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Unpacking an umbrella term

Business dimensions of Digital Transformation

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Unpacking an umbrella term: Business dimensions of Digital Transformation

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Abstract

For a long time, business models and business model innovation has received increasing attention. Recently, a new phenomenon regarding transformations enabled by digital technology has emerged. In this paper, we propose a way to unpack the notion of digital transformation along with different dimensions of transformation.

Keywords: Digital transformation, Digital technology, Business model innovation

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1. Introduction

Since the 1990s, there has been an increased interest in the notion of business model (BM) and business model innovation (Foss & Saebi, 2017). Scholars tend to agree that four main events, or "themes", have concurred to catalyse and sustain interest for this construct (Zott, Amit & Massa, 2011). These are: the advent of the Internet and advances in ICT (Amit & Zott, 2001), interest for the Bottom of the Pyramid (Prahalad & Hart, 2002; Seelos & Mair, 2007), sustainability concerns (London & Hart, 2004; Schaltegger, Ludeke-Freund, & Hansen, 2012) and post-industrial technologies, such as software (Perkman & Spicer, 2010), biotech or nanotech (Bonaccorsi, et al. 2006)[2].

More recently, a new emerging phenomenon, namely the transformations enabled by digital technologies (DTech), has started to make an inroad into the business model discourses (e.g., see Teece, 2017; Teece & Linden, 2017). Digital technologies seem to be the catalysts for the design of new business models based on multisided platforms, social networks, and (digital) content providers. On the other hand, these novel BMs can be a source of disruption for existing companies and even industries. Companies found themselves in the position of having to rethink their BM in light of the competition coming from companies that design their offerings by leveraging the potential of new digital technologies. These changes can be pervasive, a fact that may have led to the adoption and increasingly popular new term: digital transformation (DT).

The emerging literature on DT is a concept rise with confusion. There are interesting overlaps to what has already happened with the BM construct. Many of the publications on the topic are emerging from practitioners related outlets, such as MIT Sloan Management Review, Harvard Business Review and even the so-called "grey literature" (e.g., World Economic Forum, 2018). While insightful, these publications often do not hold to the standards of rigour - including construct validity and definitional issues - which characterise peer-reviewed academic outlets. As a consequence, we are left with a common-sense understanding of DT derived from our direct experience of its effects on our everyday lives, or the often taken-for-granted intuitive understanding we derive from these practitioner-oriented publications. This understanding is vague and, if coupled with the concept of BMs, which itself is characterised by substantial definitional debate, risks are that the

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2 All these phenomena have opened up opportunities for the design of novel forms of boundary spanning activity systems, and scholars have often referred to them as the design of novel BM. See Massa et al. for an explanation.
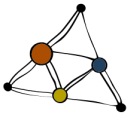
desirable cumulative process is jeopardised, and the divergence of perspective will continue.

One way to mitigate this risk, we contend, is by appreciating that DT is an umbrella concept embracing different manifestations of both digital technologies and transformations which are conceptually distinct. If what we contend is true, then a possible way to promote cumulative progress is by reflecting on "types" of digital transformations. Before we jump into investigating the nexus between BMs and DT, we need to understand what we mean by the latter.

Building on these premises, the goal of this paper is to illustrate a possible way to unpack the concept of DT to identify conceptually distinct "types" that would support research at the nexus between BMs and DT. Indeed, an important step towards developing knowledge about an emergent phenomenon, and a central objective of scientific enquiry, is to create order by organising the various manifestations of the phenomenon into classes. If DT manifests in modalities that are different, then knowledge about these differences is essential.

Firstly, knowledge about different types of DT can support researchers and practitioners to more efficiently investigate and understand the phenomenon by offering the basis for ordering and comparing, storing and subsequently retrieving knowledge. Similarly, it can offer the starting point for other researchers to criticise the offered understanding of the structure of DT and offer better ones. From a theoretical standpoint, there are several possible ways to classify social and organisational phenomena (McKinney, 1966), including DTs. In this sense, we do not intend to claim that our proposed approach will represent a universally valid way of classifying DTs. Rather, it should be understood as a proposal for a new understanding of BM by breaking down the continuum of DT into discrete, conceptually different manifestations that are better suited for investigation and understanding. Secondly, a classification can simplify cognition and facilitate effective communication among actors engaged in collaborative efforts, whether researchers or practising managers (Rohrbeck et al., 2013; Gassmann et al., 2015). Thirdly, well-ordered knowledge provides the basis for midrange theorising about the forces at work within specified manifestations of DT and allows practitioners and researchers to formulate and test contingent hypotheses (Lambert, 2015; Rich, 1992). Fourthly, DT classifications can be used to inspire managers and entrepreneurs to envision opportunities for embracing DT in relationship to the contextual factors and the idiosyncratic aspects characterising single firms and their markets.
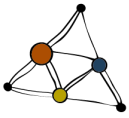
2. Method

A framework for classification of DT provides an alternative to the idea that the way DT manifests is such that the changes (transformations) it enables are either all alike or are all individually unique (McKelvey & Aldrich, 1983). Classifications in social science - from sociology (Bailey, 1973) to management (e.g., see Rich, 1992) - have been subject to substantial debate, including the BM literature with reference to BM patterns and archetypes (Lüdeke-Freund et al., 2018). According to Rich (1992), there are three possible ways of offering classification: traditional (based on common sense), theoretical (based on a priory theory/heuristic), and empirical (based on a posteriori/arithmetical procedure). And there are four possible philosophical approaches to classification each based on different assumptions about social reality (Rich, 1992). It is beyond the goals of this paper to dig into this level of discussion (see Rich, 1992, for the strengths and weaknesses of each approach).

What is critical for us, however, is to provide transparency on the approach and the criteria employed. In specific, the level of thinking and the choices that were made to come up with the proposed classification. We concur with others (e.g., see Rich, 1992; Ludeke-Freund et al. 2018) that being explicit on the fundamental criteria and choices employed is necessary to make a classification procedure visible to other researchers - and not only the resulting scheme. In turn, this step is critical to ensure their ability to build-on, replicate, and constructively criticise the proposed scheme, fostering cumulative progress.

We followed a *theoretic-empirical classification* approach to taxonomy development (e.g., see Ludeke-Freund et al. 2018 for a similar approach applied to patterns of business models for sustainability). This approach involves specifying the underlying philosophy (Table 1) and relative assumptions, defining an overarching classification theory for DT (section 2.1), determining and selecting relevant characteristics (information about the characteristics previously specified) (section 2.1), identifying according entities (instances of DT) (section 2.2), and finally assigning these entities to emerging groups (classifying them into distinct groups) (Section 3).

INSERT TABLE 1 ABOUT HERE

The fundamental philosophy is midrange essentialism/nominalism (Table 1). According to this perspective, social phenomena, such as DT, have a fundamental empirical manifestation by which they
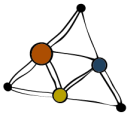
can be named and grouped (essentialism). Still, the complexity of such phenomena and the fact that observers embrace different viewpoints means that there are several possible ways of classifying. Grouped phenomena, thus, are artificial constructs in the sense of being produced artificially as a result of fundamental assumptions on the nature of social reality and explicit criteria.

2.1. Overarching classification theory

From a semantic perspective, DT implies that something is transformed by mean of digital technologies. Two important questions arise: 1) What is being transformed? And 2) What digital technologies drive those transformations? In this short paper, we focus on the first question.

We explicitly decided to anchor the first question to a business-centric unit of analysis, as opposed to, for example, an answer that would take society (and societal changes) as the reference unit of analysis. Thus, we focused on transformation in different areas of a business. As a starting point, we employed a standard categorisation of different dimensions of innovation, namely product/service, processes, organisational innovation and BM innovation as described by Zott and colleagues in relationship to the BM construct (Zott et al., 2011[3], see also Massa & Tucci, 2013). According to this perspective, DT may involve a transformation of product/services, of processes, of organisational structure (broadly defined) and of BMs. We considered this to be a sufficiently parsimonious and yet comprehensive starting point. In discussing these dimensions, we anchored to the idea that each one entails a different perspective, respectively the perspective of the product/service designer, of the operations manager, of the HR manager, and the perspective of the strategy and/or innovation architect. Taking these "perspectives" into considerations is useful to identify different areas in which DT can manifest within a business.

2.2. Identification of "entities" of digital transformation

This phase involved the identification of empirical manifestation of DT. To do this, we combined analysis of the published literature with five exploratory interviews with senior managers and senior consultants working with DT. The exploratory interviews were all conducted by the corresponding author of this paper and involved open-ended conversations aimed at offering initial insights that would support the need for unpacking DT into different types and a reflection on the possible criteria for classification. Concerning

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3 Another additional dimension to consider in this specification of dimensions of innovation would be the ecosystem. Given that, in many instances, the ecosystem comprises several actors who are not directly under the control of a single firm, we decided - for now - to skip this additional possible dimension of innovation/transformation.
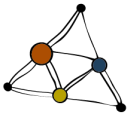
the literature review, we started by searching through the leading academic and practitioner-oriented management journals. Since DT is a relatively new topic, we chose to focus on a recent period, namely from January 2008 to January 2020. The list of journals included eight academic journals: Academy of Management Journal (AMJ), Academy of Management Review (AMR), Administrative Science Quarterly (ASQ), Journal of Management (JOM), Journal of Management Studies (JMS), Management Science (MS), MIS Quarterly, Organization Science (OS), and Strategic Management Journal (SMJ). To these, we added four of the leading practitioner-oriented journals: the California Management Review (CMR), Harvard Business Review (HBR), MIT Sloan Management Review (MSM) and MIS Quarterly Executive.

We performed the literature review using the Scopus and EBSCOhost databases with search filters. We searched for the terms Digital Business, Digital Transformation, Digital Business Strategy and Digital Business Model[4] in the title, abstract or keywords. This initial search returned a sample of 115 papers. Adding to this sample, we performed a Google scholar search with the same key terms but without period restrictions to find highly cited and relevant papers within the area. This search led us to include 15 additionally papers, which resulted in a sample of 130 papers.

Through reading the abstract and/or introduction of the 130 papers, we identified the papers most relevant for performing an in-depth read, which left us with 52 papers. The papers excluded in this process only marginally focused on DT or had a very narrow focus. Each author in this paper independently read ten common papers which were deemed to constitute a common ground. We adopted a standard protocol for the analysis of the articles, aimed at identifying emerging insights, in addition to the possible insights on types of DT (by request, the standard protocol is available from the authors). The remaining 42 papers were divided among the different authors and analysed individually adopting the protocol. We held meetings to both fine-tune the protocol based on the common papers as well as to analyse the results from the analysis of the individual papers. This led to the identification of several possible instances of DT explicitly or implicitly described in the received literature, which we used as the basis for subsequent sense-making.

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4 An example of the search string used on Scopus: TITLE-ABS-KEY ("Digital* business*" OR "digital* trans*" OR "digital* business strateg*" OR "Digital* business model*") AND PUBYEAR > 2008 AND (LIMIT-TO (SRCTYPE , "j")) then adding the specific journal
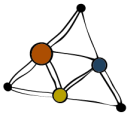
2.3.   A classification framework for Digital Transformation

The resulting framework is presented in Table 2. An extended version is presented in Appendix 1.

INSERT TABLE 2 ABOUT HERE

According to this perspective, there are four main dimensions of DT based on the transformations that DTech allow in a business. As mentioned earlier, we took the perspective of the major dimensions of innovation, seen from those responsible for the main areas of innovation, namely product/service design, processes and operations, organisational innovation and BM innovation. The first class of transformation involves the possible transformation of the product/service mix that DTech enable (Kane, 2017). These include, for example, turning consumers into prosumers, enabling consumers to participate to the design of the offering in early stages, and – in general - several other product-service mixes that are changing the nature of the relationship between the firm and its customer (Weill & Woerner, 2013; Li, 2018). The second class includes all transformations that involves the re-engineering or redesign of specific processes in an organisation (Mithas et al. 2013; vom Brocke et al., 2014; Lanzolla & Giudici, 2017). The third class involves transformations at the structural level of an organisation (Kane et al., 2019). Notable recent trends, powered by DTech, include the redesign of work procedures in organisations, for example virtual teams. Finally, DTech allows to rethink entire BMs (Libert et al. 2016; Michelman, 2018), as illustrated in Table 2.

3. Conclusions

Understanding and building theory on DT may benefit from appreciating that DTech is allowing different types of innovation in various areas of businesses. In this paper, we propose a way to unpack the notion of DT along with different dimensions of transformation. We hope the proposed scheme can help scholars better orient their research effort on DT.
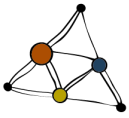
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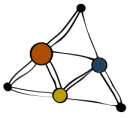
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