leverage the violent impact of waves': tons and tons of sea water is constantly casting over it. The weight of it could smash entire mountains. Instead, amazingly, in that small portion of the world, it ends up being that one fourth of all known sea species live in these spaces. How this may happen? The answer lies in the fact that microorganisms that have built the reef to 'take advantage' of the violent breaking up of the waves and separate one at one the atoms of calcium carbonate of the sea waves and put them together in symmetric structures. On the other side, the richness of oxygen generated by the waves breakout favours the proliferation of natural forms of life that become food for fish.[15]

This analogy helps in explaining how nature has coped with a critically difficult environment, taking advantage and evolving a criticality into an opportunity. The take away is an important strategic indication for institutions coping with an unpredictable environment as the digital–analogic one, where tsunamis may occur in any time, and where institutions have to survive and, more importantly, nurture and grow.

The log represents a rigid attitude to react, counterposing one's own strength, resisting the devastating mightiness of the wind, the storm, the tsunamis, and the ocean. It favours the frontal attack, it resists, either win or break. As we have seen above, this is the typical cultural 'western approach' to attacks: resist and oppose

15 Steven Jonhson, author of Where Good Ideas Come From: The Natural History of Innovation, 2011 Riverhead Books, presented Darwin's paradox as one of the greatest discovery behind innovation.

your power and strength. The fact is that, today, you don't know how many attacks you will receive, of what entity and when. A viral reputational web attack to an institution, a brand, an ONG, a media, run via viral messages, is a wave very difficult to be contrasted. Is resistance, by opposing with determination, a correct strategy? To provide an answer, let's move to the other two examples.

The second example is the grass blade: it reacts to shocks by bending, adopting a strategy of indirect reaction, not losing energies in contrasting something which is probably out of its possibilities, preserving resources, to use them once the shock has finished. It is shock-resistant by returning identical to itself. This is named a 'resilient' attitude. As we have anticipated above, this is typical of the Eastern attitude, calibrating the use of resources and not playing a frontal reaction (De Marchi, 2020, p.170).[16] It must be noted that recovery is not equivalent to a return at exactly the same state antecedent to the disturbance. Rather, as suggested by the associated concept of adaptive management, it implies the need for adjustment and change necessary to navigate the crisis, while at the same time maintaining the key structures and functions which guarantee the system's survival.

This is an interesting attitude towards digital transformation that we fully find in the DTSM, as recall above from ► Chap. 3.

The third is the reef. It leverages the shock of the wave and generates value of it. This is an antifragile attitude (Taleb, 2014). It improves with shocks. The antifragile grows thanks to disorder, chaos, crowd, accordingly to a specific occurrence. It loves mistakes, as errors are rich in information. Nassim Taleb (2014) coined the term 'Antifragility' and says: 'Some things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty. Antifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better' (Taleb, 2014, *Prologue*).

The scenario where businesses are run is uncertain. Geopolitics, economic cycles, and many other forces have become highly volatile. Scenario analyses appear as a rational attempt with uncertain results in a context where volatility is the new normal. A research study (Hirt et al., 2019 p. 32–36) surveyed 1000 publicly traded companies, and during the last 2008 downturn, about 10% of those companies fared materially better than the rest. Those companies have been called 'resilients'. Resilients moved early, ahead of the downturn; another research run on more than 2000 companies over two decades performed a dynamic resource reallocation, disciplined M&A, and achieved across economic cycles a dramatic. Those findings held. Across 2007–2011, nearly 70% of the resilients remained top-quintile performers in their sector, with just a small fraction of the non-resilients joining them. They flourished substantially. 'When the economy started heading south, what distinguished the resilients was earnings, not revenue. Barring a few sectors that were exceptions, resilients lost nearly as much revenue as industry peers during the early

16 The concept of resilience, largely utilized by social scientists, is derived from ecology and refers to the capacity of an (eco)system to respond to a perturbation by limiting damage and recovering quickly (Holling, 1973).

stages of the slowdown. The recipe, easier to say than make: cleaning up the balance sheet, creating operational flexibility and a nerve center to help sense and seize portfolio opportunities, pursuing digital productivity possibilities, and building the organizational capacity for rapid decision making'. Beyond these words we find flexibility, adaptation, constant alertness, and context analysis to find opportunities, data-savyiness, which morph organizations into becoming reactive to the environmental turbulence.

In ► Chaps. 5 and 6, we will confirm these strategies and mindset attitudes via cases of success in digital transformation showing how, by shifting the antifragile concept into a digital environment, adaptation, exploitation of propensity, and reactivity, translates into stakeholders' engagement via building social capital, that is, trust. But also social listening to provide depth of information on customers' behaviour on the web allows to adjust to bring to one's advantage the flow of facts (customer behaviours) and manage time. In other words, it appears that the Eastern antifragile approach has also, besides financial, organizational, and management strategies, to be translated in the digital with 'focus on conversations'.

In this light, the digital sociology definition of the market evolves from a mere place of matching demand with offer into a more complex human and relational environment, where institutions are in a relationship with people and share relational goods as information and experiences.

4.9 Space and Time

There is a theme crossing the digital which involves many domains as digital culture, digital philosophy, digital management, and marketing strategies. It is the topic of space and time.

Connectivity across the digital environment disrupts in two ways the traditional notions of space and time: under the technological dimension, we refer to the connection of nodes (servers, devices, technological platforms) enabling exchange of information across the web; in its social dimension, we mean the connection among people.

The first dimension discussed is *Space*.

As the social web landscape is made up of persons, relationships, and interactions, in the digital intangible and volatile environment, we may not consider space in the physical dimension. Space is not tangible, but its manifestations are visible: not only exchange between individuals of contents, transactions, but also transmission of emotions. As the sociologist Nicklas Luhmann maintains about society, conceived as a complex system composed of related parts, inside an environment, we may say that space is designed by *relationships*, representing the only virtual lines separating an 'inside', that is, an 'inner' portion, vs the external, that is, what is not included inside. This concept appears to be reinforced by Georg Simmel's sociological theory (1908): in its broader sense, society is there where more individuals get into reciprocal relationship. The eminent sociologist maintains that this reciprocal action always arises from different impulses or in view of certain purposes: from love, religious, or simply sociable impulses to defence and attack pur-

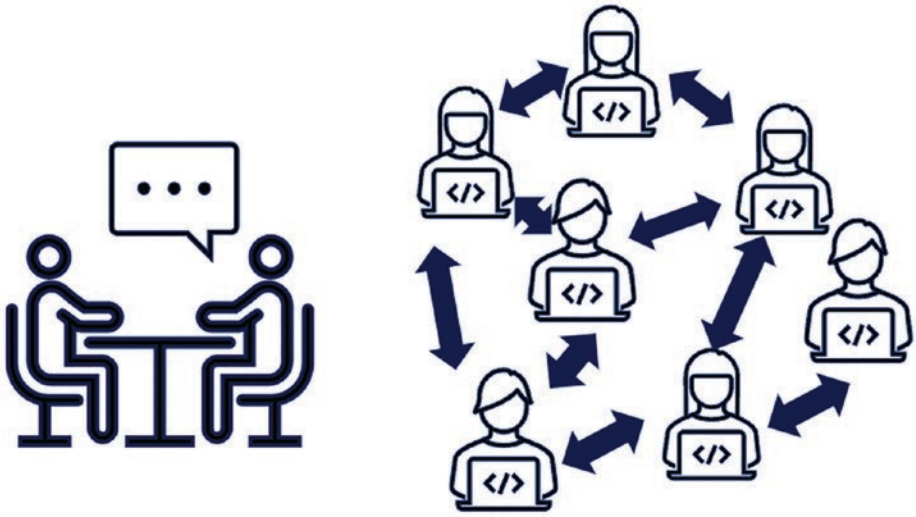


Fig. 4.8 From two friends in a pub to social networks

poses, game and acquisition, helping and teaching, as well as countless others, they make people enter with others into a coexistence, in acting for each other, with each other, and against each other, in a correlation of situations, that is, that it has effects on others and suffers from others. These relationships, accounting for specific forms of coexistence ('association'), create a society. If we think of the massive variety of contents shared on the web, responding to those impulses or driven by those purposes, it may shed light on how human interactions may shape the web space.

The Internet appears as a social system: it is composed by social relationships, in the Simmelian perspective; of related parts, as demonstrated by the virtual access to information; it is dynamic, as resources are in constant flow and are not governed nor governable; it is within an environment, a virtual one, which may be further occupied by the rise of the number of nodes (i.e. rise of connectivity in new geographical areas) and related additional possibilities of relationships and connections. Space boundaries are volatile, extremely dynamic, and very quickly fading.

If we compare physical spaces to social networks, various differences emerge. Think of a social space such as some friends at a coffee shop or a pub, sitting around a table to have a drink and chat (Fig. 4.8). Physical proximity, face-to-face communication, and proxemics are features enabled by a real physical situation. Relationships are reinforced and signalled by the sharing of a physical space, where proximity is definitely tangible and verifiable. Diversely, interaction occurring in a social network takes place not in a face-to-face communication pattern, but via content sharing within the social network environment, with different communication patterns. Videos, pictures, text, and audios are the forms of communications on the web. But also the 'where' and 'when' represent communication variables.

People may stay physically close one to the other, but being in conversation with people miles away or being physically far away but in close conversation.

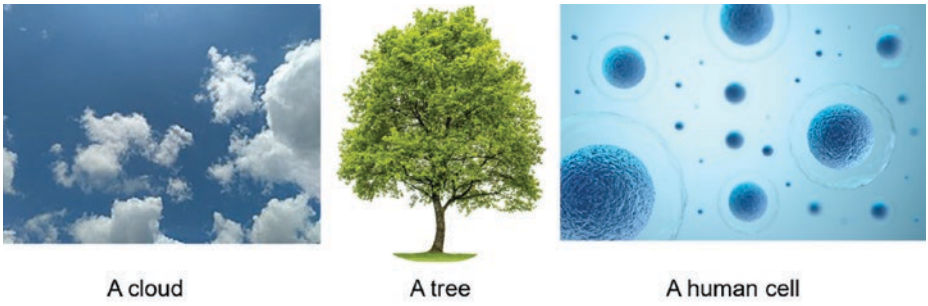


Fig. 4.9 Complex systems. (Source: Wikimedia Commons; Adobe Stock; Adobe Stock)

The web dislocates space and time.

Connectivity is at the base of systems (Fig. 4.9).

A cloud, a pond, a tree, our world are systems. They are composed of different elements (molecules and atoms) connected one to the other and are dynamic, constantly changing their morphology given their feedback and feedforward processes with the external environment, with which they exchange matter and energy. They are intelligent, given their ability to act and reach for a balance with the outside. More systems connected one to the other make an ecosystem. (like the example of the Konrad Lorenz' Aquarium, an autopoietic system: if all elements are balanced, it autonomously regenerates and grants the survival of the whole system) (Fig. 4.10).

Also an organic cell is a self-generating system, with a self-generated communication and meaning system; it is an open system: it exchanges energy and matter with the environment.

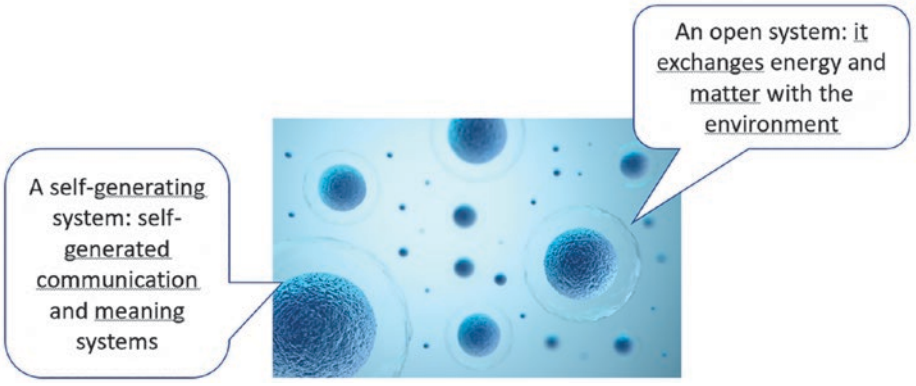


Fig. 4.10 The organic cell pattern. (Source: Adobe Stock)

Fig. 4.11 The hockey stick model. (Source: Adobe Stock)

As we have seen when talking about resiliency and the reef, and as Konrad Lorentz' aquarius, they behave like organic cells ecosystem: they are autopoietic systems finding their balance in autonomy.

The second element of connectivity is time: real time is the time dimension of internet. Space and time are components of speed. And speed governs change (Fig. 4.11).

A bank's bankruptcy followed by other 50; a computer affected by a virus, and it's impressive speed of contagion; a virus affects a person, and this contagion spreads all over the world…. Connectivity and speed of connectivity in the digital age are represented by the hockey stick model, showing an exponential growth growth (Holling, 2018). Exponentiality is a key feature of the digital age, allowed by connectivity and virality. Following this pattern, epidemiology explains the three agents of virality: first, contagiousness, little changes have big effects – speed. While contagiousness, that depends on 'exposition', that is, possibility of contact and speed depend on digital connectivity, little changes have big effects related to Chaos Theory, according to which 'early weak signals, almost indistinguishable may become suddenly uncontrollable tsunamis at global level' (Gleick, 1997).

In this paragraph, we have made a generic overview of the concept of space and time in the digital environment, learning the key differences with the analogic, physical, and tangible realm via several analogies, from the coffee shop to the tree and the pond to a virus, across different domains: sociology, biology, epidemiology, and physics.

Now, let's move to a next challenge.

4.10 Braque's Fruit Dish

The digital ecosystem, given its complex network nature, appears to be governed by a number *n* of variables (nodes) related one to the other and therefore characterized by a multivariable and multidimensional structure. This phenomenon generates a strong impact on organizational systems, leading to a tendency towards decentralization by shifting the focus of action from the 'center to the outside' and from unity to multidimensionality. This concept reflects several social markers of the DTSM, as 'collective', 'diffused', 'outer direction', 'high context', and 'low power distance'. The first trend, from 'center to the outside', tends to subvert the traditional model of vertical bureaucratic organization; the second refers to the richness of diversity within organizations.

Advances in technology–human communication are enabling machines to understand human behaviours much better than in the analogic era. Machines understand our language and our behaviours and gestures. People expectations will be remodelled around this new intuitive way to communicate with technologies with tools belonging to their language. Thanks to IOT, the Zero User Interface will ease human–technology communication eliminating touchscreens, by using voice, movements, glances, or even thoughts. Just consider how the mindsets transformation by the Covid-19 pandemic has changed peoples' danger perception of 'touch' and how ZUI may be propelled by pandemic. No touch, no virus.

Nowadays human–technology communication is linear: to a human input, acknowledged by a prefixed set of variables (language, tone, words, other sensing elements), It follows an output from the machine in compliance to the input variables. If the linear interaction, that is, the interface transforms into a dynamic one, including many more variables related to human rational–emotional behaviour and context, the design process becomes multidimensional and not pre-established. It will be transformative, reflecting a multiple workflow to make a specific action. Artificial intelligence and machine learning, allowing the understanding and analysis of data, are able even to anticipate human needs. This is reality: a home heating turning on before the house owner arrives to the house; a music list depending on the day of the week habits.

In this paragraph, we go in depth into the topic of the shift from uni- to multidimensionality occurring throughout all realms of the environment surrounding institutions and our lives. To shed light on this topic, we will ask a support to arts.

Since the last decade, in many sectors there has been an evolutionary process that appears to repropose the same scheme, involving various areas of human action that behave as subsystems as parts of a single wider global system (Wallerstein, 1979). Sectors such as economics, sociology, technology, welfare, politics, science, art and business show an evolution of their focus progressively moved from the inside to the outside, that is, from the unity and monodimensionality to multidimensionality.

From all examples tackled above, it is revealed how complex phenomena have to be analysed under a holistic perspective (Bak & Chen, 1991), not a linear one (Prigogyne, 1986), and of connecting elements (Morin, 2001), even if very distant

one from the other (Prigogyne, 1986) and how complexity is characterized by relational interdependency (Touraine, 1997). We have also reflected on how systems are self-referent autopoietic entities, in a constant, self-reproducing activity and in osmosis with the environment (Lorentz, 2004; Luhmann, 1995). They are variable and unpredictable in their evolution (Beck, 1999), generating an emerging system, that is, something new and different against the sum of all relationships (Durkheim, 1893). Sociologists would say that to give an interpretation of the complex reality in which we live, there would be needed an integration of sociological theories such as the individualism of Max Weber, the structural approach of Emile Durkheim, and the complex system approach of Nicklas Luhmann.

Yes, nowadays we are in a complex environment that multiplies its variables. Value comes from a connection of diverse nodes of the multiple networks in any realm. Just think of the generation of new communities in social media, new touch points in customer journeys, new integrations of platforms, that is, in e-commerce – Amazon and sellers – convergence of media, as multimedia strategies.

In 1914, Gertrude Stein was walking along Boulevard Raspail with her friend Pablo Picasso. When they saw for the first time a military convoy of mimetic tanks passing by, Picasso uttered: 'We created this. This is cubism!'. It was the beginning of a different way of looking at life, of perceiving reality; it was a multidimensional cubist vision. Cubist painting is a high expression of multidimensionality and an ideal ground to analyse the shift from mono- to multidimensionality which occurred from modernity to postmodernity, from the analogic era to the digital era.

If we analyse, by comparison, the well-known 1600 Caravaggio's picture 'Basket of fruit' (◘ Fig. 4.12, on the left) with an assimilable subject of the early twentieth century, authored by Braque (◘ Fig. 4.12, on the right side), several differences emerge. Caravaggio's paint is an exact, meticulous reproduction; reality is represented with absolute fidelity; it is definitely static; it has three dimensions; it requires an exterior analysis from the viewer; it is an extremely objective definition of real-

◘ **Fig. 4.12** Caravaggio and Braque: from mono- to multidimensionality. (Source: Wikimedia Commons; Wikipedia)

ity: everyone sees the picture in the same way given its definition. It is monodimensional, in this sense. As opposite, Braque's fruit dish appears almost undistinguishable, as any viewer may subjectively give his or her own interpretation, focusing on one element or another; reality appears in a subjective way; the object is dynamic, many planes intersect one with the other in multiple dimensions allowing different visions; it is a deconstruction of reality, allowing the spectator to reconstruct it in a personal way; Braque's cubist approach asks for a deep analysis, a process of research to provide a personal interpretation to a complex representation of an object, just like finding a customer's insight or extracting a relevant information from data. Finally, in the Caravaggio's picture, the focus is in the picture itself: Caravaggio wants the spectator to look at the basket as the painter wishes. In Braque's fruit basket, instead, the focus is within the subject standing in front of the painting, that is, outside the picture. There must be an effort of interpretation. Data science is also a science of providing interpretations to data. In other words, there is an exchange between the external environment (the viewer and his or her context) and the inside (the painting), to reach for a balance of comprehension or a negotiation of meanings. The viewer is free to assign a meaning to the picture.

This example aims to explain how, in painting, the representation of a fragmented, chaotic, and complex reality need to evolve from an objective to a subjective, multidimensional pattern. The same process has taken place in many other artistic expressions like Frank Gehry or Daniel Libeskind's architecture, called 'liquid architecture'.

The relevant perspective is that the shift from monodimensionality and unity to multidimensionality takes place in multiple domains of our social life (see ► Appendix 4.1). This process indicates how the global environment has transformed into a complex multidimensional and relational system.

All these elements illustrate the general shift of paradigms from unity and monodimensionality (as one-dimensional economic indicators or individualistic social models) to multidimensionality and relationships (as social capital and connectivity) (Padua, 2016).

4.11 Fractals

Fractals often appear in the study of dynamic systems, in the definition of curves or sets and in chaos theory, and are often described recursively by algorithms . Fractals[17] are never-ending patterns: do you know cauliflowers? They are curious

17 Fractals: Fractals are infinitely complex patterns that are self-similar across different scales. They are created by repeating a simple process over and over in an ongoing feedback loop. Driven by recursion, fractals are images of dynamic systems – the pictures of Chaos. Geometrically, they exist in between our familiar dimensions. Fractal patterns are extremely familiar, since nature is full of fractals. For instance: trees, rivers, coastlines, mountains, clouds, seashells, hurricanes. From ► https://fractalfoundation.org/, accessed 23/09/2020.

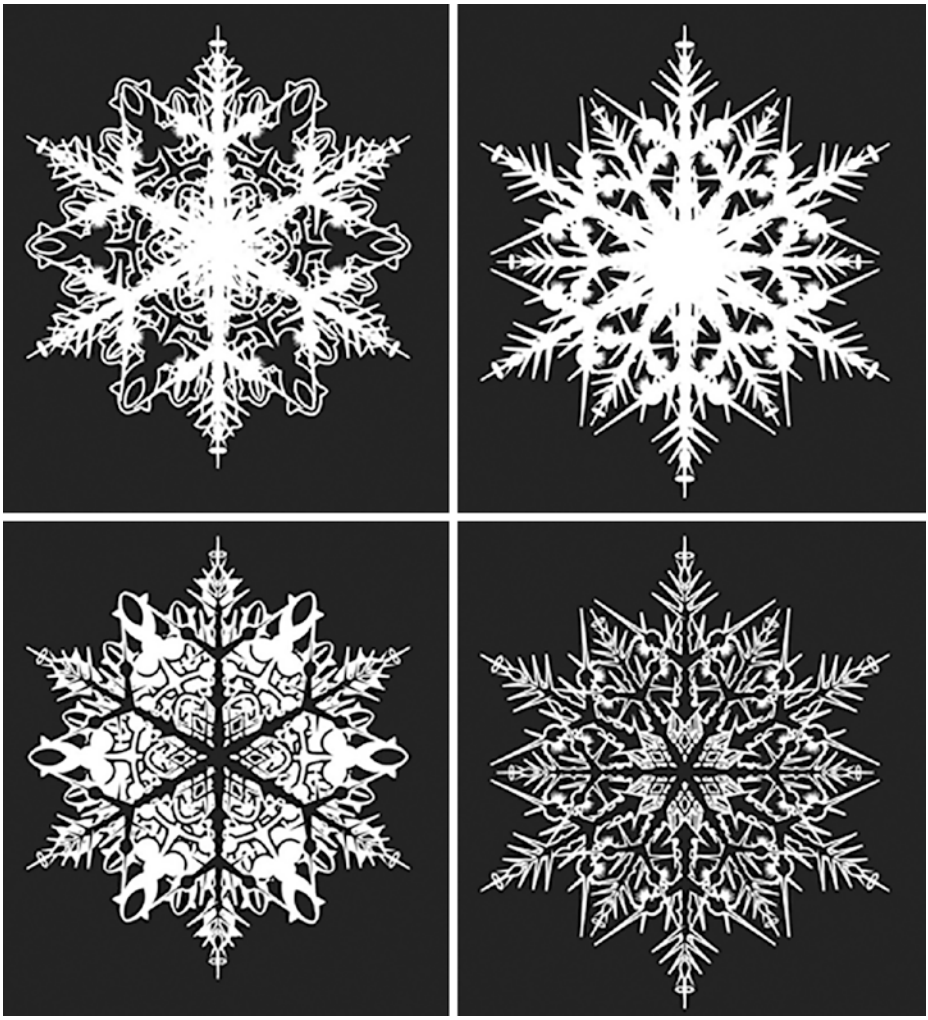


Fig. 4.13 Fractal Snow Flakes. (Source: Adobe Stock)

vegetables with a characteristic: if you observe them attentively, they reproduce at macro and micro level the same pattern. Also a snow flake follows the same fractal-like pattern (Fig. 4.13). This concept connects with the notion of paradigm that we have discussed in ► Chap. 1 and will revisit in ► Chap. 5 across the Four Paradigm Model. Fractals are infinitely complex patterns that are self-similar across different scales. They are created by repeating a simple process over and over in an ongoing feedback loop. Driven by recursion, fractals are images of dynamic systems – the pictures of Chaos. We have mentioned Chaos Theory in the previous paragraph. Chaos Theory (Gleick, 1997), a branch of mathematics, helps us in understanding virality, a dynamic that may affect deeply positively or negatively a strategy as a brand or corporate image.

The well-known Butterfly Effect tale is based on a seemingly simple innocuous concept: small changes can have wide consequences. We have already tackled this concept with Konrad Lorentz and his aquarium. A simple change in the established balance of the aquarium, as an introduction of an additional element, may disrupt the whole balance, in an unpredictable way. That is, we don't know what the effects will be and how long it will take, eventually, for the system to be disrupted.[18] In other words, small events can serve as catalysts that can act on starting conditions and generate non-linear impacts on a deterministic non-linear complex system. Just like the flap of a butterfly in the Chaos Theory.

This means a new perspective, a new awareness, and a new culture of change. While organizational and strategic transformation is required by new dynamic competitive scenarios, change may generate unexpected results. As mentioned in ► Chap. 2 (Par.: A rise in awareness and social vulnerability), Ulrich Beck talks about risk distribution and how a toxic chemical cloud on a city may spread and navigate throughout the globe. A little change may end up in a tsunami: a single message on the web may be amplified and starting to go viral; a long-term effect of a successful M&A may end up in an epic fail. Why? Because the event that happens 'here and now' relates to a context which is changeable and the 'now and here' condition changes constantly. This pattern refers to unpredictability and risk. If we know the initial conditions of a system, we can't predict the conditions in the immediate future. One year, today, as Michael Moritz says (Ramo, 2009) is an eternity. Not only is the context unpredictable but also the transition between order and disorder; the existence of turbulence: in fact, in physics, theories claim that two adjacent points in a complex system will eventually end up in very different positions after some time has elapsed. A customer in a purchasing phase may suddenly change their mind because they are attracted or reached by the offer of a competitor. You lose the customer. These non-linear patterns replicate at any scale. Think of a customer's unloyal behaviour because attracted by other offers 'casually' encountered during h/is journey or an organization that crowdsource talents around the globe on a random contest-base, as we will see below in the Topcoder case; or, at macro level, global movements flashmobs in different places of the world, always different in number and participants.

Finally, going back to our Braque picture (◘ Fig. 4.12, on the right), its absence of borders indicates the need of individuating the big picture in a holistic way. Just as we tackled in the Braque painting analysis, we are in front of a fractal condition: a simple module of a fractal context, which has a pattern with no beginning and no end.

In this paragraph, we have learnt that the digital realm, being a dynamic system and a fractal environment, is characterized by a connected web of relationships and interactions and, following the Chaos Theory law, generates unpredictability.

18 Konrad Lorentz tells about water turning into turbid up to the point that 'the oxygen content decreases rapidly, then further animals die and, through this vicious circle, the whole of our carefully tended little world is doomed' (Lorentz, 2004, p. 11). Another scientist, a metereologist, an omonim, Edward Lorentz, made a discovery out of a computer program simulating weather patterns. When he repeated the weather simulation over 2 months with a tiny alteration of one variable, the resulting pattern showed to be strikingly transformed.

This feature requires a new perspective, a new awareness, and a new culture of change, reflecting and confirming the DTSM pillars.

4.12 Routes Across the Indian Ocean

The pervasive connectivity tightening the rhythm of social media interactions and real-time content exchanges across countries, at global level; converging technologies, such as AI and neurosciences, Robotics e Genomics, creating transdisciplinary approaches and new technologies; socio-economic processes, like distant work, connecting different regions across the globe; global crises, involving and connecting entire regions of the globe; environmental catastrophes, spreading all over the world, regardless of geopolitical borders; transdisciplinary research, STEM, and humanities to investigate complex phenomena, like the digital; pandemics spreading diseases no matter what origins you are, ethnicity or culture or political credo.

These are only a few examples to grasp the scope of a change that goes to the roots of our global society, of our planet, of our governances, and, at large, to our models of value creation. Against these phenomena, no doubt that socio-techno-economic and, often, geopolitical borders are fading and are losing their sense.

In the fifteenth century, with the start of early global commerce along the routes of the Indian Ocean transformed the concept of the seas from the idea of a separation to a concept of unity (◘ Fig. 4.14). In the sixteenth century, the early Europe-Americas and Asian immigration forces started to create a cultural exchange across the globe. In the nineteenth century, the growth of the air traffic accelerated the mobility of people around the globe. In the twentieth century, the introduction of low-cost air transportation and connectivity sparkled a new era of acceleration of exchanges, forcing limitations and barriers in an inevitable way.

Today, this phenomenon, behind an exponential rhythm of exchanges and trans-sectorial interactions, is showing a pervasiveness with a massive impact in our lives and across all realms. As we will illustrate in the Horizontal Paradigm (► Chap. 5), there are various examples of it. For instance, in the cultural sector, museums are becoming hybrid, integrating real and virtual; in business, models integrate producers and consumers, with the hybrid form of prosumers; in the edu-

◘ **Fig. 4.14** Routes across the Indian Ocean. (Source: Wikimedia Creative Commons)

cational field, learning becomes blended, integrating presence and distance learning; automotive: cars are hybrid, fuel, and electricity driven; makers merge hobby with profession; materiality and virtuality integrate in shops; the ways to receive, search, and consume information are multichannel; news are mixed with social relationships, for example, forum communities; professional profiles are blurred, with journalistic professional information coexisting with grassroot, citizen journalism; in art, there is a disruption of borders and historical hierarchies by free independent expressions in music and painting and writing. Music creates many music hybrid genre; fusion cuisine fuses different food cultures. Crossmediality in general is another example; different ways of fruition, for example, cinema, integrate: watching a movie at home or at the cinema and, then, rating or discussing on the web; transmedial videogames; publishing houses, integrate different sectors as culture, publishing, journalism, and entertainment; books are multiplatformed: they are physical books, social, podcast. We may go ahead for hours. Think about it and you will find an amazing amount of cases in your everyday life.

Which take out may we get from these observations?

Since the sparkles of global commerce in the fifteenth century across the routes of the Indian Ocean, in the current digital age, we may say that the whole planet is united. Except for specific geopolitical contexts and digit-divided regions, blurring boundaries are the result of a transformational wave enabled by the digital that involves the whole world. This wave spurs a chain reaction of transformations, further reinforcing it. Just consider pervasive computing and the transformative effect in overcoming barriers between design, manufacturing, and selling. For instance, information flows generated by connected devices integrate and coordinate the functions by distributing them across a supply chain. This integration of functions gives rise to new transformational models of analysis and value generation. Or, think of how pervasive computing is transforming the realm of learning from the discrete process of classroom learning to the flow of lifelong learning; how a learning app may integrate across the flow of our daily life. And how, such customized technology allows us to access information from a variety of sources and share in the preferred way: one to one (in a text message), one to many (in a tweet), many to many (in a Facebook group), and many to one (on ► Yelp.com). This ecosystem of journeys (access, conversion, and flow of information results) results in a transformative learning model of short cycles of recall, comprehension, and application of knowledge. It also leads to new and radical pedagogical approaches to learning. Khan Academy has transcended the borders of classroom education using interactive multimedia, peer-to-peer streaming, and social networks. The Amazon Echo and other smart speakers are embedding learning in our lives.

In another example, biotechnology is not only a life sciences technology, but applies also to recycling, energy production, pollution control, hazardous waste, and other areas. Likewise, life sciences companies that relegate biotechnology to product development would miss the same opportunities. The products, processes, and value propositions of companies across industries will be affected by the mash-up of technology, chemistry, and life sciences that is biotechnology.

We are at the end of this 'mindset gym' across the gallery of analogies. In summary, what are the key learnings of this analysis and how does it provide tools to gain a digital transformative mindset?

Before analysing the Topcoder case study, as an applicative synthesis of all concepts above tackled, we ought to make a deepening reflection of the topic of creativity and innovation. These concepts will be particularly useful to analyse the paradigm of connecting the dots we will tackle in ► Chap. 5.

4.12.1 Creativity and Innovation

To make a reflection on the theme of creativity and innovation, we start our reflection from the rational–linear model we tackled in the paragraph 'The 2008 Financial Crisis'. By explaining the linear process, we said we were in a case of reproduction. In other words, it is a production which reproduces something, just by adding something more, while not changing substantially the structure of the previous step. Linearity is a strong limitation to creativity. Instead, consider the different models of creation made possible – the only possible way – in a complex system. As we will see in ► Chap. 5 (CtD paradigms), the only way to create something and generate innovation in a complex ecosystem is connecting dots. The immediate consequent consideration is that the more dots there are, the more possible connections may be.

The example of the origami may be illuminating in the comprehension of the connection of distant dots, art on the one side (origami) and mechanical and biomedical engineering on the other (the origami model used to develop solar panels, robots, optical microscopes) and the value that may be generated: this is one of the great advances in science (see ► The Sociological Box 4.4).

The Sociological Box 4.4: Connecting Art to Mechanical and Biomedical Engineering

Origami is a Japanese art that uses thin sheets of paper folded into intrigated shapes and figures, like birds, flowers, and dragons. It may look like a child play, but, instead, it is a rare art. Scientists and engineers have captured the idea behind origami, that is, the process to fold in a compact shape and then deploy into a much larger shape; they connected it to design problems such as getting solar panels into space, making a foldable robot that can walk, and even creating a working optical microscope, simply by folding paper in a systematic way. So, origami has become origami engineering, focused on designing deployable structures that can fold and unfold.

Watch the video at: ► https://www.youtube.com/watch?v=HLVUopco1qM

Based on the peculiarity of the creative process, an in-depth illustration of the concept of innovation has to be made. First, what is the difference between creativity and innovation? And how is innovation framed within DT?

Synthetically, innovation is conceived as 'widespread creativity'. If in ancient times the concept of creativity was linked to divine attributions inspiring the prophet, the commander, and the artist and in the pre-modern age is being linked to discovery, in postmodernity, creativity is conceived more and more often as invention and innovation. To transform into innovation, creativity has to be inserted in the social dimension as a collective phenomenon and generate social value. For example, crowdsourcing ideas is a collective phenomenon, as there is a collectivity of individuals that participate, and it transforms into innovation, generating an added value, utility as the crowdsourced ideas are implemented by the organization. Therefore, we have innovation when social utility is generated.

In the digital culture, innovation occurs in a *disruptive* manner. Digital processes tend to be revolutionary, not evolutionary. This pattern traces to two reasons: the first is they are driven by technology innovation, and its historical evolutionary pattern shows a discrete progression. If we observe the four waves of digital tech innovation, at each step a leap in tech innovation is evidenced. Starting from the nineties where the desktop diffused, disrupting customers' purchasing models with the introduction of platforms, introducing a revolution in search of information, and social interaction via social media platforms, in the twenty-first century, the introduction of the mobile revolutionized texting, payments, and the mobile Internet by introducing smart mobile computing. Mobile replaced desktop as the primary means of accessing digital services, disrupting the service markets via apps, introducing omnichannel behaviours; today, the 5G technology revolution is going to become a disruptive new way to run mobile networks.

The second reason is *speed*. Advances in the technology revolution are growing at exponential pace, and this pattern determines a fast, revolutionary course. As we have seen with the French revolution, evolution is a slow, constant process. Revolution abrupt suddenly with no warning.

Discrete progression and speed are at the basis of the concept of *creative disruption*. This notion is not new. The term 'Creative destruction' was first coined by the Austrian economist Joseph Schumpeter in 1942. By applying the notion to manufacturing processes, the economist described it as the dismantling of long-standing practices in order to make way for innovation (Schumpeter, 1942), with substantial increases in productivity. Dismantling means that you disaggregate or destroy something to create something completely different, not building upon the existent. Notably, the generation of the 'totally new' derives from a 'process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one'. As the creative destruction theory treats economics as an organic and dynamic process, this core concept of the Schumpeter theory has been already tackled when we talked about 'Connecting dots' and complexity. Digital technology just makes the dynamic faster and faster.

But, before going deep into this concept, it is worth highlighting the inner meaning and implications of the concept of 'destruction'. Destruction implies the elimination of resources that apparently, in comparison to the new ones, generate a dramatically lower value. Schumpeter maintains that their value lies only in the liberation of resources to be implied in the completely new technological processes

overtaking them. As said, digital transformation is operated by the introduction of technologies, where innovators overtake old models with new ones, able to generate new profit opportunities, not achievable by producers and workers committed to the older technology. The point is that there are not only old producers and innovators: there is the market, customers, and clients. When innovators 'set the level' of technological innovation, they establish *the* new benchmarks. People get accustomed to them or aspire to use them. Technology itself is a product, let's remember that. It is true, however, that there are cultural and price barriers to the interest on purchasing tech and making the 'technological leap' by customers and clients. But it is also true that millennials and Gen C have a quicker adoption time for new technologies. Add that they ask for innovation and it is plausible that innovation itself is a product. In synthesis, old models become useless or can't operate anymore, as the market demand for technologies has evolved. Here, a consideration regarding the role of technology has to be made: innovation in technology or a 'proprietary technology' becomes *the* competitive advantage. Netflix is one of the modern examples of creative destruction, having overthrown disc rental and traditional media industries – now being known as the 'Netflix effect' and being 'Netflixed.' This means that the rules of competition have been disrupted. As we will see in the horizontal paradigm, it is the platform technology that actually disrupted the scenario. In another example, as the primary value proposition of the cloud continues to shift from 'cost/efficiency' to 'innovation acceleration,' multicloud strategies and this should play a crucial role in this transformation.

To summarize some key learnings out of the many ones emerging from the above original perspectives, we are now going to analyse an extensive application of the concept of complex ecosystems to organizations with the Topcoder case study. Then, after a brief illustration of a customer journey, a second case study on the application of music to customer experience and complex ecosystems will be explained. Let's start with Topcoder.

Organizations as Complex Ecosystems: The Topcoder Case Study

Within the digital ecosystem, culturally transformed organizations appear as subsystems, absorbing the dynamism of the macro-system (the socio-political-economic environment) in their morphology: forms of co-participation, involvement in social networks, and engagement in communities confirm a general trend towards a linear, network-based organizational development.

Topcoder is the world's largest technology network and on-demand digital talent platform with more than 1.6 million developers, designers, data scientists, and testers around the globe. Topcoder empowers organizations as Adobe, BT, Comcast, Google, Harvard, Land O'Lakes, Microsoft, NASA, and more, to accelerate innovation, solve challenging business problems, and tap into hard-to-find technology skills.

We followed this organization over 10 years, and we could observe the constant growth and evolution of its positioning, of its community and clients portfolio. Particularly, it is interesting to see the shift of positioning from a company focused on IT solutions to a

human-centred 'talent provider', a sort of HR or headhunter talent freelancers agency. As said in ► Chap. 1, the pandemic has given a push to remote working and a drive to freelance economy, facilitating the cultural and mindset twist towards a physically disengaged and an on-demand workforce.

Topcoder splits IT projects into several small portions to feed its international community of freelancers, with contests to identify a winner who will become a 'Top Coder'. Coordination works via communication and the integration of single contributions into the different phases of each project. A forum enables developers to communicate to receive feedback and answers from the company.

We may provide a sociological and an organizational explanation of this exemplary case study, as an application of the concepts we have just illustrated in this paragraph.

Similarly to the aquarium model, Topcoder appears to follow the format of an 'ecosystem', close to the 'theory of systems' of the sociologist Nicklas Luhmann (1995). As seen before, this sociologist maintains that society is a complex system composed of interrelated parts; it exists within an environment with which it exchanges information or energy under different forms; it is a dynamic system, that is, it implies feedback and feedforward processes with the external environment; it is intelligent at different levels based on its ability to act and reach for a balance with the outside. It appears that the Topcoder system organizes itself via a bottom-up process based on an agile 'contest crowdsourcing': each time a project has to be developed, an open web-contest is launched to select the best 'topcoders'. The system adjusts dynamically to the environment, drawing its boundaries which contain the core of the company and the specialized workers and it excludes those that are not selected. In this way, the system 'reduces risks' – that is, as the theory maintains, the system protects itself from the contingencies of the external environment. In this process, reciprocal communication provides a crucial tool in defining the boundaries. The Topcoder model enables the system to select the best resources or the talented software developers; importantly, it simplifies the risks of low quality caused by the difficulty in selecting adequate levels of competencies; of long lead times, due to the long supply chain and process bottlenecks; of high costs, due to an inefficient use of resources. Indeed, the specialized, labour-divided Topcoder model quickly delivers high-quality products at competitive prices. The essence of the social system lies in the 'sense' which the system attributes to itself: each time Topcoder hires a new developer for a project, it resiliently and dynamically creates a new configuration according to the need of that specific competence. In this way, it may be considered an 'autopoietic' system, that is, it self-generates. Importantly, Luhmann stresses the fact that the division of labour, that is, specialization, 'makes the individual indifferent to the roles of others': it appears Topcoder is investing in community-building to balance this limitation of the model.

Under an organizational perspective, it is useful to shed light on the Topcoder labour division strategy. The model resembles the 'networking orga-

nization',[19] belonging to the typology of emerging organizations[20] where synergies between nodes are activated and produce value superior to the sum of its single component, and each constituent element can gain profit, in any form, for itself (softwarists). The common interest is a prerequisite for the organization to exist. Intellectual capital is the most important element source of value for the organization. Each entity, being a component of a network organization, should show unique competences to testify it is an attractive partner (Topcoders). In network organizations, contrary to traditional ones, there exists the notion of 'distance'. Elements forming a network organization as well as its clients are as far from one another as one 'click'. High moral standards and entailing trustworthiness are, in our opinion, the key elements that determine the effective functioning of networking organizations (Kisielnicki, 2008). The development of the ICT-related tools is aided by the cloud computing technology. Networking organizations are characterized by eliminating indirect links in information channels and through creating the so-called hubs they enable management decentralization and democratization.

An additional analysis may be run under a biological paradigm that synthesizes the sociological and organizational perspective. Topcoder is a digital native organization and, being a complex system for all indicated above, it may be interesting to apply to it an organic cell pattern. In fact, Topcoder is a self-generating system, with a self-generated communication and meaning system ruled by contests, and by its communication patterns with its community of data scientists and experts. It is an open system: it exchanges 'energy and matter' with the environment, that is, data scientists and solutions to solve clients' issues; it is intelligent and finds its balance in autonomy with its community. The community, in turn, is dynamic as to each contest different scientists take part, and the community itself is dynamic as it accepts new subscriptions.

Another relevant aspect, which will become more evident when we analyse the connecting the dots paradigm (► Chap. 5), is the level of innovation that Topcoder is able to provide to clients via its peculiar format, which, however, we may find in all crowdsourcing

19 CTO of PI datametrics.

20 The description of a network is one of the most important ideas behind the coining of the organization science (Castells, 1996). The term of a 'networking organization' was popularized by P. Drucker (1998), R.E. Miles and C.C. Snow (1992), A.I. Oliver and M. Ebers (1998) inter alia. The functioning of a networking organization requires different management mechanisms than those in traditional organizations. It has to be evidenced, however, that the term of a 'networking organization' is not popular. P. Senge (1990) refers to such type of organizations as the 'learning organizations.' Meanwhile, M. Hammer, J. Champy (1994) call them 're-engineering organizations,' and J.B. Quinn, (1992) – 'intelligent organizations.' See: Management in the time of networks, cross-cultural activities and flexible organizations Scientific editors: JanuszTeczke Piotr BułaEdts, International Management Foundation, Cracow University of Economics, Cracow, 2017.

model. The possibility to engage such a huge number of community members (in fact the community ecosystem *is* the asset of the company, as in any other platform) and connecting the best solutions to the specific clients' issues is a way to leverage the diversity of the talents and reaching real creativity via connecting the dots.

A further element of reflection is the ability of this model to joint profit objectives with social needs. The prizes offered, in fact, may be nothing in comparison to the extraordinary possibility offered to a talented young from a small country town near Bangalore to be known and contacted by a big company searching for brilliant talents. Digital makes great things.

Moreover, it is interesting how Topcoder has an outside-in mindset, just like the DTSM: utilized to satisfy clients' needs, they start from the outside or the community. The whole focus is shifted from the centre to the outside (decentralization), highlighting the dynamic character of the organizational model, disrupting traditional models of top-down vertical organizational structures.

All these elements confirm a wider and all-inclusive phenomenon of a general paradigm shift from unity and one-dimensionality. Examples of one-dimensionality are one-dimensional indicators, individualistic social models, one-way communication technologies, top-down governance models, one-dimensional scientific theories, unity of the artistic elites, and vertical bureaucratic organizations. These indicators appear to have shifted to multidimensionality and relationships, social capital, relational sociological paradigms, connectivity, relations of institutional subsidiarity, and multidimensional scientific theories.

Customer Journey and Complex Ecosystem: The Music Case Study

We have seen how under a sociological angle, the Internet may be interpreted as an ecosystem where persons are nodes (dots) of a complex web of relationships and interactions, constantly animating the web with the production of new relationships and interactions. Under a specific digital marketing perspective, dots, instead, represent the 'touch-point' or the point of contact between a brand and a customer. Touchpoints have raised in number and in typologies over time and today are innumerable, pushing new marketing strategies towards an integration of the online with the offline.

In purchasing a product or a service, we all design different routes, connecting very different touchpoints. Some of them may be physical touch points (i.e. a store, a person suggesting me a product) or not physical (a website, a social ad); they may be also traditional-offline (TV, Print, Radio) or digital-online (a blog, a review). The connection of all touchpoints, from the very first stage of brand awareness up to the advocacy phase represents a Customer Journey.

To define it more precisely, what is the Customer Journey? The Customer Journey (CJ) is the description of a multichannel purchasing behaviour. It is a qualitative–quantitative analysis tool that uses visual mappings of the path that the consumer takes when interacting with web media. Qualitatively, it identifies aspects that are not currently detectable by traditional Customer Relationship Management systems, such as emotional insights and elements related to the journey experience. These are of utmost importance to reach a deep understanding of the customer and its 'intent', as illustrated in the Jon Earnshaw interview at the end of the chapter, in order to receive decisive indications for establishing an engagement process. Quantitatively, it identifies, for example, the number of contacts that are made by the consumer and the time spent in accessing a service. Web Analytics is the key tool when making these analyses. The paths of the consumer are not only mapped from the moment she/he accesses the network to the landing page of a site but, based on the database of tracking information available today through the search engines data (always web analytics), they include the display of previous actions. By adding offline and online surveys to web analytics analyses, the CJ designs the customer's path by inserting it in the context in which it takes place (i.e. in a music example, listening to our playlist at home or on the go). By this analysis process, the marketer may work to drive the customer to the brand's website in the shortest possible time and making her/him stay longer.

The CJ is a tool that puts companies in the perspective of the customer, the employee, the stakeholders, thereby improving the quality of the service and stimulating a culture of innovation. Similar to a brainstorming session, a corporate team works on mapping to produce ideas on how to improve every point in the process where the company missed an opportunity to build a lasting conversation with the customer.

The CJ may be conceived as a journey across an omnimedia and omnichannel environment over the different brand-customer purchasing phases from awareness to loyalty or as an experience journey. If in the CJ model the ecosystem merges two wide systems, that is, the online with the offline, a multidimensional, complex pattern becomes evident.

To try and better understand this concept, we have to reflect on the evolution which occurred with the digitalization process. Just consider a record player, a piece of 'analogic vintage' – today gaining back its charm – and compare it with a digital music experience. The experience provided by a traditional record player appears linear, monodirectional, and monodimensional. In fact, you select a long play record and put it on to play it. You have just to make a choice, that is, to select the record of your preferred singer or group and that is it. 'One cause brings just one result', that is, that precise record has a predetermined list of records that always follows the same sequence up to the end. You can't intervene and change it. It is a 'One step' journey, as you can't build further processes out of it (i.e. sharing it, unless

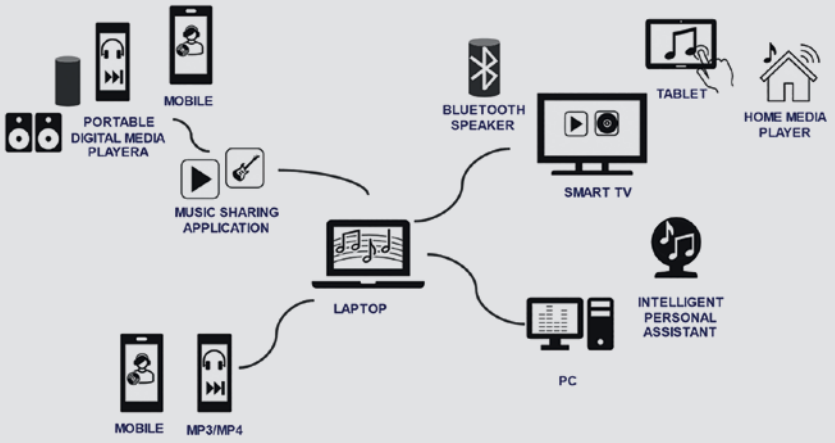


Fig. 4.15 The digital music experience. (Source: The Author)

you do it physically); it is objective, not subjective (everyone can just use the record for the same sequence of songs); it is 'one experience', as the experience of listening to that record stops to that record playing.

The digital music experience, instead, is deeply different (see Fig. 4.15).

It is complex, multidirectional, and multidimensional; one cause brings many effects, you have multiple results, you can design many journeys; it is subjective, not objective; you have many experiences in many contexts.

In fact, (Fig. 4.15)[21] illustrates how you can listen to a song from your PC and then decide to keep listening it on your MP3/MP4, via Spotify, for example, and then listen to it on your mobile; or you may be willing to use a music sharing application and then listen to it via your portable media player or on your mobile again; or you might decide, depending where you are, to listen to it on your smart TV and your loudspeakers via your Bluetooth, and then on your tablet, or your home media player; or, again, you might be interested in listening to it on your PC, by using your intelligent personal assistant.

The journeys across many media and many channels combine a vast number of combinations of possibilities, almost infinite, given the rhythm of innovation in this field. Media as mobile, tablet, laptop, TV, and media player combine with different applications.

If we apply the concept of ecosystems to this example, as we have illustrated in the above previous paragraph,

21 The analyzed type of a new organization may be included in the class of emerging organizations, i.e. the so-called emergent systems (Markus et al., 2002) (see above mentioned work of Janusz, BułaEdts, 2017).

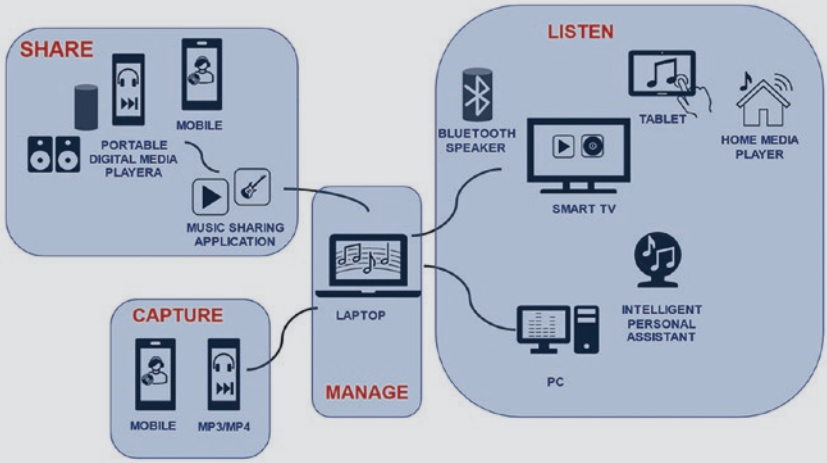


Fig. 4.16 The music experience ecosystem-1. (Source: The Author)

as Fig. 4.16 represents, we may provide an interesting and explicative application of ecosystems to the digital realm.

Several different systems that the user's journeys may connect and design across the richness of dots–nodes are possible: a capture system (i.e. via Spotify, YouTube, others) representing the initial phase of capturing a song; a managing system to create your own playlist; and a sharing and a publishing system (i.e. within the Spotify community). The connection of different systems creates an ecosystem, just like a tree ecosystem or an aquarium ecosystem described in the previous paragraph (The Konrad Lorenz Aquarium), exchanging resources from one to the other (i.e. you share a song with a friend of yours via Spotify and receive in turn likes, comments, or suggestions). Other systems may emerge with the distribution system (private, inside a Spotify group or public, via YouTube, sharing publicly your playlist).

Relevantly, other systems emerge by the context in which the user experience takes place (Fig. 4.17): outdoor or indoor, in a living room, for example.

The scenario for users designs many journeys, as it is evidenced in the figure below, each time connecting different dots, resulting in different configurations, interfaces, contexts, interactions, and, finally, results.

Many customer journeys may be designed, where the context plays a key role in qualifying the experience (Fig. 4.18).

In a multidimensional perspective, many entry points are possible; there are diverse accesses to the ecosystem, that subjectively, depending on the specific context, the user may chose to start her/his journey. Multidirectionality is granted by the variety of nodes (media, channels, etc.) and numerous possibilities are displayed. It is clear how these patterns can't be linear. They are complex.

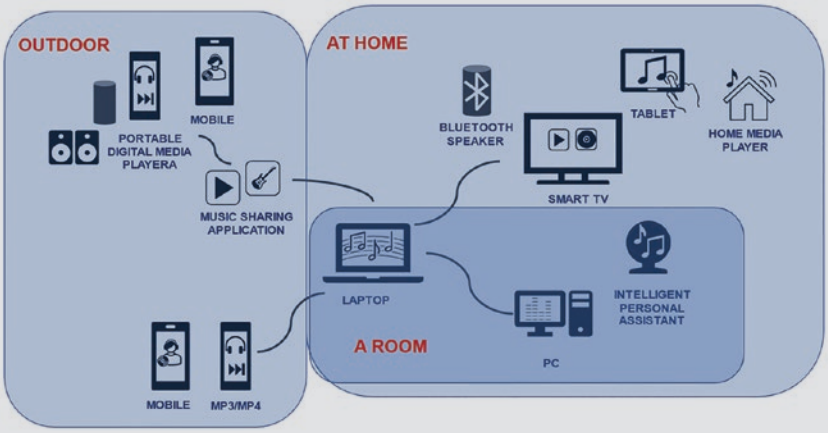


Fig. 4.17 The music experience ecosystem-2. (Source: The Author)

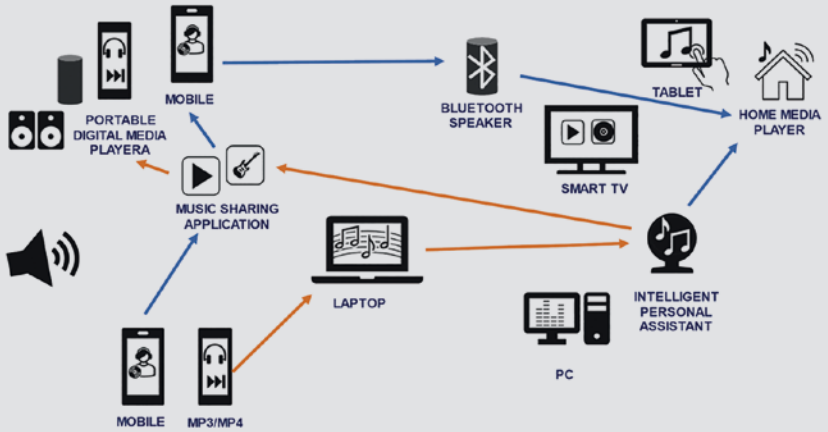


Fig. 4.18 Music experience customer journeys. (Source: The Author)

As we will see in the CtD paradigm, only a socio-business model (business, organizational model explained by sociological paradigms) based on the paradigm of complexity may explain it. We are in a multidimensional environment which is chaotic and complex, not sequential.

Interview with Jon Earnshaw:[22] 'Searcher Intent and Transformative Mindset'
In conclusion of this chapter, a conversation with the digital expert, CTO of PI Datametrics, UK, coherently with the in-depth insight approach of this chapter, adds a search challenge perspective, highly valuable and original. This angle of analysis of the customer intent mindset appears very innovative and strategically relevant.

Question: In the search landscape, the searcher intent looks as a gold nugget for the search engine and businesses. How in the world of search intents may be better leveraged via a transformative mindset?

Answer: Modern, forward-thinking businesses have, for some years, now been quick to embrace any and all technology that helps them to understand the behaviour of their online customers. For a typical online business, the ability to measure KPIs effectively is a given. For any website owner, an understanding of daily organic sessions, organic visibility, and share of voice as well as leads and conversions are the key performance metrics under the closest scrutiny.

What these types of data (that every business uses) tell us is how we are performing. What does our organic visibility look like? Has our share of voice or our share of search grown over the past quarter? Are we getting more traffic to our website? Are we generating more leads and conversions? How does our performance compare with competitors?

If we're smart, we can even get some understanding of whether or not search engines such as Google like our content and the architecture of our ecosystem and, indeed, whether or not we have been positively or negatively impacted by Google's regular Core Algorithm updates.

So, while we've been busy looking introspectively into the details of the performance of our content in search and our content's responses to algorithmic flux, another incredibly valuable and largely untapped source of insight has emerged, gradually, largely invisibly and almost accidentally.

This insight is capable of answering some powerful questions. Four questions in fact that all online business owners need answers to in order to understand their customers and online audiences better. Successful online businesses understand that success in organic search begins inside the mind of their audiences or their searchers. Understanding this is one thing but getting the answers they need can be quite another thing. The existing data and analytics previously referred to do nothing to answer these questions.

The four questions, about our customers, that this new source of insight can answer, but existing data cannot, are as follows:

22 The figure has been inspired by Brugnoli G., Connecting the Dots of user experience. The Design of interactive system. February 2009, from ► https://www.slideshare.net/frogdesign/brugnoli-system-ux-1061731.

1. What are they looking for?
2. What questions are they asking?
3. What are they thinking?
4. What content are they consuming right now?

The answers to these questions will form the basis for an intent-led content strategy: a content strategy that will work inherently better than a strategy based simply on experience, because it plays to both Google algorithms and the interaction of searchers with the search engine. These data come from the interplay between Google, online businesses, and searchers themselves and manifest itself in the form of the search landscape. While Google spends billions of dollars in an attempt to ensure that the search landscape is a reflection of searcher intent, this landscape in turn can provide us with the answers to those four questions.

In a nutshell – businesses are trying to get their content in front of people (customers/audiences). At the same time, people are searching for answers, products, and services promoted by these businesses, and when they search, we can assume that they search with intent. Certainly Google believes so and uses the term Micro Moments to define this intent. Each Micro Moment represents a potential touchpoint for a business. Intent is therefore of huge importance in connecting with customers online.

At the same time as this, Google is crawling and trying to understand, index, and rank the content produced by businesses, and these businesses are in turn trying to understand how the ranking algorithms work.

Finally, Google, keen to ensure the quality of its results, is continually trying to determine the intent of searchers so that it can respond with a data set and landscape that reflects the intent of those searchers. The search results page or page one.

What we are left with, in the form of the search landscape, therefore is a manifestation of intent, revealed by a search engine that is well one the way to becoming the world's largest database of human intention.

With the right visualization tools (Pi Platform), online businesses can begin to answer these questions in real time, leveraging search features such as Google's People Also Ask to understand not just what they are searching for but the questions that Google believes they have on their minds when searching for something. For example, 'best men's blazer' reveals the People Also Ask feature: Which blazer is the best? When should men wear blazers? How do I choose the right blazer? How much does a good blazer cost?

So already we start to get closer to our customers as Google has done the hard work in using its algorithms to unearth the questions those searchers have on their minds when searching for a blazer.

Furthermore, an agnostic view of the landscape reveals, from 'seed' groups of search terms, the content being surfaced and consumed by an audience, content that invariably, once consumed, influences their thinking and consequently answers another key question.

The challenge we face in the world of search, and this is a challenge that is very much of our own making, is that search and consequently search data often get relegated to the depths of the marketing department, or worse still IT. It's used to

explain performance and to show results, to answer the question – how are we doing? But rarely is it taken seriously enough to be shared at board level or used to seriously inform content strategy.

This has to change and it is, indeed, starting to change as part of the digital transformation process, and thanks to the adoption of a value and opportunity-led vocabulary rather than a technical one, mindsets are changing with it.

This does however leave an incredible opportunity on the table right now for any online business who wishes to adopt this new mindset and transformative way of working with search data and leveraging the power of the world's largest database of human intent.

Summary

With this chapter, we have done a 'mindset gym' to tackle next chapters explaining the FPM model. We have discussed 10 original analogies to understand the digital-analogic context. After an introduction to the importance of understanding the context, we have discussed the first analogy, The XXI Century Gold Rush, to see SEO and technology under a new perspective of pioneer land to be conquered; the 2008 financial crisis helped in understanding the linearity disruption; The French Revolution guided us to the concept of democracy and its transformation; The new Renaissance and Humanism explained the logic of algorithms and human centricity; The Konrad Lorenz aquarium explained ecosystems; The Reef, the concept of resilience and agility; Space and time, the concept of connectivity; the Braque's Fruit Dish, the concept of multidimensionality; Fractals, chaos, and complexity, unpredictability; Routes across the Indian Ocean, the concept of blurring boundaries. The TopCoder case study and the music case study have applied all these concepts. To understand Customer Journey and complex ecosystem, an appendix has put a focus on multidimensionality under an applicative inter-domain way. The chapter ends with an interview on the relevant and particular topic of 'search intent', illustrated by Jonathan Earnshaw, CTO of PI Datametrics.

Appendix 4.1: Multidimensionality as a Paradigm

During the last decade, in several domains we have witnessed an evolutionary process following a multidimensional pattern. It appears this course has involved many sectors of human action, performing as subsystems of a unique wider global system. Domains and sub-domains such as economics, sociology, technology, welfare, politics, science, art, and business appear to have followed this process. For this reason, we may argue that we are witnessing a shift of paradigm, confirmed by several realms which are key to the human expression. Some examples for each domain follow (see ◘ Table 4.1).

In *economics*, besides GNP, we have seen over time the acknowledgment of new indicators such as Social Capital or Indexes of well-being measure wealth. Economists such as Stiglitz, Sen, and Fitoussi or enlightened sociologists as Coleman and Putnam have introduced Social Capital as a global economic parameter. In addition, multidimensional indexes of well-being are becoming progressively accepted parameter that

Table 4.1 A shift of paradigm

FROM UNITY AND MONO-DIMENSIONALITY	TO MULTI-DIMENSIONALITY
One-dimension Economic Indicators	GNP, Social Capital, other indexes
Individualistic Social Models	Sociological relational paradigm
Mono-directional technological communication devices	Connectivity
Top-down government models	Bottom-up models
Mono-dimentional science theories	Multi-dimensional science theories
Unity of the artistic élites	Free and open artwork-sharing
Vertical bureaucratic organisations	Global networked and hive-net organisations

Source: The Author

expresses the multidimensionality and relativity of the perception of wealth by a population. These evolutions in the measurement of wealth evidence the growing complexity of the set of variables required to explain an environment.

In *human sciences*, sociologists are moving from holistic and individualistic models towards 'relational models', able to provide an understanding of the complex postmodern society. Relational Sociology (Donati, 1991) is a representative new branch of sociology.

In *communication technology*, the Internet has recreated a new online society governed by horizontal relations: from traditional offline mass communication technology as television or radio to peer-to-peer, one-to-one communication, the Internet has allowed the spread of digital relationships.

In *welfare policies*, the role of governments is progressively giving space to 'bottom-up' forces, seeing as forms of open government or wikicracy that are now permitted. Many other examples show how e-government solutions, such as participative platforms, create highly effective relationship-building programmes between institutions and citizens. In politics social networks allow people to aggregate, organise, exchange ideas. These forms of dialogue and interaction allow the creation of new political parties; the direct dialogue relationships between institutional figures and voters, such as Twitter, institutions and citizens such as ► MySociety.org on social networks, design new bottom-up and horizontal multidimensional models, groups, and communities.

In the sciences, theoretical studies examine the possible extension of the applicability of quantum mechanics from subatomic particles to a larger scale: this study process involves a possible interaction between micro and macro spheres, allowing a relational, multidimensional dynamics to emerge, and this upsets the principles of classical physics and opens the door to the study of parallel worlds.

In the arts, ideas once shared among restricted elites are now produced and shared among a wide audience at no cost. The multiplicity and diversification of images, representations, videos, pieces of literature, and textual contents draw a new multidimensional world of expressions and artistic strands coexisting, original,

diversified, 'linked' (connected), and shared peer to peer with the vast audience of Internet (Instagram, Snapchat, Flickr, and Pinterest just to mention some of them).

In communication: links embedded in text or any content transform traditional one-way content, like the text of a paper newspaper into a multidimensional and multiway path: the hypertext links design an open access network of connections with cascade paths or s of connections with other content subsystems. The presence of dialogue spaces such as the invitation to 'leave a comment' engages two-way and multidirectional communication processes through access to social networks. The enrichment of multimedia editorial content, as the Snowfall case of the Financial Times (see ► Chap. 3), with their first 'multimedia article', opens the door to creative text–video–audio inlays. QR codes and augmented reality transform the two-dimensionality of a 'flat surface' of a written content into a virtual multidimensional environment, sublimating the merging of the online with offline. Finally, the use of content through technological devices such as smartphones multiplies the possibilities of interaction.

In the organizational sector, companies demonstrate how, thanks to the pervasiveness of the digital environment, their boundaries once rigidly constrained by bureaucratic-functional structures tend to change towards hive structures, horizontal or dynamically open to two-way exchanges towards the outside. In the horizontality paradigm in ► Chap. 5, many examples are provided. This shift of focus performs from the centre outward and from unity to multidimensionality.

References

Archer, M. S., & Tritter, J. Q. (2000). *Rational choice theory. Resisting colonization*. Routledge.

Bak, P., & Chen, K. (1991). Self-organized criticality. *Scientific American, 1*, 264.

Barbaro, M. (2019, February 25). Why controlling 5G could mean controlling the world. *The New York Times*.

Bar-Yam, Y. (2002). *General features of complex systems. Encyclopedia of life support systems*. EOLSS UNESCO Publishers.

Beck, U. (1999). *World risk society*. Polity.

Bresser-Pereira, L. C. (2010). *The global financial crisis, neoclassical economics, and the neoliberal years of capitalism*. Revue de la régulation [En ligne], 7|1er semestre/Spring 2010. Retrieved January 20, 2021 from http://regulation.revues.org/7729

Bruner, J. (1988). *La mente a più dimensioni*. Laterza.

Campa, R. (2008). Making science by serendipity. A review of Robert K. Merton and Elinor Barber's The travels and adventures of serendipity. *Journal of Evolution and Technology, 17*(1), 75–83. http://jetpress.org/v17/campa.html

Castells, M. (1996). *The rise of the network society: Information age: economy, society, and culture*, Wiley- Blackwell, Hoboken, NJ, vol. 1, no. 1.

Darwin, C. (1842). *The Structure and Distribution of Coral Reefs*. Cambridge University Press.

De Marchi, B. (2020). Societal vulnerability and resilience in the COVID-19 crisis. *Culture e Studi del Sociale-CuSSoc. 5*(1), Special issue, 163–174, p. 170.

Donati, P. (1991). *Teoria relazionale della società*. Franco Angeli.

Durkheim, E. (1999). *La divisione del lavoro sociale*. Edizioni di Comunità. (Original edition 1893). *De la division du travail social*. F. Alcan.

Federal Reserve Bank of Richmond. (1973). Econometric models: The monetarist and non-monetarist views compared. Monthly review, *Forecast*.

Fornari, F. (2002). *Spiegazione e comprensione. Il dibattito sul metodo delle scienze sociali*. Laterza.

François, J. (2008). *Pensare l'efficacia in Cina e in Occidente*. Laterza.

Gleick, J. (1997). *Chaos: Making a new science*. Vintage.
Grassi, R. (2019). *Less artificial, more intelligent, always human. Le imprese di fronte ai mutamenti nelle dimensioni del potere*. EY Capri Digital Summit 2019.
Hirt, M., Laczkowski, K., & Mysore, M. (2019). Bubbles pop, downturns stop. *McKinsey Quarterly, 2019*(2), 32–36. Cambridge University Press.
Holling, C.S. (1973). *Resilience and stability of ecological systems. Annual Review of Ecology and Systematics*. *4*, 1–23.
Holling. (2018). *Strategy beyond the hockey stick*. Wiley.
Houck, J. P. (1984). Market: A definition for teaching. *Western Journal of Agricultural Economics, 9*(2), 353–356 by the Western Agricultural Economics Association.
Irwin, N., & Paley, A. R. (2008, October 24). Greenspan says he was wrong on regulation. *Washington Post*.
Kisielnicki, J. (2008). Babuśka, Ł., Gasik, M., Sankowska, A. (2006). Kluczowe determinanty przedsiębiorstwa inteligentnego. In J. Kisielnicki (Ed.), *Informatyka w globalnym świecie* (pp. 79–87). PJWSTK.
Kreps, D., Fletcher G., & Griffiths M. (Eds.). (2016). *Technology and intimacy: Choice or coercion: 12th IFIP TC 9 international conference on human choice and computers, HCC12 2016*, Salford, UK.
Lorentz, K. (2004). *King Solomon's ring*. Taylor & Francis e-Library.
Luhmann, N. (1995). *Social systems*. Stanford University Press.
Magatti, M. (2009). *La libertà immaginaria. Le illusioni del capitalismo techno-nichilista*. Feltrinelli.
Magrassi, P. (2011, September). La faticosa strada della complessità nell'economia dell'impresa. *Harvard Business Review*, 61–65.
Markus, L., Majchrzak, A., Gasser, L. (2002) *A design theory for systems that support emergent knowledge processes. MIS Quarterly*. *26*, p. 179–212.
Maturana, H. R., & Varela, F. J. (1987). *L'albero della conoscenza*. Garzanti.
Morin, E. (2001). *I sette saperi necessari all'educazione del futuro*. Raffaello Cortina.
Padua (2012); *Trust, Social relations and Engagement*. Understanding Customer Behaviour on the Web. Palgrave Macmillan.
Padua, D. (2014). *John Maynard Keynes and the economy of trust. The relevance of the Keynesian social thought in a global society*. Palgrave.
Padua, D. (2016). From Caravaggio to Braque: Digital technology and the illusion of augmented responsibility. In D. Kreps, G. Fletcher, & M. Griffiths (Eds.), *Springer IFIP*. International Publishing.
Polletta, F. et al. (2011). *The Sociology of Storytelling*. Annual Review of Sociology. *37*, 109–130.
Prigogyne, I. (1986). *Dall'essere al divenire*. Einaudi.
Ramo, J. C. (2009). *Il secolo imprevedibile*. Elliot.
Rheingold, H. (1994). *The virtual community: Homesteading on the electronic frontier*. Secker & Warburg.
Schumpeter, J. A. (1994). *Capitalism, socialism and democracy*. Routledge. (Original edition 1942).
Simmel, G. (1908). *Soziologie*, Duncker & Humblot, Leipzig.
Sviokla, J. (2011). *How Coke and Pepsi are using social media to build their 'trust banks'*. Retrieved August 13, 2011 from www.hbr.org
Takahashi, H. (1942). A simple method for treating the statistical mechanics of one-dimensional substances. *Proceedings of the Physico-Mathematical Society of Japan, 24*, 60.
Taleb, N. (2014). *Antifragile: Things that gain from disorder*. Random House.
Teczke, J., Buła, P. Eds. (2017). *Management in the time of networks, cross-cultural activities and flexible organizations*. Drukarnia GS, Cracow.
Tomassini, L. (2020). *Il grande salto. L'uomo, il digitale e la più importante evoluzione della nostra storia*. Luiss University Press.
Touraine, A. (1997). *Critica della modernità*. Il Saggiatore. (Original edition 1992). *Critique de la modernitè*. Librairie Arthème Fayard.
von Hayek, F. A. (1988). *Nuovi studi di filosofia, politica, economia e storia delle idee*, http://www.washingtonpost.com (accesed 10 August 2014).
Wallerstein, I. (1979). *The capitalist world-economy*. Cambridge University Press.
Weber, M. (1978). *Economy and society* (G. Roth & C. Wittich, Eds., 2 vols). University of California Press. (Original edition 1921–22).

The Four Paradigm Model

Contents

D. Padua, *Digital Cultural Transformation*, Innovation, Technology, and Knowledge Management,
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Chapter Overview
Rooted into the DTSM illustrated in ► Chap. 3, in this chapter, the FPM is explained in its conceptual bases and theoretical premises. Starting from the definition of the FPM thesis and hypothesis, the reader is driven through the FPM objectives, its functioning, and methodology. Each of the four paradigms, Bottom-up, Connecting the dots, Horizontality, and Sharing are illustrated in depth and enriched via a large amount of examples.

5.1 Introduction to the Four Paradigm Model (FPM)

In the current extensive organizational and management literature (Westerman et al., 2012, Rogers, 2016, Kane et al., 2017, Hanelt et al., 2020; Correani et al., 2020, Leifer et al., 2001; Matt et al., 2015), digital transformation is tackled according to various transformational perspectives: organizational structure and management practices, to govern these complex transformations; impact of digital capabilities on digital transformation and explanation on how digitalization transforms business models and user experience (Henriette et al., 2015); strategies (Kane et al., 2015); assets, capabilities, and metrics (Verhoef et al., 2019); integration of new technologies in business models, which, again, raises the importance of processes and operations management (Rocha et al., 2018); approach of digital transformation in terms of leadership (Patel & McCarthy, 2000); finally, others, in the perspective of digital systems (Neugebauer, 2019). However, it appears that only in few cases across these studies, we find an integrated approach to DT that coordinates business models with other perspectives such as social values, people, society, organization, and technology. Rarely, digital business transformation and its emerging factors are tackled under different frameworks and domains, by analysing key trends and emerging value.[1] Indeed, a wide space is left to innovative ways to study digital transformation and its implications under an interdisciplinary approach.

If you ask students or professionals to answer the question: 'what digital transformation impacts?',[2] they would answer: digital technologies, business models, strategies, operations, stakeholders' behaviours. Some of them would mention society, individuals. This constellation of terms is made up of very challenging concepts, that, altogether, design an extremely complex picture. However, this picture lacks something. If any transformation implies a creative effort, an innovative design, then, there is the human intellectual contribution, there is knowledge and information, but also a mindset that drives the connection of 'dots'. In other words, there are symbols, values, patterns, a cultural texture on which this connection of dots is made.

There is something more that technology, then.

1 Some specific perspectives may be found in works as Bounfour, 2016; Luppicini, 2019.
2 The author effectively made this question to several student classes of last graduation year and to professionals, and the answer always fell into these concepts.

Take Netflix. If you wish to analyse the digital transformation model of Netflix, probably, you would start to analyse its business model. You would start to analyse its value proposition, focusing on the revolutionary 24-7 'all you can eat' streaming proposition and the exceptional value offered to customers via Netflix's original series, customers' recommendations, no commercial ads, and so on; you would analyse the digital strategic component, the role of AI and machine learning algorithms, and the other technologies behind it.

However, the truth is that if you ask Reed Hastings which is the real secret of the Netflix success (Hastings & Meyer, 2020), he would describe a whole different picture. He would talk about valuing people, instil sincerity, promote freedom and responsibility, cancel rules; he would highlight the importance of guiding outside-in, that is by context, and not inside-out, by controlling; of being brave and courageous, being counterintuitive. You would find nothing of this story inside a business model. This is a 'digital culture' at the basis of an organization's DTSM.

In this perspective, understanding a multidimensional phenomenon as digital transformation requires a 'holistic' approach and adequate knowledge to integrate organizational and business models with human, social, and technological dimensions. A sociological perspective may substantially contribute to this direction.

Specifically, a Digital Sociology perspective may frame the sociological classic theories of complexity, of structural and systemic integration, of organic functionalism (Durkheim, 1893; Luhmann, 1995; Morin, 2001; Parsons, 1965) into a digital-analogic ground. The FPM, an empirical model, groups and systematizes the values, approaches, visions described by DTSM social markers into four complementary and synergic different 'paradigms'. Each paradigm stigmatizes various strategic models reflecting the specific paradigm mindset. The strategic models have been individuated by the analysis of a wide number of cases and examples extracted by the institutional and organizational realm. In a complex and constantly evolving digital environment, the FPM allows us to grasp DT in its multidimensionality and to know its genetic components, that is principles and basic values. Via the FPM Board and FPM Radar, it further provides useful tools to analyse its socio-organizational dimension and evaluate the DTSM status of an organization, suggesting areas of improvements and future transformational routes. In this direction, the DTSM provides new abilities to connect and integrate competences and strategies to dynamically analyse the context and generate innovation not exclusively based on technology.

The FPM helps in exploiting the potentialities of the digital by any institution balancing technology with human, profit with planet, business with people. This means acquiring the mindset (DTSM) able to capture and drive opportunities to the advantage of the institution and its people and to society as well, by limiting distortions and negative impacts; just like steering a balloon to the desired location, as we argued at the beginning of ► Chap. 4.

To take this route, three elements have to be taken into consideration:

First, the paradigms of network sociology and relational sociology underlying the FPM (Luhmann, 1995, Simmel, 1908, von Wiese, 1959, Donati & Colozzi, 2006, 2011). Each paradigm (Kuhn, 1996) reflects social phenomena (i.e. global social movements, peer-to-peer trust, individuals' digital behaviours), whose

underlying theoretical concepts have been illustrated via an analysis in ► chapters 3 and 4 (i.e. community, sustainability, participation). These paradigms are reference points of successful DTSM strategies that integrate factors which are external and internal to institutions, constantly subject to change.

As analysed in ► Chap. 1, paradigms absorb the experience of a multitude of cases and deductively synthesize them; they capture the essence of trends, capitalizing on the past to inductively project a general future guideline. As seen in ► Chap. 4 (Par. 'Fractals'), it seems we are in a fractal realm, where same patterns tend to replicate at macro as in micro dimension. As a stigmatization, we have to consider each paradigm as a 'fictious geometric representation' of a constant pattern: each FPM paradigm's checklist represents a set of constants that when applied to various examples confirm the 'geometry of the pattern'. For example, co-creation is a pattern that we find across many industries, absorbing the Gen Z participative culture. It may emerge at macro level, as the co-creation crowdsourcing Top-coder community, at the micro level, as a wiki document co-creation or a UGC shared production (a picture, a text, a video). By empirically observing co-creation phenomena such as a common trans-sectorial phenomenon, leveraging digital platform technology and a

The Sociological Box 5.1: Kuhn and Paradigms

Together with Imre Lakatos and Paul K. Feyerabend, Thomas S. Kuhn is one of the best-known post-Popperian epistemologists, who have come to develop their theories of science ever more closely with the history of science. At the center of Kuhn's interests, particularly, in his work The Structure of Scientific Revolutions (1962), is the history of science. To Thomas Kuhn, history of science is not only a specialized study, but a particularly effective means of understanding the very structures of science. This study requires a specific methodology, independent from those of traditional historiography and the philosophy of science.

The main problem for the philosopher, as for other epistemologists of his contemporaries, is that of the 'scientific revolution'. But scientific revolutions do not arise on the basis of verifications (as positivists and neo-positivists thought) and not even on the basis of one or more falsifications (as Popper thought), but with the substitution of one paradigm for another.

With the term 'paradigm' Kuhn wants to indicate universally recognized scientific achievements, which, for a certain period, provide a model of problems and solutions acceptable to those who practice a certain field of research'. In other words, the philosopher, using this concept, wants to indicate a composite structure, made up of metaphysical beliefs and assumptions, as well as scientific models of explanation. It is a set of principles, universally recognized cultural and scientific concepts, methodological procedures, methods of communication and transmission of theories, which inspire the work of the 'scientific community' of a given epoch. It is strictly anchored to extra-scientific, that is, social and psychological conditions and factors, and, therefore, it is not a 'pure', ahistorical and abstract model.

It is the acceptance of a paradigm, therefore, that constitutes and defines

the scientific community, which, within the paradigmatic assumptions, will carry out what Kuhn calls normal science: 'a research firmly based on one or more results achieved by the science of past, to which a particular scientific community, for a certain period of time, recognizes the ability to constitute the foundation of its further practice'.

The times of a revolution can also be very long. But when it happens, it is as if one enters a new world: 'when paradigms change, the world itself changes with them'. It is, therefore, necessary the paradigm, the point of view, the conceptual framework, the 'world' that has changed. It is therefore necessary to rethink everything: basic concepts, methods, problems. An abyss of misunderstanding opens up between the supporters of two different paradigms. We no longer understand each other, we no longer communicate. There are different conceptions of the world, even different metaphysical ones.

crowdsourcing techno-socio-organizational model, given the positive results it brings to institutions, we may expect it to be further adopted in the future as an innovation model.[3]

Second, institutions and organizations have to be adaptive and culturally prepared to face the digital-analogic turbulent environment. Institutions have to be ready to shift their mindsets, to change their languages, and to change perspective. Flexibility, agility are nowadays keywords.

Third, given the complexity and multidimensionality of the digital landscape, a relativistic approach has to be taken. In ► Chap. 4, we have already analysed the difference between linearity and complexity and we have understood how it is not possible to embrace and comprehend complexity using the mainstream linear models. So, the basic question is: which model is able to represent the complexity of a multidimensional, chaotic, not sequential environment as the digital-analogic, online-offline one, where effects are disengaged from apparent causes? Greek Sophists applied a relativistic analysis to the understanding of reality; we borrow it by arguing that the digital environment, given its complexity and multidimen-

3 While some contributors are motivated by money or prizes, more get involved out of curiosity (28%) or as a way to entertain themselves (26%).

► https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/three-ways-companies-can-make-co-creation-pay-off; Indeed, a ► recent report from Hitachi Europe found that 58% of businesses have piloted co-creation projects to help them innovate. But the benefits extend beyond this; more than half of respondents, 51 percent, say that co-creation has improved their financial performance, and 54% say that it has helped improve their social impact.

► https://www.telegraph.co.uk/business/social-innovation/benefits-of-co-creation/ The result has [of co-creation] been well worth it. CSAT scores are over 80% and on-time delivery performance is 97% or higher worldwide. Customer churn rates are down and revenue from new services and products is up.

► https://www.forbes.com/sites/christinecrandell/2016/06/10/customer_cocreation_secret_sauce/?sh=28ff60c5b6dc; 61% of businesses say that co-creation leads to more successful products and 51% of businesses say co-creation improves financial performance – from ► https://www.braineet.com/blog/co-creation/

sionality, requires several different perspectives, that in a relativistic perspective are all valid different ways to analyse a phenomenon and that each perspective adds value to the whole analysis. The FPM bears inside the culture aligned with a multidimensional, namely, complex digital-analogical environment. It is based on a cultural relativistic approach, able to analyse business cases and their value generation under different perspectives, while helping to build strategic knowledge.

In synthesis, from all above said, nowadays, it appears the complex digital-analogical landscape may be grasped quickly and effectively only via a paradigmatic holistic approach.

According to the 'Four Paradigm Model' (FPM), the digital landscape may be explored by four key dimensions. These four dimensions synthesize phenomena of different nature: social, as social movements, social networks and communities, peer-to-peer models; economic, such as value chains and business models; technological, as crowdsourcing platforms or cloud digital technologies; organizational, as organizational models. These phenomena aggregate around four paradigms: Bottom-up, Connecting the dots, Horizontality, and Sharing.

In this frame of view that integrates sociology, business, and organization, the FPM provides an innovative perspective illustrating the four socio-techno-economic paradigms to which an organization that is digitally transformed adheres. Via the FPM Radar, it also offers a tool to measure the level of digital maturity according to its principles. The four paradigms altogether correspond to a DTSM model integrating social, cultural, organizational, and business variables.

In synthesis, the objectives of the FPM model are the following:

- To analyse DT levels of an organization via an *innovative holistic and relativistic approach* in its socio-techno-economic complexity (i.e. exploring new organizational perspectives by valuing a data-driven approach or introducing a longer-term corporate sustainability strategy, or an on-demand new model).
- To support *digital transformation strategic decisions* by understanding how strategies should be modified according to the context at macro-meso and micro level and how organizations and their leaders should *grow in Digital Transformation Social Mindset* (DTSM) (i.e. reassessing the value of people and their level of autonomy inside the organization, or increasing the level of agility of the organization).
- To analyse and measure the DTSM level of an institution via the '*FPM Board*', an original qualitative tool to check the adherence of an institution to the FPM, and a *'FPM Radar'*, a quantitative FPM test–based evaluation tool to measure the level of DTSM . Both tools allow us to design the DTSM profile of an institution under the business and cultural, mindset standpoint.

How Does the FPM Work?

- For each paradigm, the FPM starts from the socio-techno-economic phenomena at macro, meso, micro level to indicate examples of related strategies.
- It indicates also the corresponding 'social markers', representing the cultural perspective of the DTSM useful to realize that paradigm.

Before we start the illustration of the four paradigms of the FPM (Bottom-up, Connecting the dots, Horizontality, and Sharing) the hypothesis, the methodology, the three levels of analysis (macro, meso, micro) are below illustrated.

5.2 Hypothesis and Methodology

5.2.1 The FPM Hypothesis

A private organization or public institution, an NGO that has a full DTSM (i.e. that according to the FPM Radar, achieves very high results) covers all the four paradigms. The FPM, and its tools (FPM Board and Radar), is a guide for digital transformation, suggesting strategies to improve the DTSM status and process. The FPM supports digital transformation decisions at: *a. Macro level*: by an analysis on the status and evolution of the environmental macro-system around an organization and its brands, under a socio-economic-technological perspective; *b. Meso level*: by an analysis of the organizational transformational processes, external and internal to the organization *c. Micro level*: by an analysis of individuals, stakeholders, customers, and clients and their experience. We will justify more extensively the three levels at the end of this introduction.

Additionally, an already confirmed hypothesis, backed up by current literature, is that digitally transformed or 'mature' organizations generate more profit to the organization (Ardito et al., 2021).

To demonstrate the hypothesis, in the 'FPM in action' (► Chap. 6), The FPM Radar is successfully applied to exemplary showcases of acknowledged fully digitally transformed organizations, showing to satisfying all paradigms and reaching top grades across the DTSM Radar. Their DT status will further reinforce the full coverage of the FPM.

5.2.2 Methodology

The identification of the four paradigms (Bottom-up, Connecting the dots, Horizontality, Sharing) results from an extensive qualitative transdisciplinary analysis of socio-techno-economic phenomena within the digital-analogical environment. The assumptions of such research are described across ► Chaps. 3 and 4.

Importantly, as each paradigm represents a relativistic view of a same phenomenon, often, the same phenomenon may be found across more than one paradigm (i.e. Crowdsourcing may be in Bottom-up and Connecting the dots). In the 'FPM in action' (► Chap. 6), in fact, we will take single phenomena and analyse them under the four paradigms at the same time. For example, co-creation is analysed under the bottom-up, connecting dots, horizontality, and sharing paradigms.

Each paradigm's analysis follows the same pattern:

- The socio-techno-economic context.
- The impact on value chains of the paradigm.

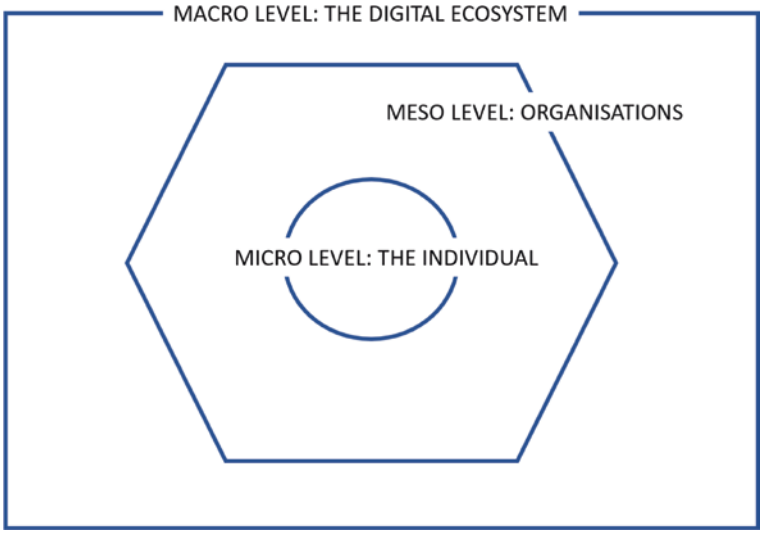
- How to recognize the paradigm (The FPM checklist)?
- The paradigm at macro, meso, micro levels.
- The paradigm's socio-digital transformation markers.

5.3 Why Macro, Meso, Micro Levels?

We have extensively tackled the theme of the multidimensionality and complexity of the web in its intersected number of layers, domains, and subdomains. We have also seen across all chapters, but, specifically, in ▶ Chaps. 1 and 3, how ontologically it would be an impossible task to put an order to the chaos, to obtain linearity from complexity. While AI, via big data analytics, attempts in finding some linearities out of complexity, here, we want to add a human, value-oriented approach, one of the DTSMs, which is not achievable by any machine as for the value-based, adaptive, creative content in it. For this reason, we had to find a method to analyse under a socio-organizational frame such a disorder, across the empirical analysis of a massive amount of examples that emerged in 10 years of research, teaching, and studying. The identification of a model of analysis made according to the sociological dimensions of macro, meso, micro appeared to fit the need and being justifiable by the theoretical sociological scientific base (◘ Table 5.1).

Within the philosophy of social sciences, the micro-macro debate shows several positions between 'individual' and 'collective' (Hedström & Swedberg, 1998) and their possible interconnections (Hayek 1952, 1988; Durkheim, 1915, 1952,

◘ **Table 5.1** Macro, meso, micro levels



Source: The Author

Weber, 2002, Boudon, 2005). In this work, we operationally simplify the use of these terms to 'a difference of scale between two objects, events, or processes' (Bouvier, 2011 p. 199).

In this perspective, macro, meso, micro differentiation allows to adopt a deeper sociological perspective of analysis. Specifically, when we refer to a macro level, we refer to phenomena, global factors affecting organizations at global or systemic level representing a bond or an opportunity for them. *Social movements, internet activism, global infrastructures, global networks, transmediality, markets convergence and hybrid technology, global social networks, global sharing platforms are examples*. Macro-phenomena occur globally or at a regional level and have an influence on society, on the technological or economic realm, changing social behaviours and transforming economic, technological, or organizational patterns. We may consider the rental economy (AirbnB, ► booking.com) or search engines, platformization processes or social media communication or crowdsourcing. In synthesis, the focus is on society and global factors at large and their impact on the global socio-techno-economic realm. They represent the context into which an organization is called to design strategies and operate.

The FPM attributes to the macro level a relevant meaning: macro level refers to the ability and strategic inclination of the organization to understand and envision the global socio-economic-technological changes, leverage them with adequate strategies while also *contributing* by generating an impact, at the same global level. We will see several examples such as Patagonia, L'Oreal, NGOs, IKEA, Apple, Spotify, and many more. In other words, it is a two-way process: on the one side, the DTSM organization is able to seize the big challenges, embracing and leveraging them via specific strategies; on the other side, the organization itself wants to contribute actively to the change by leaving a footprint. For example, Nike embracing global social movements and impacting public opinion on racial issues, or L'Oreal's sustainable business models.

At meso level, instead, the focus is on institutions and organizations and their relationships with individuals or society. The meso level positions itself at an intermediate level, between the individual and society. *Co-creation, crowdsourcing platforms, product and services ecosystems, co-petition are some examples*. At this level, organizations act first, they are the protagonist. Therefore, here, we focus on organizations' strategies (first actors, main agents) coping with global phenomena (i.e. *exploiting technologies or global phenomena*) or *acting to engage individuals*.

At micro level, we focus on the individual and his or her peer-to-peer interactions, individual initiative. In Social Sciences, the smallest unit of analysis is an individual in their social setting. *Individual reviews, viral messages, voting, rating, customer journeys, peer-to-peer communities, social bookmarking are some examples*. According to Political Science, the individual level of analysis locates the cause of events in individual leaders. It focuses on human actors and human decision making.

Focusing on macro-micro interconnections, the pervasiveness of DT phenomena, characterized by connectivity, involves anything from the global level to the individual dimension. Macro and micro dimensions are intimately connected

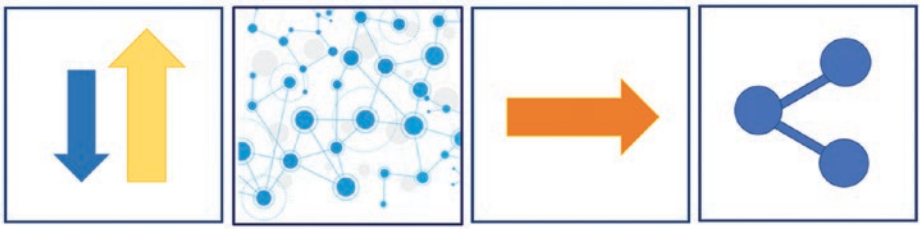


Fig. 5.1 Exploring the web through the four paradigms. (Source: The Author; As for the Connecting the dots: AdobeStock)

(Bouvier, 2011). In a macro perspective, for instance, social networks are intimately connected to the individual social network user. The Connecting the dots paradigm, below described, sheds light via several examples. In the middle, organizations play the role of intermediary bodies, building value chains engaging the individual at scale. AI, today, allows a one-to-one personalized brand-customer at a mass customization scale (Accenture, 2020); crowdsourcing platforms connect individuals at global level (► Kickstarter.com); petition online platforms connect governments with people (petition.parliament.uk/); not-for-profit organizations empower citizens via technologies to civic participation (► mysociety.com).

A relevant advice: given this tight connection between the three levels, their conceptual and segmentation boundaries are quite weak. In some cases, overlaps are evident. However, keeping the three levels allows us to cover differentiations among a massive number of phenomena and strategies that would not otherwise be available for analysis.

Now we are ready to start the exploration of the web with this new tool, the FPM (Fig. 5.1).

5.4 First Paradigm: From Top-Down to Bottom-Up

The Bottom-up paradigm (BU) lays at the intersection of social values and technology, providing a new enriched meaning to the notion of sustainability. To organizations, it represents the strategic opportunity to transform social forces into global social causes to be embraced and people's new social needs into co-creation processes, generating new value leads. Digital technology is the enabler of BU, via *social networks and digital platforms.*

5.4.1 The Socio-Techno-Economic Context

The pervasiveness of digital technologies constantly keeps changing our behaviours and impacting our lives. Rating a restaurant, starring a book; signing in for an online petition; making a review of a hotel experience; twitting an opinion, good or bad, about a service; posting a *like* to a picture; blogging or vlogging; flash-mobbing for a social movement.

What do all these events have in common? Certainly: action, protagonism, freedom of expression, but also, identity and emotions, experiences, memories.

These are all intangible elements that may appear very volatile, transitory and almost neglectable. But this is not the reality. The impact of intangibles on institutions is massive. It may appear odd, but intangible elements are a key component of KPIs (Key Performance Indicators). For example, freedom of expression may translate into WOM (word of mouth) and impact reputation. Reputation is a web analytics index; in other words, it measures value, whereas, the more positive is reputation, the higher are revenues.[4] Also, being able to access and navigate the web virtually at zero cost (apart from connectivity costs), this leads to viral processes and affects positively or negatively the brand's sentiment. Sentiment, an intangible element, resulting from moods, opinions, feelings on an institution, a brand, is a KPI measured by a specific web analytics index. Finally, freedom to participate. Can you imagine social freedom impacts a KPI? Definitely yes: web movements represent bottom-up forces, impacting values and public opinion. Many companies, today, are embracing social causes related to web movements: as we will see in the BU at macro level, Nike, Patagonia, and Unilever are cases in point. Therefore, social freedom may influence a brand image and related brand consumption, impacting KPIs.

These social phenomena as social action, protagonism, need of freedom of expression, identity, emotions that heavily impact institutions, find their origin on the stakeholders' empowerment provided by digital technology.

Actually, this dynamic may be interpreted as a power-control equilibrium among brands, institutions, and stakeholders. Even though a new oligopoly is being generated on the web by search engines and mega-platforms, it is true that anyone, in this exact moment, can post a tweet on Twitter, harshly criticizing an institution because of a negative experience and, in turn, negatively impacting it. In other words, affect its value. This is an unprecedented power for people to which brands contrast with big data analysis, tracking data, web analytics, leveraging technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL).

This bottom-up process may be represented as illustrated in ◘ Fig. 5.2:

This picture stigmatizes the disruption of roles among an institution, an organization, and individuals and an aspect of the social and business revolution generated by the digital. It represents a process reversal, from top-down to bottom-up. Traditional media as TV, print, outside billboards, entailed a one-way communication aiming to persuade customers. Within the interaction between a brand and a customer, the focus of the marketing and economic effort lied in the individuation of

4 https://bettermarketing.pub/how-much-does-reputation-correlate-with-revenue-d2c51f63904c

► https://www.reputationdividend.com/files/4713/4822/1479/Reputation_Dividend_WEC_133_Cole.pdf

https://www.finn.agency/blogs/what-reputation-summary-best-research-corporate-reputation

https://www.researchgate.net/publication/314240114_The_Impact_of_Corporate_Reputation_on_Customer_Trust

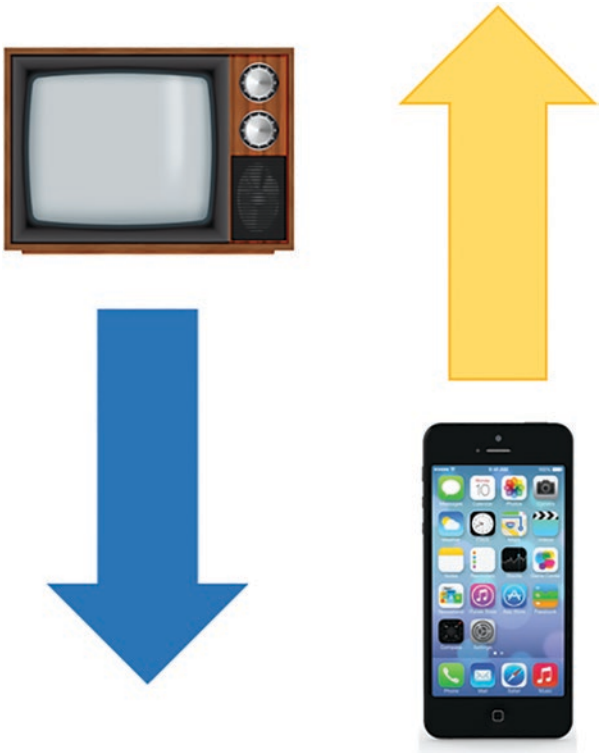


Fig. 5.2 From top-down to bottom-up. (Source: The Author; Tv set; AdobeStock; iphone: pixabay)

the correct customer segment aiming to make the process most effective in terms of costs and profit generation. Today, social media empower customers to make the first move and generate comments, reviews, contents in any form such as videos, pictures, text, throughout any social media and device, in any context as at home, on the go, and in formal and informal environments. Brands have to respond to manage this process. The focus of organizations, today, lies in designing digital marketing and communication strategies aiming to engage a customer in a conversation. Moreover, if traditional media communication processes work one-to-many, social media and communities, today, allow a many-to-many conversation. If the customer, in the 'analogic age', was in a passive position, today, s/he transforms into an uncontrolled 'content generator'. Customers are not anymore consumers with no rights to reply, but producers and consumers at the same time: the new 'pro-sumers'.[5] The above designed customer empowerment process has plenty of exemplary case studies in the marketing literature. One of these is the 'British Airways' case study[6] introducing a passenger with his father flying British Airways and having his father's luggage

5 ► https://www.forbes.com/sites/work-in-progress/2010/07/03/the-shift-from-consumers-to-prosumers/?sh=50fef09033df

6 ► https://simpliflying.com/2013/promoted-tweet-against-british-airways-airline-customer-service/

lost. As the Customer service appeared not to be helpful at all, the passenger paid a promoted tweet warning potential customers 'don't fly British Airways. Their service is horrendous'. This action generated the day after a nightmare for the customer service manager: 76.800 impressions and 14.600 engagements. The luggage was promptly found, then. Likewise, a review can be a fear for restaurants, that, today have understood the marketing importance of being present on reviews platforms as Tripadvisor or Yelp and try to manage bad reviews by answering, where possible. This means they are establishing a conversation with the customer.

5.4.2 The Impact on Value Chains of a Bottom-Up Paradigm

Stakeholders, as consumers, nowadays no longer behave as mere passive recipients of brand information, but can add value to an organization by incorporating their cognitive and emotional resources. This impacts value.

Traditional value chains, as the traditional Porter's value chain,[7] show how the organization is the place where value is generated by primary and support activities. By optimizing the different functions, processes, and operations, value is substantially thought, organized, and implemented inside the organization, which is the protagonist. Outside, there are customers and clients, external to the company. In substance, production happens and is driven *inside* the company, while consumption is *outside* the company. The market, then, is conceived as the aggregation of target consumers for exchange and extraction of value.

In the current digital age, society and people whose identity, personality, and social life have been deeply transformed, ask something different. Informed, connected, active, influent, aware, demanding consumers and users want and demand to participate, to be protagonist, to be active. They wish to interact with companies and collaborate to the creative process. They want to co-create, in other words. Co-creation shifts the place of creation and extraction of value into the interaction between business and consumer. Value is no longer created by goods and services but by a new model in which participation and experiences are at the centre of the value generation process. In this way, value generation is contextual to the process of creation or utilization of a product or service. The market becomes a forum for conversation and interactions among consumers, consumer communities, and companies.

5.4.3 How to Recognize the Bottom-Up Paradigm

We have seen how societies have empowered people to act and voice their ideas, to engage in social and economic processes. The BU paradigm may be identified via the following features:

7 ► https://www.ifm.eng.cam.ac.uk/research/dstools/value-chain-/

1. Active and change-oriented participation of people to a process (consumers, citizens, users, any stakeholder).
2. Participation stems from a free choice (it may be a response to an invitation, but it is up to the person to take part or not).
3. The initiative to join starts from the 'bottom'.
4. Free expression about a brand, organization, its behaviour, or about social causes.
5. Digital technology enables participation.
6. Digital technology enables a process that could not otherwise take place in such time/space/dimension.
7. Participation impacts an organization, institution, company (i.e. reputation, ideas building, projects, product, R&D), and its value.

The analysis of the BU paradigm for organizations is relevant as BU events, phenomena, actions, if included in strategies, generate value aligned with the digital transformation culture. They also help in understanding the socio-economic-technological context in which an organization operates via data analysis and qualitative socio-economic analyses. After having analysed the socio-techno-economic context, the impact on value chains, and the checklist of the BU paradigm, now we move to tackle the macro-meso-micro perspective of analysis as illustrated in (◘ Table 5.2).

5.4.4 The Bottom-Up Paradigm at Macro, Meso, Micro

◘ **Table 5.2** The Bottom-up paradigm at macro, meso, micro

LEVEL	Examples of Socio-techno-economic phenomena	Examples of Strategies
MACRO	Platformised Social Movements, Internet activism, ONGs networks, Civic techs, online petition platforms	Global social movements engagement, ONGs social causes engagement
MESO	Participation, collaboration, crowdsourcing	Co-creation, co-production, crowdsourcing platforms
MICRO	User Generated Content (UGC), feedbacks, voting, rating, reviews, viral messages, blogs, vlogs, audio blogs, podcasts	Reviews and rating platforms, dialogue, Buzz mktg, Social listening, SM Content sharing, citizen journalism-networked journalism

Source: The Author

5.4.4.1 BU at Macro Level

Macro-Level Phenomena

In this paragraph, we describe the phenomena, providing some elements of their context and theoretical foundations.

The first form of socio-techno-economic phenomenon that we are going to illustrate is Internet activism and social movements (Blumer, 1969; Ceri, 1999; Tilly, 2004). As we have said previously, the phenomena analysed are examples. There might be more of them. These collective movements have 'borders' that are not defined, as there is a high level of freedom to participate to their activities in informal ways (i.e. you can take part to a march across the city without any need of a formal enrolment). Usually, this level of informality refers to an initial phase, when the movement is at its early stage. Often, over time, it tends to get more structured by transforming into an organized entity as an association, with its own platform. Globally, social movements such as #BlackLivesMatter, #Time'sup, #Metoo, #Fridaysforfuture are signal of how societies network to express the same feeling which is shared worldwide. They represent themselves as a networked society itself, in a connected world. They trust change and are confident that together it is possible to impact current economic, environmental, human rights, health, and many more global issues. The web empowers a potential impact of a social movement (Castells, 2015; Mina, 2019; Ope, 1999; Surowiecki, 2004; Tufekci, 2017). In fact, social movements, being organized more or less loosely via a social network, a website, and a platform, have a more effective coordination of movements, a more efficient resource mobilization, improved communication and increased public awareness, quicker and larger-scale mobilization of people than separated people. As Manuel Castells argues (2015), one thing social movements have in common is that they are all interwoven inextricably with the creation of autonomous communication networks supported by the Internet and wireless communication.

In this dimension of BU at macro, by applying the checklist, we may say that the paradigm proves that there is clear active participation of people to a process of change of a status quo (i.e. #meetoo, #fridaysforfuture); participation stems from a free choice and starts from the 'bottom', that is, from people gathered in active movements; they express freely on the web and when they march physically together; their participation is allowed by social media platform; only the internet and the digital allow participation which otherwise could not have taken place so fast; social movements have the power to impact public opinion and ultimately politics. The usual evolution is a transformation from a social movement into a more organized large association thanks to a specific website, a platform (i.e. #fridaysforfuture). An example of a brand fully matching the BU paradigm that has embraced global social movements is Patagonia, as we will see below. Actually, the full adherence to the DTSM might be an interesting test to check whether an institution is making 'social washing').

Other socio-techno-economic phenomena, always at macro level, are ONGs networks, Civic techs, Online petition platforms.

Although ONGs find a similar theoretical sociological foundation of social movements, they have more organized structures: they are organizations. Greenpeace, UNICEF, and UN Refugees are just some examples of social and humanitarian causes with a high social impact and providing social value for organizations embracing it. Civic Techs join people, tech, and social impact. Code for All[8] is a good example, the largest civic tech network in the world, amplifying the impact of good ideas through a global network of local organizations. Organizations support each other to empower citizens to meaningfully engage the public sphere and have a positive impact on their communities. Civic Tech helps civic institutions to be more open, democratic, and equitable in the services they provide to the public through digital technology. They provide decision-making collaborative tools, support local communities in solving their issues, foster the digitalization of public services, and connect institutions to people. This has a transformative power on society and organizations.

As for online petitions, although many of them are subject to criticism,[9] they represent a global phenomenon to which millions of people around the world engage. A petition is a statement that an individual wants to make to the government or a specific authority, to express his or her own opinion. The power behind the initiative of a single is provided by the number of people sharing the same statement, voicing it loudly. Online petition platforms fix a threshold of engagements to be reached to have the message reaching the authority and being heard, having the chance to become effective. There are many examples of online petitions platforms. Openpetition[10] is a platform for citizen's initiatives, petitions, and campaigns. Its claim is to help people creating one's own petition, making it popular, and getting it signed. Petitionglobal[11] is another example of petition platform to allow people to let their voice be heard. ► Change.org[12] is the most well-known platform for petitions, with its three digits million people in action. The platform facilitates the success of the petition by suggesting the petition campaign to people having same interests and more potentially engaged. There are several topic causes for petitions: animals, human rights, health, environment, economic justice, local issues, disability, and legal justice.

8 ► https://codeforall.org/

9 ► https://www.emerald.com/insight/content/doi/10.1108/ITP-08-2016-0179/full/html?casa_token=WVXiuJ-YuZcAAAAA:kJnvfXSFtGje3OwMjbktewXkB4EXTsAyicFclrVB_tElNRkEx6x-igeYpPXFSNJYHckKG_BM2mp1mGX8b2glVtyRfEqqFsvM09EmV26uNOSFFahEkrdo

► https://onlinelibrary.wiley.com/doi/abs/10.2202/1944-2866.1098?casa_token=XVZeFUSAllcAAAAA%3Ao-G9Ze_f6w298Zfr8uC3tqmuowA1KW-ae7h55wcN_frVCPaV_vGll-gNrQ5DBotjEF-Nlh4h0PA-jEQ

► https://onlinelibrary.wiley.com/doi/full/10.1111/gove.12391?casa_token=FPLNwKFBTns-AAAAA%3AKtIXIMlLUceAd4EObO713cZIM5J8PZOGPdJ9qbp1El3ZWdO9VH7yijAk4D1R5YDuNiPE0V8oowMdyw

10 ► https://www.openpetition.eu/

11 ► petitionglobal.com

12 ► change.org

How organizations can take these global phenomena as opportunities for transformation and value generation?

Engaging in 'platformized' social movements may represent an element of DTSM. Taking part to global social causes by embracing movements, supporting an online petition, or a global NGO cause allows the organization to take part in a project of global change, positioning it as a global change mover. Global change is a social cause, in all its declinations (environmental, human rights, etc.) that engage an extremely wide public and it represents a relevant opportunity of brand image building because of the brand-stakeholder identification process on the same value. It leverages a global network, allowing the brand name to take a global stand, virtually reaching any corner of the world. A different case, though still deeply within the BU at macro, is the case of the Ice Bucket Challenge.[13] It was a challenge run in 2014, created by a woman whose husband was affected by Amyotrophic Lateral Sclerosis (ALS). The video was made viral, and it has been used as a campaign to raise awareness about the disease. Many brands, celeb, CEOs, and organizations got involved in this cause and supported this social cause that raised a global audience, funds for research, and shed light on this disease. From JetBlue to Delta to American Airlines, from Microsoft to Google to Amazon, to Coke,[14] from General Mills to MacDonald,[15] more than three million people have taken part in the Challenge and shoot and posted pictures of it. Today, people ask organizations how they can support social movements and how their brands can be engaged in global social causes to create change. SproutSocial reveals the increasing trend of consumers (70% in 2020 up from 66% in 2017[16]) and believes that it is important for brands to take a public stand on social and political issues. Moreover, the use of social media is largely deemed relevant, being it a powerful platform to effectively impact social issues and connect more deeply with audiences, even in ongoing uncertain times. The global social experience of Covid-19 and the growing sensitiveness for global social issues entailed by the pandemic urged the need for long-term effective transformative allyship, moving beyond performative, one-time actions. People believe brands are in the position to impact social change, because they are able to connect people of different beliefs and backgrounds. This is because brands carry products and services that appeal to a diverse range of customers, and have the resources and presence to receive significant media attention.[17] Further, in a 2019 #BrandsGetReal survey,

13 ► https://www.als.org. An independent research organization reported that donations from the 2014 ALS Ice Bucket Challenge enabled The ALS Association to increase its annual funding for research around the world by 187 percent. During this time, ALS researchers made scientific advances, care for people living with ALS expanded and investment in disease research from the federal government grew.

14 ► https://www.columnfivemedia.com/brands-stay-cool-with-the-als-ice-bucket-challenge

15 ► https://digiday.com/marketing/brands-glom-ice-bucket-challenge/

16 Aarens E., #BrandsGetReal: How brands can lead on social movements, SproutSocial, July 7, 2020, accessible at ► https://sproutsocial.com/insights/bgr-data-social-movements/

17 SprouSocial Blog, #BrandsGetReal: What consumers want from brands in a divided society, accessed on Dec. 28, 2020.

66% of consumers said they believed brands should weigh in on social issues, because they can create real change, while 63% reaffirmed that brands have the platform to reach a large audience. The BU at macro level helps organizations reflect and evaluate how they are ready to respond to social issues. Being prepared to tackle such unexpected events, this helps institutions to navigate unpredictable crises and provide a relevant contribution both to its stakeholders and to the public at large.

Some examples: Nike won its first 'outstanding commercial' Emmy in 17 years for an ad featuring Colin Kaepernick.[18] The football player chose not to stand for the national anthem during a National Football League preseason game in 2016 to protest racial injustice. As Kaepernick continued to protest throughout the 2016 season, and the controversy grew, falling television ratings for the NFL were linked to it. As a result, when the commercial was revealed in September 2018, Nike shares took a hit and despite backlash and boycotts by some consumers, in the days after the commercial's release, Nike's online sales surged.[19] Patagonia, the outdoor company that specializes in premium outerwear and environmental awareness, is known for its environmental cause–related actions and positioning. This stand has recently shifted towards intersection of partisan politics and scientific activism.[20] With a clear political position taking against governmental tax cuts, Patagonia engaged itself in a game changing action, taking a clear stand in favour of the fight against human-caused climate disruption, to support 'groups committed to protecting air, land, and water and finding solutions to the climate crisis.'[21] The list of brands taking social and political stands has grown across every industry.

The difference between traditional corporate social responsibility actions and social movements supportive actions appears to be the level of impact in terms of global social change and the level of sensitiveness to social causes, confirmed by the risk of taking a specific stand on issues.

Other examples are Tacobell and Kit-Kat. These are two examples of brands that have undertaken a strategy of a petition platform engagement. Working with ► Change.org, Taco Bell asked Americans to assist them in convincing the Unicode Consortium that a taco emoji needed to be official. Unicode, who regulates the coding standards for emojis, was on the fence. After about 6 months, approximately 33,000 signatures had been collected and the taco emoji became a reality. This petition provided Taco Bell with the space to unite their community around a shared passion, says Matt Prince – PR and newsroom manager at Taco Bell. Apart from customers, several consumer brands have also shown their support in the petition arena. Interestingly enough, these brands often leverage petitions to rally supporters for their own causes. As an example, Kit-Kat was pushing Unicode for

18 ► https://www.cnbc.com/2019/09/16/nike-wins-emmy-for-ad-featuring-colin-kaepernick.html
19 ► https://www.cnbc.com/2018/09/07/nikes-online-sales-surge-in-days-after-kaepernick-ad-debut.html
20 ► https://edition.cnn.com/2018/11/29/business/patagonia-10-million-tax-climate-change-trnd/index.html
21 Ivi

their own emoji, similar to Taco Bell. Heinz has also been known to petition their concept of 'Smunday'. Most notably, Uber's open petition to keep their vehicles running on London's streets without a license has collected 856,702 signatures.[22]

5.4.4.2 BU at Meso Level

Meso-Level Phenomena

At meso level, the focus is on the organization. The socio-techno-economic phenomenon behind this level may be represented by social participation, collaboration, and crowdsourcing. In this frame, society has a protagonist role and actively participates to value creation processes jointly with institutions, sharing projects' aims and generating advantages for both. Outsourcing, a modality to individuate solutions to issues external to the institution, is facilitated by the internet. Institutions follow this route especially when they lack the ability to solve autonomously issues of public nature in the area of environment and sustainability, food and culture, cultural heritage, migrations, and of private nature, concerning new products and services, product extension development, innovation. The sociological paradigms behind these innovative activities are social innovation (Caulier-Grice et al., 2012; Noveck, 2008; Vicari Haddock & Moulaert, 2009) and communities of practice (Wenger, 1999; Wenger et al., 2007), to which a decisive contribution to the theoretical foundation is provided by authors such as Marshall McLuhan (2008) and Michael Polanyi (1966).

Participation and collaboration are drivers of innovation via the building of 'social capital' (Bourdieu, 1986; Coleman, 1990; Fukuyama, 1996; Mutti, 1994; Putnam, 1997, 2000) and the creation of relational goods, which are founded on trust. Behind crowdsourcing, there is a collectivist drive, not an individualistic one. As anticipated, the borders of the paradigms are blurred and this social phenomenon, given the collectivist drive, overlaps with the Sharing paradigm, as we will see. But also a peer-to-peer (Horizontal) exchange of relations takes place among the crowdsourcing community participants (Horizontal paradigm). When we will tackle the FPM in action, it will become clear how only a holistic approach, integrating the four paradigms, offers a complete representation of phenomena and related strategies.

However, co-creation, within a crowdsourcing frame, is positioned in the Bottom-up paradigm as the focus of value building lies within the innovative bottom-up people–institution relationship. The win-win result, by creating a bond between the institution and its stakeholders, generates advantages for the latter by satisfying the will to participate on a free basis (Mauss, 1998), to play a role of protagonism towards a project whose results bring advantages to stakeholders themselves.

How organizations embrace BU phenomena at meso level and translate them into strategies?

22 ► https://brandequity.economictimes.indiatimes.com/news/business-of-brands/theres-a-petition-for-that-too/62710909

As seen, at meso level, the BU paradigm emerges via co-creation and crowdsourcing strategies.

Specifically, co-creation is an interesting BU model, where an institution opens a chance of collaboration with customers, clients, or any stakeholder where the latter may freely decide to adhere. This pattern establishes a win-win situation.

Co-creation examples are Lego ideas, Ikea, the case of 'Lays – Do us a Flavor', where customers suggest ideas to brands. Also citizens may take active roles to improve institutions (IBM Center for the business of Government).[23] Added value is provided to both parties as, on the one side, via the collaboration with people, organizations create R&D (research and development) activities at zero cost, surveying and testing ideas at the same time; on the other side, people are rewarded by taking part as protagonist to the creation of new products and services, improving their favourite product, contributing to the identity of their most liked brand, and, maybe, enjoying to have their name branding products which are distributed worldwide.

Toy company Lego is a very interesting example of crowdsourcing. The company allows users to design new products, and, at the same time, it tests the idea. Any user can submit a design that other users are able to vote for. The idea with the highest amount of votes gets moved to production and the creator receives a royalty on the net revenue. There is an extensive number of other examples across many sectors: from Gofundme[24] in the funding sector to DHL[25] in the delivery, where DHL's customers help the company by designing the logistics services company of the future with delivery drones; to Unilever Chillys[26] consumer goods, to Sephora[27] beauty care, to sportswear Nike By You[28] to automotive FCA,[29] to beverages with Heineken Open Design[30]: to generate ideas for a futuristic clubbing experience, Heineken started a co-creation initiative by inviting a virtual team of 19 up-and-coming designers from all over the world. Also in the food sector, Mondelez International has applied crowdsourcing to innovate the cream cheese Philadelphia brand[31]; in the design sector, an example is Threadless[32]; in the freelancing, Freelancer[33] matches freelancers' solutions with companies' projects, on a contest base, similarly to the Topcoder model (see ► Chap. 4, par. 'The Topcoder

23 ► http://www.businessofgovernment.org/sites/default/files/Engaging%20Citizens%20in%20Co-Creation%20in%20Public%20Service.pdf
24 ► https://www.gofundme.com
25 ► https://www.dhl.com/fr-en/home/insights-and-innovation/innovation/innovation-center.html
26 ► https://www.chillys ► https://www.unilever.com/about/innovation/open-innovation/
27 ► https://www.sephora.fr/huda-beauty/HUDA-HubPage.html
28 ► https://www.nike.com/it/nike-by-you; BMW: ► https://www.bmwgroup.com/en/brands-and-services/mini.html
29 ► https://www.fcagroup.com/it-it/pages/home.aspx
30 ► https://consumervaluecreation.com/2016/02/12/heinekens-open-design-explorations-edition-1-the-club/
31 ► https://www.philadelphia.co.uk/products/philadelphia-sweet/philadelphia-with-milka?p=29806&provider=%7BD193998A-4A6D-4EA5-BAA8-209357B27A09%7D&categoryId=23997
32 ► https://www.threadless.com/make/submit/
33 ► https://www.freelancer.com/

case study'). It covers from professionals in different sectors to developers to marketing experts, passing through designers, to legal consultants and personnel for data entry'. Companies can publish a project and a budget to receive offers from the 'freelancers' and then evaluate them based on price and quality.

5.4.4.3 BU at Micro Level

BU at Micro-Level Phenomena

BU at micro level relates to the individuals and their relationships with other individuals. The key BU expression is represented by User-Generated Content (UGC): feedbacks, ratings, reviews, images, videos, podcasts. Under a sociological perspective, UGC is content produced by an individual but in a relational perspective. In fact, any content posted on the web is there to be read and viewed. It aims to engage other individuals, communities, to obtain any form of acknowledgement; it satisfies that human need of protagonism towards a virtually global audience, which is the internet audience. Reviewing a restaurant is a relationship-oriented act. You do not review for yourself, but to provide advice, to contribute, to share with other people. As in the BU at macro and meso, the creation of social capital is at the base of such a collective action and relationship among individuals and communities. Under this relational perspective, social capital is not owned by the single individual, nor by the collectivity, but it consists of dynamic relationships, as the ones created inside teamworks (Donati, 1991; Donati & Colozzi, 2006; Tilly, 2002). These relationships mediate the bond between the individual and collectivity. Under this light, personal interests and value advantages for social actors must be conceived as shared goods or part of a social capital. In substance, it is important what flows across relationships: inside a review, a feedback, a rating it can be found data, information, ideas, values but also trust, willingness to participate and often, protagonism.

Indeed, it is relevant to highlight the role of context in attributing a meaning to the specific relational good: Citizen Journalism is a form of BU generated content produced in specific contexts: videos or images taken from people witnessing events, in real time, acting like journalists. These news that often become viral, echoed across social media.

It has to be considered that not all UGC are genuine BU. Blogs, Vlogs, Social media pages promoted by influencers may become, apart from transparency regulation, more or less hidden ways to promote brands.

How do organizations embrace CtD phenomena at micro level and translate them into strategies?

A rating of a restaurant may become a customer engagement opportunity to open a conversation with a client, and sharing it with other people; buzz marketing may become another UGC opportunity. Among many examples, Coke is a case in

point. In 2017[34] Coke Australia asked its customers to take pictures of its products and share them from their accounts, creating buzz and exponentially increasing the reach of the brand message. The #shareacoke became a success. Instagram, Facebook, YouTube, TikTok, and Vimeo are constantly source of fresh content, useful when an institution, a brand has to raise awareness or converting people to purchase. Citizen journalism-networked journalism is another example. CNN created the IReport platform, inviting people to post their journalism contents. CNN creates news content that is distributed to their comprehensive audience.

5.4.5 Applying the Social Markers to the Bottom-Up Paradigm

The BU paradigm follows the DTSM principles. We may say it creates a 'BU culture' that is devisable across the social markers we have examined in ► Chap. 3.

1. Community: Social model with *participation and collaboration* from the bottom to generate trust, loyalty, exchange, and engagement. Engaging in a global social cause generates a process of identification between an organization and its stakeholders, building trust, according to the four Trust beliefs (► Chap. 3). People expect organizations to care about them. This is another trust belief, named 'benevolence', showing how the collectivist value that the BU paradigm bears with it is a strong driver of trust.
2. Sustainability: A long-term perspective entails a strong culture of *sustainability.* Making the territory and people grow requires long lead-times. As illustrated in ► Chap. 3, as it often does not bring fast profits, only a social responsibility approach may justify it. The pandemic experience drives growth in long-term effective transformative allyship, moving beyond one-shot actions.
3. Freedom and Responsibility: Valuing *people* more than procedures, putting the social cause as a priority, innovation, especially with a positive social impact versus efficiency; opening to people-driven change from the bottom, these are all BU social markers.
4. Resilience and Agility: Reacting to events from the bottom *with resilience and adaptive* strategies; viral social cause (like the Ice Bucket Challenge) campaigns help organizations test how they are able to respond to social issues.

34 This campaign in Australia was first released in 2011, with updates in 2016 and 2017. ► https://www.coca-colacompany.com/au/faqs/what-was-the-share-a-coke-campaign#:~:text=The%20'Share%20a%20Coke'%20campaign%20first%20launched%20in%20Australia%20in,%E2%80%A6'%20and%20a%20popular%20name. ► https://www.coca-colacompany.com/au/news/share-a-coke-how-the-groundbreaking-campaign-got-its-start-down-under

5. Participation: A crowdsourcing campaign or a co-creation or co-production process is based on and contributes to a Low Power Index mindset, as power is distributed, information circulates and shared, external participation, and decision to processes are stimulated.
6. Data Culture: A high context mindset analyses customers and clients within their context. As BU phenomena are characterized by the digital, it is clear how data and web analytics become strategic to analyse the contexts, that is participants to a social cause activity (geographical and demographical, customer journeys, and digital behavioural data). It is substantially a data-driven organization.
7. Ecosystem: An organization open to *co-creation and co-production* is an informal, destructured organization, shifting towards a networked structure and a dynamic morphology, given the constantly changing borders of a brand community of co-creators.
8. Performance: An *anti-hierarchical* organization ready to open to bottom-up collaboration to reach a better *performance.*
9. Context driven: A BU mindset acknowledges the environment is not controllable, and strategies have to be designed starting from the analysis of the context, which is dynamic. An agile approach to change is part of this mindset. #blacklivesmatter movement built up as a mounting wave and some companies understood the value of its social impact by engaging the cause.
10. Trust driven: User-Generated Content and Customer Experience strategies aim to build conversations to leverage emotions and build trust. They are measured by the web analytics 'sentiment index'.

5.5 Second Paradigm: Connecting the Dots

CtD is the result of the transformative power of digital technologies: in the BtoB sector, acting by the innovation of infrastructures, people, and services networks; in the BtoC sector by improving Customer Experience (CX) via *the transformation of products into platforms of living services and the enrichment of CX into a multiplicity of journeys.*

5.5.1 The Socio-Techno-Economic Context

CtD is quite a complex paradigm, very useful to grasp the 'philosophy' of the digital landscape, though. Steve Jobs, in his well-known speech at Stanford University in 2005, talked about Connecting the dots. However, there had been someone before him who argued about the same concept: he was an engineer and sociologist: Vilfredo Pareto (1935). He explained his concept of 'Instinct of combinations' as a result of the human endeavour towards connecting known elements or facts to generate something new. This intuition comes out to be particularly relevant in the digital ecosystem, where there are an infinite number of dots to

connect to understand processes and phenomena (the *intelligence* process) that multiply at exponential rhythm. The 'Instinct of combinations' establishes relationships between phenomena and actions, objects, similar and opposed elements, contrasting stability and preservation (Pareto, 1935, pp. 305–354). Irrationality, casualty, is the ground of creativity. However, an act of creativity, as a painter's paint, stands alone, it does not have any social impact, it does not ingenerate a substantial change. It is the scalability of it that makes a change. If we scale a creative act, we have innovation. Innovation is creativity at scale. And it changes society, it impacts economy. With this paradigm, we are in front of the creative pattern of the digital landscape: Connecting the dots to create a new pattern and scale it to generate innovation and impact global society. Yes, CtD is the 'king paradigm' of digital innovation. This does not mean at all that the other paradigms do not contribute to innovation: bottom-up, horizontality, and sharing definitely contain co-creation and hybrid innovation models. However, in the CtD paradigm, creativity runs across the texture of the web via connectivity and behind viral pushes.

As we have seen in the Sociology Box 4.4 (► Chap. 4), an intriguing video, to help immerse immediately in the 'philosophy' of this particular paradigm, shows a physics scientist fond of origamis and how he genially applies the art of origami to NASA science, rockets, and physics.[35]

According to this pattern, the CTD mindset thinks differently, that is not only connecting dots, but also in a transdisciplinary way as we saw in ► Chap. 3: connecting biology, economics, sociology, epidemiology, psychology, art, city planning, politics, physics, statistics, and more helps in activating that broad and rich diverse perspectives useful to grasp complex contexts as the digital landscape. Also it helps understanding strategic approaches such as a multimedia in-store experience, where technological dots as an interactive digital screen connect a customer to different information, product options, or purchasing choices; or a customer journey, connecting innumerable touch-points of very different origins such as online or offline, across the behavioural steps, from awareness to loyalty; and more, a multimedia content strategy, connecting content across various media; or a multichannel strategy, connecting different media channels; or under the perspective of web analytics: a marketing manager gains a picture of a brand performance by connecting different analytics and interprets the emerging result; or to a dynamic content strategy, as the connection, always diverse, of promos, coupons offered to a customer according to her or his purchasing context: if it is a cold day, MacDonald offers you a discount on a hot coffee: or, if it is a hot day, a discount on an ice-cream, and, if it is your birthday, it offers you a present.[36]

35 It is a video on the physicist Robert Lang.

36 ► https://www.businessinsider.com/mcdonalds-billboard-gives-out-free-ice-cream-when-weather-is-hot-2015-7?IR=T; I believe that this is the original video and I added an article that describes the promotion as well! ► https://youtu.be/rTkz_fwbH4s/youtu.be/rTkz_fwbH4s

In other words, CtD reflects a lateral thinking pattern[37] according to which a problem is examined under several different perspectives that a mind free from constraints can achieve. This process follows a total deconstruction of the problem to reconstruct it in multiple possibilities offered by chance (Padua, 2012). As seen in ► Chap. 4, a Customer Journey is deeply affected by a casual context or a casual entry point, as an e-commerce web-page where you landed while searching some other items on the web. The entire journey actually may be quite 'relativistic' depending on contexts and different 'entry points'.

To try to synthesize the CtD paradigm, we may say that we are in front of a multidimensional, multi-variable, multidirectional phenomenon.

5

5.5.2 The Impact on Value Chains of a CtD Paradigm

As we have tackled above and highlighted in ► Chap. 4, the CtD paradigm refers to ecosystems, that is systems connected one to the other, characterized by nodes and connections. A system may be a virtual community, a social media, or a Facebook group page of followers within the social media ecosystem (FB). A FB group is connected to many other pages (each participant belongs to other groups in other social media[38]) and the whole social media is connected to other social media (i.e. FB connected to Instagram, Twitter, Linkedin). As highlighted above, according to the theories of complexity (Luhmann, 1995), of social networks (Chiesi, 2003), of social capital (Coleman, 1990; Putnam, 2000), value is not only within the nodes (human nodes, represented by people, or technological nodes, represented by devices or servers) or touchpoints (i.e. a corporate website), but it is also within *what* flows across the connections and is exchanged. Any kind of resource may be exchanged: information, data, decisions, actions, but, relevantly, also emotions, feelings: a key component of customer journeys

37 The well-known scholar Edward De Bono (2016) highlights, in the theory of lateral thinking, how the 'vertical' linearity of a rational process necessarily leads to only one possible reworking of an invention already made. On the contrary, a 'lateral' process starts from examining the problem according to the different perspective that a mind free from constraints can achieve, following a total deconstruction of the problem and a reconstruction of the same in multiple possibilities offered by chance. The psychologist Guilford was the first, towards the mid-twentieth century, to identify the fundamental distinction between intelligence and creativity, asserting that they were two separate and different aspects, according to which an individual can be more intelligent than creative and vice versa. The mindset tending to divergent thinking is opposite to a 'convergent thinking', aimed at a problem-solving approach. From this perspective, rationality is applied according to logical criteria and the related process is carried out without 'leaps'; it is progressive, linear, and reconstructable, comparable to the instrumental rationality of the theory of rational choice. Creativity is, therefore, in the setting of divergent thinking, opposing the standardization of problem-solving models (Guilford, 1977).

38 Georg Simmel, a classic sociology author.

and customer experience. Therefore, a first element of the CtD value is represented by the infinite possibilities to exchange resources.

The second element is innovation, as seen before: creativity takes origin by connecting different nodes and generating innovation. In this sense, we may say that CtD allows the generation of a value which is superior than the sum of each element.[39] We may consider the experience provided by just one touchpoint and the value of a satisfactory experience of a multichannel and multidevice journey: everyday, each of us experience infinite possibilities to design journeys across the offline-online variety of touchpoints, to satisfy our needs. Each of us has become an explorer within the wide array of possibilities provided by the web: just consider the search for information across the multiplicity of sources, or the purchase of an item across the variety of channels, or communicating with a peer, across the multitude of media. Even if AI and machine learning strive to track our habits to offer paths, information, products matching, and anticipating our needs, our counterintuition and our creativity will always overcome any machine. Where is the value in the CtDs paradigm? The interaction is at the base of the value generation; and also diversity; creativity and innovation; subjectivity. After all, and above all, we have always to think that in the CtD paradigm, the principle is: the overall sum is superior than the sum of the single dots, taken separately. The 'put in contact', the exchange, generates a value which is superior, as the School of Gestaldt[40] teaches us.

5.5.3 How to Recognize the Connecting the Dots Paradigm

After having introduced the Connecting the dots paradigm within the basic concept of complexity, we move to a deeper level for the understanding of the paradigm.

The first question is: How to recognize the Connecting the dots paradigm?

The Connecting the dots checklist provides an answer. A Connecting the dots paradigm emerges every time you find:

1. A complex pattern: that is, there are many entry points leading to multiple effects and results. An example is an IOT health tracker product, delivering different services to the user (calories, stress, health parameters) and the possibilities to access it by different entry points: devices, apps, website, etc.
2. A multidimensional structure, with many touch-points and many interfaces, one diverse from the other. An example is a financial ecosystem and the variety of nodes connected to a bank, with its customers, clients, products, data, connected to telecoms, fintechs, clients, IOT devices, utilities.

39 Kohler 1998.

40 Max Wertheimer (1880–1943), Kurt Koffka (1886–1941), and Wolfgang Köhler (1887–1967) founded Gestalt psychology in the early twentieth century.

Table 5.3 The Connecting the dots paradigm at macro, meso, micro

LEVEL	Examples of Socio-techno-economic phenomena	Examples of Strategies
MACRO	Global digital infrastructures, global networks, clouds	Cloud computing, financial ecosystems, smart cities
MESO	Platformisation of products and services, product and services ecosystems; on demand economy	On demand services and products, connected products/services, smart tech, in-store ecosystem experiences, networked platformised products ecosystems
MICRO	Multi- and omni-channel customer behaviour	Customer Journeys

Source: The Author

3. A multidirectional pattern, where many possible journeys, paths, directions, and interactions are viable. An example is a customer journey that is designed differently by the same person depending on the context. For example, music listened via a mobile and shared on the go with a friend versus Alexa at home and music shared in different rooms.
4. Many possible experiences in many contexts. Any design, any composition of nodes of any kind is very subjective, volatile, and depends on the context and the level of its complexity. After having analysed the socio-techno-economic context, the value, and the checklist of the CtDs paradigm, now we move to tackle the macro-meso-micro perspective of analysis as illustrated in Table 5.3.

5.5.4 The Connecting the Dots Paradigm at Macro, Meso, Micro

5.5.4.1 CtD at Macro Level

Macro-Level Phenomena

At macro level, we focus on socio-techno-economic global phenomena. The paradigm of CtD at macro level gathers global digital technological infrastructures, global social networks, and clouds allowing innovation by the connection of nodes of different nature. Connected nodes may be of technological and of human nature. The a major example of connection of technological nodes is the Internet. The global coverage reached allows us to position the Internet as the global web connecting the world. The internet represents an infrastructural base for many BtoB networks of different origin. They are technological networks providing a digital coverage, that is connectivity, around most regions of our globe. Unfortunately, these highly empowering infrastructures do not cover our entire globe evenly and

several regions are excluded by huge sources of information in all domains and opportunities of education. Social networks such as Facebook, Twitter, Linkedin, Instagram, and Tik Tok, connect nodes of different nature as humans and contents. Except for countries censoring social networks, they connect people and societies, communities around the world. We have already discussed the multidimensional, multi-variable, multidirectional characters of these phenomena (► Chap. 4).

How organizations embrace CtD phenomena at macro level and translate them into strategies?

5G Providers Luca Tomassini Founder, Chairman, and CEO of Quibyt, a leading company in digital innovation, digital services, applications, and broadband solutions, argues that 5G technological infrastructures, allowing to connect simultaneously and with great stability billion of systems and devices, will become a leap forward in digital infrastructures. 5G will revolutionize the signal power, speed, stability and reliability of the connection allowing a diffused IOT, supporting the planning of cutting edge smart cities, and highly complex networks. In the health sector, distance diagnostics and remote surgery will become a diffused reality, leveraging the higher number of connected devices. The three bandwidth system due to its power and speed will be more pervasive and will connect faster and more effectively the ecosystem's nodes. Real time is at hand. Besides, thanks to the efficiency of the 5G network, polluting emissions will decrease, currently generated by the mobile telecommunication systems (Tomassini, 2020). However, with the 5G three-level bandwidth, an upgrade of the web infrastructure will be required.[41] Tech giants such as the Chinese technology company Huawei, Finland's Nokia, and Sweden's Ericsson are to build fifth-generation technology (5G) networks which are expected to power everything from high-speed video transmissions to self-driving cars. 5G has not exploded yet and already 6G next generation is on the rack. Still according to Luca Tomassini, the South-Korean Samsung, leader in high-tech innovation, is implementing a wireless technology supported by artificial intelligence, to optimize consumption and energy needs. AI would take part in the design itself of the system. 6G will allow to make a virtual double of ourself, a real digital replica. Through sensors, AI, and advanced communication technologies, producers are thinking to create a 'virtual twin' of persons, devices, objects, systems, and spaces. The 6G environment will defi-

41 Tomassini L., Il grande salto. L'uomo, il digitale e la più importante evoluzione della nostra storia. [tr.: The Big Leap. The Human, the Digital, and the most important evolution of our history], LUISS University Press, Rome 2020, pp. 161–163. «5G will leverage a three bandwidth system. The first is the same used by 4G. The middle bandwidth on which 5G will work, lower than 1 GHz (the Hertz is the International Measurement System unit of frequency), will have more obstacles in diffusion versus the 1 GHz, as, having 'smaller' radio waves it will slow down when crossing physical obstacles. In return, it will be faster. In the third level, the bandwidth will be higher and faster (up to 300 GHz) and it will be here that 5G will impact more; it is here that, as a paradox, its pervasiveness will be. And its innovation. Speed up to 10Gb/ps and a URLLC (Ultra-Reliable Low-Latency Communication), that is, at extremely low latency (latency is the time a wireless signal takes, from a device, to reach another device). Real time is at a hand. […] But given the physical obstacles, it will be necessary to build many small cells distributed across the territory»

nitely disrupt space-time. Via highly sophisticated holograms, digital interaction will turn back to be somehow…physical'.[42] Among Samsung Leading Innovations showed in its Web Newsroom, there is '5G and beyond'.[43]

Wired and Wireless LAN Accesses Providers DYXnet's is a global network infrastructure[44] that leverages Juniper Networks' advanced equipment to scale its backbone connections and meet bandwidth-intensive demands of its global clients. With enhanced backbone functionality, scalability, stability, manageability, and fault tolerance, it integrates the state-of-the-art Internet Data Centres and a meshed network of POPs.

5

Connecting Financial Regulators and Related Organizations In the financial domain, Global Financial networks introduce examples of CtD. *GFIN The Global Financial Innovation Network (GFIN)*[45] is the international network of financial regulators and related organizations committed to supporting financial innovation in the best interests of consumers. Formally launched in January 2019 by an international group of financial regulators and related organizations, it seeks to provide a more efficient way for innovative firms to interact with regulators, helping them navigate between countries as they look to scale new ideas. This includes the ability to apply to join a pilot for firms wishing to test innovative products, services, or business models across more than one jurisdiction. The GFIN also aims to create a new framework for cooperation between financial services regulators on innovation related topics, sharing different experiences and approaches.

Connecting Global Cities New York, London, Paris, Tokyo, Hong Kong, and Singapore, appear to be the most connected cities in the world.[46] A global city works as a primary node in the global economic network, in terms of finance, trade, and mobility. It connects via IOT civil servants, residents, and students to smart services such as transportation, health, education, to next-gen infrastructures, to digital enabling levers. These networks, in turn, connect and generate an IOT-based digital city eco-system. Capital Tower[47] is an example of smart building connected to a smart city, Singapore.[48] Capital Tower has different intelligent energy efficiency systems with an energy recovery wheel system in its air conditioning unit. To reduce water usage, it uses condensation from the air handling unit. Motion detectors

42 Tomassini, 2020, p. 158.
43 ► news.samsung.com/global/fast-facts
44 ► https://dyxnet.com/company/Global+Network+Infrastructure?pid=14
45 ► https://www.thegfin.com/
46 The ► World According to GaWC 2020 was compiled by looking at the size and function of the offices of large management consultancies, law firms, accountants, financial services, and advertisers based in each city. Access at ► https://www.lboro.ac.uk/news-events/news/2020/august/london-new-york-most-connected-cities-in-the-world/, ► IESE Cities in Motion Index 2020 see ► https://www.forbes.com/sites/iese/2020/07/08/these-are-the-10-smartest-cities-in-the-world-for-2020/?sh=57231eee12af, Global Power City index av. at ► http://mori-m-foundation.or.jp/english/ius2/gpci2/index.shtml
47 ► https://www.wurkspace7.com.au/blog/intelligent-offices-capital-tower
48 ► https://www.weforum.org/agenda/2019/11/singapore-smart-city

installed at the lift lobby and toilets conserve energy and double-glazed glass windows reduce heat penetration and minimize energy consumption. The life of the citizens in Singapore is inextricably intertwined with the use of technology in every single action of the day: healthcare ecosystem; access to free public housing; public transportation system; government apps; cashless payment system.

An innovative example is Planet Smart City.[49] Planet Smart City is a model for Smart City where the CtD emerges from various sides. It shows a complex pattern: it is a technological system, a social innovation plan, based on planning, architecture, and environment. It has a multidimensional pattern: apps, SOS devices, information totem, free wi-fi system, shared spaces, innovation hubs, etc. It is also multidirectional, showing smart housing, social housing, urban regeneration, sustainable development. It allows any citizen many possible experiences: environmental sustainability (e.g. clean water, sanitation, affordable energy, smart agriculture), partnerships, quality education, reduced inequalities, gender equality, communities, etc.

Another innovative example is a project named Urban Rigger.[50] The Urban Rigger housing unit is a unique, design protected, patented, floating, flexible, energy efficient, and mobile property solution to build new smart inhabitative areas. Its concept is modular and uses the additional building principles for connectivity to achieve unprecedented flexibility in the floating elements, so that the concept can easily be assembled in floating apartment blocks of varying size as needed and desired. Modularity replicates the 'fractal' pattern that is typical of the digital philosophy: create a module and scale it!

Urban Rigger solves space issues with a complex and multidimensional pattern covering sustainability, affordability, innovative architecture, cohabitation, and durability. It features solar panels, hydro sorge heating system, ventilation, wastewater, easy location, relocation. And it is multidirectional, transferrable across similar buildings worldwide, different sustainable life style, community, improvement of urbanization system.

Now that we have analysed some example at macro level, we may move to the second level, CtD at meso.

5.5.4.2 CtD at Meso Level

The Socio-Techno-Economic Phenomenon

The paradigm of CtD at meso level focuses on organizations. Three are the phenomena emerging at a meso level:

1. Platformization of products: This phenomenon reflects the dematerialization trend transforming tangible products into intangible services. Physical products and services transform into service ecosystems because of several reasons: the increasing pervasiveness of the IOT technology, connecting objects via sensors, the demand for rich and quality experiences, the change of perceptions and behaviours of consumers. It is no longer important only what is sold to the final

49 ► https://www.planetsmartcity.com
50 ► https://www.urbanrigger.com/

consumer, but everything that revolves around the product or service itself and the entire flow of connections that are created. Products tend to evolve and transform into integrated systems that pass through the different stages of experience: from commodity to goods, to services, to experience. For example, coffee beans are the raw material, that is the commodity, the packaging of ground coffee is the good, a normal cup of coffee is a service, Starbucks coffee is an experience.

2. On-demand products and services: The on-demand economy is changing production, sales, fruition models, that is society and economy. The shift from consumption to fruition meant as a shift from 'consumerism' to new sustainable consumption models stems from a change of individuals' behaviours and society values, pushing towards re-usage of goods, less waste, less energy consumption: the 'on-demand' model is a sustainable model, aligned on the new values of the digital era of respect for the planet's resources. An example is car sharing, where the usage of a same vehicle by several people limits traffic, for example, or AirBnB that optimizes the use of empty houses. Consumption, instead, connects one vehicle to one person and leaves it unused for substantial longer times. The car, then, is sold within shorter lead times. Consumption has short lead times; fruition is a no-waste, long-term usage and part of the digital sustainable philosophy of the DTSM.

How do organizations embrace CtD at meso-level phenomena and translate them into strategies?

When we talk about on-demand services, connecting preferred dots among a variety of possible dots, Netflix is a valuable example. Netflix uses machine learning to help shape its catalogue of movies and TV shows by learning characteristics that make their content successful. Netflix original productions and TV shows further enrich the widest offer of quality home entertainment. The possibility to download movies and tv series, personalized contents, and suggestions for every user via the use of big data customization provides the viewer with a smooth and pleasant experience. Teleparty is a way to watch TV with friends online. It is an additional Netflix feature offering the possibility to interact with other profiles and share the vision of a movie or TV series, thanks to an algorithm that creates a link automatically, connecting all profiles. The multidimensionality of the offer, the multiplicity of access points (i.e. starting from movies and tv-shows ranking, 'selected for you', for the family), and multidirectionality make Netflix a benchmark.

Also Uber[51] is a very interesting case. Certainly, it shows a complex pattern given the wide and diversified offer: vehicles for hire, food delivery, packages delivery, air transport. It is multidimensional: app, drivers, cars/bikes, restaurants; multidirectional: filling gaps in transit, providing more transit options, sustainability (electric vehicles). And, finally, it offers many possible experiences: work meals,

51 ► https://www.uber.com/it/en/

employee rides, and courtesy rides. It is not one car for just one person, as we were observing above, when talking about fruition.

Also Spotify is another good example, seeing as it leveraged the same Long Tail model (Anderson, 2008), providing the user with any possibility to personalize the product, a wide variety of music, and multidimensional/directional connections.

Also *SaaS (Software as a service), PaaS (Platforms as a service), IaaS (Infrastructure as a Service)* represent interesting cases.[52] These three forms of on-demand service work with *Cloud Computing*. Cloud Computing connects files, websites, documents, servers, and users: even though it may be configured as a CtD macro-level case, given the potential global coverage, it positions also well at meso level, performing an on-demand pattern, connecting with individuals. Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services). The 'on demand', the 'AAS' (as a service) pattern is at the core of the Connecting the dots, which subjectively allows to design BtoB and BtoC journeys. Dropbox and Gmail Drive are both examples of on-demand network accesses allowing files storage. Google Drive connects people, allowing users to store files by their own device and also share their files with other users. As people can also work simultaneously with other people in shared documents, cloud computing proves to be an excellent resource for remote teamworking. Social Networking platforms as FB require a powerful hosting to manage and store data in real-time. Cloud-based communication provides click-to-call capabilities from social networking sites, access to the Instant messaging system. Evidently, the dots-nodes put into connection are social networking sites, documents, servers, and users.

Many are the cloud brands as Cisco.[53] TIBCO Cloud,[54] accessible from any device, connecting over 200 platforms, establishes an agile information landscape (an ecosystem), connecting Business Applications quickly, while integrating applications and other features. Also Smart Manufacturing Siemens[55] focuses on the digitalization of productive processes through the use of a cloud-based software called Mindsphere. It offers automation technologies and services for the product lifecycle. Through Mindsphere, workers are able to connect factory machinery in just one minute, increasing productivity and efficiency. Other examples are Adobe Creative Cloud,[56] IBM Cloud, which provides many digital journeys, based on different kinds of Cloud services, matching different customer's needs: Iaas

52 SaaS (Software as a Service) is a cloud-based service where you can access an application via an internet browser, without having to download software to your desktop PC or business network.
IaaS (Infrastructure as a Service) self-service models for accessing, monitoring, and managing remote datacenter infrastructures, such as compute (virtualized or bare metal), storage, networking, and networking services (e.g. firewalls). Cloud platform services, or Platform as a Service (PaaS), are used for applications, and other development, while providing cloud components to software.

53 ► https://www.cisco.com/c/en/us/index.html

54 ► https://www.tibco.com/products/cloud-integration

55 *Siemens Mindsphere* ► https://sie.ag/32KoQv2

56 ► https://www.adobe.com/it/creativecloud.html

(Infrastucture as a Service) in which the vendor provides many resources for storage, data service, and other ones for the Cloud; Paas (Platform as a Service) in which users can develop and distribute apps; Saas (Software as a Service) in which users can access apps and different softwares through the Internet.

Connecting via *IOT cars: Tesla* Autopilot[57] is a good example. Tesla technology creates connected vehicles that are intelligent. They exchange and receive data from the real world through sensors, a radar, different cameras, ultrasound, a sonar, and a GPS. Data intelligence and analysis is very efficient. The AI-based autopilot works as a neural network, like an artificial brain, that allows the car to steer, accelerate, to curb, etc.

Another example of product ecosystem is Moleskine Smart Notebook.[58] Here, CtD connects *thoughts, ideas, and projects.* The smart technology gives the opportunity to create and share written thoughts, ideas, and projects with any person. Written pages will be directly shared on the app, tablet, Smartphone, and PC.

Also a series of videogames as Tomb Raider transformed into a platform, on which other products, media, and channels have been connected, provides a rich, diversified, multichannel, multimedia experience. It allows the user to design multiple journeys across TV series, comics, books, and movies. We will bring similar examples when we will tackle convergence in the horizontality paradigm. As said, any phenomenon on the web has to be analysed in a relativistic way, where more perspectives are equally valid and all of them have to be considered in a holistic way to understand the phenomenon.

Smartbox, as a platformized product, is another interesting example. We have many entry points: we can learn about smartbox through Instagram, the website (where we can visualize the catalogue and buy a smartbox), the app, or in the shops (libraries, smartbox shops, etc.). We also have many touchpoints. For example, once we have bought a smartbox, we can read the barcode (that is behind every smartbox) with our smartphone, through the app, and visualize the offer of our smartbox. The app has different functions: other touchpoints create the possibility to make reservations (get in touch with the facility), check availability, and so on. A Smartbox offers many possible journeys. It offers more than 100.000 experiences, so the possibility to choose among many restaurants, hotels, places, and so on. The customer may reserve, cancel, change his reservation, just take a look, and visualize other user's reviews. We can use the app to arrange travel plans, reserve, cancel, and modify the reservation wherever we are and at any time we want.

Apple Watch Series 6[59] is another example showing several possibilities to customize the journey and to have many experiences, given the intelligent connection of the watch to your phone and pc, which constantly exchanges information with the external environment. Data and information are received by the provider (Apple) and other companies as well, using them to predict behaviours.

57 ► https://www.tesla.com/it_IT/autopilotAI
58 ► https://it.moleskine.com/smart-notebooks-andplanners
59 ► https://www.apple.com/it/apple-watch-series-6/

CtD Has Several Applications in Domotics as Well IOT allows to connect water and gas metering, lighting, heating, objects, transforming simple objects into living appliances. Smart home Samsung[60] shows a complex pattern: a person can connect and control inside or outside home lights, refrigerators, radiators, and other appliances within the house from a tablet, smartphone, PC, or smartwatch. It is multidimensional: thanks to the Smart Consumer Service and the customized device control, a person can control one or more appliances of Smart Home with an integrated app, even by using the voice recognition; it is multidirectional: you can start from connecting your smartphone to your smart-TV to reproduce your favourite movie or you can start from your smartwatch; many possible experiences in many contexts may be made: when the person is not in, he or she can get real-time view of their own house thanks to the cameras, or can also enjoy the comforts when she/he is at home, for example by turning up and down the volume of the favourite radio station thanks to the voice command.

There are many other examples, from Nest App[61] to control thermostat, alarm system from all your devices. Dyson Pure Humidify+Cool,[62] an innovative and design brand of air purifier and humidifier allows the user to connect to the product-service via the Dyson Link app, through which you can activate, schedule, and monitor your device. The multidimensional variety of services, different journeys according to the needs, allows a rich and positive customer experience.

Also Crowdsourcing Platforms Perform CtD, via Connecting Ideas SlideRocket[63] is a platform that students can use to build presentations, submit, and share them. Students can even present them through web conferencing on the cloud. Kickstarter,[64] the crowdfunding platform, has a complex pattern: creators share new visions for creative work with the communities that will come together to fund them; it is multidimensional: every person can participate in creating or developing the product. It is possible to leave your own feedback via website or application. It is an ecosystem with its' own rules, participants, magazine, and courses; it is also multidirectional as you can choose different sections, collections, and categories for sharing or following the project. In sum, many possible experiences in many contexts. Another case is Ideaginger: you can be creator, founder, collaborator, or patron at the same time in one or more projects. ► https://www.ideaginger.it/

CtD Connects Competences and Professionalities 99Designs[65] provides a flexible and dedicated group of designers which extend the capacity of your in-house team. 99Designs is a global creative platform that helps designers and clients to work together to create designs. Designers collaborate to create logos, business cards, t-shirts, websites, and other things. They can introduce their project into the platform and cus-

60 ► https://www.samsung.com/us/smartthings/?awc=18739_1605382200_03a8c012cf0b5bd497ecd3f85c282c80
61 ► https://home.nest.com/,
62 ► https://bit.ly/3ntEnX
63 ► https://www.clearslide.com/product/sliderocket/
64 ► https://www.kickstarter.com/
65 ► https://99designs.it

tomers can see them and choose the professional more suitable for their projects. Customers can also create competitions for choosing best designer for their briefs.

5.5.4.3 CtD at Micro Level

The Socio-Techno-Economic Phenomenon

In ► Chap. 4, we have illustrated the complexity of the different journeys and the resulting ecosystem structure. Digital technology, in terms of media and channels, is at the base of it. The economic dimension refers to the economic value generated by the impact on institutions. The examples brought below clearly evidence such an impact. Under a sociological perspective, at micro level, the CtD paradigm essentially refers to an individual's complex behaviour on the web expressed by the multi- and omnichannel customer journey. It is a constant and dynamic connecting of dots, where media allow relationships across different channels (i.e. social media accessed by different devices to access contents and share them with other people). The individual on the web is constantly in relationship with other actors: s/he is a social actor. In sociology, the network analysis reconnects directly to the sociological tradition of Georg Simmel and L. Von Wiese, who consider social relationships and the systems of interdependence as the object of study of sociology, concretely active in specific social spaces. The object of the analysis, then, is the 'interacting agent' that acts, produces, and reproduces by action the system of interdependence of which it is part. CtD is a representation of the social dimension adequate to understand a reality that is more and more relational and always less describable as a coherent system made of hierarchically ordered parts and subsystems (Di Nicola, 2015). In network analysis, the network becomes a metaphor of belonging in complex societies, a pivot for processes of construction of identity. This representation of the social brings back the sociological issue we have tackled above about the relationship between micro and macro (Bouvier, 2011) and of an holistic perspective versus an individualistic one (Boudon, 2005; Durkheim, 1893; Weber, 2002). The structural principles of the various 'shapes' of reciprocal action (i.e. a review on a restaurant by a client and the answer by the restaurant owner; a like on an Instagram picture posted by a friend and a like by a follower), in the sociology of Georg Simmel, appear an interesting way to explain society on the web via the following elements: (a) *duality*: every 'shape' is originated from the meeting of opposites, opposite tendencies: balance/disruption of balance; stabilization/destabilization; integration/conflict; compulsion/freedom; domain/subordination; (b) *space*: spatial dimension of social shapes: approaching/distancing, internal/external; empty/full; (c) *number*: the number of elements (nodes) in the forms of associations is directly proportional to the grade of abstraction and depersonalization of social relationships on the web (quite a shared thought); so, the number of associations becomes a meter of a society culture; (d) *time*: processes of acceleration/slowing down the rhythms of social transformation. (Simmel, 1908).

After reading these points, think how they may apply to UGC and the relationships of individuals on social media, within communities and brand-stakeholders relationships.

Below, some cases are indicated:

How organizations embrace CtD at meso-level phenomena and translate them into strategies?

Connecting Experiences, touch points through the Customer Journey. The omnichannel behaviour.

Disney[66] is a brand that makes it easy for consumers to feel a connection. The company is built around imagination and creation, so it is no surprise that they are leading the way in the realm of omnichannel marketing. By applying the CtD Checklist, multidimensionality, and multidirectionality, the richness of entry points is demonstrated by its features: once you've booked a trip, you can use 'My Disney Experience' tool to plan your entire trip; at the park, you can use your mobile app to locate the attractions you want to see, as well as view the estimated wait time for each of them. You can use MagicBand or Card, a device that allows you to access the plans you've made with My Disney Experience. It can be used as hotel room key, as photo storage device for pictures taken of you with Disney characters (Disney PhotoPass Service), or as a food ordering tool. You can use it also for check-in at FastPass and entrances.

Other cases, in different environments, are represented by in-store Customer Journeys (CJs), connecting two different ecosystems: the online system with the offline system: Amazon Go[67] is an interesting example. Amazon Go is a new type of store with an instant checkout payment system. This advanced grocery shopping technology provides customers with a streamlined pleasant grocery purchase experience which avoids payment queues and allows customers to save time. Through the Amazon Go app, the customer authenticates and enters the store, chooses the products, and simply takes them out, without experiencing the annoying and time-consuming payment step at the cashier. A machine learning, computer vision, and artificial intelligence technology replace the presence of shop assistants within the shops. The store cameras will never lose sight of registered customers, accurately following their actions and recording every merchandise taken off the shelf. AI will track your purchasing history to predict your buying preferences and augment in-store collected data. Online and offline touchpoints allow different CJs and relationship building, also between human and technology.

CtD May Connect Also Health and Wellness Parameters Smart Mi Band[68] has a complex pattern: 24-hours monitoring of your physical activity, sleeping, heart rate in real time; on the basis of the data, you have 3 health models that help you to improve your health. Complying with the CTD checklist, it is multidimensional: Mi Fit app controls your daily health data in real time connecting with your smartphone or computer. You can share your data with friends or with your doctor. It is also multidirectional: the band can monitor and analyse all types of functional activities

66 ► www.disneyworld.eu
67 ► https://www.aboutamazon.it/innovazioni/amazon-go
68 ► https://www.mi.com/it/mi-smart-band-5

to help you reach your wellness goals; you can make photos remotely with a single click; control your calls, messages, or music being physically distant from your smartphone. Many experiences are viable: personal activity intelligence (on the basis of your data), stress control, women's health, and period tracking.

Another example in the same sector is Nike Run Club[69] that connects different parameters as pace, position, distance, elevation gain, heart rate, and split times in stats provided in the app. What is the value generated? Inspiration and motivation needed to improve as an athlete; performance by concentration of body and mind; a connection with a community to share your experience; a personalized Nike Coach and training programme. It is a relevant value.

CtD Is Also Connecting Contents Flickr[70] is an online photo management and sharing application for both professional and amateur photographers; it helps all users to make their photos available to selected people; it enables new ways of organizing photos and videos. Google Photos[71] is a service offered by Google that provides a personal library to store photos and videos from a device or Google Drive. It supports all major photo and video formats currently present.

In-store Multimedia may represent an explosion of dots and possibilities to experience differently a traditional store touch-point. Sephora online-offline experience is a case in point. Sephora[72] has been one of the first brands in United States to welcome the use of mobiles inside a store. Social media, mobile marketing, and in-store digital are three strategies that have been leveraged to build a positive Sephora experience that allows the customer to move from Google Inventory ads to find a product to Sephora app to scan products, to rating and reviews, to past purchase history replenishment to touchscreens.

In mobility, Waze[73] is a GPS navigation software app and a subsidiary of Google. It works on smartphones and tablet computers that have GPS support. It provides turn-by-turn navigation information and user-submitted travel times and route details, while downloading location-dependent information over a mobile telephone network. Waze describes its app as a community-driven GPS navigation app which is free to download and use. It is another example of subjective connection of dots of different nature.

69 ► https://www.nike.com/it/nrc-app
70 ► https://www.flickr.com
71 ► https://photos.google.com/
72 The video 'Sephora Turns Smartphones Into Local Store Magnets' shows all the dots which are connected in the store eco-system.
73 ► https://www.waze.com/

5.5.5 Applying the Social Markers to the CtD Paradigm

The CtD paradigm designs a specific culture. Below, the social markers we have listed and analysed in ► Chap. 3 are illustrated under the CtD perspective.

1. Community: As from the sociological notion of Social Capital (Putnam, Coleman) interdependence among diverse people, communities, groups is a source of value. Social networks, clouds, facilitate connections among people and exchange of resources in the form of contents and emotions: the irrational side of the relationship among two entities is at the base of trust.[74] Connection means exchange and participation, representing an opportunity of customer engagement and collaborative models for companies. Within collectivism, multidimensionality means richness of diverse nodes as the Customer Journey touch points, technological nodes, individuals and virtual communities belonging to a techno-social network.
2. Sustainability: A CtD social mindset generates value by promoting a culture of sustainability across the organization based on connections to the territory and people of the planet and embracing social causes. This is a strategy that takes time and has to be embedded across the entire organization.
3. Freedom and Responsibility: Connect to people to support their need to voice global issues and embrace their social causes. Merge ecosystems of services, platformized products to individuals' changing needs to improve their lives. Care about people and their lives.
4. Resilience & Agility: Context is made of dynamic variables connecting in constantly changing way: customer journeys demonstrate it. Complexity, multidimensionality, and multidirectionality are key features of complex ecosystems like clouds or an omnichannel music experience.
5. Participation: In networked, platformized organizations, information circulates, power is distributed. Participation in decisions and evaluating processes come from various 'dots', that is, stakeholders at large.
6. Data Culture: Any CtD strategy as embracing global social causes, clouds, on-demand services, and customer journeys are based on data.
7. Ecosystem: CtD founds itself on networks and dynamic ecosystems, which are destructured, multidimensional, and multidirectional.
8. Performance: A multidimensional structure (i.e. organisational) with diffused power follows a performance and meritocratic approach.
9. Data Driven: Complexity leads to the acknowledgement that the context is not controllable and has to be constantly analysed, as in customer journeys. A data-based dynamic analysis of the context, by connecting its variables is required.
10. Trust driven: Sentiment is valued by connecting emotions of each single individual. It is at the base of trust, regulating exchanges in a connected social network.

74 Padua, 2012

5.6 Third Paradigm: Horizontality

To design the horizontality paradigm, following the same pattern of previous paradigms descriptions, we start from illustrating the context where the paradigm emerges. There are some phenomena that highlight how social, technological, and economic patterns are turning from a vertical into horizontal models. Obviously, horizontality is a 'fictitious' device which tries to stigmatize a very complex and multidimensional revolution occurring across human, technological, and economic realms. However, its value lies in the special perspective that it provides to the C-Suite, professional, scholar, or student. As we will see in next ► Chap. 6, this paradigm holistically contributes, together with the other paradigms, to the understanding of phenomena, each of them providing a different partial standpoint of the extremely complex online-offline environment. Only the four paradigms, altogether, may provide an opportunity to embrace a holistic perspective of the digital transformation and of its mindsets.

5.6.1 The Socio-Techno-Economic Context

The Horizontality paradigm emerges from four key phenomena, as synthetically described below:

- The pervasiveness of digital technologies puts social networks at the centre of new social models with fast interaction and high-speed communication, shaping a new 'horizontal society'. Easy access and constant connection empowers peer-to-peer relationships. Network relations oppose to linearity and verticality.
- The creation of horizontal value chains based on peer-to-peer sharing and on the production and control of information is not governable by traditional top-down value chains.
- The exponential increase of global competition and the disruption of new competitive models as digital platforms force organizations to evolve their vertical top-down structures, their vertical power, and control systems into horizontal, network, and hivenet organizational models.
- Speed of viral contagiousness fuelled by connectivity, pervasively spreading on 'the surface' through all connected ecosystems.

These phenomena imply that knowledge develops more 'on the surface' than according to mainstream vertical traditional patterns, the latter based on *depth* rather than *superficiality*. Main reason for this is the high speed on which we receive massive amount of information, that does not leave us time to absorb it and provide depth; the speed of communication, contacts, exchanges between humans does not leave time-leads to manage relationships, following the rhythms of the pre-digital era, often excluding time to go 'in depth' into them. We already discussed how relationships tend to become fluid, fast, hybrid, in one word, as Z. Bauman says, they are liquid (Bauman, 2000).

Below, we ask ourselves how horizontality may represent a paradigm, and how embedding this paradigm in institutions' strategies and business models may lead to a successful Digital Transformation process, namely, a DTSM. We are also going to design the key features of this paradigm, what are its impacts on value generation, and how to recognize the Horizontality paradigm.

5.6.2 The Impact on Value Chains of the Horizontal Paradigm

What is relevant to our reflection is the value generated by a core feature of the horizontal paradigm: transmediality and convergence (Jenkins & Deuze, 2008). Transmediality, favoured by the proliferation of media across the digital landscape, is a phenomenon which is not media-specific and therefore can be realized by a large number of different media. Each media adds an enrichment, an integration to the user experience. 'Lost', the well-known drama Tv series, is an interesting example. We may say its mainstream story 'extends', in a 'horizontal' way, by transforming itself into a *platformized product*. The main TV story experience is enriched by an alternate reality game, where users can experience the story in an immersive way, books, podcasts, a video game for game consoles, games for mobile phones, and ► iPods. These additional experiences add new information and elements to understand the story under a different aspect and providing a holistic approach. In relation to this, another dimension of value generation of transmediality is 'transmedia storytelling'. Here, value is within the holistic experience gained through the possibility to experience the content via different media that stimulate different senses, elicits different emotions, allow the player to live different contexts, and gain new perspectives about the story. This generates a richer experience, more emotional to the user.

Another aspect, tightly related to the platform, is value generation. Within the value cycle of platforms, stories contribute to increase the number of users, that, in turn increase app developers. But if more apps are created, more users will use the platform. So, it is a circular multisided market logic that feeds value generation.

5.6.3 How to Recognize the Horizontality Paradigm

To answer to this question, a checklist is provided below. Anytime you find the following features, even just one, you are in a case of horizontality.

1. Disintermediated: immediate and direct access for all: no mediation of teachers, publishers, journalists, opinion makers, booksellers, librarians, shop assistants, etc.
2. Convergent, integrated: it integrates different media.
3. Hybrid, Trans-, inter-, multi-, omni-, meshing, flat, etc. Any of these prefix or terms indicate that we are in front of a horizontal paradigm case.
4. Peer-to-peer, no hierarchies, all empowered, people, roles, positions are on a same level.

5. Collective intelligence: in the wisdom of crowds (Surowiecki, 2004), people of a large group solve issues and provide new intuitions enabling or giving origin to new processes, in other words, there is a 'Distributed intelligence'[75] (Lévy, 1999). In the horizontal paradigm, it evidences the lack of hierarchies and the participation of all members at the same level.

Notably, the above list is not exhaustive, as the digital landscape is in constant innovation and new forms of horizontality may emerge over time.

Following other paradigms' descriptions, to go in depth into the Horizontal paradigm, below, we analyse it at macro, meso, and micro levels.

At macro level, the paradigm becomes evident, for instance, in trans-media patterns, cross-competition models, markets convergence, and hybrid technology (Boccia Artieri, 2012, p. 24). Amazon, IBM-Apple-Google, hybrid automotive and watch brands, smart TV brands, transmedia music are cases in point.

At meso level, the digital and its transformative forces, its external and internal challenges to organizations have affected organizational structures, pushing them towards horizontal morphologies and hybrid profiles. Digital native companies, instead, like Topcoder or DNVB as Bonobos or Glossier, bear horizontality at their core, mostly covering the entire checklist items: they have a producer to consumer direct model; they leverage multimedia and transmedia digital strategies; their organizational structures are flexible, agile, given their team-worked structure, where information circulates; they engage with people and crowds. Horizontality clearly emerges also with any crowdsourcing platformized organization: companies, such as Technogym, Huawei, Nike, Sky, Facebook, represent cases in point of horizontality.

At micro level, horizontality clearly emerges via the peer-to-peer format and within unstructured communities, where there are no hierarchies. Barista, Mumsnet are cases in point within a wide variety of cases.

Let us go now a bit more in depth with the analysis of each level (◘ Table 5.4).

5.6.4 The Horizontality Paradigm at Macro, Meso, Micro

5.6.4.1 Horizontality at Macro Level

Macro-Level Socio-Techno-Economic Phenomena

Transmediality The proliferation of different global systems of media platforms, for example, social media, (and of touch points across customer journeys) favours the transmission of similar contents across various modes of media (► Chap. 4). As in the CtD paradigm, a transmedial phenomenon origin is non-media specific.[76] Henry Jenkins, in his well-known 'Transmedia storytelling',[77] described phenomena disen-

75 «Collective intelligence is a pervasively distributed intelligence, constantly enhanced, real time coordinated, leading to a real mobilization of competences» (Lévy, 1999)

76 An intermedial phenomenon has a clear origin medium, while a transmedial phenomenon does not, it is non-media specific (Rajewsky, 2002).

77 Henry Jenkins in his 'Transmedia Storytelling' maintains that they are 'phenomena which are non-media specific, meaning not connected to a specific medium, and can therefore be realized in

Table 5.4 The Horizontal paradigm at macro, meso, micro

LEVEL	Examples of Socio-techno-economic phenomena	Examples of Strategies
MACRO	Trans-mediality patterns, markets convergence, hybrid technology, cross-competition	Transmedia storytelling, hybrid technology product development; brands transmediality, DNVB (Digital Native Vertical Brands)
MESO	Flat organisations, teamworks, hybrid profiles, co-petition	Horizontal organisations, hybrid organisational profiles, cross functional teams and profiles, co-petition models
MICRO	P-to-P communities	Communities' brand engagement, influencer mktg, SM strategies, social learning

Source: The Author

gaged from media, flowing across them without any adaptation (Rajewsky, 2002). In other words, it represents a unified experience across multiple delivery channels. Thus, we may say that transmediality is a case of horizontality occurring when a same message or conversation crosses 'horizontally' many places, many situations, many channels, while remaining the same, and being indifferent to the various media. In transmediality, content, being indifferent to media, prevails over them, putting them at a secondary level and forcing them to become almost irrelevant one to the other. In other words, media borders tend to blur and appear to integrate into one multifaceted hybrid, integrated, *seamless* medium. Interestingly, a same integration reflects into the transdisciplinarity of the studies run on the topic: transmedia becomes a same ground for different sciences: Media Studies, Narratology, Visual Arts, Marketing, Comparative Literature, Semiotics, Theatre and Performance Studies, Game Studies, Sociology, etc. (Sánchez-Mesa et al., 2016). In synthesis, we are in front of a multiplatform and widely distributed story creation, production, and participation-based process enabled by transmediality.

Hybrid Technology, Markets Convergence With the introduction of the digitalization of telecommunications and the growth of different devices, multitasking technologies have allowed the integration of different media as the Internet, radio, tv, and much more. This integration has been accompanied by a hybridization of different tools, allowing the same content to flow across different platforms[78] and leading to

a large number of different media, such as literature, art, film, or music'.

78 By the term convergence, Henry Jenkins means the flow of content across multiple platforms, the cooperation between multiple sectors of the media industry and the migration of audiences in the

the convergence of different media within a same platform, as smart TVs, for example, are able to. Nowadays, the process of convergence, theorized by the sociologist Manuel Castells, is becoming pervasive. Behind the 'hybrid' model, there is a dynamic process, an evolution, and a change. Hybrid is a pattern we find in different sectors, from entertainment to food. For instance, the hybrid automotive sector is the result of the convergence of two fuel markets: gas and electricity; or smart tv, integrating the internet with cable tv; or hybrid smartwatches, looking like a traditional watch, but functioning like a smartwatch.

Cross-Competition Models In traditional markets, the competition model was restricted mostly to a same industry: for instance, food, insurance, apparel; each of these markets represented a single competitive arena. This pattern may be stigmatized as a vertical competitive model, developed within a same market. Within this pattern, diversification is a complex, highly expensive process, often brought ahead by merging and acquisitions of companies in other sectors. The development of the platform technology, instead, has disrupted this competitive scenario, allowing the same platform to leverage its technology to enter distant sectors, in a relatively short length of time. Disruptive cross-competition patterns are becoming a threat across all industries. Again, in this case, there is the same technological variable allowing the crossing of different domains. As we will see below, platforms allow to enter competitive arenas according to a dynamic that was unimaginable just some years ago. An e-commerce platform technology, given its structure, allows adds-in of different product categories or services to be offered to its community of customers or clients, almost 'overnight'. A platform has become like a big store, a shopping centre, where the addition of a shop, selling any kind of products, is fast and profitable. This model has to be differentiated versus a core shift of sector, that, differently, is a transformation process. Diversely from core transformations of product to service-oriented companies, from hardware to software, from a tangible product into an intangible service, where companies strategically shift from one core sector to another behind a technological innovation (like IBM or Apple[79]), cross sectorial competition occurs when a company stretches its platform entering new sectors, while keeping the previous ones.

How organizations embrace Horizontality at macro-level phenomena and translate them into strategies?

Transmedia Storytelling We have already taken Lego Ideas as an example for the BU paradigm. Following the relativistic premise of the FPM, here, we offer a different perspective of the same brand in a transmedia storytelling[80] frame. Lego's storytelling is a story of success. A same world-building concept crosses toys,

continuous search for new entertainment experiences. (Jenkins & Deuze, 2008).

79 IBM shifted from hardware to software company via the introduction of the IBM Cloud, a springboard innovation in the sector of cloud computing services. Apple, show opposite processes, shifting from software to hardware, behind a world-leading expertise in chip manufacturing.

80 ► https://www.awn.com/animationworld/how-transmedia-made-lego-most-powerful-brand-world

games, TV, movies, and even fan fiction: Lego, today, is a platform providing great value by offering the user different possibilities to enrich the experience with different emotions and building her or his story across different contexts. Also the AirBnB case (see box[81]) that we will analyse in the sharing paradigm as well, is a case in point for transmedia storytelling.[82] Again, value is the outcome of gaining new perspectives about the story and their contexts.

Old Spice campaign launched in 2010 before the Super Bowl is another case history. The storytelling aspects of the 'Smell Like a Man, Man' campaign involve creating a laughably hyperbolic character to feature a common theme throughout the campaign, rather than presenting a plot to continue over various mediums. Instead of bombarding audiences with brand messages, transmedia campaigns engage people in compelling conversations in multiple channels. An effective transmedia campaign uses more than one channel and the audience spreads the story across additional channels.[83]

Transmedia is an interesting strategy in journalism as well. There are several engaging examples of Transmedia Journalism: the Pulitzer winning New York Times article 'Snow Fall: The Avalanche at Tunnel Creek'[84] is an integrated six-part story interwoven with interactive graphics, animated simulations, and aerial video. It has become an influential example of online journalism. Overall, it is an emotionally involving case which you would not miss.

AirbandB Storytelling

In 2014, Airbnb created a memorable storytelling moment on the anniversary of the fall of the Berlin Wall. 'Wall and Chain' was an animated film to bring the story of 'how and why people want to connect' to life. At the same time, the brand conducted an economic impact study on Berlin to showcase how their customers (who travel and stay in Berlin) support the local economy and make a positive contribution to the city. And they communicated all of this through an immersive digital experience. Going a step further, Airbnb supplemented with long-form articles, social media, behind-the-scenes videos showcasing the real family behind the animated film, and hosting a unification event 'that paid homage to the roots of Berlin history and culture through the feature of a Berlin Wall build out.' The multi-platform campaign in total earned more than eight million views across social and digital with 130 press hits in 15 countries. (Wren March 12th, 2018)

81 Is this it? ► https://shortyawards.com/7th/wall-and-chain-a-true-story-about-belonging-by-airbnb; or these could work as well: ► https://mashable.com/2014/11/07/airbnb-berlin-wall/?europe=true; ► https://www.campaignlive.com/article/airbnb-runs-berlin-wall-anniversary-campaign/1321016

82 ► https://www.brandingstrategyinsider.com/building-brands-with-transmedia-storytelling/#.X_Bi6NhKjD4 Building Brands With Transmedia Storytelling, by Chris Wren.

83 ► https://legacymt.pg.com/pgcom-en-us/downloads/innovation/factsheet_OldSpice.pdf

84 ► https://www.nytimes.com/projects/2012/snow-fall/index.html#/?part=tunnel-creek

Fig. 5.3 Amazon's cross-sectorial competition

5

Hybrid and Convergent As introduced in the paradigm context description (Par. 5.6.1 The socio-techno-economic context), media blurring borders lead to hybridization and Convergence. A case in point are smart TVs, globally connected via the internet. On the TV set, many different media converge and are accessible: besides traditional analogue TV (cable, satellite), internet connection to access any channel and content (i.e. Netflix, DAZN, Hulu); you can check any social media; VOIP systems as Skype to keep in touch with friends and family; TV contents are displayed on your mobile or on your camera, etc. The multimedia convergence is impressive.

Mobile is another example of hybridization and heavy convergence. Nowadays mobile becomes a hub for the many functions it performs and the multitude of converging media: it is a camera to take pictures and videos; an electronic payment system (Apple or Samsung pay, for instance); a health and activity tracker (massive amount of apps for practicing health tracking); a TV to access any channel via web streaming or to watch any content offline; a radio; a phone for calls and messages; a connected device to access social media platforms or e-commerce (like laptops or tablets or pcs); an in-store support to get information and purchases, interacting via Near Field Communication (NFC) with beacons and other IOT devices. And many more.

Watches as well are examples of hybrid and convergence. Hybrid watches integrate the look of the analogic traditional watch with the functionality of the digital, performing as smart watches. Being smart watches, they perform almost all features of a mobile, as discussed above. The watch brand Samsung is an interesting example (Fig. 5.3).[85]

Cross-Competition Amazon is a case in point in disruptive competition, demonstrating how a platform may extend its domain across different sectors. Amazon started its activity by e-selling books to quickly diversify its offerings by entering several other markets as music, toys, sport, and apparel sectors. Today, Amazon's disruptive ambitions extend far beyond retail. With its expertise in complex supply chain logistics and competitive advantage in data collection, Amazon is attacking a whole host of new industries. The tech giant has acquired a brick-and-mortar grocery chain, and it is using its tech to simplify local delivery, such as machine

85 ► https://www.samsung.com/it/watches/

vision-enabled assembly lines that can automatically sort ripe from unripe vegetables and fruit. In June 2019, it acquired the online pharmacy service PillPack. Now, it is building out a nationwide network of pharmacy licenses and distribution that could one day allow Prime users to receive their medications through Amazon. On its own Amazon Marketplace, the company is using its sales and forecasting data to offer de-risked loans to Amazon merchants at better interest rates than the average bank.

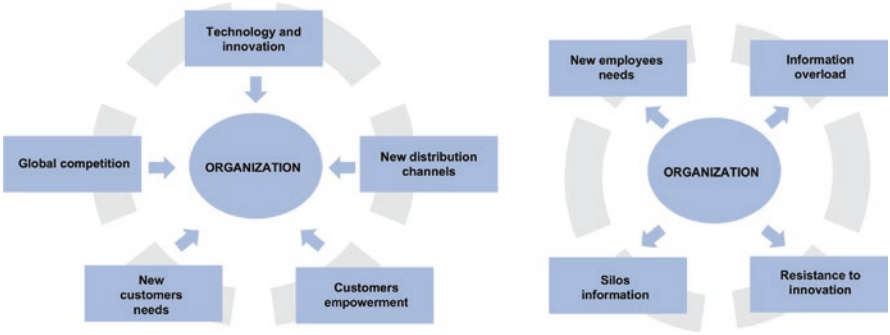
Another example is provided by Google, via its entering the driverless market by launching its Google X Life Sciences Division. Nike, in the case of sneakers, has continued to expand their product line by reaching all areas of athletic apparel. Their model incorporates wholesale and new Nike Direct, which sells directly to the consumer, and has expanded their overall reach. Nike has also continued to leverage their applications, Nike & Nike Fit, as well as their online Nike Plus rewards programme. Furthermore, in their digital endeavours, Nike acquired the data analytics company Zodiac to better understand customer habits and purchasing decisions. This expansion beyond the sneaker business has shifted via a cross-platform strategy from a product to a service, opening the company to real-time analytics and data visualization. The introduction of such a new experience allowed Nike to transform its value proposition, entering the consumer electronic market and the quantified self-movement.

5.6.4.2 Horizontality at Meso Level

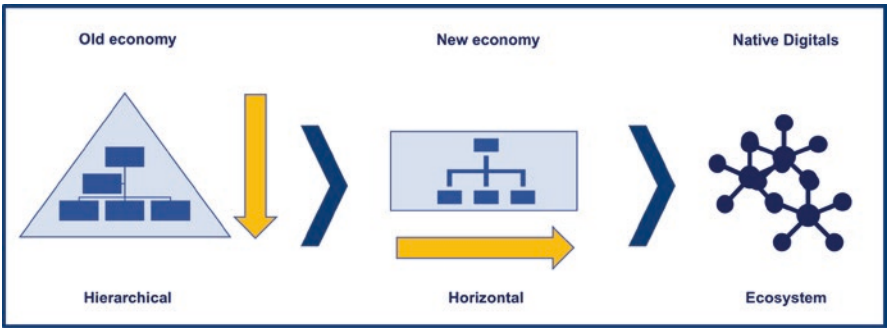
Meso-Level Socio-Techno-Economic Phenomena

Flat Structures Let us consider organizational structures and the forces leading them to change their morphology into horizontality. To understand in a very simple way how this change is undergoing, we have to focus on external and internal changes that companies are experiencing. Externally, due to globalization and digital age, there are several challenges: global competition, technology and innovation, new distribution channels, customers' empowerment, new customer needs, all exert a lot of pressure on them, urging to react (◘ Fig. 5.4).

Also internally, organizations undergo great challenges. These challenges are new employees' needs, information overload, resistance to innovation, and silos infor-



◘ **Fig. 5.4** Organizational challenges in adaptation. (Source: The Author)



5

Fig. 5.5 Horizontality in organizational models. (Source: The Author)

mation. Silos information means that information is developed and stored within a single function, for instance, Marketing, IT, without circulating it and shared, exchanged with other departments. Without an exchange of information, building on other's ideas, creativity cannot develop.

What is put under pressure are borders. They become feebler and tend to fade. Morph changes (Fig. 5.5).

Due to the above synthetically illustrated external and internal challenges, organizational models have undergone a morphology evolution since the old economy pyramidal shape. They need to generate innovation to cope with the highly global competitive environment. The urge to develop innovation in technologies, to meet new Z gen customers' needs, and the competitive rules disruption are just some of the challenges driving organizations to evolve in structure to be more effective in generating innovation and to be flexible in responding to environmental fast dynamics. Creativity finds its most fertile ground in diversity and diverse minds, cultures, approaches in interaction are the answer. Behind this reason, organizations such as Technogym, Brunello Cucinelli fashion, the dynamic United States brand Zapos, Starbucks, and Buffer design new horizontal structures, where information circulation and participation are the leading principles. This represents an evolution from vertical to horizontal. Further to this, due to the dematerialisation and disintermendiation process, to the weakening of organizational borders and hivenet new structures, and all the socio-techno-economic transformations we have tackled in the previous paragraphs, organizations tend to become networked.

We have to understand that in the complex, liquid, dynamic environment in which organizations strive to survive, a horizontal approach means not only cross-functional teamwork, but also an agile way of working, a horizontal circulating information, and a horizontal leadership.[86]

After reviewing *hybrid* profiles in ► Chap. 4, we have discussed how the structure of a digitally transformed organization tends to be systemic. Thus, if a part

86 ► https://www.linkedin.com/pulse/new-paradigm-known-horizontal-leadership-f%C3%A9lix-de-andr%C3%A9s/

alters, the whole structure is impacted: not only in terms of organisational functions but also of its corporate culture. HR, in particular, is an organizational area that tends to be deeply impacted by digital transformation, being at the core of any cultural evolution of the organization. A digital culture heavily affects, for example, an employer–employee relationship by replacing the traditional rigid hierarchical procedure-based management with an agile frame of work, where responsibility and autonomy drive processes. In this new organizational and cultural frame, vertical top-down processes, where executives send top-down inputs to managers and operative roles, leave space to the employee for autonomy and intuition to find solutions. Relevantly, intuition has a discrete pattern: it is based on an 'irrational leap' to reach solutions. Rationality comes right after, as a check and confirmation. If there is trust, then, an employer does not need to ask for a rationale behind each employee's action: he or she trusts the employee's responsibility. What is relevant is the result is achieved. In this perspective of freedom and responsibility (see Netflix, example, ► Chap. 3, Par. 3.6), each employee acts as an entrepreneur, integrating the role of employer and bearing a direct responsibility on outcomes of his or her job (internal entrepreneurship).

Another aspect of a digitally transformed or transforming organization is the need for CEOs to have a holistic approach to issues. The multidimensionality of the complex online-offline environment, the evolution of technologies in all areas of business, the integration of the organization with the external context, the tight collaboration with various stakeholders, all make it imperative to have more complex competences. An interdisciplinary profile, integrating competences, that once were siloed, nowadays bring better results: instead of one single profile, a multiprofile, as the CMTO[87] (Chief Marketing Technological Officer) wins. Also new profiles, represented by the CXO[88] (Chief experience Officer), provide a perspective on a 'trans-functional' profile, centred on the management of the customer experience (CX), around which companies design dynamic services to adapt, evolve, and pivot CX.

Transmediality at Meso At macro level, we have discussed about transmediality and transmedia storytelling. As the borders between macro, meso and sometimes also micro are blurred, we tackle here, at meso level, a pattern of transmediality as a strategy which focuses on organizations (◘ Fig. 5.6).

In digital marketing strategies, the multiplicity of technological devices, from desktop to laptop, to pc, to tablet, to mobile device, to wearable technology, push Marketing Managers to develop multi-device strategies, which allow customers to access contents consistently through diversified technological supports (i.e. you may access a website or a blog – or being reached by a banner – from your mobile, laptop, smartwatch having the same picture definition); moreover, the multiplicity

87 ► https://yourcmto.com/what-is-a-cmto/

88 ► https://www.forbes.com/sites/dangingiss/2019/12/17/what-is-a-chief-experience-officer-and-why-does-a-company-need-one/?sh=5d8c17212b69 e ► https://hbr.org/2019/06/why-every-company-needs-a-chief-experience-officer

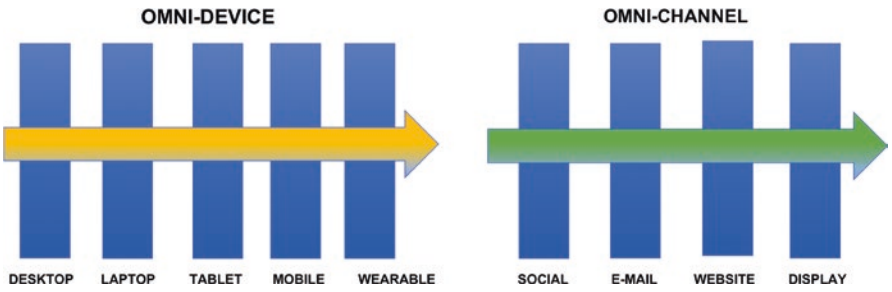


Fig. 5.6 Horizontality in digital marketing strategies. (Source: The Author)

of media channels, from social networks to emails, to websites, requires integrated approaches, given the multi-channel behaviour of customers. These strategies of 'accompanying' the customer through different devices and channels allow companies to understand the behaviour of potential customers on the network (customer journey), tracking their journey, and identifying how to guide their route towards, for instance, a 'landing' on the company's target page.

Co-petition Co-petition is a model that integrates 'collaboration' and 'competition'. It is a form of hybrid, as two or more competitors which should be well separated decide to share one or more phases of their processes (i.e. production). This integration of 'vertical' siloed organizations may be imagined as a horizontal process of integration across the structures. Interestingly, we find the same co-petitive model in hackathons, where hackers, while competing, collaborate by exchanging information, or in product creation contests, where the participants taking part in the contest collaborate. As confirmed several times, across this volume, the digital environment is a fractal realm, where same models are replicated evenly, in any size and dimension, across different realms.

How do organizations embrace Horizontality at meso-level phenomena and translate them into strategies?

Horizontal organizations, hybrid and integrated organizational profiles, horizontality in marketing strategies, cross-platforms experience, hybrid organizational models, horizontal – cross-functional teams and profiles, are examples that we are going to tackle as follows.

Horizontal Organizations We have already tackled the case study of Topcoder in ► Chap. 4. Topcoder is an example of a digital organization. Cleveland Clinic with their telehealth technology, ING Bank who is putting their crime identifying graph technology to use, and holocratic organizations like Zappos with their horizontal project teams, are good examples.[89]

89 ► https://www.thedigitaltransformationpeople.com/channels/people-and-change/from-vertically-focused-functions-to-horizontal-cross-functional-teams/by Jon Ingham, Strategic HR Academy, People and organizational strategist, author of The Social Organization (2017).

Hybrid and Integrated Organizational Profiles As we have seen in the CtD paradigm, Sephora was one of the first US brands to actually welcome customers using their mobile inside their stores, taking the opportunity to engage them via an online-offline accurate positive experience-building. We have seen how a customer experience is multidimensional, multi-sensorial, involving the whole Customer Journey and a variety of touch-points. In this perspective, a Chief Experience Officer is the response to the need of a trans-functional profile, integrating and putting in contact different areas of the organization as product, marketing, IT, sales, customer care, and others. Huawei, for instance, is another example of company that, along a customer-centric strategy, has a CXO.

Horizontality in Marketing Strategies Transmediality, Hybrid and convergent markets, the need of seamless experiences confirm multichannel and multimedia strategies. Most successful brands, in any sector, nowadays, are present across different social media (i.e. FB, Instagram, Pinterest) and grant a seamless experience across any device via responsive contents. Also in advertising strategies, multimedia advertising shows a horizontal pattern. It is the case of Sky Advertising Manager. It is a platform, innovative and multi-channel, allowing companies, agencies, and media buyers to plan their advertising campaign online in a simple, autonomous, and personalized way across the entire portfolio managed by Sky Media. The platform immediately integrates free-to-air and pay channels, as Sky on demand and Sky Go. Also Facebook Audience Network is a case in point. The FB platform allows to engage the audience, monetizing with high-value, interactive ad formats including rewarded video and playable ads; boosting revenues, by getting the tools, support and insights needed to help the business grow; finally, it increases efficiency by giving every ad impression the opportunity for maximum earning potential with real-time bidding.

Co-petition Models In co-petition, the Toyota-Ford is a case in point (Ancarani & Shankar, 2003). The two competitors share some steps of the production process, reaching a win-win model by lowering costs without losing their single distinctiveness. The advantage often is a reduction in costs, but the overall result is that they stay competitors while having a win-win solution. Another example is a co-petition between IBM and Oracle.[90]

5.6.4.3 Horizontality at Micro Level

Micro-Level Socio-Techno-Economic Phenomena

P-to-P Communication Micro level is the perspective of the individual, of peer-to-peer communication. Such exchanges take place in an anti-hierarchical environment, such as in communities and social networks. A peer-to-peer relationship may be stigmatized as horizontal as peers perceive other peers as 'a person like me' and feel they

90 ► https://www.ibm.com/it-it/services/oracle/managed

all are at the same level. Importantly, behind PtoP, there is trust.[91] Communities (Tönnies, 2011) and communities of practice (Wenger, 1999) are a theoretical foundation of this massive phenomenon. Social Learning is a case in point. Tandem[92] language learning is a method of language learning based on a mutual language exchange between tandem partners, where ideally each learner is a native speaker in the language the other person wants to learn; ► Superprof.com is a knowledge-sharing site, with thousands of available teachers and students using their services every day. Superprof connects teachers and students or individuals, ranging in all fields of learning: from school subjects, to artistic practices, to sports disciplines, etc.; GoodReads[93] is one of the best reading apps, where people can share interests and reviews; Skillshare (► Skillshare.com) classes are authentic, actionable, and designed to help students bring what they learn into the real world. On Skillshare, students watch classes at their own pace, create projects to practice what they've learned, and interact with each other from all around the world. It is advertisement-free and user-generated. Its social learning format allows learning to take place at a wider scale than individual or group learning, up to a societal scale, through social interaction between peers.

How do organizations embrace Horizontality at micro-level phenomena and translate them into strategies?

Communities' Brand Engagement Many are the examples of communities, if we just consider one-to-one communication in a social network like FB, Instagram, Whatsapp, or any communities, where members can exchange useful information: Tripadvisor Travel Forum is where you can get information on travelling; Discord[94] is a free calling, texting, and video calling application used by millions of people around the world over the age of 13 to spend time and talk to their friends and communities. Originally designed for the gaming community, nowadays people use Discord on a daily basis to talk about topics ranging from art projects and family outings to schoolwork and mental health support. It is a home for communities of any size, but is mostly used by small, active groups of people who communicate regularly; Reddit[95] is a network of communities based on people's interests; Fiverr (► Fiverr.com) is a platform for freelancers (marketplace) where you can buy and sell services. It is a marketplace that would provide a two-sided platform for people to buy and sell a variety of digital services typically offered by freelance contractors. Services offered on the site include writing, translation, graphic design, video editing, and programming.

As the variety of communities is huge, it has to be said that engaging such communities is very difficult and requires specific strategies for each kind of community. The best way, then, for institutions is to create their own community, by gathering people around a passion or an interest. For example, McDonald and

91 Padua, 2012.
92 ► tandem.net
93 ► goodreads.com
94 ► Discord.com
95 ► reddit.com

Apple on Twitter and Facebook are brand communities. Another way to engage communities is through influencer marketing, that proves to be effective to 'enter' the community via an influencer, or social media and web analytics strategies. Here, we just mention these very specific strategies, as they would require a specific space to be described. In the following text, we introduce the application of the social markers to the Horizontal Paradigm.

5.6.5 Applying the Social Markers to the Horizontal Paradigm

1. Community: Diversity amongst values and the integration of different perspectives generate innovative value.
2. Sustainability: Integrating patterns and technologies, adopting hybrid technologies takes into account how to introduce and support sustainability.
3. Freedom and Responsibility: Integrates people via cross-functional teams, hybrid organizational models, open, and free but responsible organizations to generate ideas and open innovation.
4. Resilience and Agility: Flexibility, agility, resilience, and adaptiveness are at the core of the strategy (Trans-).
5. Participation: Power is distributed across the horizontal structure, allowing people to exchange ideas and generate innovation.
6. Data Culture: Data is at the core of the organization.
7. Ecosystem: Competences are diffused, informal, destructured. PtoP dialogues are destructured, diffuse, and informal.
8. Performance: Cross-functional profiles, teamwork is measured by performance.
9. Context driven: The role of context and data in platform ecosystems is key.
10. Trust driven: Sentiment analyses become relevant when checking the internal – external climate.

5.7 Fourth Paradigm: Sharing

5.7.1 The Socio-Techno-Economic Context

The Sharing paradigm is conceptually very wide, and its definition and areas of action are extremely blurred. Apparently, it overlaps with all the other three paradigms: is not BU co-creation a form of sharing between a brand and a customer or client? Or UGC as sharing contents among peers? Or, are not BU crowdfunding platforms like ► gofundme.com a case of sharing? Is it true that funds are given in exchange of a pride to have supported a campaign you trust? What about CtD, isn't a platform ecosystem a sharing system? And horizontality cross-functional teams or profiles, for instance, are not they resulting from a sharing process?

Sharing means exchanging and exchange is at the basis of relationship building. The whole web nurtures exchanges and relationships, as the internet is a web, and

a web connects nodes, that is people. Therefore, sharing is the quintessence of the digital environment, behind technologies, by building value on connectivity, allowing people's connection and relationship. Based on this wide mainframe, we tried somehow to provide boundaries to this paradigm by providing a conceptualization of this wide theme.

The sharing paradigm may be positioned under the umbrella of the so-called sharing economy, in a frame of 'collaborative economy' or the so-called co-economy. The Sharing Economy has many definitions in scientific literature.[96] In it, we find all the co-economy features, that is a transformative and disruptive nature; increasing of the utilization rate; a heavy reliance on IT; direct engagement of crowds; temporary nature of the engagement (Taeihagh, 2017). In fact, the Sharing economy has disrupted traditional transactional models, introducing the Airbandb, Uber, and car sharing models that have revolutionized the mobility and hospitality sectors. As for the other co-economy elements, within the various interpretations, we have extracted this definition: 'Sharing economy' is *an umbrella term* referring to the practices of *sharing, exchanging, or rental* of goods and services to others through *IT* without the *transfer of ownership.* Importantly, this latter feature brings to light an interesting cultural perspective of sustainability, thus deeply embedded in our digital transformational mindset: first, the culture of fruition versus consumption, that is, of utilization instead of consumption of a good over time. Consumption refers to a destruction of the good, to use and waste, to 'one shot' consumption. This notion brings us to the second aspect: fruition is long-lasting, consumption is immediate. Sharing cars, for example, allows the utilization of cars for longer leadtimes and at a more intensive level.

5.7.2 The Impact of the Sharing Paradigm on Value Chains

Being the notion of 'collaboration' at the core of the sharing economy, concepts as 'collaborative consumption', 'peer-to-peer economy' express a decrease in transaction costs, in information asymmetry, and a consequent improvement of *efficiency*. But how can brands capture such value? On the web, the 'users' are people sharing experiences and knowledge with other people. The proliferation of social media empowers the web in transmitting opinions from peer to peer, spurring the virality of the message via WOM (word of mouth) and creating an environment which is increasingly more difficult for institutions to control. Buzz marketing is a strategy to leverage the sharing phenomenon. The campaigns 'get a Mac' by Apple and 'I'm a PC – I'm not alone' by Microsoft have spurred an intensive buzz to interact with consumers. In general, the real challenge for institutions

96 The sharing economy is an economic model defined as a peer-to-peer (P2P) based activity of acquiring, providing, or sharing access to goods and services that is often facilitated by a community-based on-line platform (Görög, 2018; Puschmann, 2016). Contrary to the traditional market model, which is based on ownership, the "Sharing Economy" is built on using and sharing of products and services among others.

and organizations is to generate 'engagement': that is to produce an 'action' on the web that is able to generate a 'reaction' – in substance to establish, as the sociologist Simmel would have said, an 'interaction' (Simmel, 1908) to be captured, tracked, and analysed by web analytics tools. In this way, a bidirectional relationship is established and a communication channel is open to dialogue and to receiving information at any moment. Sharing between institutions and customers, clients and citizens helps in personalizing the one-to-one relationship and in producing loyalty. This interactive communication is a precious source of information in understanding needs, tastes, and behaviours in a much deeper way than through traditional offline market research. Indeed, communication may become many-to-many: this happens in conversation platforms where many users interact, dialoguing with the organization: blogs, forums, brand communities, and social media are all examples. Based on these assumptions, in the digital realm, the concept of 'market' evolves, transforming itself into a social environment composed of persons, institutions, organizations, and products relating one to another and sharing information and experiences (Padua, 2012, p. 23–24). In a different strategic value-building perspective, a positive strategy could be to satisfy the need for a relationship, shifting it from peer-to-peer to peer-to-brand, where the brand has to become a 'relationship enabler', easing contacts and relationships in the areas of customer interest. This intermediary role allows the brand to express the value for engagement, that is that value of exchange on which the transaction between the organization and the stakeholder is founded, satisfying the stakeholders' needs of protagonism, relationship, and individuality (Padua, 2012). Helping relationships among an organization's stakeholders may become a valuable strategy to also build trust and loyalty, given the benevolence of the brand towards its stakeholders.[97]

5.7.3 How to Recognize the Sharing Paradigm

Four features appear to be highly visible and detectable:

- It is bidirectional (one to one) inside a network. This means that the network allows multiple one-to-one interactions at the same time.
- Sharing activities generates added value (economic, knowledge, emotional, etc.).
- It may imply a transaction or a simple *exchange* of any content.
- It generates innovation.
- Sharing may occur between people, brand-customer, brands, institutions, organizations, and other entities.

After having analysed the socio-techno-economic context, the impact on value chains, and the checklist of the Sharing paradigm, now we move to tackle the macro-meso-micro perspective of analysis as illustrated in ◘ Table 5.5.

97 Benevolence is one of the four trust beliefs, see Padua, 2012 p. 97

Table 5.5 The Sharing paradigm at macro, meso, micro

LEVEL	Examples of Socio-techno-economic phenomena	Examples of Strategies
MACRO	Global information or content sharing platforms/networks	Clouds, social media, rental economy networks, sharing mobility networks, workspace sharing globsl networks strategies
MESO	Communities of interest, communities of action, transaction platforms	Community engagement, e-commerce platforms, virtual marketplaces strategies
MICRO	P-to-P sharing activities, P-to-P file sharing	Social bookmarking websites, P-to-P file sharing services, P-to-P learning platforms

Source: The Author

5.7.4 The Sharing Paradigm at Macro, Meso, Micro

5.7.4.1 Sharing at Macro Level

Macro-Level Socio-Techno-Economic Phenomena

At macro level, the Internet is the digital infrastructure 'par excellence', connecting people and enabling them, in a Web 2.0 frame, to exchange and share contents of any kind. Exchanging always generates an added value for all parties involved. The basic models behind the internet, since it was created,[98] was based on an exchange and not on a transaction. E-commerce platforms were created subsequently, leveraging the general global network model, but here we refer to the essence of the World Wide Web. There is no doubt that such content creations generate innovation: any text, picture, video, added to the web is a piece of personal creation, something new, shared to a virtually global audience, that may sparkle further creativity. Finally, no doubt, it engages several actors. Just think to the various classes of internet users.

How do organizations embrace Sharing at macro-level phenomena and translate them into strategies?

An interesting example is Google ArtsandCulture. It features content from over 2000 leading museums and archives who have partnered with the Google Cultural Institute to preserve the world's art and culture and offers it online so that it is accessible to anyone, anywhere. They help partners digitize, manage, and publish their collections online, for free.

98 In 1969, the ARPANET was born to exchange military information and in 1990, the World Wide Web was created on the Internet model to manage the information exchanged by scientists from CERN - the European nuclear research center- in Geneva.

Other examples are social networks as Facebook, Instagram, Twitter, or Linkedin, TikTok, global sharing platforms as Wikipedia and Clouds as Salesforce. We remember that all cases analysed under the perspective of a specific paradigm may be analysed by all the four paradigms perspectives. For this reason, it is quite possible to find the same phenomena taken as example across different paradigms.

Knowledge sharing, as the well-known Wikipedia, the free and collaborative based encyclopaedia, or Internet Archive,[99] which is a non-profit library of millions of free books, movies, software, music, websites, and more allow a shared access to information, with the remarkable possibility to take part in the process of generation of information and the opportunity to modify existing content.

Many are other cases like: co-working global networks as Wework and KNOTEL,[100] helping businesses expand physically, by providing founders and growing teams needed open space, flexibility, and a community environment;

All these features bear a sharing process which is, as from the checking list:

- Bidirectional within a network.
- The sharing generates added value.
- It may imply an exchange or a transaction.
- It generates innovation.
- It occurs between several actors.

5.7.4.2 Sharing at Meso Level

Meso-Level Socio-Techno-Economic Phenomena

At meso level, the organizational dimension prevails. Here we concentrate on organizations, bodies, and community groups that share any type of content or emotion or passion. These communities or large groups are characterized by a level of organization, sense of belonging, and identity higher than global social movements. Global Fandom communities and Fandom wikis[101] or, in the scientific sector researchgate[102] are examples. Even though they often have a global dimension, seeing as in the internet the global dimension is intrinsic, organic to the worldwide spread of the web and of connectivity (with, as said, restrictions of specific regions and countries with censorship), they are distinct from global networks or global social movement, because they have an organization as a reference point and they are organized entities. Specifically, comparing them to social movements, they often have a lower number of participants versus social movements, they share a common characteristic which is in relation with the purpose of the group (i.e. a value, the support of which is the aim of the group); it offers the basis for interaction, which is tighter inside the group versus social movements, and generates norms promoting behaviours coherent with the shared trait which provides the basis for the group identity. Moreover, in a group participation is more trackable (i.e. a social media community page).

99 ► https://archive.org/
100 ► https://www.knotel.com
101 ► https://darksiders.fandom.com/wiki/Darksiders_Wiki
102 ► https://www.researchgate.net

Communities of interest, Communities of action are communities of people who share a common interest or passion. These people exchange ideas and thoughts about the given passion, but may know (or care) little about each other outside this area, or on the possibility of bringing about change. The difference between a social movement and a community of interest is that the first are loosely organized and refer mainly to a macro level. The second, instead, have more defined borders as they are more organized around the platform. An example is a social media fan group of a soccer team or of a music player or a music genre, gathered via a social media page as FB or Instagram.

How do organizations embrace Sharing at macro-level phenomena and translate them into strategies?

Communities of Interest When we talk about communities of interest or of action, we think to FB groups: for example, the GOPro fan community is a Facebook group and is based on the common interest of the most known action cam GoPro.[103] In this group, it is possible to ask for advices, to sell products and accessories, as well as to share gopro's contents. The Reading rush[104] is another case of a community of action, based on an annual bookish event when people read together in 1 week and do challenges and games related to books.

Transaction Platforms Many are the examples: Ebay, or Underarmour,[105] a transaction platform of sportswear.

Rental Economy Home sharing: Airbnb, VRBO, Booking.com have changed the way in which living spaces are shared and caused a disruption in the world of hospitality and hotels. Couchsurfing is a transaction platform for travellers to be hosted by the local people and meet other travel mates. To share authentic travel experiences.

Sharing Mobility Sharing mobility is the phenomenon according to which mobility takes place with shared vehicles: examples are car sharing, bike sharing, scooter sharing, sharing of micro-mobility vehicles such as electric scooters, but also carpooling and similar methods of sharing. Shared and sustainable mobility contributes to the smart mobility of a city. Sharing mobility is gaining momentum with the emergence of the problem related to last mile logistics: often, especially in large cities, commuters and residents are forced to take different means, public and private, to reach the workplace and return to home. Shared vehicles (especially bicycles and scooters) can be useful when completing this stretch of road not covered by other means.

5.7.4.3 Sharing at Micro Level

At micro level, sharing regards the individual and its sharing activities. Social bookmarking, social media, Peer-to-peer sharing are examples.

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103 ► https://www.facebook.com/groups/GoProHeroCommunity
104 ► https://instagram.com/thereadingrush?igshid=va86d08xh1ue
105 ► https://www.underarmour.com/

Social Bookmarking Websites Social Bookmarking is an activity related to websites that facilitate discussion and resource sharing within a rigidly tagged and organized taxonomy. Digg, Reddit, Flipboard, for example, offer news and links proposed by users, in a non-hierarchical ranking system based on the evaluation of other users of the community.

Peer-to-peer file sharing is another case. P2P is a networking technology allowing distribution and sharing of digital media.

P2P Learning is another example: here, contents are shared with the precise intent to teach and learn. Where students teach and learn from each other, they put concepts into their own words and relay their understanding to their classmates in a collaborative, reciprocal, and learning environment. A case in point is Techsmith.

Finally, we may say that any social media content sharing, in the three basic forms of text, pictures, and videos, by spurring reciprocity and exchange, at zero cost, is a powerful form of sharing.

How do organizations embrace Sharing at micro-level phenomena and translate them into strategies?

Sharing at micro level covers all cases of sharing any content at individual level, that is PtoP. Here, again, the borders between Sharing and horizontal paradigms are quite blurred.

Sharing content examples are innumerable and distributed across the web: from wetransfer (► https://wetransfer.com/) to Pinterest, to Flickr, to Weheartit, a social media where you can share Gifs, videos and images, to ► Medium.com, a platform to 'read and share ideas from independent voices, world-class publications, and experts from around the globe', to Jobcase, to share information on jobs (► https://www.jobcase.com/) to ► hellotalk.com to share languages, to the variety of chats (from WhatsApp to WeChat) to neighbour's information and support sharing as next-door (► nextdoor.com), to recipes sharing, the list is infinite. No doubt we may say that the essence of the Internet is sharing.

In synthesis, which is the difference between an AirBnB (macro level), a Fandom community (meso level) and Flipboard (micro level)? Always bearing in mind that all paradigms are different ways to analyse a specific phenomenon, that, therefore, their borders are blurred and the Sharing paradigm is particularly blurred, given its nature, to answer the question, we have always to go back to the meaning of the level: AirBnB is a macro example, as it is a transformational global model that has changed habits of global society; a Fandom community, instead, is a meso example as it has borders that are more clear-cut, defined by the community members' interactions, that is, people sharing a passion in an homogenous community. The meso case, Reddit, instead, differs from a micro case as Flipboard, as, although it has same sharing characteristic, it is focused on a network of communities based on peoples' interests; Flipboard, instead, is a news aggregator, based on personal interests of a single individual.

5.7.5 Applying the Social Markers to the Sharing Paradigm

Community: Sharing means exchanging and exchange is at the basis of relationship building. Therefore, sharing generates interdependence, collaboration. Relationship is enabled by trust, that, over time, transforms into loyalty;

Sustainability: Sharing homes, cars, bikes implies a reduction in consumption, favouring fruition. This process, on the one side, generates costs reductions, on the other, fosters a culture of sustainability;

Freedom and Responsibility: Sharing goods is accessible to any person and guests, renters, users, have the responsibility to care for the good and respect rules: trusting and valuing people are behind sharing.

Resilience and Agility: As trust entails uncertainty, sharing implies adaptiveness and openness; no protections and filters.

Participation: sharing implies building relationships and exchanges; anyone is at the same level, no hierarchies.

Data Culture: Sharing economy develops on wide public and big data. Platforms live on big data;

Ecosystem: Formal and informal networks of relationships allow sharing and exchange;

Performance: Performance is the key to evaluate the service; it is a meritocratic approach leveraging public reviews, likes, votes;

Context Driven: If you want to analyse Uber or AirBnB you have to start from the socio-economic context and from their platform ecosystems;

Trust Driven: Sharing is based on relationship and trust is its access door; reviews reflect a relevant emotional component of the customer experience, besides the rational one.

Interview with Neil Borer, Digital Expert 'the Challenges for Traditional Business models and the FPM Mindset'

In this deep reflection talked under an original angle, two starting points, seemingly and provokingly distant, individual's data privacy and the automobile industry, converge in disclosing a helpless individual. Who's going to responsibly and effectively defend people? Maybe a Digital Transformation Social Mindset based approach, contrasting profit at any cost and industries wicked rules towards new sustainable business models valuing and respecting humans. Such a refined intellectual contribution.

The first question follows.

? **Question 1:** In your opinion, what are the challenges for traditional business models, in comparison to the values promoted by the Digital Transformation Social Mindset, which positions at the basis of the Four Paradigm Model?

Answer: Traditional business models centre around two primary needs: persistent growth and profitability. Profitability often represents a secondary, future consideration once a business is scaled sufficiently.

Putting any businesses core product and service to one side, these traditional measures of success for business stem from the attainment of one of two capabilities, or both. One, a business relies on an ability to capture and utilize customer information to understand and predict demand, so that it may make informed decisions about customers and communicate in a relevant and timely manner. Two, a business relies on an ability to establish a dominant advantage through providing for or even creating a social, economic, physical, or digital necessity.

By default, the above two capabilities immediately create two major conflicts for socially minded digital transformation, that ultimately require either collective or regulatory intervention. The challenges that surround both collective and regulatory intervention are difficult to overcome.

The concept of a Digital Transformation Social Mindset and how it challenges traditional business models may be seen in two very different yet current and continuing areas of debate: an individual's data and their rights to privacy and the push for creating a more sustainable automobile industry.

Question 2: Can you explain us what do you mean by Collective Intervention in the case of individual data and privacy?

Answer: Whilst societies' digital advancement has undoubtedly empowered the individual or customer, by providing platforms through which their voice might be heard, it has also exploited them, often through those very same platforms.

Some of the most successful business models of the digital age are those that turn the individual or customer (in the guise of their personal and behavioural data) into the product itself. Relatively toothless and insufficient regulation (e.g. EU GDPR) has been rushed through in an attempt to protect against this; yet, ultimately it still requires an individual to both understand and take responsibility for their personal and behavioural data. Instead of empowering the individual therefore, digital transformation has placed them at risk of having to work alone to achieve or protect their rights.

Daily, individuals release an enviable amount of data – core profile data, browsing and purchasing behaviours, connections and relationships, interests, views, affiliations, locational data, and financial transactions. The list is endless. Access to and the devices used by an individual, the need for instant task completion, and the appetite for consumption or sharing of information means that individuals will understandably find their daily data release impossible to track or monitor. And we repeat this across all businesses that we interact with, as they all wish to capture and need to capture this information.

Concern clearly exists around this yet, through the sheer weight of 'convenience' most individuals are accepting of the situation. The complexity that surrounds managing personal data control creates inertia or apathy among many/most indi-

viduals and a limited awareness of the true, long-term risk in freely sharing information means any potential repercussions are not fully understood by most.

These risks are not insignificant, especially with the growing prevalence of AI to drive auto-decisioning. Individuals are increasingly at risk of misclassification that could have a true bearing on their life, whether it be access to finance, insurance, health support, employment, etc. Individuals are persistently exposed to surreptitious data collection and surveillance that determines what information they may or may not be exposed to, which as a result might determine their own thought patterns or behaviours.

The value of personal and behavioural data to business has assumed such significance in the digital age, as each business strives for competitive advantage through attempting to link cause and effect within human nature. Despite regulatory efforts, the potential of commercial reward will lead to aggressive businesses adopting a 'minimum viable privacy' approach, whereby the benefit of data to the business outweighs any obligation (morally or legally) to an individual customer.

This in turn does create new business opportunities, to provide for a collective approach that enables an individual to control which businesses have access to and the right to use their data. The most prevalent of these is the interest in developing Personal Information Management Systems (PIMS) that create centralized databases of an individual's information to which access permission is granted by the individual to businesses they wish to engage with. As a result, data is only stored in one location, is easy to update, and is not proliferated across multiple, disparate business systems that are impossible to track or maintain. The challenge is that it requires an individual to adopt a mentality of self-data control (and likely the need to pay for PIMS as a service) and erstwhile for businesses to accept a new data relationship with their customer, outside of their control, and to which they will only gain access on a permission-led basis.

These represent two major fundamentals in re-thinking digital transformation: how to coral and encourage the collective will of individuals to react to an overwhelming desire for speed, ease and convenience at any cost. And, how to encourage businesses to adopt a more consumer-centric approach to data management, when consumer data in digital is the perceived competitive nirvana. You cannot regulate for the latter, without the collective (will) movement on the former.

Question 3: How do you connect the DTSM to the second area of current debate you indicated, the sustainable automobile industry?

Answer: The jury remains out on whether the electrification of the automobile industry meets genuine sustainability criteria and goals. It will certainly help to improve localized air and noise pollution. As the world increases its use of naturally and sustainably generated power, it will also help reduce the consumption of fossil fuels. It does however not solve all issues: the end-to-end lifecycle of batteries is just one example of these.

From a DTSM perspective, it has also created a new conundrum – whether the provision of power should be a democratized industry that serves all. Digital technology and rudimentary machine learning could do much to ensure all individuals

are able to adopt the new, electrified approach to personal transport in a fair, equal, and importantly, faster way. Unfortunately, the traditional premise of businesses success may prevent this from occurring.

The key conflict here lies with power distribution, not from the perspective of the national grid or local distributor networks Distribution Networks Operators (DNOs), but from the perspective of the 'final mile'. A burgeoning industry has sprung up as both entrepreneurial and large industrial operators race to create electric vehicle charge point (EVCP) networks. These are ultimately driven by a commercial model predicated around owning geographical monopolies, with a single source supply of electricity from a specific provider.

Unlike the traditional fossil fuel–led approach to motoring, where individual vehicle owners travel to set points to quickly 'fill up' their tank, even with super-chargers most electric vehicles require a period of time to charge. For convenience, charge points will need to align with where the owner of the vehicle will be for a sustained period – either home, work, or potentially at shopping/leisure facilities. Traditionally, the customer has some choice around the cost of a tank of fuel, whereby they may select from several forecourts to fill their vehicle up with fuel. Where an individual is reliant on a more specifically located charge point, if this charge point is operated and supplied by a single business, then true choice is removed.

In a domestic electricity supply environment, the customer has the choice to switch suppliers. In a street-based, service supply environment, the customer will not be given that choice. One-third of homes in the UK (8 million) will be reliant on street-based charging facilities (as opposed to via enhanced, domestic supply facilities) which immediately places these households at risk of this situation.

The government is focusing on basic 'push' factors to overcome this – whereby most energy suppliers offer different tariffs dependent on time of day (and how demand ebbs and flows). The idea is based on the premise: charge your vehicle in off-peak periods and benefit from cheaper rates. The reality is that once the country has 37 million electric vehicles, off-peak may rapidly become peak.

Digital transformation with a social mindset can solve this problem. EVCP units could offer an open, competitive market, whereby all energy suppliers could potentially 'bid' for each individual EV charge request submitted to any given ECVP unit. This would be based on the parameters set by the consumer (volume of charge required, target time for charging completion, and the type of electricity they wish to be supplied) when engaging with the ECVP. Presented with an array of best supply options to meet their need, consumers will be able to make more informed choices on the timing and type of energy supply they would then accept to charge their vehicle and the cost they would incur as a result.

Using digital technologies to provide for this consumer choice, in turn, solves many of the other issues surrounding the supply of electricity for vehicles. With consumers providing required completion dates for charging, rather than setting start times relative to off-peak periods, the power distribution networks would be able to model (and even begin to predict) when demand peaks might occur but also and more importantly provide power supply to individual vehicles in 'bursts' across a wider time-period to flatten and manage demand – a form of orchestrated order management (as learnt from the eCommerce industry) – thereby protecting the

stability of local distribution networks. Note: DNO's have suggested up to 300,000 local supply networks in the UK would be at risk of failure if 30% of vehicles chose to charge at the same time.

It also provides for the government's ambition for interoperability of ECVPs, whereby ECVPs would not need to be replaced or repurposed each time a supplier changed, as all ECVPs would be universally set to measure electricity supply at point of provision and, then, centrally calculate the value of that supply based on the winning suppliers tariff bid. And finally, it would protect the most economically vulnerable elements of society from monopolistic supply of energy in urban, street-based charging environments.

Summary

After an introduction to the Four Paradigm Model (FPM), we have analysed the hypothesis and methodology of the model. We have understood why the macro, meso, micro levels have been adopted and under which meaning. Then, we tackled the first paradigm, Bottom-up, the second paradigm, Connecting the dots, the Horizontality paradigm, and the Sharing paradigm. For each paradigm, the socio-techno-economic context has been explained; the impact on value chains; how to recognize the paradigm through an 'ad hoc' checklist; the paradigm at macro, meso, micro; and, how organizations can take these global phenomena as opportunities for transformation and value generation, by applying social markers to the paradigm. Now we are ready to move to the explanation of the DTSM analysis tools: the FPM Board and the FPM Radar. The chapter ends with an interview with Neil Borer, Digital Expert, on 'the challenges for traditional business models and the FPM mindset'.

References

Accenture. (2020). Technology Vision 2020. We, the Post-Digital People, from https://www.accenture.com/us-en/insights/technology/technology-trends-2020#trend-1.

Ancarani, F., & Shankar, V. (2003). Symbian: Customer interaction through collaboration and competition in a convergent industry, Wiley Periodicals, Inc. and Direct Marketing Educational Foundation, Inc. *Journal of Interactive Marketing*, *17*(1), 56–76, Winter 2003 Published online in Wiley InterScience (www.interscience.wiley.com). https://doi.org/10.1002/dir.10048.

Anderson, C. (2008). *The long tail: Why the future of business is selling less of more* (rev. edn). New York: Hyperion.

Bauman, Z. (2000). *Liquid modernity*. Polity.

Blumer, H. G. (1969). Collective behavior. In A. M. Lee (Ed.), *Principles of sociology* (3rd ed., pp. 65–121). New York: Barnes & Noble Books.

Boccia Artieri, G. (2012). *Stati di connessione*. Franco Angeli.

Boudon, R. (2005). *The poverty of relativism*. Bardwell Press.

Bounfour, A. (2016). Digital futures, digital transformation. In *From lean production to Acceluction*. Springer International Publishing, Progress in IS series.

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education*. Grenwood Press.

Bouvier, A. (2011) *Individualism, collective agency and the "micro-macrorelation"*. Ian Jarvie and Jesus Zamora. Handbook of Philosophy of Social Science, SagePublications.<ijn01081493>

Castells, M. (2015). *Networks of outrage and hope. Social movements in the internet age*. Polity.

Caulier-Grice, J., Davies, A., Patrick, R., Norman, W. (2012). *Defining social innovation in: The Young Foundation*. Social Innovation Overview: A deliverable of the project: "The theoretical, empirical and policy foundations for building social innovation in Europe" (TEPSIE) European Commission – 7th Framework Programme, Brussels: European Commission, DG Research

Ceri, P. (1999). Movimenti sociali: analitici e concreti. Sulla teoria di Alain Touraine, *Quaderni di Sociologia* [Online], 20 | 1999, online dal 30 Novembre 2015, consultato il 26 avril 2021. http://journals.openedition.org/qds/1422; https://doi.org/10.4000/qds.142.

Chiesi, A. M. (2003). *Problemi di rilevazione empirica del capitale sociale, «Inchiesta»*.

Coleman, J. S. (1990). *Foundations of social theory*. The Belknap Press of Harvard University Press.

Correani, A., De Massis, A., Frattini, F., Petruzzelli, A. M., & Natalicchio, A. (2020). Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review, 62*(4), 37–56.

Di Nicola, P. (2015). *La rete: metafora dell'appartenenza. Analisi strutturale e paradigma di rete*. Franco Angeli.

Donati, P. (1991). *Teoria relazionale della società*. Franco Angeli.

Donati, P., & Colozzi, I. (a cura di) 2006, *Il paradigma relazionale nelle scienze sociali: le prospettive sociologiche, Il Mulino*, Bologna.

Durkheim, E. (1893). *De la Division du travail social*. Alcan.

Durkheim, E. (1915). *The elementary forms of the religious life* (J.W. Swain, Trans.). London: George Allen and Unwin Ltd. (Original work published 1912).

Durkheim, E. (1952) *Suicide* (J. A. Spaulding and G. Simpson, Trans.). London: Routledge & Kegan Paul) (Original work published 1897).

Fukuyama, F. (1996). *Trust: The social virtues and the creation of prosperity*. Simon & Schuster.

Görög G. (2018). *The definitions of sharing economy: A systematic literature review*. Management. *13*(2), 175–189

Guilford J.P. (1977). La creatività. in Beaudot A. (a cura di) (1977), La creatività, Loescher, Torino, vol. 5.

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2020). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*. p. 1159–1197

Hastings, R., & Meyer, E. (2020). *No rules rules: Netflix and the culture of reinvention*. Penguin.

Hedström, P., & Swedberg, R. (Eds.). (1998). *Social mechanisms. An analytical approach to social*. Cambridge University Press.

Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: a systematic literature review. In: *Information Systems in a Changing Economy and Society* (p. 431).

Jenkins, H., & Deuze, M. (2008). Editorial: Convergence culture. *Convergence*. *14*(1), 5–12.

Kane, G. C., Palmer, D., Nguyen-Phillips, A., Kiron, D., & Buckley, N. (2017). Achieving digital maturity. *MIT Sloan Management Review, 59*(1).

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Digital business global executive study and research project by MIT Sloan Management Review and Deloitte. Strategy, not technology, drives digital transformation. Becoming a digitally mature enterprise July 14. Available at: https://www2.deloitte.com/content/dam/Deloitte/fr/Documents/strategy/dup_strategy-not-technology-drives-digital-transformation.pdf.

Kuhn, T. (1996). *The structure of scientific revolutions*. University of Chicago.

Leifer, R., O'Connor, G. C., & Rice, M. (2001). Implementing radical innovation in mature firms: The role of hubs. *Academy of Management Perspectives, 15*(3), 102–113.

Lévy, P. (1999). *Collective intelligence: Mankind's emerging world in cyberspace*. Perseus.

Luhmann, N. (1995). *Social systems*. Stanford University Press.

Lundstrom, A., & Zhou, C. (2009). *The rise of social innovation parks*. Springer Link.

Luppicini, R. (Ed.). (2019). *Interdisciplinary approaches to digital transformation and innovation*. IGI Global.

Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business and Information Systems Engineering, 57*(5), 339–343.

Mauss, M. (1998). *I fondamenti di un' antropologia storica*, Einaudi, Turin.

Mina, A. X., 1983- (8 January 2019). *Memes to movements: How the world's most viral media is changing social protest and power*. Boston.

Morin, E. (2001). *Seven complex lessons in education for the future*. UNESCO.

Mutti, A. (1994). Fiducia. In Enciclopedia delle Scienze Sociali, Istituto dell' Enciclopedia Italiana, Rome, vol. 4.
Neugebauer, R. (Ed.). (2019). *Digital transformation*. Springer Vieweg.
Noveck, B.S. (2008). Wiki government: How open-source democracy can make government. Brookings Institution Press.
Ope, J. A. M. (1999). From the streets to the internet: The cyber-diffusion of contention. *Annals of the American Academy of Political and Social Science, 566*, 132–143.
Padua, D. (2012). *Trust, social relations and engagement. Understanding customer behaviour on the web*. Palgrave Macmillan.
Pareto, V. (1935). *The mind and society*. Harcourt, Brace. (Original work published 1916).
Parsons, T. (1965). Il sistema sociale. Edizioni di Comunità, Milano [ed. or. The Social System (1951), The Free Press, New York].
Patel, K., & McCarthy, M. P. (2000). *Digital transformation: The essentials of e-business leadership*. McGraw-Hill.
Polanyi, M. (1966). *The tacit dimension*. Routledge.
Puschmann, T. (2016). Alt, R. Sharing economy. *Business & Information Systems Engineering*, *58*(1), 93–99.
Putnam, R. D. (1997). La tradizione civica delle regioni italiane, Mondadori, Milano, ed. or. 1994.
Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster, New York.
Rajewsky, I. O. (2002). Intermedialität. Stuttgart: A. Francke (UTB).
Rocha, Á. (Eds.), et al. (2018). WorldCIST'18 2018, AISC 745, pp. 411–421. © Springer International Publishing AG, part of Springer Nature 2018, https://doi.org/10.1007/978-3-319-77703-0_41
Rogers, D. L. (2016). *The digital transformation playbook: Rethink your business for the digital age*. Columbia University Press.
Sánchez-Mesa D., Alberich-Pascual J., Rosendo N. (2016). Transmedia narratives, Artnodes. Available at: https://www.raco.cat/index.php/Artnodes.
Simmel, G. (1908). *Soziologie*. Duncker & Humblot.
Surowiecki, J. (2004). *The wisdom of crowds*. Doubleday- Anchor.
Taeihagh, A. (2017). Crowdsourcing, sharing economies and development. *Journal of Developing Societies, 33*(2), 191–222.
Tilly C. (2002). Stories, identities, and political change. Rowman & Littlefield.
Tilly, C. (2004). *Social movements, 1768–2004*. Paradigm Publishers.
Tomassini, L. (2020). Il grande salto. L'uomo, il digitale e la più importante evoluzione della nostra storia, Luiss University Press, 2020, p. 162 [tr. Eng. The big leap. The human, the digital and the greatest evolution of our history].
Tönnies, F. (2011). *Comunità e società*. Laterza.
Tufekci, Z. (2017). *Twitter and tear gas the power and fragility of networked protest*. Yale University Press.
Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2019, November). *Journal of Business Research*, Available online 2 November 2019.
Vicari Haddock, S., & Moulaert, F. (2009), "Innovazione sociale e sviluppo integrato del territorio", in Vicari Haddock S., Moulaert F. (a cura di), Rigenerare la città. Pratiche di innovazione sociale nelle città europee, Il Mulino, Bologna, pp. 52–84.
von Wiese, L. (1959). Die Deutsche Gesellschaft für Soziologie: Persönliche Eindrücke in den Ersten Fünfzig Jahren. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 11*, 11–20.
Weber, M. (2002). *The Protestant Ethic and 'The Spirit of Capitalism'*. London: Penguin Books (Peter Baehr and Gordon C. Wells, Trans.) (Original work published 1904).
Wenger, E. (1999). Communities of practice: Learning, meaning, and identity. Cambridge University Press.
Wenger, E., McDermott, R., & Snyder, W. M. (2007). *Coltivare comunità di pratica*. Guerini e Associati.
Westerman, G., Tannou, M., Bonnet, D., Ferraris, P., & McAfee, A. (2012). The digital advantage: How digital leaders outperform their peers in every industry. *MITSloan Management and Capgemini Consulting, MA, 2*, 2–23.
Wren, C. (2018). Building brands with Transmedia Storytelling. Branding Strategy Insider, from https://www.brandingstrategyinsider.com/building-brands-with-transmedia-storytelling/#.YK_bsPkzbD5.

The Four Paradigm Model in Action

Contents

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Chapter Overview
This chapter starts by taking an holistic, that is, at 360°, view of the FPM via three tables: The FPM integrated checklist; The Four Paradigms' DTSM strategies – an integrated view; The DTSM integrated Social Markers. From these starting points, you will learn what the FPM Board and the FPM Radar are, how they work, and which result you can take out.

6.1 Introduction

As the sociocultural mindset described by the DTSM appears to be key to achieve a successful DT, it becomes of particular relevance having a tool to verify an institution's DTSM profile and to measure its areas of strengths and improvement. This chapter puts the conceptual base of the DTSM and FPM into action by introducing the original 12 profile points holistic tool of the FPM Radar and its preparatory step, the FPM Board. The FPM Board is a visualization board of web-content screenshots, to analyse in a strategic-organizational perspective an institution's transformative 'sociocultural soul'. Its original, qualitative design-thinking approach allows institutions to run self-analyses and competitive studies across any sector. The FPM Radar is the quantitative side of it, being a grading assessment tool to measure the level of DTSM and a tool to visualize at-a-glance the DTSM profile of an institution. Examples and case studies help illustrating the methodological process, guiding the reader to apply the model.

We have seen in previous chapters that the overall aim of this book is to try to reach a comprehensive understanding of the complex digital ecosystem (Luhmann, N. 1995, Touraine, 1997, Morin, 2001, Lorentz, 2004), of its processes, and of the social and cultural mindset required to generate value. As seen in the analysis of the socio-techno-economic landscape in ► Chap. 2, across the description of the Digital Transformation Social Mindset in ► Chap. 3, up to the description of the digital ecosystem in ► Chap. 4 and of the FPM in ► Chap. 5, our analysis led us to investigate the 'digital paradigm' (Donati & Colozzi 2006, Beck 1996, Di Nicola 2015, Gale & Aarons 2018) and its transformational drive versus a traditional 'analogic paradigm'. Across this exploration, we identified which social values and cultures are behind a digital mindset aligned with the socio-techno-economic evolutions occurring at macro, meso, and micro levels. Examples that would help in visualizing this complex and multifaceted process could be, for instance, the shift from a traditional paper restaurant guide to Tripadvisor; from a paper map to Google Maps; from an analogic camera to a smartphone camera; from a restaurant to Uber Eats; from a travel agency to ► Booking.com, or from a product line extension strategy to a crowdsourced co-creation strategy (Lévy, 1999; Wenger 1999; Troiani et al., 2016; Lundstrom & Zhou 2009). To understand this shift of new social behaviours enabled by technologies and strategies, we have analysed the Bottom-up, Connecting the dots, Horizontality, and Sharing paradigms, one by one. This four-paradigm format allows us to go in depth into each different dimension of digi-

tal transformation in a holistic (Bak & Chen, 1991, Prigogyne, 1986, Morin, 2001, Lorentz, 2004, Luhmann, 1995, Beck, 1996, Touraine, 1997) way. By starting from digital socio-techno-economic phenomena at macro level, up to institutions and organizations' meso analysis and the individual's perspective at micro level, each paradigm has indicated how organizations embrace phenomena at the three levels, taking them as opportunities to turn their traditional strategies into digital transformative strategies, that is, strategies that transform according to the context, that are technology and data driven but also comply with the social values illustrated across the social markers (see ► Chap. 3 and ► Table 3.3). This means strategies complying with values such as: '*Community*'; '*Sustainability*'; '*Freedom and Responsibility*', in the particular meaning attributed to the term; with a '*Resilience and agility*'; a '*Participation*'; adopting a '*data Culture*' perspective; that are '*Ecosystem*'; aiming for '*Performance*'; following a '*Context driven*'; that are '*Trust driven*'. In one word, we are talking about DTSM-driven institutions. Embracing these values implies that the institutions and organization are evolving in terms of culture and mindset and that the whole structure is transforming into a dynamic system, or, at least, is making initial steps to become a transformed organization.

To summarize, the key objective of the FPM analysed in ► Chap. 5 is:

To design a DTSM by the understanding of the socio-techno-economic digital environment at macro-meso and micro levels; specifically,

- Macro level refers to the strategic ability to understand, envision, embrace the global socio-techno-economic challenges, and also actively generate an impact on the global environment.
- Meso level refers to the way an institution, an organization, and their ecosystems may evolve in terms of adaptation models.
- Micro level focuses on stakeholders and how their value-based engagement may be improved.

The FPM allows to achieve this objective by

- Indicating via an innovative holistic approach an organization DTSM profile
- Analysing and measuring the DTSM level of an organization community, with its areas of strengths and weaknesses

The tools to achieve these objectives are two: the first, is a qualitative tool: the *DTSM board*, that is, a visualization of the coverage of at least one paradigm at each level; the second is a quantitative tool, the *FPM Radar*, a visualization of each paradigm, at each level via a radar graph.

In this final chapter, we illustrate both of them.

6.2 The FPM in a Holistic Perspective

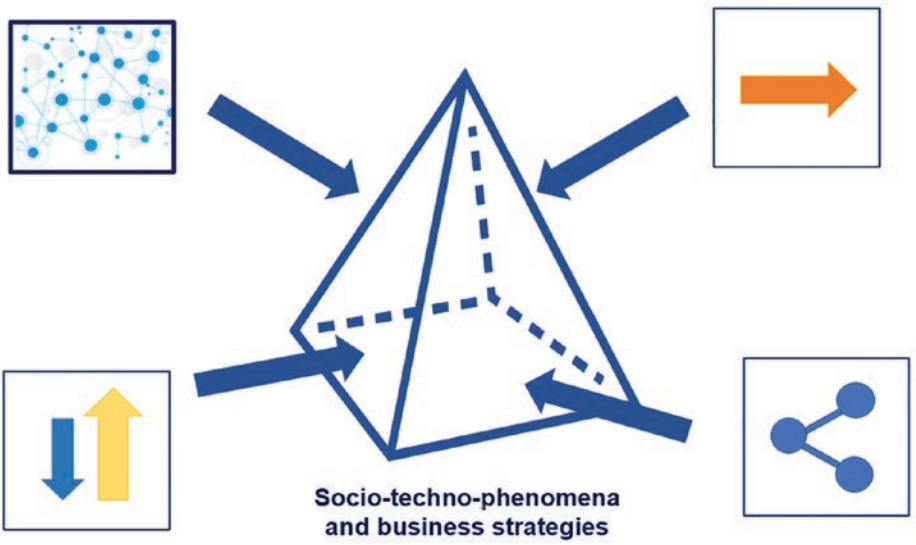
As said in ► Chap. 5, when we talked about paradigms and its theorist, Thomas Kuhn (1996), each paradigm may be represented as a stigmatization of several phenomena replicating a similar pattern and acknowledged by the scientific community. In that chapter, we have analysed socio-techno-economic phenomena

and strategies according to each paradigm. Across the analysis, it spontaneously emerged how, in many cases, in the same phenomenon, you could find *more than one paradigm*. For example, User Generated Content (UGC) is analysed under the Sharing paradigm, but it is undoubtful that it is a Bottom-up process as well; moreover, it is deeply influenced by peer-to-peer interactions, therefore by a horizontal paradigm; additionally, it is clear as a Connecting the dots approach is evidenced by the numerous 'entry points' represented by each user.

To understand a holistic perspective, we have to accept a relativistic view, as the one adopted by Greek Sophists (see ► Chap. 4, par. 'Understanding the context'), that is, we ought to accept that we must analyse phenomena under more than one perspective, considering valid them all. This approach, represented by the FPM Board and the FPM Radar, will allow us to examine each phenomenon and related strategies under a 360° view, complementing each paradigm with the other ones (◘ Fig. 6.1).

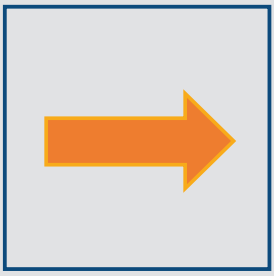
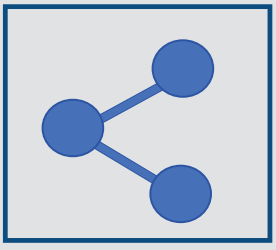
Below, we provide a holistic view of the 4 paradigms in a DTSM angle. To proceed, we will put together the checklists we had produced in ► Chap. 5 at the beginning of each paradigm analysis (See below ◘ Table 6.1). A complete list of the checking points to recognize the four paradigms will emerge. Then, we will put together the Four paradigms strategies (see ◘ Table 6.2). Finally, we will complete the process by considering the Social Markers applied to each paradigm (► Chap. 3). These three elements will represent the analytical base to build our tools: the FPM Board and the FPM Radar.

As above indicated, following the same steps we adopted in each paradigm analysis, below, we put together the Four Paradigms checklists (◘ Table 6.1), as a basic step to recognize each paradigm.



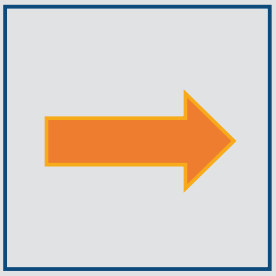
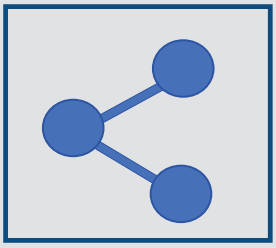
◘ **Fig. 6.1** The holistic perspective of the FPM. (Source: The Author)

Table 6.1 The FPM integrated checklist

Paradigms	
	1. Participation of people to a process (consumers, citizens, users, any stakeholder), actively and oriented to change 2. Participation stems from a free choice (it may be a response to an invitation, but it is up to the person to take part or not) 3. The initiative to join starts from the 'bottom' 4. Free expression about a brand, organization, its behaviour or about social causes 5. Digital technology enables participation 6. Digital technology enables a process that could not otherwise take place in such time/space/dimension 7. Participation impacts an organization, institution, company (reputation, ideas building, projects, product, R&D, …) and its value
	8. A complex pattern: many entry points lead to multiple effects and results 9. Multidimensional: many touch-points, many interfaces 10. Multidirectional, many possible journeys, interactions 11. Many possible experiences in many contexts
	12. Disintermediated: immediate and direct access for all: no mediation of teachers, publishers, journalists, opinion makers, booksellers, librarians, shop assistance 13. Convergent, integrated (between different media) 14. Hybrid, trans-, inter-, multi-, omni-, meshing, flat,… 15. Peer-to-peer, no hierarchies, distributed powered 16. Collective intelligence
	17. Bi-directional (one to one) inside a network (the network allows multiple one-to-one interactions at the same time, replicating the same model) 18. Sharing activities generate added value (economic, knowledge, emotional) 19. It may imply a transaction or a simple *exchange* of any content 20. It generates innovation 21. Sharing may occur between people, brand-customer, brands, institutions, organizations, other entities

Source: The Author

Table 6.2 The Four paradigms' DTSM examples of strategies. An integrated view

Paradigms	Macro level	Meso level	Micro level
	Global social movements engagement, ONGs social causes engagement	Co-creation, co-production, crowdsourcing platforms	Reviews platforms, rating platforms, buzz mktg, social listening, SM content sharing, citizen journalism-networked journalism
	Cloud computing, financial ecosystems, smart cities	On-demand services and products, connected products/services, smart tech, in-store ecosystem experiences; networked platformized products ecosystems	Customer journeys
	Transmedia storytelling, hybrid technology product development; brands transmediality, DNVB (digital native vertical brands)	Horizontal organizations, hybrid organizational profiles, cross-functional teams and profiles, co-petition models	Communities' brand engagement, Influencer mktg, SM strategies, social learning
	Clouds, social media, rental economy networks, sharing mobility networks, workspace sharing, networks strategies	Community engagement, e-commerce platforms, virtual marketplaces strategies	Social bookmarking websites, P-to-P file sharing services, P-to-P learning platforms

Source: The Author

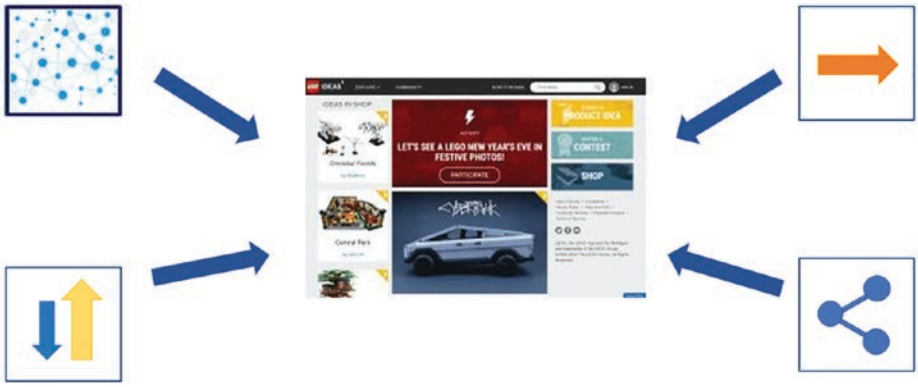


Fig. 6.2 Lego Ideas holistic FPM checklist. (Source: The Author)

If the checklist indicates that an institution, a brand, an organization fully matches the checklist items, it means that there are the bases for a holistic analysis.

For example, Lego Ideas, a brand community of a brand in the process of digital transformation (Handley, 2020) matches all the checklist items (Fig. 6.2).

By applying the FPM to our example of Lego Ideas, it emerges that

1. Participation of people to a process is granted by community members that actively participate and contribute to a change by proposing a new idea.
2. Participation stems from their free choice. It is up to them to make the decision to participate.
3. The initiative to join starts from the 'bottom', that is, from people.
4. They freely express themselves on their way to see the Lego product.
5. Digital technology enables participation by the platform, allowing the contest, the ideas posting.
6. Digital technology enables a process which is global and fast.
7. Creators and community participation impacts the Lego company in terms of reputation, ideas building, new product development (they represent an effective and efficient external R&D department), and generate value.
8. It has a complex pattern: many entry points, represented by each community member; ideas creators lead to multiple effects and results: product ideas but also feedbacks from other members, voting, for instance.
9. It is multidimensional: many touch-points, as the website, but also the blog, themes, activities, prize competitions; many interfaces – you can enjoy it on any device.
10. Multidirectional, many possible journeys, interactions: from posting your idea and writing on a blog to voting and respond to an activity.
11. Many possible experiences in many contexts are possible: posting an idea is an experience, with its evolution, that is, waiting to see how voting goes; voting is another experience, with a different evolution – seeing whether your preferred creation wins, for instance.

12. It is a disintermediated pattern: a direct relationship between a brand community and a fan, a person.
13. Convergent, as it is a platform integrating a world of fan engagement programmes, sustainability challenges, stories podcasts, educational matters.
14. Hybrid, trans-, inter-, multi-, omni-, meshing, flat, etc., as it is in-between playing, making, education, for example.
15. Peer-to-peer, no hierarchies, all empowered: anyone can present her/his own idea and win.
16. Collective intelligence: definitely, any winning idea is the result of the voting of many people that collectively contribute to the launch of a new product.
17. Bidirectional, as the network allows multiple one-to-one interactions at the same time (i.e. voting).
18. Sharing activities generate added value which is economic, knowledge, emotional, etc.
19. Lego Ideas imply an *exchange* of ideas and emotions.
20. It generates innovation, no doubt: via new products.
21. Sharing occurs between the Lego brand and community members and also among them, by the ideas exchange.

Above we have defined the Lego Ideas co-creation community via 21 qualifying items (the sum of all four paradigms' checklist items). The FPM checklist allowed us to analyse a digital transformation process in an innovative, holistic, in-depth way. Moreover, applying the checklist items sheds light on the deepest meaning of the whole set of paradigms. It helps us to become familiar with the different paradigms' nature.

As a second step, as described above and as already done in ► Chap. 5, we show a table of synthesis with some examples of reference strategies for each paradigm, split for each level: macro, meso, micro. This table allows to gain a 360° strategic view. They are the same ones we introduced when we analysed each paradigm. However, this view is not exhaustive, as there are many more possible examples of strategies.

As we have extensively analysed in ► Chap. 5, these strategies are typical of a Digitally transformed organization.

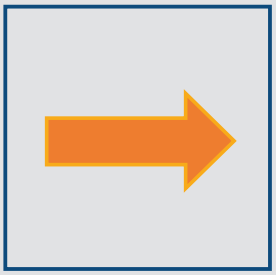
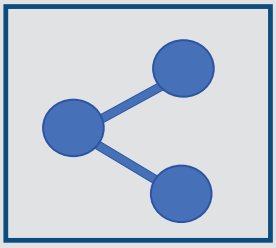
However, strategy is not enough to achieve a DTSM! To achieve a full transforming strategy, the prerequisite is to go through also a cultural transformation, leading to a mindset transformation. According to the Social Markers examined in ► Chap. 3, below, you can find a synthesis of the social markers related to specific paradigms (see ◘ Table 6.3). Keywords are highlighted for an at-a-glance view of specific sociocultural features of the different mindsets. You can find a detailed explanation of each Socio-Digital Transformation markers in ► Chap. 3. In reference to acronyms, see the specific index in front matters, we remind you that, according to the theories of Hall, Hofstede and Trompenaars and Hampden-Turner (Hall, 1989; Hofstede, 1997; Trompenaars and Hampden-Turner, 2001). Low UAI = Uncertainty Acceptance Index; Low PI: Power Index.

Table 6.3 The DTSM integrated social markers

Paradigms	
	1. Collectivism: *participation and collaboration;* trust and loyalty, exchange and engagement. Identification on global causes values, trust. Care for people 2. Long term: strong culture of *sustainability.* Long lead-times 3. Indulgence: valuing *people*; social cause as a priority, innovation versus efficiency; people-driven change 4. Low UAI: *resilience and adaptiveness*; responsiveness to social issues. 5. Low PI: crowdsourcing, co-creation, co-production; diffused power; shared information; external participation to processes 6. High context: context analysis; data-driven organization 7. Diffused: informal, destructured organization; networked structure and a dynamic morphology 8. Achievement: An *anti-hierarchical* organization, ready to open to bottom-up collaboration to reach a better *performance* 9. Outer direction: reverse engineering; agile 10. Emotional: user-generated content and customer experience; trust building
	1. Collectivism: social capital; *connections, exchange* of resources (contents and emotions); exchange and participation 2. Long term: culture of *sustainability* connections to the territory, people, planet 3. Indulgence: support people to *voice* global issues; merge ecosystems of services, platformized products to individuals' changing needs to *improve their lives. Care* about people and their lives 4. Low Uncertainty Avoidance Index: context is made of *dynamic variables*: customer journeys demonstrate it. Complexity, multidimensionality, multidirectionality are key features of complex ecosystems 5. Low Power Distance Index: in networked, platformized organizations, information circulates; *power is distributed*. Participation to decisions and processes comes from various 'dots', that is, stakeholders at large 6. High context: any CtD strategy such as embracing global social causes, clouds, on-demand services, customer journeys are based on data 7. Diffused: CtD founds itself on networks and *dynamic ecosystems*, which are destructured, multidimensional and multidirectional. 8. Achievement: a multidimensional structure with diffused power follows a *performance and meritocratic approach* 9. Outer direction: Complexity leads to the acknowledgement that the *context* is not controllable and has to be constantly analysed, as in customer journeys. A data-based dynamic analysis of the context, by connecting its variables, is required 10. Emotions: *sentiment* is valued by connecting emotions of each single individual. It is at the base of trust, regulating exchanges in a connected social network

(continued)

Table 6.3 (continued)

Paradigms	
	1. Collective: values diversity and how the integration of different perspectives may generate innovation and value 2. Long term: in integrating patterns and technologies, adopting hybrid technologies innovations, it always takes into account how to introduce and support sustainability 3. Indulgence: integrates people by cross-functional teams, hybrid organizational models; open, free but responsible organization to generate ideas and innovation, open innovation 4. Low UAI: flexibility, agility, resilient, adaptiveness are at the core of the strategy (trans-) 5. Low PD: power is distributed across the organisation; its horizontality allows people to exchange ideas and generate innovation 6. High Context: data are at the core of the organization 7. Diffused: competences are diffused, informal, destructured. PToP dialogues destructured, diffuse and informal 8. Achievement: cross-functional profiles, teamworks measured on performance 9. Outside-in: role of context, data, in platform ecosystems 10. Emotional: Sentiment analyses are relevant to check the internal–external climate
	1. Community: sharing implies interdependence, collaboration, exchange, trust and loyalty 2. Sustainability: sharing homes, cars, bikes implies shifting from consumption to fruition, costs reduction; a culture of sustainability 3. Freedom and Responsibility: access to any person; responsibility to care for the good and respect rules; trusting and valuing people 4. Resilience and agility: trust entails uncertainty: adaptiveness and openness 5. Participation: anyone is at the same level, no hierarchies 6. Data Culture: wide public generates big data; platforms nurture on data 7. Ecosystem: formal and informal networks of relationships 8. Performance: performance is the key to evaluate the service; meritocratic: public reviews, likes, votes 9. Context driven: socio-economic context and platforms ecosystems 10. Trust driven: sharing is based on trust and reviews: emotions play a relevant role in customer experience

Source: The Author

6.3 The FPM Board and FPM Radar

We have put in line three conceptual steps that are key components of the DTSM: the FPM checklist, examples of strategies for each paradigm, and the FPM social markers.

Now, a question arises: how to integrate the checklist, the Four Paradigms strategies and the FPM social markers into an actionable tool, able to measure the level of the DTSM? The answer is the FPM Radar, an evaluation-based analysis tool.

The basis of the tool is a questionnaire that has been set up to integrate all ◘ Tables 6.1, 6.2, and 6.3 into a set of questionnaire assumptions.

This questionnaire allows us to transform the FPM into an innovative visualization board of screenshots (FPM Board) which is a qualitative, web-content based analysis, to gain a qualitative DTSM profile of the institution, of a brand; the second step is the radar visualization, the quantification of it.

Both tools, the FPM Board and the FPM Radar, are versatile tools that have been tested by more than 200 students and a sample of 100 organizations. Students' feedbacks and the opinions of experts and companies representatives are provided in the Conclusions. The FPM Radar and the FPM Board may be used in the following contexts:

1. *By institutions, as a self-test tool*, to identify their DTSM profile and the areas of strengths and improvements. Importantly, if the grading process is applied by an internal evaluation, possibly, via a teamwork process, it allows a holistic analysis of organizational strategies; if, instead, it is applied to web contents, that is, the grading is made based on the information retrieved on one's corporate website contents, it allows an understanding of how holistically transparent it is and how communication is deployed across all strategic areas. Interestingly, the web research may be extended also to social media and all sources of information useful to respond to the different paradigm levels (i.e. scientific literature tackling topics about an institution). In this way, a novel and extensive picture of the corporate profile and its web reputation emerges and an evaluation is viable; further actions may be also undertaken.
2. *By organizations, to run competitive DTSM profiling*. This allows any institution, organization, and professional to run DTSM analyses on direct or indirect competitors. It may be benchmark profiling or other comparative analyses across any sector, or a single competitor profiling. These analyses allow the organization to go in depth in an original way into the investigation of the cultural, social mindset of institutions and brands and develop original reflections. Same considerations of information sources of the previous point may be done.
3. *By scholars, teachers, or students for research or study*. In this case, there are two viable methodologies:
   (a) Either by an accurate analysis of the corporate website, of all social media, and any qualified web source, such as newsletters, blogs, reports, white papers, of other related websites. These listed sources, additional to the corporate website, may be helpful to uncover internal information (i.e. about HR and organizational strategies that may not emerge directly by the website). Interestingly, students' testing shows that this route appears efficient and it is viable with no substantial issues.

      It is important to highlight how this applied profiling research may represent a useful exercise for students, stimulated to make an extensive multidimensional and transdisciplinary research approach by using different web resources and integrating them to achieve a point. Each level of any paradigm may be confirmed by several sources (i.e. a questionnaire

assumption may be confirmed by website pages, social media, academic papers, white papers, etc.);

(b) Via interviewing C-suites or top executives. The testing we have run via this route shows that respondents must be top executives having a general strategic overview and a vision of the company.

6.4 The FPM Board

As said above, to develop both the FPM board and the FPM Radar, an assumption-based questionnaire (it is a set of assumptions and not of open questions) synthesizes the DTSM checklist, its social markers, and the four paradigms' concepts (see ◘ Table 6.4). Each of the 17 assumptions is a profile point, to be verified via the selected methodology to design the FPM Board and graded, via the FPM Radar.

In some cases, paradigm's assumptions are split into two questions, to provide a more detailed level of profiling, as they contain two distinct concepts that have to be checked separately.

In line with a disruption of linear thinking (Luhmann, N. 1995, Prigogyne, 1986, Bak & Chen, 1991), the flow of the 17 assumptions follows the holistic approach of the four paradigms rather than tackling the different institutional areas or sectors of traditional business model canvas, for instance. Based on this approach, you might check an organizational item, and then an HR aspect, a marketing strategy, and then back again an organizational element. It is a different approach to analysis (◘ Table 6.4).

6.4.1 How Do the Questionnaire Assumptions Embed the Checklists, the FPM Strategies, and the FPM Social Markers?

To be synthetic, we make just one example, which is the first paradigm, Bottom-up.

If we take each element of the checklist of the first paradigm (see above ◘ Table 6.1) and verify how its concepts are integrated in the questionnaire, we can see that points 1–4 (Participation of people to a process, stemming from a free choice, free expression, the initiative to join starts from the 'bottom') are evident in assumption 3 of the questionnaire (Its customers, consumers, clients, and partners contribute to the creation of its products services through co-creation, co-production, and other forms of free bottom-up collaboration.); points 5–6 (Digital technology enables participation – a process that could not otherwise take place) are present across all the assumptions, being an enabler of participation, of responses and interaction on UGC; point 6: the bottom-up checklist is evident in assumption 5.

As for the FPM strategies (see above ◘ Table 6.2), Global Social movements or social causes engagement is embedded in assumption 2; Co-creation, co-production, crowdsourcing platforms are evident in assumption 3; social media marketing emerges in assumption 5.

Table 6.4 The FPM Board questionnaire

	Paradigm	The institution:
1	Bottom up at macro	Has a strong culture of sustainability: it believes and invests in the growth of territory and people
2		Its strategies include non-profit sector involvement and/or is engaged in global social movements, digital activism, supports online petitions and global social causes
3	Bottom up at meso	Its customers, consumers, clients, partners contribute to the creation of products-services through co-creation, co-production and other forms of collaboration
4		Leaves freedom of expression and responsibility to its employees, building relationships of trust and loyalty. Accepts the error
5	Bottom up at micro	Values the user-generated contents (feedback, ratings, reviews, images) of consumers, customers, users providing quick feedback, building conversations and relationships of trust
6	Connecting the dots at macro	Is data driven and leverages clouds
7		Adopts social media strategies by creating virtual communities on a global or regional level
8	Connecting the dots at meso	Is decentralized, with a network structure. It leverages digital platforms
9		Creates innovation through ecosystems of products and services by integrating them with data systems (using smart tech, cloud, IOT, technology platforms). It adopts a model of 'on demand' products and services
10	Connecting the dots at micro	Follows a strategy that puts the customer/client/user at the center, analyzes their (purchasing) behavior, understanding their context, emotions and the "Customer Experience", through qualitative data and surveys (Customer Journeys)
11	Horizontality at macro	Creates storytelling or narrations about its products and services across media and social networks
12	Horizontality at meso	Restricts hierarchies, promotes teamwork, favouring information exchanges and competences hybridation
13		Decision-making power is widespread; aims to achieve flexibility, adaptation and innovation. There is no strict control over internal processes
14	Horizontality at micro	Leverages, enhances, facilitates peer-to-peer exchanges and communication within its communities of consumers and customers
15	Sharing at macro	Is part of networks and associations that exchange content, information on a global/regional scale

(continued)

Table 6.4 (continued)

	Paradigm	The institution:
16	Sharing at meso	In relation to the sector to which it belongs, it leverages the sharing economy, the rent-rental economy, shared mobility, develops e-commerce
17	Sharing at micro	Values and believes that social bookmarking, peer-to-peer file sharing technologies, P-to-P learning platforms can be opportunities for the organization

As for the FPM Social Markers (see above ◘ Table 6.3), *Community* is embedded in assumptions 3, 4, 5; *Sustainability* is inside assumption 1; *Freedom and Responsibility* in assumption 4; *Resilience and Agility* in assumption 4 and 5 (think to reputation crises entailed by viral UGC); *Data Culture* in assumption 3; *Data Culture* in assumption 5, 2 and as an enabler of assumption 1; *Ecosystem* is in assumption 3 and 4; *Performance* is in assumption 4; *Context driven* is in assumption from 1 to 5, being all of them starting point for strategy building; *Trust driven* is in assumption 4, 5.

These points show how the questionnaire assumptions integrate altogether the checklists, the FPM strategies, and the FPM Social Markers.

6.4.2 How to Apply the FPM Board?

Let us get two examples of Digitally mature companies whose high level of DTSM has been already analysed in ► Chap. 2: Microsoft and Starbucks.

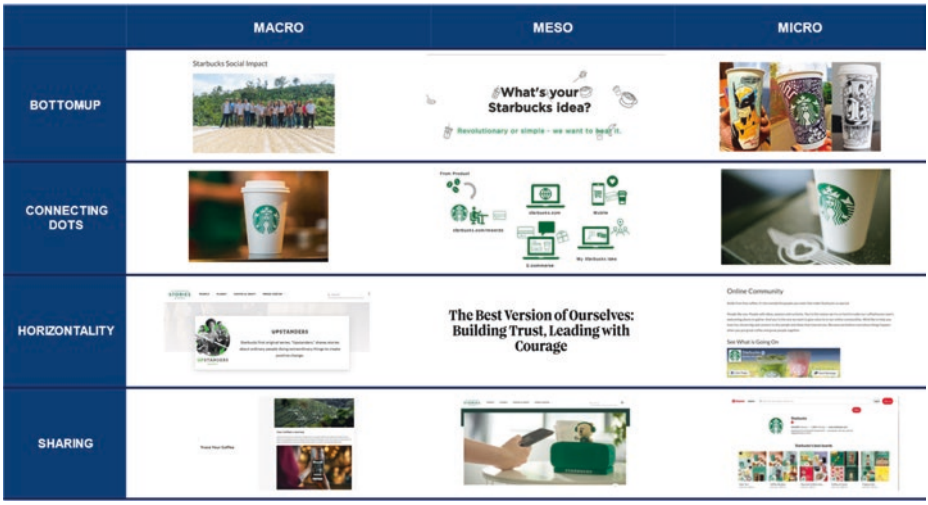
- To apply the FPM Board, the researcher has to (1) select the preferred methodology (internal review, or web contents analysis, or interview); (2) check each questionnaire assumption; (3) find evidences on the web of the checked assumptions; finally, (4) frame images (screenshots of each webpage) taken from the web representing, synthesizing, making the point, and demonstrating the checked assumptions; (5) fill the FPM Board grid. The original result, resembling the design thinking methodology, provides an original, qualitative, and at-a-glance holistic view of the DTSM of the profiled institution. Furthermore, as said above, while allowing a holistic analysis of marketing and organizational strategies integrated with cultural and social aspects, the FPM Board generates an extensive evaluation of the corporate image, or, if the methodology of the interview is followed, a verification of the respondent's perception versus web contents may be provided. C-Suites, Researchers, and students may creatively enhance the model, by multiplying the screenshots at a same paradigm/level (i.e. Sharing at meso level) to reinforce the point, or, further on, this qualitative analysis may be transformed into a quantitative one by accounting the number of web-points (contents, pages) checking the assumptions and add a score to the paradigms/levels. This score may measure the level of 'intensity of DTSM' at that level. There are several ways to originally use this grid. As we

will say in the Conclusions, the FPM has to be taken as an open model, as a platform to innovate in sociocultural analysis.
- The visualization has to be optimally accompanied by a descriptive narrative, explaining the reasons behind that specific screenshot selection.

The best way to check the validity of a theoretical framework is to verify its functioning in the real world. Therefore, the FPM Board will be now examined through two core examples of digitally transformed companies: Microsoft and Starbucks.

Below, the Microsoft and the Starbucks FPM Boards (◘ Figs. 6.3 and 6.4).

◘ **Fig. 6.3** The Microsoft FPM Board



◘ **Fig. 6.4** The Starbucks FPM Board

The descriptive narrative of the MICROSOFT case is provided below. All references are available in the FPM Radar analysis.

The FPM Board: The Microsoft and the Starbucks Case Study

The Microsoft Case Study

Founded in 1975, Microsoft Corporation is one of the leading firms in the Information Technology sector which aims to enable digital transformation worldwide and '*to empower every person and every organization on the planet to achieve more*'.[1]

Being aware of Microsoft's mission, it is already clear that it provides a perfect ground for analysing each of the digital transformation paradigms and at all the three levels of analysis.

Starting from the Bottom-up paradigm, at macro level, many initiatives visibly prove Microsoft's culture of sustainability that focuses on four main areas, which include carbon, ecosystems, water, and waste.[2] Moreover, its strategies include collaborations with NGOs such as the *Tech for Social Impact*[3] initiative, which has the goal to deliver cloud solutions to help nonprofits achieve their grand challenges and has also been used to securely analyse data in the context of Covid-19 response.[4]

At meso level, Microsoft allows customers to contribute to the creation of its products and services through the Customer Co-creation platform:[5] consumers are free to join the initiative and then, once the right opportunity arises, they are directly connected to Microsoft engineers in the early phases of product development through one-to-one interviews or focus groups. At employee level, the 'Growth mindset' value encourages employees to be curious and open to new ideas, as also not to fear uncertainty and mistakes.[6]

When it comes to the Bottom-up paradigm at micro level, the firm values all types of User-Generated Contents (feedback, ratings, reviews, images) and provides quick feedback and solutions. More specifically, the Customers Tech Talks[7] are real stories about customers sharing their learning from both positive and negative experiences with Microsoft's products and services.

Connecting the dots paradigm at macro level requires companies to be data driven and effectively adopting clouds: Microsoft has a global digital infrastructure, a data platform[8] which is leveraged to achieve innovation and

1 ► https://news.microsoft.com/facts-about-microsoft/
2 ► https://www.microsoft.com/en-us/corporate-responsibility/sustainability?activetab=pivot_1:primaryr3
3 ► https://www.microsoft.com/en-us/nonprofits?rtc=1
4 ► https://blogs.microsoft.com/on-the-issues/2020/04/13/tech-for-social-impact-covid-19-azure/
5 ► https://customercocreation.microsoft.com/
6 ► https://careers.microsoft.com/us/en/culture
7 ► https://www.microsoft.com/en-us/customertechtalks
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to develop new products and innovation. All the data collected from different sources (e.g. reviews social networks) all around the world are subsequently analysed with data science techniques, machine learning, and algorithms to offer the whole team worldwide comprehensive insights to improve products.

Equally, at meso level, the traditional centralized structure is replaced by a new decentralized paradigm which is possible, thanks to digital technology. Indeed, all products are embedded in a *digital ecosystem*[9] which allows to radically change the way in which work is executed, accelerating enterprise-wide innovation through cloud.

Finally, Connecting the dots at micro level means pursuing a strategy that puts the customer at the centre: all the activities enacted by Microsoft are customer centric, everything is about better serving customers' needs and will. This aspect clearly reflects into the firm's culture of being Customer Obsessed,[10] which goes beyond and highlights users' surprise and delight. This means even exceeding traditional customers' satisfaction.

The Horizontality paradigm at macro level can be translated into storytelling Strategies that are embraced by Microsoft in two ways:

- First, stories are collected and presented in a dedicated section named *Microsoft stories*[11] which not only includes stories about products and services, but also about Artificial Intelligence, Customers, Innovation, and many other valuable experiences.
- Second, the firm developed "*The Digital Storytelling Handbook*",[12] which entails some useful suggestions for others to master the storytelling technique.

At meso level, Horizontality is embedded in a single, decisive word particularly relevant in today's fast-moving markets: flexibility. This is possible thanks to successful technology-enabled teamwork,[13] further accelerated by the Covid-19 pandemic and the huge adoption of Agile Work practices.

At micro level, horizontality reflects into peer-to-peer exchanges and communication within its communities of consumers and customers; hence, the Microsoft Q&A platform[14] is a perfect example of this paradigm in action: users, developers, and IT professional worldwide can submit questions, share feedback, and learn anything they need.

Moreover, Microsoft values Sharing at all the different level of analysis: at macro level, it allows for successful collaborations in intelligent cloud even on a global scale;[15] at meso level, it also leverages the sharing economy, offering

9 ► https://community.dynamics.com/365/financeandoperations/b/arbelatechnologiesblog/posts/understanding-the-microsoft-ecosystem-and-its-advantages%2D%2D-part-2
10 ► https://careers.microsoft.com/us/en/culture
11 ► https://news.microsoft.com/
12 ► https://news.microsoft.com/handbook/
13 ► https://www.microsoft.com/en-us/microsoft-365/blog/2021/03/02/flexible-work-is-here-to-stay-microsoft-365-solutions-for-the-hybrid-work-world/
14 ► https://docs.microsoft.com/en-us/answers/articles/25922/microsoft-qa-top-features.html

its products and services for leasing or renting[16] and also exploiting e-commerce platforms such as the Azure digital marketplace;[17] at micro level, it develops platforms for peer-to-peer file sharing, for example Microsoft OneDrive.[18]

The Starbucks Case Study

A description of the Starbucks case is provided below. All references are available in the FPM radar.

The very first Starbucks store was opened in 1971 and since then, the company was always recognized as a different kind of company, not only focused on its core product: coffee.

First of all, the firm profoundly cares about its social impact[19] worldwide on both environment – preserved through ethical sourcing and ecological footprint – and communities – empowered through civic engagement, education, training, and development. The latter is a clear example of the actionability of the Bottom-up paradigm at macro level.

Equally, at meso level, the firm values consumers co-creation with its well-known crowdsourcing platform "What's your Starbucks Idea?[20]" where consumers can suggest ideas for a new product, or an improvement for existing ones, or even to bring back some dismissed products, but also new initiatives of community building or social responsibility.

Moreover, there exists plenty of worthy examples of Starbuck's ability to leverage User-Generated Content, expression of the Bottom-up paradigm at micro level: in 2014, the #WhiteCupContest launched via Twitter generated great interest in its audience: the winning drawings were then used as limited edition template for their cups' design.

Data collection, analysis, and implementation is key to Starbucks strategy reflecting the CtD paradigm at macro level: the Coffee Store Giant uses big data collected worldwide to offer new products and services, and works hard to create a unique experience based on human connections, also through the "Tryer Center" where new technologies are experimented and tested to make lives better worldwide.[21]

At meso level, Starbucks strategy is clear: the product itself is platformized, because it is no longer important only what is sold to the final consumer, but the focus is on entire flow of connections and the integrated system in which the product is embedded. In other words, the whole service offered at Starbucks is an experience.

Finally, everything described up to this point is based on the key value of customer centricity: everything the

15 ► https://partner.microsoft.com/en-us/asset/collection/collaborate-in-the-cloud#/
16 ► https://www.microsoft.com/en-us/licensing/product-licensing/rental-rights
17 ► https://azure.microsoft.com/en-us/marketplace/
18 ► https://support.microsoft.com/en-us/office/share-files-and-folders-in-onedrive-personal-3fcefa26-1371-401e-8c04-589de81ed5eb
19 ► https://www.starbucks.com/responsibility
20 ► https://ideas.starbucks.com/
21 ► https://stories.starbucks.com/stories/2020/how-starbucks-plans-to-use-technology-to-nurture-the-human-spirit/; ► https://stories.starbucks.com/press/2019/starbucks-backs-restaurant-tech-company-in-creation-of-end-to-end-digital-platform-for-restaurant-industry/

firm does is about customer satisfaction, which comes to reality through its rewarding system.[22]

Customer centricity is also exhibited into Starbucks storytelling initiatives, which reflects the adoption of the horizontality paradigm at macro level. *Starbucks stories*[23] are not only about its products and services, but stories are also about the Planet and People, because they are aimed at transmitting the company's core values. Furthermore, at meso level, the company adopts a flat decentralized organizational structure which puts employees at the centre of the production process: employees are called partners in order to enhance their feeling of responsibility and participation in a shared success.[24] Additionally, in 2016, Starbucks went through an organizational development aimed at enhancing feelings of trust, courage, and creativity to constantly innovate and outstand customers' expectations.[25] Finally, at micro level, online communities[26] are leveraged and valued in order to facilitate peer-to-peer exchanges and communication within its communities of consumers and customers.

The latter are also an effective representation of the sharing paradigm at micro level, showing the blurred boundaries of digital paradigms: Starbucks uses social platforms such as Facebook and Pinterest[27] to enable peer-to-peer content and information sharing. At meso level, instead, the company has developed an e-commerce platform named *Coffee At Home*[28] where customers can find coffee, other beverages, creamers, and complements, as well as information about ethical sourcing, receipts, and even suggestions for coffee preparation and enjoyment, to empower at home experience. Moreover, the company already has a partnership with UberEats for home delivery[29] and it has recently launched a new delivery service in China, supported by Alibaba's smart speaker for voice ordering.[30] Finally, at macro level, the *Traceability tool*[31,32] allows all stakeholders worldwide to share information, transforming each bag of coffee beans into a digital passport, launching coffee lovers on a virtual voyage to meet farmers, roasters, and baristas, and to explore coffee-growing regions around the world.

22 ► https://www.starbucks.com/rewards; ► https://www.cnbc.com/2017/05/04/starbucks-reward-members-can-now-earn-stars-at-the-grocery-store.html
23 ► https://stories.starbucks.com/
24 ► https://www.starbucks.com/careers/working-at-starbucks/culture-and-values
25 ► https://stories.starbucks.com/stories/2016/message-from-howard-schultz-the-best-version-of-ourselves/
26 ► https://www.starbucks.com/%2Fcoffeehouse%2Fcommunity
27 ► https://www.pinterest.it/starbucks/_created/
28 ► https://athome.starbucks.com/
29 ► https://delivery.starbucks.com/
30 ► https://stories.starbucks.com/press/2019/starbucks-and-alibaba-launch-voice-ordering-and-delivery/
31 ► https://traceability.starbucks.com/#/; ► https://stories.starbucks.com/stories/2020/new-starbucks-traceability-tool-explores-bean-to-cup-journey/
32 ► https://stories.starbucks.com/press/2019/starbucks-and-alibaba-launch-voice-ordering-and-delivery/

6.5 The FPM Radar

The FPM Radar uses the same questionnaire of the *FPM Board*, but in a quantitative way. In fact, this time, based on the same information basis, each assumption is to be checked and a grade has to be assigned to it. As said in the presentation of the two tools, the evaluation process may be made by C-Suites, an executive teamwork or by a cross-functional team to analyse their organization, by using their own sources of information. The same profiling may be made also in comparison with other competitors; it may be run for several brands or companies across sectors or markets; a benchmark analysis may be made. In this case, web content is an excellent source of information. The same source is to be used if the evaluation process is run by scholars or students.

An important aspect that has to be highlighted is the following: answers to the questionnaire (assumptions matching) are expressed by grades. Assigning a grade is always a subjective action, even if it is based on in-depth information. When the assessment is made internally, in a company or any institution, the grade of objectivity is directly related to the transparency and objectivity of the analysis. A team of persons is ideal to share a judgment on a specific issue to reach the most sincere and objective evaluation. When the grade is assigned, instead, from a third party, then, objectivity may be granted by various elements: the quality of the source of information (a corporate web, as said, should be the most reliable), the quantity of the sources (possibility to cross it with other web sources, as scientific or business literature, social media content), the crossing and integration of both; a teamwork may also definitely help to eliminate subjective grading. For these reasons, making a FPM Board first helps to reach an objective evaluation within the FPM Radar, as, besides it is a new angle to analyse an institution, it clearly anchors the research to evidences.

The FPM Radar profiling questionnaire, with grading points, is provided below.

The grading methodology: all what the interviewer has to do is to check the assumption with the evidences obtained and grade the level of identification with it in a scale from 1 to 5, where

5: Strongly agree

4: Agree

3: Partially agree

2: Don't agree

1: Strongly don't agree

Importantly, to achieve a high level of DTSM, it is not mandatory to reach a full grade. Some items may not be matched by the company for strategic or organizational or business reasons. There is, therefore, a grade of flexibility in the interpretation of results (◘ Table 6.5).

Table 6.5 The FPM Radar questionnaire

	Paradigm	The institution:	Grades 1–10
1	Bottom up at macro	Has a strong culture of sustainability: it believes and invests in the growth of territory and people	1–5
2		Its strategies include non-profit sector involvement and/or is engaged in global social movements, digital activism, supports online petitions and global social causes	1–5
3	Bottom up at meso	Its customers, consumers, clients, partners contribute to the creation of products-services through co-creation, co-production and other forms of collaboration	1–5
4		Leaves freedom of expression and responsibility to its employees, building relationships of trust and loyalty. Accepts the error	1–5
5	Bottom up at micro	Values the user-generated contents (feedback, ratings, reviews, images) of consumers, customers, users providing quick feedback, building conversations and relationships of trust	1–10
6	Connecting the dots at macro	Is data driven and leverages clouds	1–5
7		Adopts social media strategies by creating virtual communities on a global or regional level	1–5
8	Connecting the dots at meso	Is decentralized, with a network structure. It leverages digital platforms	1–5
9		Creates innovation through ecosystems of products and services by integrating them with data systems (using smart tech, cloud, IOT, technology platforms). It adopts a model of 'on-demand' products and services	1–5
10	Connecting the dots at micro	Follows a strategy that puts the customer/client/user at the center, analyzes their (purchasing) behavior, understanding their context, emotions and the "Customer Experience", through qualitative data and surveys (Customer Journeys)	1–10
11	Horizontality at macro	Creates storytelling or narrations about its products and services across media and social networks	1–10
12	Horizontality at meso	Restricts hierarchies, promotes teamwork, favouring information exchanges and competences hybridation	1–5
13		Decision-making power is widespread; aims to achieve flexibility, adaptation and innovation. There is no strict control over internal processes	1–5
14	Horizontality at micro	Leverages, enhances, facilitates peer-to-peer exchanges and communication within its communities of consumers and customers	1–10

(continued)

Table 6.5 (continued)

	Paradigm	The institution:	Grades 1–10
15	Sharing at macro	Is part of networks and associations that exchange content, information on a global / regional scale	1–10
16	Sharing at meso	In relation to the sector to which it belongs, it leverages the sharing economy, the rent-rental economy, shared mobility, develops e-commerce	1–10
17	Sharing at micro	Values and believes that social bookmarking, peer-to-peer file sharing technologies, P-to-P learning platforms, can be opportunities for the organization	1–10

Source: The Author

The FPM Radar: The Microsoft and Starbucks Case Studies

The second step is the radar which is easily made by using a Radar graph option of your pc.[33] You can analyse a single institution, or make a comparative study across a single sector or various sectors.

Below, we present an application of the FPM Radar by comparing two digitally mature companies, Microsoft and Starbuck.

We use the DTSM Board as a synthesis table integrating various examples of strategies across the four paradigms, at the three levels. Each source's reference specific webpage shows referees to a specific access date. However, we know websites are often subject to updates and revisions. So these references might change over time.

Here is the grading flow and the relative evaluations. We analyse first Microsoft.

The Microsoft FPM Radar Case Study

Assumpt # 1. Bottom-up at macro: Grade 5 Many initiatives visibly prove Microsoft's culture of sustainability focused on four main areas which include carbon, ecosystems, water, and waste. The huge number of activities performed lead us to assign the max grade.[34]

Assump. # 2. Bottom-up at macro: Grade 5 Its strategies include collabora-

33 To further describe how this process can be carried out on Excel, a radar chart is able to be leveraged by first creating a standard table with the company of interest and its corresponding rankings. Next, select this table and click onto the 'insert' tab found at the top of the screen. Once here, click on the Stock, Surface, or Radar Chat button and select radar. A preview of your chart will be shown to help you choose the style and format you are looking for. Once selected, the radar chart will appear, and you will see your own analysis which should look similar to the one below.

34 ► https://www.microsoft.com/en-us/corporate-responsibility/sustainability?activetab=pivot_1%3aprimaryr3. Date of access: April 22, 2021.

tions with NGOs such as the Tech for Social Impact initiative which has the goal to deliver cloud solutions to help nonprofits achieve their grand challenges and has also been used to securely analyse data in the context of Covid-19 response. Given that they do many initiatives and collaborations, we gave them the max grade.[35]

Assumpt. #3. Bottom-up at meso: Grade 5 Microsoft allows customers to contribute to the creation of its products and services through the Customer Co-creation platform. Customer co-creation platform is a perfect example of BU paradigm at meso level.[36]

Assumpt. #4. Bottom-up at meso: Grade 5 The same is reflected into core organizational values such as the 'Growth mindset' which encourages employees to be curious and open to new ideas, as also not to fear uncertainty and mistakes.[37]

Assumpt. #5. Bottom-up at micro: Grade 10 The firm values all types of User-Generated Contents (feedback, ratings, reviews, images) and provides quick feedback and solutions. The Customers Tech Talks are real stories about customers sharing their learning from both positive and negative experiences with Microsoft's products and services.[38]

Assumpt. #6. Connecting the dots at macro: Grade 5 Microsoft has a global digital infrastructure, a data platform, which is leveraged to achieve innovation and to develop new products and innovation. All data collected from different sources (e.g. reviews social networks) all around the world are subsequently analysed with data science techniques, machine learning, and algorithms to offer the whole team worldwide comprehensive insights to improve products.[39]

Assumpt. #7. Connecting the dots at macro: Grade 5 Social engagement is the customer experience. We think about social media the same way we do service call centres, and we believe that a customer tweet that is ignored is like letting the customer service phone ring off the hook. Therefore, it deserves the maximum grade.[40]

Assumpt. #8. Connecting the dots at meso: Grade 4 at CtD at meso, the traditional centralized structure is replaced by a new decentralized paradigm which is possible thanks to digital technology. We gave 4 out of 5, because the organizational

35 ► https://blogs.microsoft.com/on-the-issues/2020/04/13/tech-for-social-impact-covid-19-azure/
36 ► https://customercocreation.microsoft.com/
37 Growth mindset part of the Microsoft culture: ► https://careers.microsoft.com/us/en/culture
38 ► https://www.microsoft.com/en-us/customertechtalks
39 ► https://www.microsoft.com/en-us/itshowcase/microsoft-uses-analytics-and-data-science-to-enhance-the-user-experience#:~:text=Our%20scope%20is%20enterprise%20data,devices%20and%20apps%E2%80%94and%20facts. Date of access: April 22, 2021.
40 ► https://cloudblogs.microsoft.com/industry-blog/microsoft-in-business/media-comm/2017/04/18/microsoft-uses-social-media-create-customer-experience/; ► https://answers.microsoft.com/it-it/page/gettingstarted. Date of access: April 22, 2021.

structure appears mainly centralized, even though digital platforms are leveraged to enable decentralized work.[41] This grade represents a feature of Microsoft's DTSM profile, not necessarily to be considered a 'negative' evaluation. It may be a point of reflection, though. Several structural strategic reasons, also related to the sector, may be behind it.

Assumpt. #9. Connecting the dots at meso: Grade 5 All products are embedded in a digital ecosystem which allows to radically change the way in which work is executed, accelerating enterprise-wide innovation through cloud. Therefore, we assigned the maximum grade.[42]

Assumpt. #10. Connecting the dots at micro: Grade 10 CtDs at micro level means pursuing a strategy that puts the customer at the centre: all the activities enacted by Microsoft are customer centric, everything is about better serving customers' needs and will. This aspect is clearly captured by the firm's culture of being Customer Obsessed which goes beyond and highlights users' surprise and delight which means even exceeding traditional customers' satisfaction which requires firms to just meet a specific need.[43]

Assumpt. #11. Horizontality at macro: Grade 10 First, stories are collected and presented in a dedicated section named Microsoft stories which not only include stories about products and services, but also about Artificial Intelligence, Customers, Innovation, and many other valuable experiences; secondly, the firm developed 'The Digital Storytelling Handbook' which entails some useful suggestions for others to master the storytelling technique.[44]

Assumpt. #12. Horizontality at meso: Grade 5 The company highly values the role of teamwork and this is also demonstrated through the development of digital platforms that support teamwork.[45]

Assumpt. #13. Horizontality at meso: Grade 5 Horizontality is embedded in a single, decisive word which is particularly relevant in today's fast-moving markets: flexibility. The latter is possible thanks to successful teamwork that is technology enabled which was even accelerated by the Covid-19 pandemic and the huge adoption of Agile Work practices.[46]

Assumpt. #14. Horizontality at micro: Grade 10 at micro level, horizontality requires to leverage peer-to-peer

41 Microsoft structure is centralized ► https://www.researchgate.net/publication/339954311_Organization_and_Management_An_Extensive_Analysis_on_Microsoft_and_Costco. Date of access: April 22, 2021.

42 ► https://www.arbelatech.com/insights/blog/understanding-the-microsoft-ecosystem-and-its-advantages-part-1.html; ► https://community.dynamics.com/365/financeandoperations/b/arbelatechnologiesblog/posts/understanding-the-microsoft-ecosystem-and-its-advantages%2D%2D-part-2. Date of access: April 22, 2021.

43 ► https://careers.microsoft.com/us/en/culture "Customer obsessed".

44 ► https://news.microsoft.com/handbook/ ► https://news.microsoft.com/

45 ► https://www.microsoft.com/en-us/microsoft-365/blog/2019/11/19/5-attributes-successful-teams/

46 ► https://www.microsoft.com/en-us/microsoft-365/blog/2021/03/02/flexible-work-is-here-to-stay-microsoft-365-solutions-for-the-hybrid-work-world/

exchanges and communication within its communities of consumers and customers; hence, the Microsoft Q&A platform is a perfect example of this paradigm in action: users, developers, and IT professional worldwide can submit questions, share feedback, and learn anything they need.[47]

Assumpt. #15. Sharing at macro: Grade 10 at macro level allows for successful collaborations in intelligent cloud even on a global scale. While providing technological solutions to collaborate with cloud, via its Microsoft Partner Network, it creates a community at global level where people can share resources, programmes, and tools.[48]

Assumpt. #16. Sharing at meso: Grade 10 at meso level it also leverages the sharing economy, offering its products and services for leasing or renting and also exploiting e-commerce platforms such as the Azure digital marketplace.[49]

Assumpt. #17. Sharing at micro: Grade 10 Microsoft is one of the market leaders in the development of peer-to-peer file sharing platforms, such as Microsoft OneDrive.[50]

The Starbucks FPM Radar Analysis

Assumpt # 1. Bottom-up at macro: Grade 5 The firm profoundly cares about its social impact worldwide on both environment – preserved through ethical sourcing and ecological footprint – and communities – empowered through civic engagement, education, training, and development. The huge number of activities performed lead us to assign the maximum grade.[51]

Assump. # 2. Bottom-up at macro: Grade 5 The company embraces global social movements through digital activism (e.g. we come together petition, to support Americans against the government).[52]

Assumpt. #3. Bottom-up at meso: Grade 5 The firm values consumers co-creation with its well-known crowdsourcing platform "What's your Starbucks Idea?" where consumers can suggest ideas for a new product, or an improvement for existing ones, or even to bring back some dismissed products, but also new initiatives of community building or social responsibility. It is a perfect example of BU paradigm at

47 ► https://docs.microsoft.com/en-us/answers/articles/25922/microsoft-qa-top-features.html
48 ► https://partner.microsoft.com/en-us/asset/collection/collaborate-in-the-cloud#/; ► https://partner.microsoft.com/
49 ► https://www.microsoft.com/en-us/licensing/product-licensing/rental-rights; ► https://azure.microsoft.com/en-us/marketplace/. Date of access April 22, 2021.
50 ► https://www.microsoft.com/it-it/microsoft-365/yammer/yammer-overview; ► https://support.microsoft.com/en-us/office/share-files-and-folders-in-onedrive-personal-3fcefa26-1371-401e-8c04-589de81ed5eb. Date of access April 22, 2021.
51 ► https://www.starbucks.com/careers/working-at-starbucks/culture-and-values; ► https://www.starbucks.com/responsibility
52 ► https://www.starbucks.com/responsibility; ► https://stories.starbucks.com/stories/2017/starbucks-2016-global-social-impact-report/; ► https://stories.starbucks.com/press/2013/if-we-come-together-our-voices-will-be-heard/

meso level which therefore deserves the maximum grade.[53]

Assumpt. #4. Bottom-up at meso: Grade 5 In 2016 Starbucks went through an organizational development aimed at enhancing feelings of trust, courage, and creativity to constantly innovate and outstand customers' expectations. The company promotes a culture of belonging and inclusion, even for part-time employees. Moreover, among the key company values, we found that Starbucks invites its employees to act with courage, to challenge the status quo, and to find new ways to grow the company and each other.[54]

Assumpt. #5. Bottom-up at micro: Grade 9 There exists plenty of worthy examples of Starbuck's ability to leverage User-Generated Content, expression of the Bottom-up paradigm at micro level: in 2014, the #WhiteCupContest launched via Twitter generated great interest in its audience: the winning drawings were then used as limited edition template for their cups' design. We assigned 9 points out of 10 just because there is no great evidence of those initiatives on the company's website, even if their UGC strategies are also referred to as best practices.[55]

Assumpt. #6. Connecting the dots at macro: Grade 5 Data collection, analysis, and implementation is key to Starbucks strategy reflecting the CtD paradigm at macro level: the Coffee Store Giant uses big data collected worldwide to offer new products and services, and works hard to create a unique experience based on human connections, also through the "Tryer Center" where new technologies are experimented and tested to make lives better worldwide.[56]

Assumpt. #7. Connecting the dots at macro: Grade 4 Through community partnerships, feedback from partners and customers, and counsel from civil rights and community leaders, Starbucks will continue the journey to be a place where everyone is welcome. We assigned 4 out of 5 points just as an element of reflection, to highlight the value of the global Starbucks community and consider possible innovative ways to build tighter communities besides traditional social media as FB and Instagram.

Assumpt. #8. Connecting the dots at meso: Grade 5 Starbucks has a divisional structure. Each division is led by a senior

53 ► https://core.ac.uk/download/pdf/82335342.pdf; ► https://www.braineet.com/blog/my-starbucks-idea-case-study/; ► https://ideas.starbucks.com/

54 ► https://stories.starbucks.com/press/2019/starbucks-equity-and-inclusion-timeline/

55 ► https://ideas.starbucks.com/ Meet Me at Starbucks' social media campaign in 2014; #WhiteCupContest ► https://sjc.marketing/what-starbucks-can-teach-us-about-user-generated-content/

56 ► https://stories.starbucks.com/stories/2020/how-starbucks-plans-to-use-technology-to-nurture-the-human-spirit/; ► https://stories.starbucks.com/press/2019/starbucks-backs-restaurant-tech-company-in-creation-of-end-to-end-digital-platform-for-restaurant-industry/

vice president, reporting directly to the US president. Within each division, partners supporting Store Development, Marketing, Partner Resources, and Finance will report directly to their respective functions while still being accountable for results at the divisional level. These teams are being centralized to create an infrastructure with global span, capability, and effectiveness. Each store is managed almost independently from the others.[57]

Assumpt. #9. Connecting the dots at meso: Grade 5 At meso level, Starbucks strategy is clear: the product itself is platformized, because it is no longer important only what is sold to the final consumer, but the focus is on entire flow of connections and the integrated system in which the product is embedded. In other words, the whole service offered at Starbucks is an experience.[58]

Assumpt. #10. Connecting the dots at micro: Grade 10 Starbucks deeply values customer centricity: everything the firm does is about customer satisfaction which comes to reality through its rewarding system.[59]

Assumpt. #11. Horizontality at macro: Grade 10 Customer centricity is also exhibited into Starbucks storytelling initiatives, which reflects the adoption of the horizontality paradigm at macro level. Starbucks stories are not only about its products and services, but stories are also about the Planet and People, because they are aimed at transmitting the company's core values.[60]

Assumpt. #12. Horizontality at meso: Grade 5 The company adopts a flat decentralized organizational structure which puts employees at the centre of the production process: employees are called partners in order to enhance their feeling of responsibility and participation in a shared success.[61]

Assumpt. #13. Horizontality at meso: Grade 5 In 2016, Starbucks went through an organizational development aimed at enhancing feelings of trust, courage, and creativity to constantly innovate and outstand customers' expectations. In Starbucks, employees are considered partners.[62]

Assumpt. #14. Horizontality at micro: Grade 9 Finally, at micro level, online communities are leveraged and

57 ► https://stories.starbucks.com/press/2008/starbucks-makes-organizational-changes-to-enhance-customer-experience/
58 ► https://stories.starbucks.com/press/2019/starbucks-backs-restaurant-tech-company-in-creation-of-end-to-end-digital-platform-for-restaurant-industry/
59 ► https://www.starbucks.com/rewards; ► https://www.cnbc.com/2017/05/04/starbucks-reward-members-can-now-earn-stars-at-the-grocery-store.html
60 ► https://stories.starbucks.com/
61 ► https://www.starbucks.com/careers/working-at-starbucks/culture-and-values
62 ► https://stories.starbucks.com/stories/2016/message-from-howard-schultz-the-best-version-of-ourselves/

valued in order to facilitate peer-to-peer exchanges and communication within its communities of customers. Given that we only found Starbucks' profiles made on non-proprietary platforms (i.e. Facebook mainly), we consider this an element of reflection.[63]

Assumpt. #15. Sharing at macro: Grade 10 Finally, at macro level, Starbucks partners with several networks and associations for inclusion and diversity, as Armed Forces Network, Black Partner network, Disability Advocacy Network, Hora del Cafè, India Partner Network, and many others. Also, Starbucks' Traceability tool allows all stakeholders worldwide to share information, transforming each bag of coffee beans into a digital passport, launching coffee lovers on a virtual voyage to meet farmers, roasters, and baristas, and to explore coffee-growing regions around the world.[64] This is a very creative way to generate sharing at macro level that may be even reinforced.

Assumpt. #16. Sharing at meso: Grade 10 At meso level, instead, the company has developed an e-commerce platform named Coffee At Home10 where customers can find coffee, other beverages, creamers, and complements, as well as information about ethical sourcing, receipts, and even suggestions for coffee preparation and enjoyment, to empower at home experience. Moreover, the company already has a partnership with UberEats for home delivery and it has recently launched a new delivery service and China, supported by Alibaba's smart speaker for voice ordering. The different initiatives lead us to assign the max grade.[65]

Assumpt. #17. Sharing at micro: Grade 9 Starbucks uses social platforms such as Facebook and Pinterest to enable peer-to-peer content and information sharing. A reflection may be made about a personalized Starbucks' community platform as an opportunity for a more engaged community.[66]

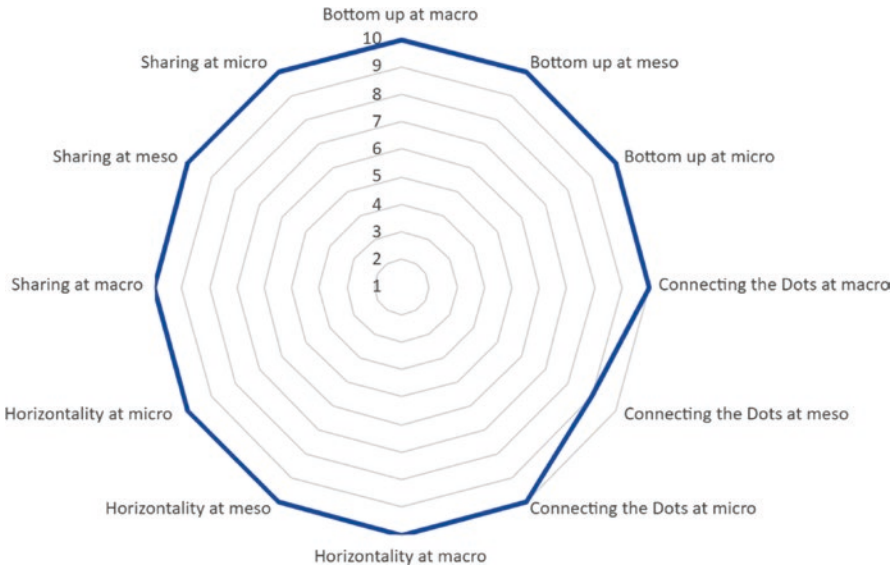
63 ► https://www.starbucks.com/%2Fcoffeehouse%2Fcommunity
64 ► https://traceability.starbucks.com/#/
65 ► https://athome.starbucks.com/?utm_source=starbucks.com&utm_medium=referral&utm_campaign=footer; ► https://stories.starbucks.com/press/2019/starbucks-and-alibaba-launch-voice-ordering-and-delivery/+UBER
66 ► https://www.pinterest.it/starbucks/_created/

A synthesis of the above explained grading follows:

Paradigms	Microsoft	Starbucks
Bottom up at macro	10	10
Bottom up at meso	10	10
Bottom up at micro	10	9
Connecting the dots at macro	10	9
Connecting the dots at meso	9	10
Connecting the dots at micro	10	10
Horizontality at macro	10	10
Horizontality at meso	10	10
Horizontality at micro	10	9
Sharing at macro	10	10
Sharing at meso	10	10
Sharing at micro	10	9

The FPM Radar result follows (◘ Figs. 6.5 and 6.6):

The FPM Radar confirms the leadership role of Microsoft and of Starbucks companies in Digital Transformation showing a top level of Digital Transformation Social Mindset. For this reason, they might be considered as DTSM benchmarks.



◘ **Fig. 6.5** The Microsoft FPM Radar

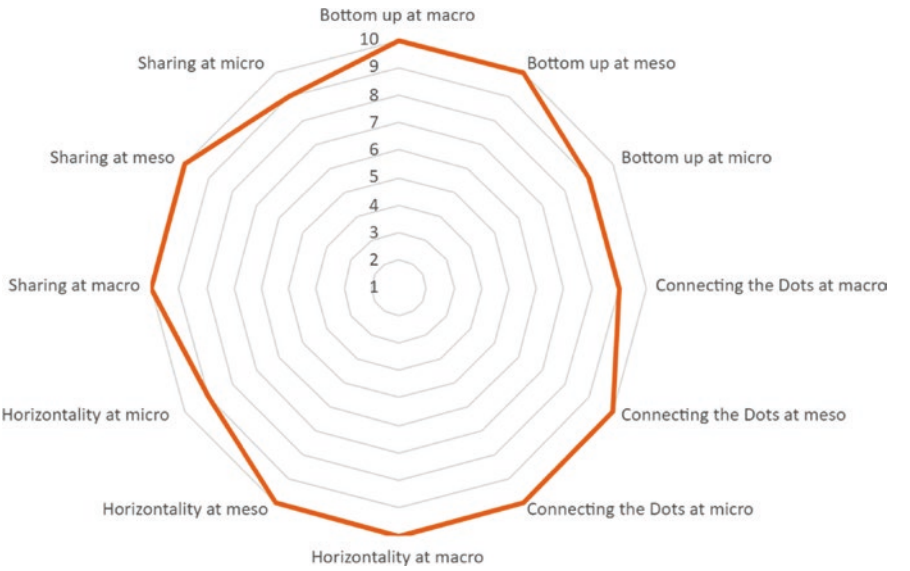


Fig. 6.6 The Starbucks FPM Radar

Each paradigm, at each level, has obtained a high grade with clear evidences confirming it. Slightly lower grades in a few points may reflect only sectorial peculiarities, without any negativity. They might also become food for thought.

Summary

In conclusion, in this final chapter, two tools to measure the DTSM, under a qualitative and quantitative methodology, have been illustrated. These tools are funded on the results of the previous chapters, integrating the FPM checklists, The Four Paradigms' DTSM strategies, and the DTSM Social Markers. What may be of particular interest is the flexibility of the tools and the ways suggested in the chapter to further build on them. They are also versatile in terms of users. C-Suites may be interested to analyse an organization's strategies and communication executions; for teachers and students, they may become a useful way to improve web searches, as tested students can confirm, and an original way to investigate digital marketing and digital transformation models. We have concluded our journey from a discussion on the vast digital-analogical scenario up to showing applicative profiling tools. Behind this landing point of our reflection, we move to the conclusive chapter.

References

Bak, P., & Chen, K. (1991). Self-organized criticality. Scientific American, 1, 264.
Beck, T. (1996). The structure of scientific revolutions. University of Chicago.

Di Nicola, P. (2015). La rete: metafora dell'appartenenza. Analisi strutturale e paradigma di rete. Franco Angeli.
Donati, P., & Colozzi, I. (a cura di) (2006). Il paradigma relazionale nelle scienze sociali: le prospettive sociologiche, Il Mulino, Bologna.
Gale, M., & Aarons, C. (2018, Fall). Digital transformation: Delivering on the promise. Executive Forum.
Handley, L. (2020) Lego CEO says toymaker's digital future is a 10-year journey. Accessible at https://www.cnbc.com/2020/09/02/lego-ceo-says-toymakers-digital-future-is-a-10-year-journey.html. Accessed on 10-10-2021.
Hall, E. T. (1989). Beyond culture. An Anchor Book.
Hofstede, G. H. (1997). Cultures and organizations: Software of the mind. McGraw-Hill.
Kuhn, T. (1996). The structure of scientific revolutions. University of Chicago.
Lévy, P. (1999). Collective intelligence: Mankind's emerging world in cyberspace. Perseus.
Lorentz, K. (2004). King Solomon's ring. Taylor & Francis e-Library.
Luhmann, N. (1995). Social systems. Stanford University Press
Lundstrom, A., & Zhou, C. (2009). The rise of social innovation parks. Springer Link.
Morin, E. (2001). I sette saperi necessari all'educazione del futuro. Raffaello Cortina.
Prigogyne, I. (1986). Dall'essere al divenire. Einaudi.
Touraine, A. (1997). Critica della modernità. Il Saggiatore. (Original edition 1992). Critique de la modernitè. Librairie Arthème Fayard.
Troiani F., Sica R., Scotti E. Welcome to the era of platform-companies. In HBR, July 2016 Open Knowledge, 'the Platfirm age' accessible at https://2016.socialbusinessforum.com/hbr/. p. 2–4.

Conclusive Remarks

Contents

D. Padua, *Digital Cultural Transformation*, Innovation, Technology, and Knowledge Management,
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Somehow, this is an uncomfortable book. The reason is that, while designing bright horizons and unexpected opportunities for the future of humanities, it puts all of us in front of our responsibilities. Changing a mindset is one of the most difficult process that a person could face. For an institution (business, government, NGOs, and media), it is even more difficult. The volume courageously invites the reader to navigate the turbulent waters of the digital transformative oceans on a new ship, with unknown instruments: a new compass, original glasses, and a wide-angle telescope. Via unsettling analogies taken from many distant sectors and a wide array of examples to solidly ground the interdisciplinary and empirical approach into real cases, not to lose the navigation course, the book provides a social and cultural approach to analyse the transformative mindset. The aim is to have institutions and individuals become the protagonists of a better future for our planet, for all people, respectful of the environment and of inclusiveness. The volume is aimed to institutions, professionals, scholars, teachers, and students. If the book stimulates students to learn how purposefully and autonomously to explore the web to grasp its deeper meaning, institutions are solicited to answer to direct quests that go right to the core of their transformative DNA, as: 'How effectively are you carrying on DT in a sustainable, people-centred way? How are you aware of your social role and your social impact? How DT may be carried on diversely and more effectively to achieve your mission? Which is your cultural DT profile and what are your DT areas of strength and areas of improvement, under a cultural perspective?'

Before answering these questions, it is worth depicting what DT implies for an institution. The phenomenon of DT refers to the integration of digital technology into all areas of a business, resulting in fundamental changes to how businesses operate and how they deliver value to customers. This is a complex process, as digital is multidimensional and diffuse, involving not only technology, but also people and their culture. It is an ongoing process of change within a business model and organizational structures; it requires foundational investments in new skills and competences, in infrastructures, and in new projects; it integrates people from different areas that had not worked together before, technologies and new processes; it requires commitment from the top levels and continuous monitoring to intervene to remove obstacles to integration, while coordinating this complex transformation. DT challenges people, citizens, the society at large, organizations. And it does so being in continuum with the market, customers, technology innovation, regional and governmental policies, and all realms of the ecosystem in which the institution survives. In synthesis, we may say that DT may become an innovative and powerful technological tool to enable and facilitate collaboration, communication, work relationships, to serve people and organizations. If both entities are driven through the cultural change, value may be generated for both.

In organizations, the alignment with the market is another strategic aspect in determining the success of the DT. For example, when P&G was making its digital push in 2012 and 2013, it was already well ahead of most companies. Today, it does so; no digital initiative is undertaken at P&G if it does not fit the strategy closely and if it is not hardwired to value. In public, governmental institutions, instead, it is the alignment with regional policies that has to be tightly observed, as in EU, the NextGenerationEU recovery plan and its norms of compliance to recover from pandemics.

Another aspect to take into consideration is the risk of being attracted by a DT as a solution to solve issues of the existing business or public mandate. In these cases, the call of a new business or policy model can become more powerful than it should. The prospect of launching an attractive technology-based business or public strategy is tantalizing. The allure of digital can become all-consuming, causing private and public executives to pay too much attention to the aim and not enough to the process, to people, and organizational issues behind it.

A research run by the Boston Consulting Group states that 'Seventy percent to eighty percent of public-sector core-system modernizations either fail outright or are disappointments: they have budget overruns, missed deadlines, or fail to deliver expected functionality'.[1] In the private sector, Sears' investments in analytics were not a bad idea, but the company's facilities and services needed investment more. Although Nike's executive team was derided for shrinking the digital unit in 2014, the move allowed them to focus their continuing digital investments on higher-value activities. This is important when managing any technological – strategic change: executives/managers know where they are going and how to measure progress. If the indicators move in the wrong direction, they can take action to set them on the right path, or they can make the choice to de-escalate the investment.[2]

In synthesis, before embarking into a DT investment, before experiencing resistance from people to change and complexities of multiple origins, the need of an accurate assessment of the external and internal context as market readiness, competitor's strategies, internal organizational alignment is an imperative.

Based on these considerations, the book has provided answers to the above core questions paid to institutions, regarding the social and cultural value of DT. The research work presented across the volume has introduced a new model, the FPM, and a mindset profile, the DTSM, behind it; via an original approach, which is interdisciplinary and holistic, it has indicated new tools, the FPM Radar, to measure and visualize results, with its antecedent step, the FPM Board, a qualitative analysis of compliance to the FPM. Specifically, the 'Four Paradigm Model' is composed of four key paradigms, which are Bottom-up, Connecting the dots, Horizontality, and Sharing. These are the coordinates pointed by the above-mentioned symbolic 'compass' to help the reader envision digital-analogical phenomena in a comprehensive way. As we anticipated in the introduction, this book does not provide just a model: to use the compass, the reader has to wear the right glasses, that is, the Digital Transformation Social Mindset. This is the second aim of the book: understanding the role that the social culture plays in the overall success of the digital transformation process. The reader may be surprised that the Digital Transformation benchmark organizations show to have top levels of DTSM. In truth, this is a great evidence that to achieve a solid and durable success, the values of the DTSM are necessary.

1 Joost de Kock, Andrew Arcuri, Florian Frey, and Danny Werfel, How Governments Can Get Technology Transformations Right, June 10, 2016, BCG Date of access May 24, 2021.

2 Why So Many High-Profile Digital Transformations Fail by Thomas H. Davenport and George Westerman, March 9, 2018 HBR.

The fact is that many institutions are not aware of their level of DTSM. Nor, maybe the successful ones. Indeed, being aware of a DTSM's profile on one own institution opens the eyes on one's own sociocultural profile and indicates the routes to extract value out of it: for example, communicating it to the public, or starting an internal reflection on it. We have said, in several points of the book, how people and society at large are becoming more and more keen on these values: social, environment, sustainability, responsibility and they ask for it to institutions.

We have seen what a DTSM is: it is a mental scheme that allows an institution, a scholar, a student, to use the model in a dynamic, transformative way, that is, applying it to profile the DT level of its own institution, or of an organization's competitor, or to study a sector. The 12 profile points tool of the FPM Radar measures the level of DTSM and visualizes at-a-glance the profile position end result. But what is maybe even more relevant are the elements of which the DTSM is composed: the social markers that integrate values and organizational, business, strategic approaches. The *DTSM is able to connect and integrate skills and strategies to dynamically analyse the context and to courageously challenge the status quo. It generates innovation based on sociality by connecting people and technology to create social value that is aware of the environment, of ethical values, of women, and future generations*.

In a nutshell, the book intends to express the idea that digital transformation pervading our world is a not-to-be-missed opportunity to be mastered and that the further push that the pandemic has given to this transformation is a chance that must be seized in its deepest sense. We need to equip ourselves to guide this transformation in a direction of survival of the planet and the people who inhabit it. We are all called, and, in particular, the institutions, public, private, non-profit have a new important responsibility to guide this transformation. What are the values to follow? They are the values of the Digital Transformation Social Mindset which promotes a social and sustainable mindset able to make not only business grow but also take decisions, see issues and opportunities to impact positively on society and people's everyday life. That mindset that decides for the 'good technology' which we know helps people's wellness and growth.

In synthesis, the ten pillars of an institution bearing the DTSM's values are: (1) Community in the sense of people-centred and holistic; (2) Sustainability, with a long-term approach, as this is a prerequisite for sustainable strategies. This means also being compliant with a 'technological sustainability', in terms of a sustainable power-control balance between the human and AI-machine learning self-determining systems; (3) Freedom and Responsibility, accepting a 'fail fast' culture, given the need to innovate and experiment; (4) Resilience and Agility to be adaptive to environmental crises and turbulence while leveraging it to build value; (5) Participation, to engage all stakeholders in processes and idea generation, entailing teamwork; (6) Data Culture, data savvy, as real time, big data, the outcome of digital technologies as AI, IOT, are at the core of the understanding of the digital context and peoples' behaviours. This does not mean just data literacy, but a data culture; (7) Ecosystems, with a diffused structure, blurred borders; (8) Performance, prizing achievement; (9) Context driven, with a reverse-engineering culture; (10) Trust builder, as trust is the door to relationship building and loyalty generation.

The book has been divided into two sections: the first has shed light on the digital-analogical landscape and has prepared the reader to the explanation of the

FPM and of its tools, the FPM Radar and FPM Board. The flow of the book has started from looking for the 'social soul' of institutions to activate a successful digital transformation in line with the principles of the DTSM. It has explained the meaning of 'success' for DT in the current transformative scenario, deeply affected by environmental, social, and economic disruptions and has demonstrated how, nowadays, profit has to cope with a sustainable social impact. A focus, then, has been paid to the impact of the Sars Covid-19 pandemic, making institutions aware of a new 'technological responsibility' concerning the impact of technology, of AI, and of big data on people and society: a new data culture. A sustainable mindset, driving an appropriate 'digital culture', has been demonstrated to appear, then, to be the most forceful drive to source value from technological innovation. Section one ends with the core topic: the illustration of the DTSM, the mindset for sustainable innovation; a new way to innovate in a complex and dynamic environment; it is an adaptive, flexible, imaginative mindset to cope with the organic and dynamic complexity of the digital-analogic environment.

Section two has started with a 'mindset gym' to transform a single-minded efficiency-at-any-cost cultural model into a lateral thinking approach, open to multidimensionality and transdisciplinary. We have demonstrated, via an analogy-based and an interdisciplinary methodology, that we do not have to fear any cultural, humanistic intersections with business and technological realms. We do not have to be afraid of 'losing time' by taking different, distant routes: the reward, in terms of innovation and value, is high. Linear thinking is at an end. We have to transform our mindsets into multidimensional mindsets. Following this opening, the FPM has been displayed with a richness of methodological descriptions, examples, and case studies. We have seen how the model has synthesized, in a holistic way, the multiplicity of socio-organizational phenomena into four paradigms, that is 'constants' of digital phenomena observed: *Bottom-up*, *Connecting the dots*, *Horizontality*, and *Sharing*. Based on the DTSM 'social markers', the paradigms relate to specific 'mindsets' which integrate social, cultural, organizational, and management variables. Via a Digital Sociology approach, solidly grounded in a massive number of real organizational-business examples, for each paradigm, the FPM starts from the socio-techno-economic phenomenon to indicate examples of successful DT strategies at macro, meso, and micro levels.

Finally, the two tools to measure the DTSM, under a qualitative and quantitative methodology, have been illustrated (FPM Board and Radar). These are flexible and versatile tools. Public policy makers may be interested in valuing them for governmental policies. Actually, we find many of them in the EU NextGeneration plan. C-Suites may be interested to apply them for organization's strategies and communication executions; for teachers and students, they may become an original and comprehensive way to investigate digital transformation models under an original perspective and a useful way to improve web exploration, as below reported by interviewed students.

At the end of each chapter, interviews to digital experts focus on specific questions related to different aspects of the DTSM topics. Interviews are made to Garry Titterton, Chairman of the Board, PI Datametrics, global digital agency – SEO; digital expert Neil Borer, Adam Riccoboni, author of The AI Age, CEO of Critical Future; Jon Earnshaw, SEO and digital opinion leader, CTO at PI Datametrics.

Before moving to a final interview to a sociologist, as a final wrap-up of the sociological mainframe of observation and analysis of the digital landscape, we ought to make a conclusive remark. And we make it by answering a key matter: what moved the Author to write this book.

We are in an epochal moment for humanity, of profound change. The transformation taking place due to digitalization has launched a new era that pervades everything, involves all people and the main expressions of life: social, relationships, and work.

Fascinated by this new era of global transformative change, we wanted to understand how this digital transformation is taking shape and which is its DNA, in other words, its genetics. Then, the pandemic broke out. A second, incredibly unexpected, natural wave that makes us understand how everything is unpredictable and cannot be governed.

How do these two huge upheavals of this planet intersect? How do they influence each other? To provide an answer, perhaps, we need to start looking upwards, in different directions, where new horizons arise, which, on the one hand, upset our beliefs, and, on the other, illuminate new paths. When a small drone helicopter has been able to land on Mars tens of millions of miles away from the Earth, the journey of the imagination, one day, has become reality: the red planet cannot only become a destination hitherto unthinkable for all of us but also a parachute for humanity.

To keep faith to our humanistic-sociological approach, we introduce a conversation with a leading Italian sociologist, on the role of sociology in a digital landscape. We have seen how as, in this book, digital sociology has substantially contributed to provide a richer and in-depth view of issues that, today, are mostly tackled under the business perspective.

A second, last but, definitely, 'not the least' conversation, in the form of interview, is made to students who have experienced learning in class the topics illustrated in this book, to provide their perspective.

Sociological Conversations: Interview with Professor Fabrizio Fornari.[3]

Question: What do you think is the new role of sociology in the complex and transformative digital environment? What are the indications that it can give in relation to the intercultural and humanistic approach of the Four Paradigm Model?

To address contemporary sociology, the first aspect to highlight is the issue of its interdisciplinary vocation, given Raymond Boudon's denomination of 'balkanization' of sociological knowledge, whose heteroclite character subjects it to a dismemberment in which it, itself, risks dissolving.

The paradox is that, on the one hand, we find, today, sociologists who still use social theories of the first half of the twentieth century are still current without

3 Full Professor of Sociology at the Università degli studi 'G. D'Annunzio' Chieti-Pescara, Italy.

historicizing them and, on the other, social scientists are reduced to collectors of sociometric data, totally harnessed in that new religion called *data science*, with its big data and its agent-based simulation (ABM – Agent-Based Model). These approaches appear to be a reduction of the *sociological reasoning*. No doubt that above all, the knowledge of the so-called classics of sociological thought is still a valid point of reference, just as it is certain that the study of social phenomena through the intensive application of computational methods, or through AI, with its complex statistical and analytical approaches, has opened up new perspectives for focusing on the latest modes of social interaction.

However, if the limit of the first approach is the fact that the current knowledge is no longer the same as that one of the beginning of the last century – and not similar to that of what was believed 30 years ago – the limits of the second one are to be found in the new computational sociology framework. In fact, through algorithmic simulation, its *exitus* is reduced to the mere evaluation of the effects on the investigated systems produced by supposed autonomous agents, to find *explanatory* data of social action, meaning, what emerges has a properly *descriptive* nature.

From an epistemological point of view, the computational approach in sociology actually presents quite a few difficulties, both logical – given the data I should explain that is the result of what allows me to explain it – and cognitive, given that agent simulation, contrary to what is thought today, makes too much empirical data available and too little reflection on it.

On this point it would be enough to recall Comte's adage – yes, the great old Comte himself – according to which 'without the luminous guide of a theory', there is no scientific research of the social. The risk to which the new religion of big data exposes us to is that scientific and cognitive sociology is reduced to scientism, that is to the caricature of science. The result is the restoring of a form of crude and reifying paleo-positivism, indeed, dressed in the new habits of explanatory algorithms and artificial intelligence, still evidently not accustomed to exercising the theoretical art of doubt and critical thinking. We, thus, tend to forget that computational sociology – and the world that revolves around it – is not something that *simpliciter* (simply) explains, but rather something that *needs to be explained*.

If this aspect is not grasped, sociology could turn into an amazing algorithmic factory of self-deceptions and illusions, returning to being just a 'cameralist' discipline,[4] according to the definition of Joseph Schumpeter; we would prefer mathe-

4 The term 'cameralism' refers to a German science of administration in the eighteenth and early nineteenth centuries that aimed at strong management of a centralized economy for the benefit mainly of the state. The Cameralists had thus put Physiocracy on its feet long before it emerged (Harcourt, 2011) or, in Schumpeter's timeless words, Cameralists advocated our modern notion of 'laissez-faire with the nonsense taken out' (Schumpeter, 1954, pp. 170–173).

matical solutions to solve intricate social problems, but this is not possible (nor can Shelley Taylor's thesis, according to which a certain amount of daily illusions can be essential to nourishment for any normal mind, console us).

But today, fortunately, something is also taking another direction, albeit through slow and mostly underground transformations. It has been understood that the theory is indeed essential and that it cannot be confused with the modelling implemented by an agent simulation. This is because the empirical data, now digitally detected, is never just a 'datum', but rather a dynamic and multidimensional 'construct' to be analysed in a context.

This implies that the study of society, today, should start from the bottom, from the widespread questions of people, from things, from the subjectively lived and intentional sense, as Max Weber argues. In other words, the sociologist should go back to the cities, the streets, the industrial districts, building relationships with people (observed and analysed within their ontological background), to marginalization and inequality. It should, I say, because in fact, the world has moved to the network, to the hyper-consumption of digital products. And the web – especially after more than a year with the pandemic – has become the world-sheet on which to write current experiences. Moreover, incidentally, without this progressive explosion of the web – with its lights and shadows – sociology would certainly not have taken computational research as its own path.

The point, however, is different: our being more and more hyper-connected, in a globalized world, does not deserve anachronistic censorships: it deserves to be investigated as a new opportunity to reflect on the immense power of signs and on the symbolic order they represent.

The risk is that the phantasmagoric and infinite proliferation of signs transforms into a world devoid of things – into a sort of de-reality that cancels the thing of which the sign is in fact *semeion* – that is, into an apologia of the *signifier* (read: computer science medium), to the detriment of the *meaning*. To avoid this, it will be, then, a matter of understanding which de facto tool works, only according to its own logic. This goes beyond the indifferent and somewhat distressing logic for which the tools of the technique would be substantially neutral, becoming good or bad only in relation to the use that is made of them. The network follows a logic that does not tolerate discontinuity; it is not relevant what you say, the important thing is that you keep saying it, regardless of everything.

Now, if sociology does not want to translate only into a 'quantophrenic'[5] sociometry, it will have to take on the task of mediating the dialectic between *hybris* (arrogance of man) and *nemesis* (revenge of the Gods), as metaphors for an intervention that regulates the excess of infinite dissemination of *signifiers* to the detriment of *meaning*.

Yes, because today communication – with a gradually eroding digital divide – is an anonymous universe, in which everything and the opposite of it is valid. The broadcaster remains largely unknown to us, and this is not a limited problem. In other words, a radical inability to filter information is operating in the network,

5 An immeasurable quantitative approach.

with the consequence that every superstition can and will be able to rise to the dignity at least one likely discourse. Who on the web is actually speaking to me remains, in fact, obscure (just as the possibility of identifying the recipient remains unobtainable, if not as a stratified and also anonymous data).

From this point of view, it could be said, as Umberto Eco noted, that the web is good for the rich and bad for the poor. It is good for the rich, because we who are very rich – we who share, albeit summarily, social and cultural (if not economic) capital – know how to navigate and select information; that is, we know how to take what we need and leave out what is not useful to us. Not the 'poor people'. The latter are, in fact, completely overwhelmed by the indiscriminate abundance of information. It follows that the abundance of information renders this group and makes the information of no value.

Selecting the right news, that's the point. With a view on an education reform, we should first teach how to select information. And if it is not possible to prevent digital natives from copying, you can always ask them to compare ten different sites on the same topic, so that, through this comparison games, contradictions, gaps, and discrepancies can emerge, giving everyone the opportunity to develop a critical sense of what is useful or not and problematize knowledge in the direction of complexity and not arbitrary simplification.

In this sense, the sociological challenge of our time seems to revolve entirely around the ability to awaken the need to train man to be capable of focusing on problems in depth and also capable of going beyond the historical boundaries of the disciplines and their reductionist drifts, as the totality of the problems of contemporary society cannot be solved by referring to a single set of factors. This appears to be the sociological essence of the Four Paradigm Model.

■ The Students' Experience of Learning the FPM

The above Conclusive Remarks are enriched by an interesting *students' discussion* on the learning experience of the FPM and its tools.

Overall, under a quantitative point of view, students' evaluations[6] of the FPM topic and its applications achieved particularly high percentages of 'very interesting' and of 'stimulating/mind opening' (spontaneous mentions).

The opinion of students, their feedbacks on the experience of grasping the essence of the digital ecosystem via the FPM, is particularly relevant to understand how the FPM works as a learning tool and their learning expectations. First, because the model matches their interest in having a comprehensive understanding of such a complex landscape; second, because the FPM is an original empirical way to learn strategic Digital Transformation socio-organizational models and the ethical side of it; third, because they have intensely participated to the growth and consolidation of the model via the empirical process: more than 1000 students have

6 See Introduction for the indications of the students' universities and typologies of courses attended.

experienced the FPM and have validated it via case study analysis, providing extremely positive feedbacks in terms of learning experience.

For these reasons, we are happy to report a feedback that a sample of 12 students from three different universities, at different levels (degree, master, specialization), and of different geographic origins have produced on a wiki teamwork.

The students are: from Università per Stranieri di Perugia, Perugia, Italy: Maria Serine Ferrah (Algeria), Katsiaryna Siamionava (Belarus), Pasquale Santedicola (Italy), Adrianna Karina Szybist (Poland), Anna Claire Bernot (France); from LUISS Libera Università Guido Carli, Rome Italy: Alba D'Aniello, Ilaria Iozzino (Italy), Lily Caswell (USA), Ilina Yanakieva (Bulgary), Oscar Isberg (Switzerland); from Università degli Studi di Roma 'Tor Vergata', Rome, Italy: Sara Manfrè (Italy), Ionel Prunila (Italy).

The interview follows:

Q1: How has the Four Paradigm Model contributed to your understanding of the digital landscape, under a socio-organizational perspective?

The FPM provided us with a comprehensive view of the digital landscape, under different perspectives. Indeed, it helped us to understand the complexity of the digital landscape and it also provided us with a new, sustainable way to approach reality and the way we observe the external environment. We live in a digitalized era, and our society is organized under a digital perspective; thanks to this discipline, we can now understand, in greater depth, how the world is changing: it is vital to recognize the social mindset changes in the digital world we live in.

The model has helped us to understand how people should work in this new technology-enabled era, evaluating their social markers, and additionally, how to obtain the best results and profits moving forwards or backwards in the net that characterizes companies nowadays.

In other words, the FPM gave us a new perspective on how the digital world exactly works. It presented all the essential connections between different key actors, for example, between employees and customers: it was very interesting to see with how many channels, touchpoints, and firms can reach their target audience and engage them in the discussions. It was also extremely useful to see how much innovation is around us – in everything we do, touch and use. The combination of the 'old ways' (doing everything yourself and offline) with the 'new ways' (everything transferred to the digital world) is extremely interesting.

Innovation is the main driver of current societal evolution, and it has contributed to socio-organizational and economic prosperity by transforming our society into a globally networked society, without boundaries and with deeply developed social mindsets. Moreover, this knowledge will be the basis for our successful business endeavours and encourage us to approach business, and life, with sustainability of the human spirit, as well as the planet, in mind. This knowledge will be extremely useful when meeting professional challenges in our ever-changing business landscape.

This model made us appreciate, even more, the importance of a multilayer approach in which our opinions are an added value, especially in areas where hyper-specialization represents the state-of-the-art. As a result, it made us understand how a society in a current state of evolution can symbiotically intertwine in a way that generates a positive sum gain for the multiple stakes involved.

Q2: How do you think the methodology of the Four Paradigm Model and of the FPM Assessment Radar are effective when analysing organizations' digital transformation strategies?

The FPM and the FPM Assessment Radar are two methodologies that allow us to simplify the complex world of digital companies, and they also allow us to practically transfer theory into real world practices and examples. Therefore, those tools are particularly effective when analysing firms' strategies and when understanding the total shift in the social, as well as in the technological mindset that is behind those strategies.

In other words, those tools are a much easier way to grasp an understanding of a highly complex entity. Dividing the points of view, we are able to get what can be considered 'fuzzy' in the whole. Dividing the systems, keeping always in mind that the points of view are correlated with each other, helps to catch nuances and details to better exploit them in a digitalized world with varying complex social markers.

Moreover, those tools are based on detailed research in social and industrial environments, thus providing projections of the potential value of digitalization for the industry itself and for society in general. The resources listed above also assisted us in understanding the general importance of incorporating sustainability into a business model and taught us that a company should advocate for more than its financial bottom line.

The FPM and the FPM Board and Radar are very good ways to see the level of digital transformation that a company has reached. Furthermore, it is highly essential that all organizations are doing this transformation, because our lives as we know them change every day, and so do we. So, the organizations have to keep up with the dynamics and evolution. In that way, they will also make their own lives and businesses easier to relate to, because we will be able to interact with them. Therefore, the FPM Radar is a very good way to see which points an organization has to improve upon, in order to become more digital.

One of the key factors that makes the FPM an effective methodology is the importance attributed to the social space that is now more complex and intertwined than ever. Companies are represented as open systems which allows them to access an innovative force and a component of creativity that old-school methodologies are cut off from. By looking at organizations' openness, it follows, more naturally, their relationship and connection with other actors, thus exploiting the new paradigms and a social mindset under a human-centric perspective.

Q3: Which is the overall value added of this interdisciplinary holistic approach? Were those tools useful to accelerate your learning process on digital transformation and the digital world in general?

The overall value added of this interdisciplinary holistic approach stands on the possibility to have an immediate picture of the digital transformation processes and its rationale. This accelerates the learning process on the digital world by providing us with a simple and clear tool that really grasps the reasons why some phenomena may occur.

Indeed, applying the model to practical examples helped us to better understand the theory: deepening our knowledge about real companies. It also made us reflect on what we were talking about, better grasping all the processes behind firms' strategies. It was like experimenting directly with what the words said during the class looked like in real life, making them not only words, but reality. We discovered a lot of new information about the digital world and its global impact, specifically when developing a culture of sustainability in a workplace rooted in a social mindset.

In other words, the value added is that we can now look 'from above' and see the bigger picture, and not only the small things each company does. The possibility to understand the merit of this whole process is increasingly important if we want to prosper with our careers in this digital world. They helped us a great deal, because we always see these features that organizations have for our (customers') usage, but before learning about the FPM, we never asked ourselves what the meaning behind them was. And now, we know that everything is much more complicated than it looks, and that everything serves a different, yet specific, purpose in the transformative process.

One of the main takeaways stands in the increased awareness of the relevance of connections and interactions: the overall value added consists of providing a big picture of the grand system where different 'forces' and actors (with different natures) are involved in highlighting how they interact with each other. The usefulness of these tools allowed us to understand a phenomenon's impact from a more realistic perspective. This would not have been possible by studying these aspects singularly, as closed systems. Finally, it made us appreciate, even more, the importance of a cross-disciplinary approach in order to have a better understanding of complex and dynamic phenomena.

References

Harcourt B. E. (2011). *The Illusion of Free Markets: Punishment and the Myth of Natural Order*. Harvard, Harvard University Press.

Schumpeter J. A. (1954). *History of Economic Analysis*. Oxford University Press.

Supplementary Information

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