

2017

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Recommended Citation

Morakanyane, Resego; Grace, Audrey A.; and O'Reilly, Philip, "Conceptualizing Digital Transformation in Business Organizations: A Systematic Review of Literature" (2017). *BLED 2017 Proceedings*. 21.

<http://aisel.aisnet.org/bled2017/21>

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Conceptualizing Digital Transformation in Business Organizations: A Systematic Review of Literature

RESEGO MORAKANYANE, AUDREY GRACE & PHILIP O'REILLY

Abstract Digital Transformation has gained great research interest in both academia and practice. While existing literature demonstrates new levels of research interest in the area and how business leaders have engaged in digital transformation journeys, there is evidence of a lack of common understanding of this concept. Both research and practice do not have unified views of the fundamental concepts of digital transformation. To this regard, we demonstrate how a systematic literature review was carried out to conceptualize this phenomenon. Using a concept centric matrix, we discuss the current state of the art literature of the concept by describing it in terms of what it is, the characteristics, drivers, impacts and transformed areas. Inconsistencies in the definition and other factors are identified. Towards a more comprehensible approach to understanding this phenomenon, we argue for the reconciliation of the literature and propose a new general and inclusive digital transformation definition. Avenues for further research on digital transformation of business organizations are also shared.

Keywords: • Digital Transformation • Digital Technologies • Concept Centric Matrix • Literature Review •

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<https://doi.org/10.18690/978-961-286-043-1.30>
© 2017 University of Maribor Press
Available at: <http://press.um.si>.

ISBN 978-961-286-043-1

1 Introduction

The advent of information and digital technologies - the time characterized by use of information and communication technologies (Siemens 2014) as well as mushrooming of new digital technologies (Resnick 2002), their adoption and use (intended or unintended), presents a new form of transformation: digital transformation (Hanna 2016). In business organizations, this form of organizational transformation, which is technology-enabled, is concerned with the use of information and digital technologies to impact different aspects of the organization. For example, organizations adopt emerging technologies such as social media, mobile technologies, internet of things, cloud technologies, big data analytics, etc. (Resnick 2002, Fitzgerald et.al. 2013) to enhance their daily operations (Aral et.al. 2013, Oestreicher-Singer & Zalmanson 2013, Hanna 2016). As a result, these technologies transform the way business entities operate, creating value and bringing different experiences to various stakeholders involved.

Several studies have been carried out to demonstrate how organizations and industries have adopted digital technologies as well as demonstrating their transformational impacts. An MIT Sloan Management Review Research Report (2013) revealed that 78% of executives and managers across various industries, believed achieving digital transformation would be critical to their organizations. Another study by Harvard Business Review Analytics Services (2014) revealed that 50% of business and technology leaders said their organizations were already missing out on new technology-enabled business opportunities. Berman (2012) argues that the key transformational opportunities are: (i) creating new business models; (ii) improving operational processes; and (iii) enhancing customer experiences. Bharadwaj et.al. (2013) reflect on digital transformation era as a time for organizations to rethink the role of IT strategy from that of a functional level strategy to one that integrates IT strategy and business strategy. All these indicate how organizations are increasingly being involved in digital transformation. In fact, in today's digital era, digital transformation has become an everyday agenda item in business boardrooms. As a result of this, the digital transformation phenomenon has created new research interest across different disciplines, (Bharadwaj et.al. 2013, Lucas et.al. 2013, Sertia et.al. 2013).

Although substantial amounts of work is ongoing in this area, this study reveals that research carried out in this regard is still at a nascent stage. There are indications of an immature literature landscape coupled with a limited understanding of the phenomenon. The few literature review papers on digital transformation that were encountered during our search (cf. Besson & Rowe 2012, Cha & Lee 2013, Henriette et.al 2015, Piccinini et.al 2015) indicate a mismatch and conflicting views in the conceptualization of some basic fundamentals of the phenomenon. Constructs such as a definition of the phenomenon, characteristics, drivers, etc. remain vague. In fact, these literature reviews call for more research, especially on the reconciliation and expansion of the digital transformation literature.

As per Besson & Rowe (2012) and Cha & Lee (2013) we acknowledge inconsistencies in the digital transformation literature and further argue for its reconciliation and expansion. To trigger this discourse, Westerman et.al. (2014) ask whether digital transformation is the solution to emerging business challenges in the digital era or is another marketing buzz word. A huge challenge remains in the lack of a reconciled definition and fundamental elements of the literature. Many existing studies out view digital transformation as totally different things. For instance, while some authors view a slight technology-enabled change such as implementing a new ERP System as digital transformation, others believe that digital transformation is actually a more radical and evolutionary process that takes place over time (Wang, et.al. 2016, Janowski 2015, Loebbeck & Picot 2015). While some researchers associate digital transformation with business models and strategy, others view digital transformation as a paradigm or as a process (Berman 2012, Berman & Marshall 2014).

In light of this, we argue for the extension of literature that describes and articulates the phenomenon of digital transformation; what it is; how it behaves; what drives it; what impacts it creates, as well as where the impacts are felt. We believe that a solid foundation for this phenomenon is required. To this end, a systematic literature review is carried out and a concept centric matrix is developed. Drawing on this matrix, a more inclusive and general definition is constructed. The selection of keywords in this comprehensive definition of digital transformation is explained and avenues for further research are also highlighted.

2 Methodology

A scholarly literature search was performed with the aim of retrieving credible peer reviewed and academic research articles in this area (see Table 1).

Table 1: Using Gass et.al.(2014)'s 4 Phase Literature Analysis Approach

Phase	How it was used
Phase 1: Searching Process search for academic journals & conference papers using academic databases	Search keywords include: “digital business strategy”, “digital transformation”, “digitalization”, “IT-enabled Organizational Transformation”, “IT-enabled Enterprise Transformation”; “digital technologies” Search using keywords and Boolean operators: “digital transformation AND digital business strategy”; “IT enabled transformation AND enterprise transformation”; “enterprise transformation AND digital technologies”; “organizational transformation AND digital transformation”; etc.
Phase 2: Screening Process screening conditions were developed and used to focus results obtained from the searching process	Conditions used to narrow the search include: 1. Articles should be written in English 2. Articles should be published in 2010 or after 3. Articles should have at least one of the keywords above listed as part of the keywords in the abstract
Phase 3: Clustering Process clusters were developed based on thematic areas – constructs	Thematic Areas Identified include: 1. What is Digital Transformation 2. Characteristics of Digital Transformation 3. Drivers of Digital Transformation 4. Impacts of Digital Transformation 5. Transformed Areas
Phase 4: Analysis Process thematic analysis technique was used to synthesize articles to create a body of literature using constructs above	Thematic Analysis Technique used to develop the Concept Centric Matrix: See Table 3

Articles retrieved were scrutinized to extract similar traits and patterns that build up towards the phenomenon, where variables such as: “description of what is”; “characteristics”; “drivers”, “impacts” and “transformed areas” were identified as constructs to the fundamental conceptualization of the phenomenon. The concept centric matrix process (Webster & Watson, 2002) was adopted to synthesize the retrieved articles. This process was carried out within the period of March to October 2016 using Gass, et.al. (2015)'s 4 Phase Approach to literature analysis. Table 1 below illustrates the approach and how it was utilized in this review.

The literature search yielded many articles. Criteria from the screening processes were applied to narrow the search and set the final inclusion and exclusion criteria. For searches that yielded many results, the search was sorted according to relevance and only first 10 results were considered. On analysing the metadata, articles that did not meet the criteria set were excluded. While there was a deliberate focus on articles published in the basket of 8, articles from other peer reviewed sources and academic conferences were also considered. Articles included in the final selection were then downloaded and perused in more detail.

Analysis revealed that some of the articles retrieved stated the definition of digital transformation, also giving different descriptors such as characteristics, drivers, impacts and transformed areas while others gave a perspective approach of what digital

transformation could mean in specific contexts. Table 2 summaries the type of articles downloaded, defining each type, the number of articles in each type that provided the definition of digital transformation as well as the total number of articles downloaded for each type.

Table 2: Articles Retrieved

Type of Article	Description	Definition provided	No Definition	Total
Management Reviews	Articles obtained from Business and Management Review publications of reputable business schools, centre of studies or a collaboration	2	15	17
Academic Conferences & Journals	Articles obtained from different peer reviewed academic conferences and journals	9	27	36
Total		11	42	53

3 Digital Transformation: The Current Situation

An in-depth analysis of the articles was carried out to determine how authors describe digital transformation. In this process, retrieved articles were used to identify the definition, characteristics, drivers, impacts and the transformed areas as articulated by the authors. A concept centric matrix was developed to capture the different variables for each construct as they are identified. Table 3 is an illustration of the concept centric matrix developed from analysing these articles.

Table 3: Digital Transformation - Concept Centric Matrix

What is Digital Transformation?	
Strategy	Bharadwaj, et.al. (2013); Matt, et.al. (2015); Mithas, et.al. (2013); Hansen & Sia (2015); Granados & Gupta (2013);
Process	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharosa, et.al. (2013); Janowski (2015); Kreutzer (2014); Loebbecke & Picot (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Wang, et.al. (2016); Hansen et.al. (2011);
Business Model	Henriette, et.al. (2015); Stieglitz & Brockmann (2012);
Paradigm Shift	Berman & Marshall (2014); Piccinini (2015a);
What are its Characteristics?	
Radical	Liu et.al. (2011); Berman (2012); Berman & Marshall (2014); Westerman et.al. (2011);
Disruptive	Berman (2012); Berman & Marshall (2014); Granados & Gupta, (2015); HBR Analytics Services (2014); Fitzgerald, M. et.al. (2013);
Evolutionary/continuous	Loebbeck & Picot (2015); Janowski (2015); Wang et.al. (2016); Liu et.al. (2011);
Complex	Janowski (2015); Bharosa et.al. (2013); Matt et.al. (2015); Agarwal (2010);
What are the Drivers of Digital Transformation?	
Digital Technologies	Agarwal, et.al. (2010); Berman (2012); Bharadwaj, et.al. (2013); Bharosa, et.al. (2013); Janowski (2015); Kreutzer (2014); Luna-Reyes & Gil-Garcia (2014); Mithas, et.al. (2013); Lucas, et.al. (2013); Stieglitz & Brockmann (2012); Setia, et.al. (2013); Wang, et.al. (2016); Berman & Marshall (2014); Loebbecke & Picot (2015); Westerman et.al. (2011);
Digital Capabilities	Berman & Marshall (2014); Loebbecke & Picot (2015); Matt, et.al. (2015); Schuchmann & Seufert (2015); Tamm, et.al. (2015); Wang, et.al. (2016); Westerman et.al. (2011);
Strategies	Berman & Marshall (2014); Bharadwaj, et.al. (2013); Matt, et.al. (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Mithas, et.al. (2013);
Business Models	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharadwaj, et.al. (2013); Janowski (2015); Loebbecke & Picot (2015); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Tamm, et.al. (2015); Stieglitz & Brockmann (2012);
Value Chain	Agarwal, et.al. (2010); Berman & Marshall (2014); Bharosa, et.al. (2013); Janowski (2015); Stieglitz & Brockmann (2012); Tamm, et.al. (2015); Wang, et.al. (2016);
What are the Key Impacts of Digital Transformation?	
Value Creation: Reshapes Realign Redefine Integrate Collaboration	Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Berman (2012); Bharadwaj, et.al. (2013); Luna-Reyes & Gil-Garcia (2014); Stieglitz & Brockmann (2012); Johnson & Lederer (2010); Berman & Marshall (2014); Chen et.al (2013); Bharosa et.al. (2013); Wang, et.al. (2016); Agarwal, et.al. (2010); Buschmeyer et.al. (2016); Westerman et.al. (2011);
Operational Efficiency: Optimize Processes, Omni Channel; Agility; Improved Decision Making Structural Change	Bharadwaj, et.al. (2013); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Lucas, et.al. (2013); Setia (2012); Kreutzer (2014); Stieglitz & Brockmann (2012); Tamm et.al. (2015); Berman & Marshall (2014); Loebbeck & Picot (2015); Hansen & Sia (2015); Janowski (2015); Bharosa et.al. (2013); Wang et.al. (2016); Agarwal et.al. (2010); Berman & Marshall (2014); Chen et.al (2013); Westerman et.al. (2011);
Create Competitive Advantage	Bharadwaj, et.al. (2013); Lucas, et.al. (2013); Matt, et.al. (2015); Schuchmann & Seufert (2015); Kreutzer (2014); Stieglitz & Brockmann (2012); Chen et.al (2013); Westerman et.al. (2011);
Improved Relationships: Enhance	Bharadwaj, et.al. (2013); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Schuchmann & Seufert (2015); Bharosa et.al. (2013); Wang et.al. (2016);

Customer Experiences; Engagement	Berman (2012); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Piccinini et.al. (2015a); Berman & Marshall (2014); Loebbeck & Picot (2015); Chen et.al (2013); Westerman et.al. (2011);
Where are these Impacts Felt (Transformed Areas)?	
Business Models	Berman (2012); Westerman et.al. (2011); Agarwal, et.al. (2010); Berman & Marshall (2014); Bharadwaj, et.al. (2013); Janowski (2015); Loebbecke & Picot (2015); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Tamm, et.al. (2015); Hansen et.al. (2011); Chen et.al (2013);
Operational Processes	Bharadwaj, et.al. (2013); Lucas, et.al. (2013); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Mithas, et.al. (2013); Schuchmann & Seufert (2015); Westerman et.al. (2011); Hansen et.al. (2011); Berman & Marshall (2014); Chen et.al (2013);
Customer Experiences	Berman (2012); Luna-Reyes & Gil-Garcia (2014); Matt, et.al. (2015); Schuchmann & Seufert (2015); Piccinini et.al. (2015a); Berman & Marshall (2014); Loebbeck & Picot (2015); Luna-Reyes & Gil-Garcia (2014); Westerman et.al. (2011); Gray et.al. (2013);
Employees	Schuchmann & Seufert (2015); Tamm et.al. (2015); Hansen & Sia (2015); Luna-Reyes & Gil-Garcia (2014); Hansen et.al. (2011); Janowski (2015);
Culture	Schuchmann & Seufert (2015); Hansen & Sia (2015); Berman & Marshall (2014);
Infrastructure	Tamm et.al. (2015); Hansen & Sia (2015); Kohli & Johnson (2011);

Table 4 lists the definitions obtained from the 11 articles (in Table 2), which were analysed to establish a pattern in the structure of the definitions. Each definition is analysed paying attention to: (i) what keywords and variables have been used to describe this concept, (ii) identifiable patterns that relays how these keywords and variables have been used to develop the definitions.

Table 4: Digital Transformation - Current Definitions

Authors	Definition
Liu et.al. (2011);	“the integration of digital technologies into business processes”
Bharadwaj et.al. (2013);	“an organizational strategy formulated and executed by leveraging digital resources to create differential value”
Fitzgerald et.al. (2013);	“the use of digital technologies to enable major business improvements”
Lucas et.al (2013);	“fundamentally altering traditional ways of doing business by redefining business capabilities, processes and relationships”
Mithas et.al. (2013);	“the extent to which an organization engages in any activity of IT”
Westerman et.al. (2014b);	“the use of technology to radically improve performance or reach of enterprises”
Henriette et.al. (2015);	“a business model driven by the changes associated with the application of digital technology in all aspects of human society”
Piccinini et.al. (2015);	“characterized by the use of new digital technologies to enable significant business improvements”
Schuchmann & Seufert (2015);	“realignment of technology and new business models to more effectively engage digital customers at every touchpoint in the customer experience life cycle”
Chanias & Hess (2016);	“reflect the pervasiveness of changes induced by digital technologies throughout an organization”
Hess et.al. (2016)	“concerned with the changes digital technologies can bring about in a company’s business model, which result in changed products or organizational structures or in the automation of processes”

A further in-depth analysis of both concept centric matrix (Table 3) and the current definitions (Table 4) revealed that there are significant differences regarding how digital transformation is conceptualised. Nevertheless, a common pattern has been identified in the structure of digital transformation definition, which suggests how the keywords and variables have been used to describe the concept. To qualify and refine this pattern, an iterative process was carried out several times, alternating different variables and keywords in order to attain a more precise yet general structure of the definition. After several iterations, we propose a pattern that suggests that digital transformation is:

“... something with certain characteristics; that is driven by something; to create certain impacts; on certain aspects of the organization”

Table 5 examines the validity of this proposed definition structure using examples from current definition and concept centric matrix.

Table 5: Examining Validity of the Proposed Digital Transformation Definition Structure. Source: Bharadwaj et.al. (2013)

Source	Bharadwaj et.al. (2013)	Westerman et.al. (2014b)	Hess et.al. (2016)	Concept Centric Matrix
	an organizational strategy formulated and executed by leveraging digital resources to create differential value	the use of technology to radically improve performance or reach of enterprises	concerned with the changes digital technologies can bring about in a company's business model, which result in changed products or organizational structures or in the automation of processes	
...is something...	<i>Strategy</i>	???	???	strategy; process; business model; paradigm shift; etc.
...with certain characteristics...	???	Radically	Change	Radical; Disruptive; Evolutionary; continuous, etc.
...that is driven by something...	formulated and executed by <i>leveraging digital resources</i>	Technology	Digital technologies	digital technologies ; digital capabilities; business models; strategies; etc.
...to create certain impacts...	<i>to create differential value</i>	Improve performance	Automation	value creation; enhanced relationships; omni-channel access; optimize; saving; etc.
...on certain aspects of the organization	Organization wide	Enterprise wide	Business model; Products; Organizational structures; Processes	Operational processes; business models ; strategies; customer experiences ; value chain; etc.

Using the proposed definition structure, we illustrate the inconsistencies in the literature of this phenomenon using both concept centric matrix and current definitions. In order to reconcile these differences and ‘square this circle’, we draw upon these tables to construct an inclusive and general digital transformation definition.

3.1 Characteristics of Digital Transformation

The literature assessed views characteristics of digital transformation as behavioural traits displayed by this phenomenon. Different authors used adjectives to describe these traits, perhaps because of the long term impacts digital transformation have on business organizations. From the analysis, only a few of the articles described the digital transformation phenomenon in terms of its behavioural characteristics. However, notwithstanding the few descriptions, these characteristics could not be ignored because they serve a purpose of putting into perspective the extent of the impact that is created during the transformation: whether the impact is small or large, gradual or abrupt, etc. In

this instance, the analysed literature characterizes the behaviour of digital transformation as radical, disruptive, evolutionary, continuous and complex. We propose that for a more inclusive and comprehensible description, digital transformation displays more of an evolutionary trait.

3.2 Drivers of Digital Transformation

Drivers of digital transformation are attributes that influence and enable the process of digital transformation to take place. Although insufficient, the existing literature identified attributes such as digital capabilities and maturity, digital technologies, strategies, business models etc. as factors that drive the digital transformation agenda in organizations. Ezeokoli et.al. (2016) notices that several studies have articulated digital transformation drivers as: profitability and new revenue growth, customer satisfaction, increased operational efficiency, convenience and the same high-quality technical standard, increase business agility, increased employee productivity and competitive advantage. While it was also observed that in some instance there was an overlap between digital transformation drivers and impacts, caution was exercised to separate the two such that drivers remain attributes that influence and enable while impacts are emerging benefits realised from the process of digital transformation. However, while it is arguable which attribute would be possessing more digital drive, we argue that digital technologies play a vital role in the digital transformation process. We believe the capabilities that these technologies possess, coupled by other factors, such as culture, strategy and digitally savvy human capital is what enables the digital transformation process. Kane et.al. (2015a) argue that simply using digital technologies to drive the digital transformation process is not enough and that it also uses digital capabilities, strategies, culture and talent development.

3.3 Impacts of Digital Transformation

Digital transformation impacts are the effects that business organizations experience as a result of the transformation process. While analysed literature has not classified these impacts, we categorize these impacts into customer-focused and organization-focussed categories, customer focused are the effects that impact customers and organization-focussed impact the organization itself. We further argue that these impacts can have a positive or negative effect on both the customer and the organization. Different studies have used different verbs to describe actions that digital transformation has on organizations, however we believe the ultimate impact that organizations want to leverage on digital transformation is value creation – to both the organization and customers.

3.4 Transformed Areas

Different authors identify different areas which are impacted during the digital transformation process. Westerman et.al. (2014b) alludes that digital transformation takes place in three key areas of the firm: customer experience, operational processes and business models, suggesting that the effects of digital transformation in business organizations are felt in these three key areas. While Westerman et.al. (2014b) allege that these three key areas are what business leaders focus the enterprise's transformation efforts towards, from an "orchestrating the organization" lens, it is established that not all key elements that ensure a perfect organizational orchestration have been included. For instance, Bouee (2015) argue that employees should not be left out in the digital transformation journey. Other researchers, including Matt et.al. (2015), Bharadwaj et.al. (2013), etc. demonstrate how digital transformation impacts organizational structure, while Piccinini (2015a), Loebbeck & Picot (2015), etc. allude that digital transformation impacts relationships. In determining the transformed areas, we however argue that as the benefits of digital transformation are to be felt by both the organization and the customers, it is important to ensure that the transformed areas considered for the general description of digital transformation should be inclusive of both organization and customer. We therefore propose that Westerman et.al. (2014b)'s three key transformed areas are more general and inclusive of both the organization and customer.

The process was repeated several times, alternating different keywords and variables to ensure rigor and relevance in the proposed definition. It is after iterating several times that the definition below was proposed: Digital transformation is:

“an evolutionary process that leverages digital capabilities and technologies to enable business models, operational processes and customer experiences to create value”

4 Towards a More Comprehensive Understanding of Digital Transformation

This section discusses the concepts used in our proposed definition and further describes the meaning of each concept. Table 6 gives a simple definition of each of these concepts and subsequently, a justification is provided of why each concept was selected for inclusion in the definition.

Table 6: Keywords from the New Definition

Keyword	Simple Definition
Evolutionary Process	A gradual and ongoing series of activities that brings radical change over a period of time
Digital Capabilities	technology skills possessed or required by employees, customers and other stakeholders in different areas that can enable the organization to thrive in a digital environment
Digital Technologies	new and emerging technologies
business models, operational processes and customer experiences	Different areas of the organization which are bound to transform due to the digital transformation process
Value Creation	Organization wide effects and benefits realized as a result of the digital transformation effort, realized by both the organization and the customer

Defining Characteristic(s) of Digital Transformation: Evolutionary Process indicates that digital transformation phenomena is a continuous process, over a period of time (Schuchmann & Seufert 2015, Loebbeck & Picot 2015, Janowski 2015, Wang et.al. 2016, Liu et.al. 2011, Bharosa et.al. 2013). While digital transformation was referred to as a radical change more than as an evolutionary process, we believe an evolutionary process is a more inclusive term that captures the fact that digital transformation evolves with time, and whenever this evolution takes place, the impacts bring about a radical change to the organization. Also, digital technologies as key drivers of digital transformation are in their nature evolving. While earlier forms of digital transformation entailed the introduction of computer based systems and automation of processes, present day digital transformation is more concerned with adoption and use of emerging technologies, which are in their nature evolving.

Drivers of Digital Transformation: Digital Capabilities specifies that in order to thrive in a digital transformation journey, organizations require particular skill set, mind-set and culture that is digital. We argue that relevant skill set and culture - digital capabilities, should be incorporated with digital technologies to achieve the best digital transformation results (Matt et.al. 2015, Schuchmann & Seufert 2015, Tamm et.al. 2015, Berman & Marshall 2014, Loebbeck & Picot 2015). The second key driver identified in our definition, Digital Technologies, indicates that at the foundation of all digital transformation efforts are digital technologies. For technology enabled organizational transformation to take place, technology based systems are at the core of the effort (Besson & Rowe 2012, Cha & Lee 2013). Digital technologies create opportunities that organizations leverage. These opportunities have the potential to transform certain aspects of the organization, especially business models, operational processes and customer experiences. As a result, the organization benefits from impacts of this transformation.

Impacts of Digital Transformation: Value Creation is identified as the key impact brought about by digital transformation. This value is realized by both the organization and its

customers. Value realised include many factors, but not limited to: operational efficiencies, improved customer experiences; enhanced business models; strategic differentiation, competitive advantage, improved stakeholder relationships, cost savings, etc. (Berman & Marshall 2014, Loebbeck & Picot 2015, Luna-Reyes & Gil-Garcia 2014, Janowski 2015, Bharosa et.al. 2013, Wang et.al. 2016, Agarwal et.al. 2010).

Key Transformed Areas of Digital Transformation: Business Models, Operational Processes & Customer Experiences are acknowledged as the key transformed areas of digital transformation initiatives (Westerman, G. et. al. 2011). Focusing transformation on these 3 key areas naturally engages transformation in other aspects of the organization, thus, enabling the transformation impacts to be felt across the organization. For example, transforming operational processes within the organization has the potential to create an impact in other aspects of the organization, such as improving efficiency, costs saving for both the organization and the customer, resulting in value creation.

5 Conclusion

This study has highlighted the lack of a unified and overarching definition of digital transformation as well as inconsistencies in the existing literature. In order to address this gap, a systematic literature review was carried out in order to conceptualize this phenomenon. A concept centric matrix was used to describe the phenomenon in terms of what it is, its characteristics, its drivers, impacts and the transformed areas. Inconsistencies in the definition are also identified and a new and more inclusive definition of digital transformation is constructed and explained.

Other gaps that have been identified during the literature review process include insufficient literature on transformational effects of digital technologies on different aspects of the firm and as well as specific to industries. While digital transformation involves the use of digital capabilities and technologies to impact different aspects of the organization in order to create value, it is also important to understand specifically how different types of digital technologies, paired with capabilities, impact particular aspects of the organization. Moreover, it is important to understand the nature of the value that is created through this transformation. Such research would have significant impact on both theory and practice.

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