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Volume 10

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Martin Gersch
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Journal of Competences, Strategy & Management

[formerly published as: Jahrbuch Strategisches Kompetenz-Management,
Journal of Competence-based Strategic Management]

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The “Journal of Competences, Strategy & Management” (acronym: JCSM) provides a forum for academic contributions to the issues of organizational competences and dynamic capabilities at the interface between strategic management, organization studies and related disciplines. The first volume was released in 2007 and the issues are published on an annual basis. All papers are to be submitted in English, and in line with the publication standards. They undergo a double-blind review process where reviewers and editors intend to support authors of incoming manuscripts in developing their paper to a publishable state. We encourage interested authors to submit their papers, whenever they consider useful, to the editor-in-chief, Jörg Freiling (freiling@uni-bremen.de). JCSM also invites guest editors to frame Special Issues for hot topics in competence and strategy research as well as related disciplines.

Originating from the German Journal called ‘Jahrbuch Strategisches Kompetenz-Management’, the Journal of Competences, Strategy & Management (JCSM) is a forum for papers that address the topic of managing competences (dynamic capabilities) and competencies (skills) from a strategic management perspective. The topic of managing competences and competencies follows an interdisciplinary approach, where scholars from diverse management fields, i.e. from strategy, organization studies, information systems research, technology & innovation management, human resource management, or leadership studies, contribute to advance our understanding of how firms and non-profit organizations manage their capabilities and skills. During the last two decades, the SKM (Strategisches Kompetenz-Management) community held various interdisciplinary conferences and symposia in order to discuss and share ideas in the field of Competences (in German: Kompetenz), Strategy, and Management. The JCSM serves as an outlet for our interdisciplinary discourse.

The JCSM is positioned as an international journal that invites papers of both the conceptual and empirical kind. JCSM is open to any kind of paper that elaborates our understanding of managing key concepts from a strategic perspective. In the face of volatile, complex and uncertain conditions in business environments, the journal particularly invites papers that address those competences (e.g. routines for environmental analyses) and competencies (e.g. managerial skills) that respond to these challenges. Theory development and application plays a role in the journal as well. Being open to any kind of theoretical background, JCSM is particularly interested in the resource-based view of the firm, the dynamic capability view, and the competence-based theory.

Martin Gersch, Janina Sundermeier (eds.)

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Journal of Competences, Strategy & Management (JCSM)

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Martin Gersch & Janina Sundermeier

Understanding (Digital) Transformation

“Digital transformation” is one of the latest buzzwords. Often described as “fast”, “radical”, “fundamental”, or “game changing” reveals the importance, scope and pace of this phenomenon as an ongoing change process which cannot be ignored by scholars. Apart from the political, demographic, social and ecological challenges they trigger, the changes brought about by digital technologies represent huge challenges to institutions, as well as organizations in both traditional and emerging industries, and to society as a whole. Yet, to advance our understanding of the processes and consequences of digital transformation, we still lack a general consensus regarding the basic scientific foundations required for its study.

This present issue seeks to identify some of these challenges and presents the various solutions that different economic actors have developed so far to cope with the uncertainties resulting from digital transformation. We were delighted to receive submissions from teams of scholars working in different disciplines, demonstrating both the strong interest in the topic, and the intrinsically interdisciplinary nature of the field. The review selection sought to identify papers that made robust contributions to one of three aspects: the potential changes implied by digital technologies, how actors try to harness the potential of new technologies in a purposeful manner, or understanding how transformation processes occur at different levels of analysis.

The aim of the 10th volume of the JCSM is to advance scholarly reflection on and understanding of digital transformation, especially in relation to Competences, Strategy and Management. Following a call for paper in December 2017, we were delighted to receive more than 20 proposals. After at least two rounds of rigorous double-blind reviewing, six articles have been accepted for publication.

The six articles discuss fundamental aspects of digital transformation from several disciplinary perspectives. By offering meaningful contributions in the form of theoretical, conceptual and/or empirical work, they prepare the ground for further research endeavors.

The first paper, **“Clarifying the Notion of Digital Transformation: A Transdisciplinary Review of Literature”**, by *Tobias Riasanow, David Soto Setzke, Markus Böhm* and *Helmut Krcmar*, offers useful terminological and

conceptual groundwork. Based on a systematic literature review the authors focus on the contributions made in two partly overlapping disciplines: management and organizational science, and information systems research. Their transdisciplinary review of the literature on digital transformation, spanning 175 articles, thus highlights how organizations respond to digital transformation. In so doing, they identify no fewer than twelve schools of thought on the phenomenon. The authors show that research into digital transformation builds on existing schools of thought as well creating new ones, such as digital innovation and ecosystems.

The second paper, “**Understanding market transformation: How firms create customer demand**”, by *Michael Hartmann* and *Matthias Wenzel* explores how firms not only respond to but also themselves force and shape transformations, e.g. by creating customer demand. Their qualitative study is undertaken in the field of industrial sales and contributes to the literature on dynamic capabilities. More specifically, they explain how a “market-shaping capability” comes into being through interactions between frontline employees and customers.

The third paper, “**Pushing and Pulling – Digital Business Model Innovation and Dynamic Capabilities**”, by *Andre Hanelt*, *Daniel Leonhardt*, *Björn Hildebrandt*, *Everlin Piccinini* and *Lutz M. Kolbe*, is an interdisciplinary study which demonstrates that firms engaging in digital business innovation experience a dual effect on their dynamic capabilities. Based on a global survey of automotive decision makers, the authors first identify that effective digital business model innovation requires organizational agility and absorptive capacity. Second, they discover that digital technologies in business model innovation further drive these capabilities. The study carries implications for process-oriented research on the interplay of dynamic capabilities and digital innovation, and for practitioners facing the specific challenges arising from digital transformation.

The fourth paper, “**Digital Transformation of Large Corporates: Corporate Venture Capital and Startup Collaborations of German DAX 30 Corporates**”, by *Christian Hackober*, *Carolin Bock* and *Mattias Malki*, focuses on the activities deployed by German Dax 30 corporates to deal with the challenges and uncertainties caused by ongoing digitalization. They find a considerable increase in R&D activities, such as hackathons, incubators and accelerators, and capacity building with corporates investing in start-ups in response to – and aiming to take an active part in – digital transformation.

The fifth paper, “**Social Networking: The Crucial Role of R&D Middle Managers in Facilitating Ambidexterity and Coping with Digital Transformation**”, draws attention to the social networks that support middle managers in their exploration and exploitation of innovation potentials. The authors, *Martin Rost*, *Eva Sonnenmoser* and *Birgit Renzel*, conducted 24 in-depth

interviews with middle managers in the automotive industry. Their findings indicate that networks are indeed crucial to helping middle managers deal with the challenges of digital transformation, including the development of new ideas, their feasibility and workload assessment.

Frithiof Svenson and *Jörg Freiling* are the authors of the sixth paper, “**Symbolic Interactionism as a Methodology for Process Organization Studies: Grounding the Enactment of Competences in Organizational Life**”. Their ethnographic study explores how actors enact competences through making sense of organizational contexts and experiences. Their findings shine a light on the emergence of competences over time, even during the digital transformation of companies.

In sum, the 10th volume of the JCSM offers valuable theoretical and conceptual contributions to further the understanding of digital transformation from different schools of thought, and contributes to current discussions on resulting challenges and potential solutions. We hope that it inspires more scholars to draw upon this work to further research on this vital, vibrant and timely topic.

Tobias Riasanow, David Soto Setzke, Markus Böhm, Helmut Krcmar*

Clarifying the Notion of Digital Transformation: A Transdisciplinary Review of Literature**

Abstract – We refer to the organizational transformation process of using digital technologies to radically transform organizations as digital transformation. Yet, within and in-between management, organization science, and information systems literature, there is considerable disagreement on the characteristics of an organization's digital transformation. Hence, we conduct a transdisciplinary review of literature, spanning 175 articles, regarding digital transformation and prior achievements regarding organizational transformation. As result, we identified twelve schools of thought to discuss the phenomenon of digital transformation. We show that digital transformation is building on existing schools of thought, while highlighting new ones, such as digital innovation and ecosystem.

Keywords: digital transformation, organizational transformation, literature review

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1. Motivation

The market is constantly evolving and giving rise to disruptive digital technologies, such as 3D printing, data analytics, and mobile computing (Nambisan et al., 2017), forcing established organizations to transform in order to remain competitive (Yoo et al., 2010; Lucas et al., 2013). We refer to the organizational transformation (OT) process of using and combining digital technologies in new ways to radically transform an organization as digital transformation (DT). The success of purely digital organizations such as Netflix, Spotify, or Amazon, as well as the bankruptcy of traditional companies such as Kodak or Blockbuster, are examples of DT (Goh et al., 2011). Under this heading, scholars from information systems (IS), management, or organization science are contributing to a growing body of knowledge concerning this phenomenon (e.g., Agarwal et al., 2010; Fitzgerald et al., 2013; Majchrzak et al., 2016; Rowe, 2018).

Yet, within and in-between these literature streams, there is considerable disagreement regarding what the characteristics of an organization's DT are. This is reflected in inconsistencies, overlapping and contradictory definitions, and different and heterogeneous schools of thought. However, the diversity of theories and concepts from different disciplines often encourage compartmentalization of perspectives that do not enrich each other. For example, technology and its relationship with organizational structures, processes, and outcomes has long been of interest to organizational researchers (e.g., Orlikowski, 2000). However, digital innovations build on novel characteristics that differ from earlier technologies, e.g., reprogrammability, the homogenization of data, and the self-referential nature of digital technology (Yoo et al., 2010). Recognizing these characteristics, IS scholars have analyzed the influence of digital technology on firm's strategies, structures, and processes (e.g., Bharadwaj et al., 2013; Fichman, 2014; Oswald et al., 2018). Management and organization science focus on the development of a new organizational logic to organize innovation in a digital world (Yoo et al., 2012), including transformational leadership, identity, cognition, and sensemaking (Nag et al., 2007; Rindova et al., 2011).

Because we lack clarity about the exact nature of DT, it is difficult to appropriately compare, analyze, and discuss the phenomenon. Consequently, we conduct a structured literature review, drawing on existing DT articles and prior OT studies, to present the underlying schools of thought of DT and to discuss their differences.

This paper is organized as follows. First, the literature-based research methodology is presented. Second, we present the results of the literature review, which consists of inconsistencies in the understanding of DT in management, organization science, and IS literature, and present 12 different and heterogeneous schools of thought to examine DT. Third, we clarify the notion of DT based on these schools of thought and show how prior achievements in OT inform

discussions of DT. Then, we discuss the contributions and limitations of our findings. The paper concludes with avenues for future research.

2. Design of the literature review

This section describes the design of our literature review-based methodology to clarify the notion of DT and compare it to prior achievements regarding OT in management, organization science, and IS literature. We followed the guidelines of Webster/Watson (2002) to conduct a concept-centric literature review.

Consistent with the title of this paper, we constrained our structured literature review to DT and prior achievements regarding OT in some important dimensions. Most notably, we focused our attention on the management, organization science, and IS literature. This design choice is supported by two considerations. First, the topic of DT and its precursors is simply too huge to be acceptably covered in a single survey paper if prior work is to be recognized in any serious fashion. Second, OT is increasingly enabled by digital technologies, which is one of the key concerns of management, organization science, and IS literature. A second notable distinction with respect to the scope of this article is that it moves beyond OT. Therefore, we explicitly searched for DT articles that were not included in prior excellent literature reviews on OT, such as that of Besson/Rowe (2012). They analyzed the discourse on OT and suggested understanding IS-enabled OT as a process, not as a teleological model of diffusion. Most importantly, they highlighted that most OT theories were developed during the 1980s and should therefore be considered as “pre-Internet theories of transformation”. This invites us to reassess prior OT literature in the era of DT, particularly because digital technologies fundamentally differ from prior technologies (Yoo et al., 2010). Therefore, the third notable distinction is that we focus on clarifying the notion of DT, which we aim to derive through a comparison to prior research on OT.

We first focused on leading IS outlets, i.e., the AIS Senior Scholars’ Basket of Journals (Association for Information Systems, 2011). Extending Besson/Rowe (2012), we applied the terms in Table 1 using the Scopus database to the titles, abstracts, and keywords of the publications. Using the described search terms, we identified 107 relevant journal articles. A forward and backward search (Webster/Watson, 2002), based on the gathered articles, found 10 additional articles in leading IS journals, resulting in a total of 117 articles. We did not limit the publication year, context, or method of the articles. Following Okoli/Schabram (2010), we reviewed the articles manually and filtered them according to an iterative set of exclusion criteria. Therefore, articles that did not address DT, or focused on aspects of OT, such as Otim et al. (2012), who examined the effect of IT investments on the downside risk of firms, were

excluded. Using this set of exclusion variables, we eliminated 32 articles. In the end, we selected 85 relevant IS journal articles.

Outlet		Search terms	Hits	Selected
IS Journals	MISQ	“organizational transformation” OR “transformation of the firm” OR “business transformation” OR “radical change” OR “revolutionary change” OR “radical transformation” OR “revolutionary transformation” OR “disruptive transformation” OR “strategic transformation” OR “technochange” OR “strategic change” OR “transformational” OR “digital transformation”	30	22
	EJIS		26	20
	JSIS		16	13
	ISR		14	9
	JIT		13	8
	JMIS		9	7
	ISJ		7	4
	JAIS		3	2
Management/OS Journals	SMJ	Search terms as mentioned AND > 2003	25	22
	Org. Sci.		22	14
	AMJ		28	10
	ASQ		6	2
	AMR		5	2
	MS		3	1
IS Conferences	ICIS	“digital transformation” AND > 2015	16	
	AMCIS		11	
	ECIS		9	
	PACIS		3	
Grand Total			175	

Table 1: Literature search results.

Second, to examine management and organization science literature, we applied the same search terms to the titles, abstracts, and keywords of articles published in six selected high-ranked management and organization science journals according to the FT50 ranking. We limited the publication year to 2003 but did

not limit the context or the employed research method and found 89 articles. We again used the same set of exclusion variables (Okoli/Schabram, 2010) and excluded 38 articles that did not focus on OT, such as Pathak et al. (2014), who studied the impact of divestiture intensity and contextual factors on CEO compensation, leading to a selection of 51 relevant articles.

As a third step, we extended our search to leading IS conferences using the search term “digital transformation”, see Table 1. We limited our search to contributions since 2015, as we assume that older high-quality conference papers should have already been published in leading journals. Again, the articles that resulted from the search were selected according to the exclusion criteria defined above. This step yielded an additional 39 articles, resulting in a grand total of 175 articles. The full list of selected articles and the respective coding can be requested from the authors.

3. Findings from the literature review to clarify Digital Transformation

To structure the findings of the literature review, we first analyze the inconsistencies in the understanding of digital transformation within and between management, organization science, and IS. Second, we present 12 different and heterogeneous schools of thought that we identified in DT and prior OT literature. Third, we discuss DT according to the identified schools of thought.

3.1 Inconsistencies in the understanding of Digital Transformation within and management, organization science, and IS literature

As a first step toward clarifying DT, and to provide an overview of the existing understandings of DT, we searched for explicit definitions of the phenomenon. In the selected publications, we found 51 articles explicitly using the term DT: 12 in IS journals, 39 in IS conferences, and 0 in management and organization science journals. Reading the selected articles, we identified six different definitions, which are presented in Table 2 ranked by their number of citations in Scopus.

Source	Definition of Digital Transformation	Citations
Fitzgerald et al. (2013)	DT is “the use of new digital technologies (social media, mobile, analytics or embedded devices) to enable major business improvements (such as enhancing customer experience, streamlining operations or creating new business models)”	231
Matt et al. (2015)	DT affects large parts of companies and even goes beyond their borders, by impacting products, business processes, sales channels, and supply chains	178
Bley et al. (2016)	DT leads to an increasing interconnectedness of classical horizontal value chains in a complex value network	23
Haffke et al. (2016)	DT “highlights the transformational nature of digital technologies for businesses, especially in large corporations with a long non-digital history. Specifically, DT encompasses the digitization of sales and communication channels, which provide novel ways to interact and engage with customers, and the digitization of a firm’s offerings (products and services), which replace or augment physical offerings”	9
Nwankpa/Ro umani (2016)	“DT is defined as an organizational shift to big data, analytics, cloud, mobile and social media platforms (...) fueled by digital innovations”	9
Horlacher et al. (2016)	“DT goes beyond merely digitizing resources and involves the transformation of key business operations, products, and processes, culminating in revised or entirely new business models”	6

Table 2: Definitions of Digital Transformation.

The definition of DT used most often is provided by Fitzgerald et al. (2013). According to their definition, the main differentiator between DT initiatives and any other OT initiative that involves the implementation of digital technologies is the notion of novelty associated with the technologies that are implemented. However, the restriction of DT initiatives to those involving new digital technologies is problematic because the perception of novelty is always a matter of perspective.

Nambisan et al. (2017) tried to resolve this by defining a digital innovation as the use of digital technologies during the process of innovating, which is new to the adopting organization but may already be well established in other organizations. A typical example is the use of cloud services in the newspaper industry (Karimi/Walter, 2015), even though such services are already well established in the software industry (Leimeister et al., 2010). Surprisingly, the term DT is only rarely mentioned in digital innovation literature, which has gained momentum in recent years. Literature on digital innovation focuses on the enhancement of physical products or a new organizational logic (Yoo et al., 2010) or the orchestration of digital innovations (Nambisan et al., 2017), which are also critical elements of transformations (Fichman, 2014). This school of thought has its origin in marketing theory and was later adopted in IS and organization science (e.g., Vargo/Lusch, 2004; Lusch/Nambisan, 2015).