

Academy of Management Discoveries (AMD)  
SPECIAL ISSUE – CALL FOR PAPERS  
“Digital Transformation: What is new if anything?”

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Guest Editors (in alphabetical order): Gianvito Lanzolla (Cass Business School, London), Annika Lorenz (U. of Utrecht, the Netherlands), Ella Miron-Spektor (Technion, Israel and Cass Business School, London), Melissa Schilling (NYU Stern School of Business, USA), Giulia Solinas (Ludwig-Maximilian Universität, DE), Christopher Tucci (EPFL, Switzerland)

Digital Transformation Interviews:

- [Chris Tucci](#)
- [Gianvito Lanzolla](#)

## Overview

The steam engine in the 18<sup>th</sup> century and railroads in the 19<sup>th</sup> century dramatically transformed economies and societies. Today digital technologies promise to have an equal or deeper and more pervasive impact. However, there are many, and often even competing, views on the extent and scope of such impact and little systematic and rigorous research. We pose the following question: **What core assumptions and relationships in the extant research are no longer valid in a world transformed by digital technologies?**

Digital technologies can be classified into four (non-mutually exclusive) categories: efficiency technologies (e.g., “cloud technologies”), connectivity technologies (e.g., 5G technologies and IoT), trust disintermediation technologies (e.g., blockchain), and automation technologies (e.g., big data and artificial intelligence). There are dimensions in which these technologies transform industries and institutions in ways that replicate transformations of the past, for example, the first industrial revolution was spurred by automation, and there may be ways in which these technologies, individual or in combination, may transform industries and institutions that are fundamentally new.

To explore the implications of the digital transformation, over the last few years, the guest editors have organized several workshops and completed a systematic literature review in the fields of Management, Information System, Organization, and Marketing (see Appendix 1). It clearly emerged that there is no consensus and that the jury is still out on whether digital transformation requires new conceptual frameworks or, more simply, an adaptation of existing ones.

In the spirit of the *Academy of Management Discoveries* of promoting exploratory empirical research on phenomena not yet adequately theorized, this Special Issue aims to acquire solid empirical evidence on the following relationship: (A) digital transformation, institutions and strategy; (B) digital transformation, business models, organizational learning and innovation; (C) digital transformation, individual career choices, capabilities and cognition. These areas would allow us to unpack the macro, meso and micro dimensions of the effects of digital transformation.

## Background and motivation

**Business digital transformation: do management “theories” and conceptual frameworks hold true?**

Applications of digital technologies are pervasive and dramatically affected almost all in the last few decades (Walter, 2016; OECD, 2017). For example, the digital transformation of hospitals and medical centres in the healthcare sector has brought continuous monitoring of patients, *ad-hoc* and timely tailored advice on clinical conditions and early interventions in critical situations. This is expected to save lives as well as around 99 billion EUR in costs in 2017 (PWC, 2013). New business models that centre on customers and outputs replace conventional ones, while physicians and hospitals need to change practices and *modi operandi* to integrate the new technologies and the use of devices into daily routines. New players such as data analytics specialists and technology vendors enter the market together with healthcare providers and medical device manufacturers. New forms of alliances and competition emerge.

Despite the increasing joint application of the cloud, 5G, blockchain and artificial intelligence, scholarly attention so far has focused on the effects of the single technologies (Fitzgerald et al., 2013; George and Lin, 2017; Lanzolla and Suarez, 2012; Schild, 2017; Teece, 2017). Yet, digital transformation is a multi-faceted phenomenon that originates from the synchronous adoption of the bundle of digital technologies. As it is still unclear how the combined effect of digital technologies transforms institutions, industries and organizations, it is legitimate asking to what extent core assumptions made, and conclusions reached by extant research are still valid.

At the macro level, it is difficult providing an interpretation of the dramatic effect of digital transformation on competition and strategy. Studies so far have focused on the digital transformation of single industries (Kretschmer and Claussen, 2016) and a comparative analysis across industries is still missing. The digital transformation of industries is also likely to translate into higher diversity of competition for incumbents and new entrants that do not necessarily belong to the legacy industry. For instance, think about the cases of new entrants such as Amazon, eBay, Skype, Uber, whose business models constituted substantial threats to traditional players. These dynamics are likely to influence economies of scale and concentration in the market and affect the way in which firms achieve and sustain their competitive advantage over time (Lanzolla and Frankort, 2016; Mahoney and Pandian, 1992; Markides and Sosa, 2013; Suarez and Lanzolla, 2007). From an innovation perspective, digital technologies are characterized by a rather fragmented variety of protocols and interfaces, which depend on both open innovation and intellectual property rights (Chesbrough and Bogers, 2014; Whelan et al., 2016). While the integration of open-sourced and protected innovation has increased the speed of technological development, it has also contributed to the lack of a dominant design and a prevention of a wider adoption (Batten & Wills-Sandford 2011). The general uncertainty on the evolution of a dominant design poses the question on which the technological paradigm and intellectual property rights will contribute to the future development of digital transformation and the role of standardization in the ecosystem (Blind et al. 2017). While digital transformations enable global innovation, regulations and institutions are still local. This points out to the tight interdependence between the success of a business model and the institutions in which it has been developed (Ahuja and Yayavaram, 2011; Li, 2018, Uzunca et al., 2018). Understanding the factors facilitating the scalability of business models across different institutions is a crucial avenue for future research. For instance, what is the role of institutions such as regulations, antitrust and legal frameworks in a digitalized world? Do institutions face new challenges due to the worldwide spread of digital technologies?

At the meso level, George and Lin (2017) argue that digital technologies “rais[e] fundamental questions on the underlying processes, routines, capabilities and structures by which organizations adapt and innovate” (2017: 17). Digital transformation is likely to enable higher experimentation; more dispersed technological innovation, and higher level of business model innovation (Arora and Gambardella, 1994; Baldwin, Hienerth and Von Hippel, 2006; Baldwin and Von Hippel, 2011; Markides, 2013; Markides and Oyon, 2010; Markides and Sosa, 2013). For example, digital platforms have become a venue to host innovation dynamics but they evolve themselves. What are the implications of platforms’ evolution on organizational innovation trajectories? Digital technologies based on connectivity enable diffusion of knowledge and organizational learning. Yet, the most disruptive inventive organizations tend to cluster in geographically delimited tech hubs such as TechCity in London or Silicon Valley. This leads

to the generation of a knowledge paradox. If digital transformation enables connectivity and sharing of knowledge and information, why do organizations still cluster in some geographical areas? What are the consequences for organizational knowledge and learning? In a related fashion, digital transformation brought the advent of new working arrangements such as contingent specialized work championed through the gig economy and the use of online platforms (Kunda et al., 2002). Gig workers contribute to the success of the organizational goals with their skills and specialized capabilities (Claussen et al., 2018). While recent research has emphasized how gig workers are a costly strategic option for the organization under precise circumstances (Fisher and Connely, 2018), this phenomenon also challenges existing assumptions on the “optimal” organizational design and organizational boundaries. How does digital transformation enable new organizational forms and new ways of thinking about organizational boundaries? How does digital transformation shape organizational coordination through the integration of flexible working conditions (e.g. remote working, outside office-hours working, etc)?

At the micro level, the simultaneous introduction of platforms, artificial intelligence, Big Data management, algorithms and virtual reality challenges existing capabilities and skills into the organization (Baralou and Tsoukas, 2015; Dougherty and Dunne, 2012; Yeo and Marquardt, 2015). Changing successfully from analog to digital requires new skills and capabilities that could just be acquired externally (Fisher and Connely, 2018) or internally transformed and developed. What are the possible configurations of internal and external digital capabilities and how do they affect organizational knowledge? How do employees adapt their capabilities because of the introduction of digitalized processes? Employees are part of a transformational process that in some cases require dedicated training programs. Yet, it is still unclear which kind of capabilities should employees develop and what the impact of these capabilities is on career choices. How do digital capabilities shape career patterns of employees? Do digital capabilities increase mobility or create lock-in effects? How do digital capabilities vary across industries such as financial services, automotive, healthcare and hospitality? The use of tools grounded on artificial intelligence supports individual memory and influences cognitive processes of managers, yet it is missing an assessment of its overall impact. Do different types of machine learning techniques produce different types of managerial thinking? What is the effect of artificial intelligence on strategic decision-making and creativity? Digital platforms can trigger the sense of closeness and authenticity in one-to-one relations (Bucher et al., 2018). Potentially, interactions with robots might also affect relationships and reciprocal actions within the organization. Is digital transformation leading to the creation of an environment where singletons collaborate through machines? What is the effect of digital transformation on empathy, reciprocity and identity construction within the organization?

The special issue “Digital transformation: What is new if anything” is at the intersection and complements the two special issues “The changing nature of work: Careers, identities and work lives in the 21<sup>st</sup> century” and “Business models, ecosystems and society in the sharing economy” recently published or forthcoming on AMD. As for the other two special issues, this proposal embraces a phenomenological lens and addresses questions that span from a macro to a micro perspective. In respect to the special issue “The changing nature of work: Careers, identities and work lives in the 21<sup>st</sup> century” edited by Barley, Bechky and Milliken (2017), this special issue aims at capturing the role of digital transformation on the changing nature of work. Differently from the previous special issue, this special issue aims at finding evidence on the changes of capabilities, cognitive processes and individuals’ career choices that derive from digital transformation and modify the nature of work and employment. Considering the special issue “Business models, ecosystems and society in the sharing economy” edited by Laamanen, Pfeffer, Rong and Van de Ven (2018), this special issue expands on a set of digital technologies and their combined effects. Indeed, our systematic literature review highlighted that limited scholarly attention has been devoted to the role of artificial intelligence and connectivity, while most of the contributions focused on the transformative role of the Internet. Interestingly, no study has deepened the joint effect of efficiency, connectivity, (trust) disintermediation and automation technologies, despite their strong interconnection. We aim to solicit new research on these uncovered areas. Also, this special issue complements the previous special issue for its focus on

organizational learning, knowledge and cognition in conjunction with strategic dimensions and institutions.

## Research Themes and Illustrative Questions for the proposed Special Issue

Digital transformation arises from the combined effect of several digital technologies including IoT, 5G, cloud, blockchain, Big Data and Artificial Intelligence. Yet, as shown above, it is still unclear whether digital transformation is a brand-new phenomenon and/or whether existing assumptions made in extant research still hold true, and to what extent. To shed light on these fundamental questions, we propose a special issue, which by bringing forward empirical evidence on some underlining fundamental strategy and organization questions should move us a step closer in understanding digital transformation and its implications.

Specifically, we shall be soliciting submissions of exploratory empirical papers around the following three areas.

### *1. Digital transformation institutions and strategy*

At the macro-level, the relationship between digital transformation, institutions, and strategy has multiple facets. Digital transformation might influence the evolution of institutions, and existing institutions might shape, in turn how digital technologies diffuse and evolve. Digital technologies may also dramatically change the balance of transaction costs that drive organizational forms, leading to changes in strategy and firm scope (Brynjolfsson et al, 1994; Sia et al. 2016). Broadly, we invite papers that can identify how digital transformation may affect, or be affected by, institutions and strategy. For example, the role of regulation and antitrust has been under-explored, yet it shapes the entrance, operations and vulnerability of disruptive digital platform organizations such as Airbnb or Uber. New regulation may emerge to govern the use artificial intelligence, or the use of data gathered by IoT. Some questions that could be addressed (but should not be considered limiting) are:

- How do regulations and digital technologies co-evolve? Who are the major players in adapting regulations to face a more digital world? What are the processes by which individuals and organizations come to an agreement about needed regulatory changes? How are the players and processes involved in regulatory change different for responding to digital transformation compared to previous regulatory changes?
- How do regulation and digital transformation change the influence of economies of scale, and thereby increase or decrease the likely concentration of markets?
- How do digitalized organizations arbitrage between different regulations to design their entry strategies?

Digitalization has brought attention to types of platforms where online access to complements has greatly increased (e.g., software applications, online music, sharing platforms). This, in turn, has caused many firms to rush to create platforms in their industries where pure market exchanges had been dominant in the past. In addition, the introduction of platforms in conjunction with digital technologies is changing the nature of B2B markets and with a progressive disintermediation of industries. We thus invite scholars to address such questions as:

- In what industries is digitalization more likely to increase the use of a platform model? Does digitalization facilitate innovation in such industries, or does platformization constrain the scope of potential innovation?
- How do these changes influence the number and diversity of competitors in an industry? What do we need to understand about consumer welfare with respect to these changes?

Can intermediaries and technological platforms succeed as “private” or “delegated regulators”?

### *2. Digital transformation, business models, organizational learning, and innovation*

Digital transformation translates at the meso level into higher diversity of competition, new business models and new organizational forms. For instance, new business models come into existence and

existing ones need to be adapted because of digital interfaces that connect with customers, suppliers and complementors. Consumers have historically assumed that product A comes from company A and product B from company B, and that purchases are most often discrete spot-market transactions. The joint application of digital technologies permits to connect products A and B and have them delivered as an on-going subscription. Such changes are likely to either cause frictions, or cascades of other changes within the organizational boundaries. Existing business models will need to co-exist with new ones, and organizations face the challenge of designing an organizational structure that permits to coordinate with interconnected parties. There is a great opportunity for scholars to explore how organizations can manage these changes. We invite papers to address the following questions, although again these should not be considered limiting authors' imaginations:

- What are the mechanisms that organizations should activate to reconfigure a business model to face digital transformation? Do they change across industries? How do organizations coordinate multiple business models wherein some may be digitalized and others not?
- Does digitalization increase the frequency at which firms introduce new products or platforms, or the scale and scope of their collaboration with other individuals or organizations? How does it shape the organizational design? How does digital transformation enable new organizational forms and new ways of thinking about organizational boundaries when there is an increasing level of connectivity among products?
- Is digitalization more likely to transform organizations in some industries more than others? Are there particular types of organizations better positioned to benefit from digitalization?

With the emergence of digital transformation, current assumptions about the role of knowledge (e.g., transfer, absorptive capacity, and stickiness) in driving organizational innovation and learning may need to change. Empirical evidence is controversial: the use of digital technologies implies that information can be transferred easily and at great distances. However, digital companies still tend to be located in geographical clusters such as Silicon Valley or TechCity in the United Kingdom. Organizations can develop specialized knowledge in-house but also acquire it through highly skilled freelancers that offer their knowledge capabilities through online platforms. Contingent workers might never meet their employers, as the collaboration develops entirely online, but their outcome and performances need to be integrated within the organization, for example with projects developed by internal employees. Organizational learning and knowledge transfer can, therefore, happen through a multitude of channels that span organizational boundaries and challenge organizational design. Yet, digital technologies might limit some forms of learning based on personal interactions. In that sense, connectivity might trigger communication and knowledge transfer. We thus encourage scholars to explore the following questions:

- Does digitalization of organizations diminish, substitute or reinforce the role of geographical distance in competition and collaboration? How does digitalization transform the way that innovation is achieved in the large multi-location firm? Does digitalization increase the likelihood of knowledge (and innovation) spillovers?
- How do digital technologies shape organizational coordination and generate new organizational design, if any?
- What is the effect of digital transformation on organizational learning and knowledge creation? How to integrate internal knowledge of employees and external expertise from new working arrangements? How much does the use of digital technologies affect knowledge transfer? How should organizations balance new internal capabilities with outsourced skills accessible via platforms and communities? What is the effect of new digital competences on the localization of knowledge within the organization?
- How does digital transformation change the mix of workers that we need in particular industries, and what are the implications for training and education? How do institutional traits, such as culture, influence the (new) composition of internal and external workers?
- The use of new working arrangements affects the degree of internal specialization of an organization. Will digital transformation cause jobs to become increasingly specialized or increasingly broad?

- How much do trust and personal network ties (still) affect the creation of organizational knowledge? Are there digital substitutes for the interpersonal trust and knowledge that we have typically assumed emerge only through frequent interpersonal contact?

### 3. *Digital transformation, individual career choices, capabilities and cognition*

Specialists like computer scientists, programmers and engineers have the option of working as contingent workers or as internal employees of the organization. This choice depends on the degree of specialization, experience, flexibility and independence, curiosity for multiple projects, and mobility to name some of them. It is still unclear how digital transformation affects individual career choices and what are the effects on career progression and organizational outcome. While outsourcing has been beneficial for advancing certain technological areas, it can also create barriers to mobility and isolation. Skilled freelancers might be connected to their specialized community but miss the daily social interactions that happen within the organization, with consequences on the diffusion of reciprocity and empathy in organizations. A very high degree of specialization might cause a lock-in effect and limit future mobility and career paths. The same effect might occur also for less specialized contingent workers. Transcriptionists that offer their skills on digital platforms face the threat of speech API and its improving performance. Coders on MTurk might become obsolete now that the algorithms are more developed and there is less need for data inputting. There are soft aspects that research should further inquire about as they influence managerial practices, organizational interactions, market development and society. For example:

- How does digital transformation affect career choices? How does it reflect on organizational performances?
- How does digital transformation shape reciprocity, empathy and emotional capabilities within the organization?
- What is the effect of the use of digital technologies on friendships and informal communication in organizations?

Managers, programmers and employees increasingly use big data analytics, real-time information, online tools, digital platforms, simulation games and augmented reality in their working routines. The use of digital tools mediates and shapes the way individuals perceive reality and react to complexity in their reasoning. Therefore, digitalization of organizations highly influences individual cognition. Through digital tools (e.g. algorithms, platforms) individuals can easily find the exact match of their query, but there may be undisclosed dangers. Potential threats include herd behavior or a loss of creativity. Also, the algorithms can memorize certain search patterns that leave less intuitive relationships unexplored. Individuals might refrain from using digital tools because of fear of losing self-control and autonomy, causing organizational slack. Along with this line of research, we invite papers that provide an understanding of the effect of digitalization on cognition of individuals within the organizations. Some illustrative questions are:

- What is the role of digital tools in individuals' searching capabilities?
- Do digital tools extend or limit individual cognition?
- What are the effects of artificial intelligence and digital technologies on creativity, imagination, and intuition?
- How do artificial intelligence and digital technologies shape cognition and framing within an organization?
- How should organizations overcome resistance in using digital technologies and AI?

As the use of digital technologies, e.g., machine learning and artificial intelligence, become part of strategic decision-making, it may shift how individuals allocate their attention to problems and overcome errors. While it is very exciting to assume that the quality of decision-making will increase with the support of more comprehensive data and digital decision-making tools, it is not yet clear which dimensions of decision-making processes will be affected, and where new problems or biases may

emerge. Anecdotal evidence suggests that there may be an increase in the abuse of data in the form of data manipulation. Unequal access to data or data-use skills can lead to greater stratification. This is equivalent to the production paradox: digital transformation leads to an unrivalled creation of new Big Data, but it does not lead necessarily to uniformly better decision-making, productivity, or social welfare. We encourage further contributions in this area that can address, for example, the following questions:

- How does the use of AI and digital tools influence strategic decision-making?
- Does the support of AI and other digital technologies increase the scope and accuracy of managerial attention and reduce errors? What known biases may digital technologies reduce or exacerbate? For example, does training AI systems on flawed heuristics amplify prior biases? Are there new biases that digital transformation may create?
- Which parts of the strategic decision-making process are likely to be outsourced to intelligent machines and what are the likely effects on organizational performance?
- How will the role of managers change if decision-making is outsourced to machines?

### Editorial plan

In line with the AMD’s editorial scope, we shall consider for the Special Issue only papers that are phenomenological, empirical and exploratory in nature. In addition, we accept contributions that take advantage of original, secondary or “big data” and any number of alternative approaches—including lab and field/quasi-experiments—in order to offer empirically driven insights and explain critical anomalies and discrepant findings on the topics listed above. Strong preference will be given to empirical papers that help us understand new contexts and effects of digital transformation. We are open to any number of empirical approaches including rich description and possibly quantitative construct validation. We encourage papers based on rich multi-method studies of industries transformed by digital transformation.

Empirical findings should elicit innovative theorizing, yet we do not accept theoretical papers. In addition, we do not accept empirical papers that are deductive and develop the analysis through hypothesis testing. We seek evidence that will help us make better sense of assumptions that still hold true as well as assumptions that need to be modified or added when facing digital transformation. We are open to submissions from complementary disciplines as long as the core contributions are clearly framed and relevant for the management community. A special editorial review board composed of scholars known for their expertise in areas relevant to digitalization of organizations will serve to review and develop promising manuscripts. Both the guest editor team and the editorial review board will be able to handle a wide range of methods from the qualitative, to the experimental, to the quantitative.

To submit a manuscript, please visit <http://mc.manuscriptcentral.com/AMD/>. Please remember to select Manuscript Type as Special Issue: *Digital Transformation: What is new if anything?* from the drop down menu. Manuscripts should be formatted according to the [AMD Style Guide](#). Authors whose papers receive a revise and re-submit may be invited to a special issue workshop organized by the Guest Editors. At this workshop, authors will be asked to present their revised paper (first revision). The double-blind, peer-review process will be rigorously performed according to AMD tradition and guidelines.

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**Appendix 1 – Summary<sup>1</sup> of the reviewed journals and number of papers by keywords**

Journal name	Keyword 'artificial intelligence'	Keyword 'big data'	Keyword 'Internet'	Keyword 'connectivity'
Total number of papers	1	15	125	7
MISQ	0	8	19	0
Journal of Management Studies	0	0	0	0
Organization Science	0	0	2	0
Strategic Management Journal	0	0	4	0
Journal of Management	0	0	3	0
AMJ	0	2	2	1
AMR	0	0	2	0
ASQ	0	0	1	0
Journal of Consumer Research	0	0	4	0
Information Systems Research	0	0	17	0
Management Science	0	1	19	0
Academy of Management Perspectives	0	0	2	0
California Management Review	0	0	2	0
Journal of Management Information Systems	1	1	10	0
Research Policy	0	1	13	2
Journal of International Business Studies	0	0	3	1
Journal of Product Innovation Management	0	2	3	2
Human Relations	0	0	1	1
The Leadership Quarterly	0	0	0	0
Journal of Consumer Research	0	0	4	0
Journal of Marketing	0	0	5	0
Journal of the Academy of Marketing Science	0	0	9	0

<sup>1</sup> Search by key words in the title and abstract; time 1995 – Present.