

Value Creation and Change Management in Digital Transformations

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Abstract. *The premise of this paper is that Digital Transformation is the most recent and probably the most powerful toolbox in the effort to create value in a company. Digital Transformation is about changing the operating models of companies and consequently the way these companies create and deliver value to their stakeholders. The indexed literature (in total 6427 items in the Web of Science database on January 31st, 2022) studying the Digital Transformation phenomenon is dominated by the computer sciences and information systems perspective. Therefore, this paper proposes a slightly different and thus new paradigm using the lenses of value creation and change management linking it this way to the strategic management of the company. The purpose of the digital transformation should be value creation and because it is a profound transformation process it is subject to the change management process principles. Through the use of text mining and visual mapping conducted with the help of VOSviewer software version 1.6.17, this paper illustrates the conceptual map of the digital transformation literature and its links to value creation and change management.*

Keywords: digital transformation, change management, value creation, strategic management.

Introduction

Digital transformation literature had a significant development in the past five years that accelerated even more in the past three years. Figure 1 shows the number of published materials by year, indicating that half of the materials were published in the past two years (2021 and 2020). The number of materials published three years ago (2019) was equaling the number of the materials published in all the years before.

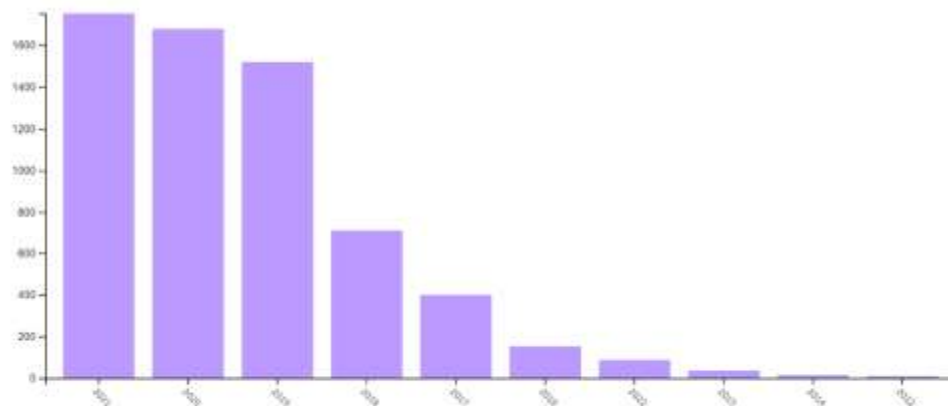


Figure 1: The number of digital transformation materials published by years

Source: Web of Science, January 31st, 2022.

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The overwhelming majority of the indexed literature (in total 6427 items in the Web of Science database on January 31st, 2022) studying the Digital Transformation phenomenon is rooted in the digital technologies and information systems perspective, as seen in Figure 2:



Figure 2: The number of digital transformation materials published by categories

Source: Web of Science, January 31st, 2022.

In order to further benchmark the broad academic interest for the subject of digital transformation, Table 1 shows the number of works written on some of the biggest management subjects (all works indexed in the Web of Science database, analyzed on January 31st, 2022): value creation, strategic management, brand value, digital transformation. Digital transformation works seem to be more recent as proven by the highest ratio of the past five years published (column d) compared to the number of those ever published in the Business and Management categories (column c). Also, it has a notably lower ratio of the business & management category materials (column c) compared to the total corpus of materials (column d). Furthermore, materials about digital transformation and value creation seem to cover less than 5% of the analyzed sample of works, while digital transformation and change management is treated in less than 2.5% of the materials. These ratios are indicating a strong potential for works that would treat digital transformation together with value creation and change management, respectively.

Table 1: The count of materials published on some major management subjects

	Total (ever)	English	Management & Business (WoS categories)	Published in the past 5 years (2018-2022)	Highly cited (ever)
	a	b	c	d	e
Strategic Management	19337	18800	13964	3348	129
Value Creation	11137	10879	5956	2522	120
Brand Value	962	911	508	211	5
Change Management	9858	9677	3817	961	7
Digital transformation (DX)	6427	5935	1741	1657	32
DX & value creation	150	147	82	78	8
DX & change management	89	83	37	35	1

Source: Web of Science, Jan 31st, 2022.

Literature Review

Digital Transformation

Ebert and Duarte (2018) with a computer industry perspective affirm that digital transformations are the outcome of the interaction of two kinds of “forces”. They use the term “hard” to label the “forces” represented by technologies and the term “soft” to describe the “forces” represented by the people and the businesses. They sustain that the outcome of these interactions could generate additional value materialized as productivity increase, value creation and social welfare. In their opinion the goals of digital transformation are both economic and social. The economic goals are to be manifested predominantly at the company level (i.e. new business models, income generation growth, productivity increase) with impact on the respective industries (i.e. standards and regulatory framework). The social goals are to be manifested at societal level through culture change (i.e. more innovative and collaborative), education systems evolution to provide the new skills required for digital work excellence and better services offered to the population at large through digitalization. These should bring ease of access, transparency, and data protection which in turn will augment the population’s perception of services quality as well as trust in digital technologies.

Vial (2019) reviews 282 materials about digital transformation and proposes the following definition: “a process where *digital technologies* create *disruptions* triggering *strategic responses* from organizations that seek to alter their *value creation paths* while managing the *structural changes* and *organizational barriers* that affect the *positive* and *negative* outcomes of this process” (Vial, 2019, p. 118). This definition is an all-encompassing statement that starts like many of the information systems definitions, namely the implementation of digital technologies that will create disruptions. It is becoming a more powerful definition when it includes the cumulated effects of these disruptions on the strategic management of the firm through business model change (i.e., altering the value creation paths) and organizational changes (structural changes and working out barriers). The closing of the definition suggests that both positive and negative outcomes are possible, implying that the aim for positive outcomes should be the driver of the strategic responses.

Tabrizi et al (2019) states that digital transformation facilitates major gains in organizational efficiency and customer engagement, therefore fitting the definition of a good value creation mechanism. However, they warn that digital technologies applied over a layer of flawed organizational practices (processes) or an organization with members’ mindset reluctant to change would only magnify those flaws, similar to the way a catalyst is speeding a reaction, digital transformation will make visible underlying flaws faster and thus making them more obvious. In the same article we also find out that approximately 70% of the digital transformation initiatives do not achieve their goals. Projecting this ratio on the estimated global yearly spent on digital transformation initiatives (in 2018 of about USD 1,3 trillion) illustrates the imperative of achieving the stated goals of the digital transformation initiatives (avoiding a potential waste of USD 900 million). Learning from their own experiences (Tabrizi et al, 2019), brought forward five lessons that they propose to be considered in the process of deploying digital technologies: (1) *digital transformation should be based on the broader business strategy*, (2) *leverage own staff*, (3) *design customer experience from the outside* in having in mind the experiences brought to the customers. Importantly the last two lessons are about managing change in an organization with consideration for the internal stakeholders (4) *recognize employees’ fear of being replaced* while paying attention to agility (5) *bring Silicon Valley start-up culture inside*.

Baker (2014, p.10), while presenting his interview with Jaya Deshmukh, Director of Digital Transformation at PricewaterhouseCoopers (PwC) Consulting is suggesting that the success of

PwC in the digital transformation work done by the consulting firm, as judged and praised by either Gartner Reports or Forrester Reports, was mainly due to the PwC belief that: “you know, we don’t need the digital strategy. What we require is a business strategy for the digital world”.

Kane et al. (2015) stated that: digital transformation is not really about technology and while it is led from the top, it requires skill enhancements and cultural norms to allow for more risk taking through the ranks. The authors compare digitally mature organizations with less digitally mature organizations. They define the digitally mature organizations as those that had in the scope of their digital change a transformation of processes, talent engagement as well as business models transformation. Their findings suggest that digital transformation should be led from the top and business leaders should encourage risk taking based on the rationale that some failures are a prerequisite for success, thus addressing the likelihood that employees might be risk averse. They also affirm that employees want to work for digital leaders and look up to these to skill and re-skill them for the evolved job contents.

Verhoef et al (2021) are illustrating the fact that we must distinguish between: Digitization, Digitalization and Digital Transformation as they are three distinct phases of the process, implying the creation of the premises of digital measuring, deploying the digital technologies, and restructuring the operational models and organizations.

Matarazzo et al (2021) while analyzing 6 SMEs from fashion, food, design, and furniture in Italy revealed the positive effects of the usage of digital instruments that lead to business model innovation, opening new distribution channels and thus making possible customer value creation.

Pinzaru et al (2019) while analyzing interviews of 10 influential global CEOs highlight the fact that digital transformation of businesses is crucial, and it should balance the technology and human sides of the transformation. The importance of customer journeys is also emphasized while value capturing from digital transformations is put next to the stride to use the resource configuration brought about by these transformations for a more socially responsible and greener outcome.

Value creation through business model innovation

The study of value creation has generated a great number of books and articles as shown in Table 1, and it is very diverse and multifaceted. Definitions of value have been a constant concern in academic works (Yar Hamidi, 2019) and might go back to Aristotle.

For the purpose of this paper, I start by referring to Porter’s (1985) seminal work on value chain analysis and its underlying belief that all the activities of a company should be analyzed and quantify the contribution each of them brings to build and secure a competitive advantage. I particularly value this approach as it provides a rock-solid judgment tool to assess the sense and direction of any digitalization or digital transformation stride. The nine generic categories proposed by Porter (1985, p. 37) could very well serve as the loci (firm infrastructure, procurement, inbound logistics, operations, outbound logistics, marketing & sales, service, human resources management and technology development), to focus the digitization and digitalization of businesses.

Norton and Kaplan’s (1996, 2004) balanced scorecard and strategy maps fundamentally changed the means to measure and illustrate the company’s strategy to create value.

Amit and Zott (2001) in their study of e-businesses identified four potential sources of value creation: efficiency, complementarities, lock-in, and novelty. Their analysis also suggests that none of the theoretical framework discussed in their paper (value chain analysis, Schumpeterian innovation, Resource Based View of the firm (RBV), strategic network theory, transaction cost economics) could be used as a single theory to explain value creation in e-businesses and call for

an integration of these various frameworks proposing the construct of “business model” as an appropriate tool to evaluate value creation. Their definition of the business model “depicts the design of transaction content, structure, and governance so as to create value through the exploitation of business opportunities.” They conclude that a firm’s business model is an “important locus of innovation and a crucial source of value creation for the firm and its suppliers, partners, and customers” (Amit & Zott, 2001, p. 493).

Kim and Mauborgne (2015) have impacted strategic management thinking by formulating the theory of the “blue ocean strategy”. They stated that value creation could and should be done through value innovation. Their challenging of the traditional value vs. cost trade-off is reflected in the goals of many digital transformations and business model changes through the aim to offer both higher buyer value and lower cost.

Tapaninaho and Kujala (2017) reviewed extant literature on stakeholder value creation published in the leading management journals from 1985 to 2015. Their main finding was that stakeholder value creation was analyzed quite extensively and that it is widely acknowledged that businesses are responsible to create versatile value also beyond economic measures.

Long term value creation is deemed essential when aiming for the viability of a firm (Goedhart & Koller, 2020 and Bowman & Ambrosini, 2007). Therefore, through the aimed benefits of more efficient customer engagement, optimized operations cost, employee empowerment and even product/service transformation, digital transformation is the ultimate process of value creation while digital technologies are enablers.

Change Management

Agarwal and Helfat (2009) defined “strategic renewal” as the replacing or refreshing of those attributes that affect the long-term success of a company (Agarwal and Helfat, 2009, p, 282). Warner and Wäger (2019) provided an empirically grounded definition of digital transformation using the construct of “strategic renewal”. They argue that the scope of each digital transformation is a “strategic renewal”, meaning a profound change process of the organization impacting: (1) business model, (2) collaborative approach, and (3) culture. This in turn substantiates the idea that digital transformations should be implemented based on change management principles and tools.

It is also important to acknowledge that this paper is presented during the pandemic, but it is envisaging the post pandemic New Normal characterized by complexity and uncertainty (Bratianu, 2020). Hitt et al (2020) considered that Meyer (1990) was rather prophetic about the COVID 19 upheaval when he stated:

“From time to time, organizational environments undergo cataclysmic upheavals – changes so sudden and extensive that they alter the trajectories of entire industries, overwhelm the adaptive capacities of resilient organizations, and surpass the comprehension of seasoned managers.” (Meyer et al, 1990, p. 93)

Firms will strive to adjust to the New Normal (Pinzaru et al, 2020, Pinzaru & Zbucea, 2020) or will strive to influence and change the environment they operate in, by identifying, creating, and exploiting possibilities using most often an emergent strategy approach (Bratianu & Bejinaru, 2021, Markovits, 2021, Pinzaru & Zbucea, 2021). In this context firms will have the propensity to accept bigger risks (Hitt et al, 2020) and therefore speed up their digitalization, especially the e-commerce side (customer engagement) as a countermeasure to the new reality (Markovits, 2021) of the low touch economy (Board of Innovation, 2020). While this is not yet a full digital transformation, it is very likely a strong catalyst for it.

Methodology

Multiple maps were generated and analyzed based on bibliometric data for works indexed in the Web of Science (WoS) database and were retrieved on January 31st, 2022, thru advanced searches using the key words: “digital transformation”, “value creation”, “change management” as well as pairs of “digital transformation” with each of the other two key words. An extra filter was applied to select only articles published in English and indexed in the Business and Management categories.

Science mapping software tools that have been specifically developed to create bibliometric mapping analysis (Cobo et al, 2011a). It is customary to use scientific mapping of the literature to analyze and illustrate the conceptual structure of a study or research field (Cobo et al,2011b, Paiuc, 2021, Iliescu,2021, Moosa et al,2021). According to a recent comparative analysis of tools (Pan et all, 2018), three of them are widely used by the research community: CiteSpace, VOSviewer, and HistCite. For this paper the author has used VOSviewer (van Eck & Waltman, 2010) version 1.6.17 to map co-occurrences of key words in the analyzed corpus of articles.

Findings and discussion

The first analysis for materials published in the past three years in English indexed in the Business and Management categories using the keyword “digital transformation” has yielded a corpus of 973 materials. The total number of keywords in this corpus was 260, while 42 met the criteria of minimum 2 co-occurrences. The number halved as the analysis moved to at least 3 co-occurrences with 21 items meeting the criteria and being divided in 5 clusters out of which cluster 2 (digital transformation, digitalization, digitization, internet of things) and cluster 3 (innovation, technology, strategy, dynamic capabilities, performance, knowledge) seem to have a stronger and meaningful connection. Before mapping this set of materials the “literature review” keyword was removed from the items set to allow for a more meaningful link structure. The obtained model had 20 items with 110 links among themselves and a total link strength of 241.

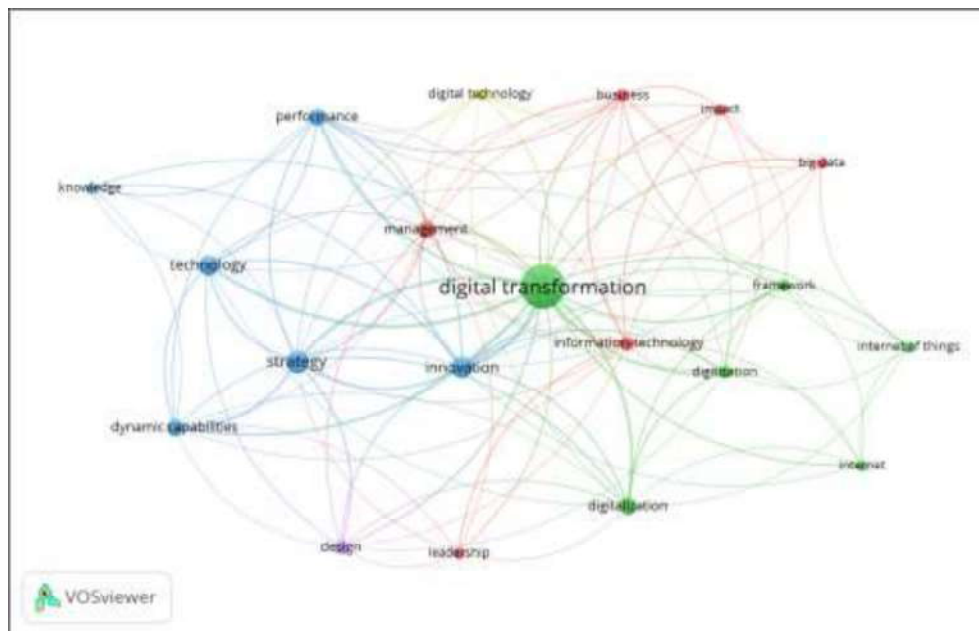


Figure 3: Mapping of digital transformation literature with 3 co-occurrences (20 items in 5 clusters)

Source: Author’s research.

The “digital transformation” keyword has 19 links being connected to each of the other keywords mapped and has a total links strength of 92. The link strength with the items in cluster 3 seems the most meaningful besides the ones in its own cluster (digitalization= 7, digitization= 4):

Table 3: Link strength of “digital transformation” to cluster 2 keywords

Main keyword	Linked keywords	Link strength
Digital transformation	Innovation	11
	Strategy	10
	Technology	10
	Performance	6
	Dynamic Capabilities	6
	Knowledge	2

Source: Author’s research.

Narrowing the analysis and raising the co-occurrence criteria to 5, a 10 items map structured in two clusters with 40 links and a link strength of 136 was obtained. The “digital transformation” keyword had 9 links and thus connected to each of the other keywords with a total links strength of 63. This map highlighted even more the strength of the link between digital transformation and innovation (link strength=11), strategy (link strength=10), technology in general (link strength =10) and information technology in particular (link strength=4), as well as digitalization (link strength=7) and knowledge and performance respectively (link strength=6).

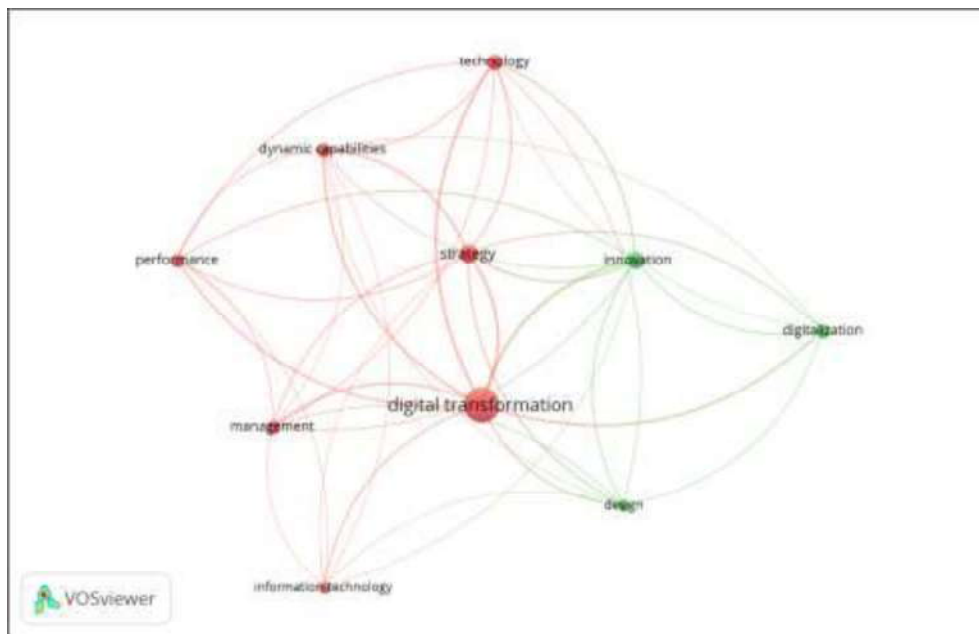


Figure 4: Mapping of digital transformation literature with 5 co-occurrences (10 items in 2 clusters)

Source: Author’s research.

“Value creation” and “change management” are the big absentees in these maps therefore additional maps were created to explore their respective links to digital transformation.

In order to explore the link between “digital transformation” and “change management” in the first instance a set of materials published since 2018 to date and having “change management” as keyword was filtered yielding a corpus of 963 materials with 305 keywords in total and with 38 keywords meeting the criteria of minimum two co-occurrences. The map obtained for minimum

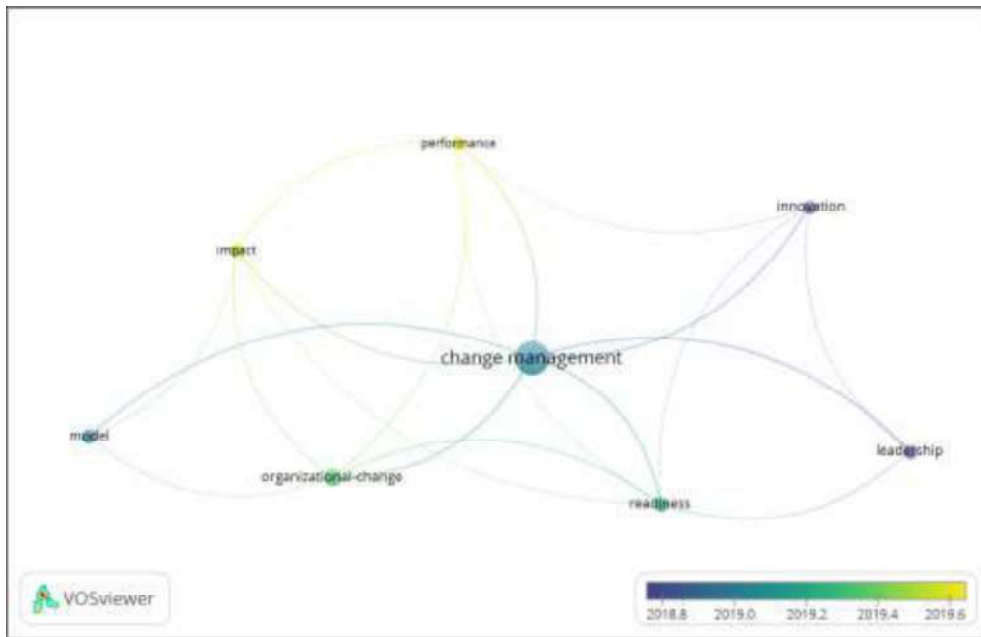


Figure 6: Mapping of change management literature with 5 co-occurrences (8 items in 3 clusters)

Source: Author’s research.

A Web of Science search for materials using jointly “digital transformation” and “change management” keywords has generated a corpus of 37 materials mostly articles with the overwhelming majority published in the past two years indicating a recent focus on the topic of digital transformation as change management processes:

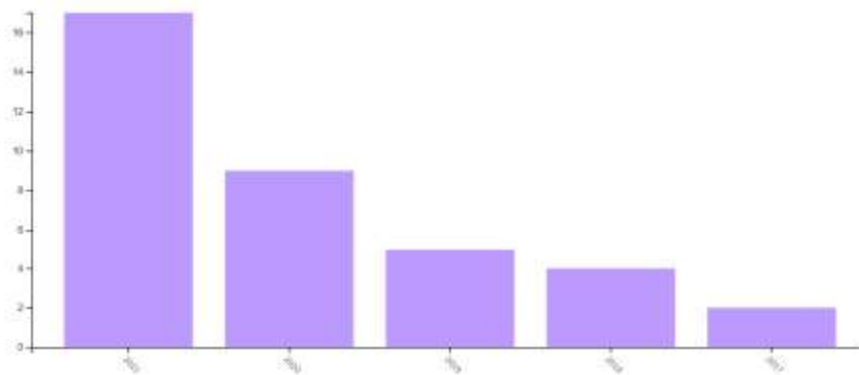


Figure 7: The count of change management materials concerning digital transformation by years of publication

Source: Web of Science, January 31st, 2022.

To explore the conceptual links between digital transformation and value creation, a different approach was employed to map the focus of the “value creation” literature, searching for the most cited materials with the “value creation” keyword in the Web of Science. The first search has yielded a corpus of 120 materials with 402 keywords with 88 of them meeting the minimum

criteria of 2 co-occurrences and structured in 6 clusters. The visualization of this map in the overlay mode shown in Figure 8, indicates also that digital transformation is a recent preoccupation in the most influential papers on value creation and has a rather weak link strength to the core keyword (see keywords in yellow - 2018).

Secondly a new set of Business and Management materials in English were searched for, using the “value creation” and “digital transformation” keywords jointly, obtaining 87 articles with 345 keywords and 76 keywords meeting the co-occurrence criteria of minimum two. Narrowing the analysis to 5 co-occurrences a map of 20 items structured in 4 clusters was obtained as shown in Figure 9. As expected, (due to the search criteria) “value creation” has 19 links being connected to all items and it has the highest link strength in relation with “digital transformation” (link strength=18). The second strongest link strength is with “innovation” (link strength=8) and the third with “dynamic capabilities” (link strength=6).

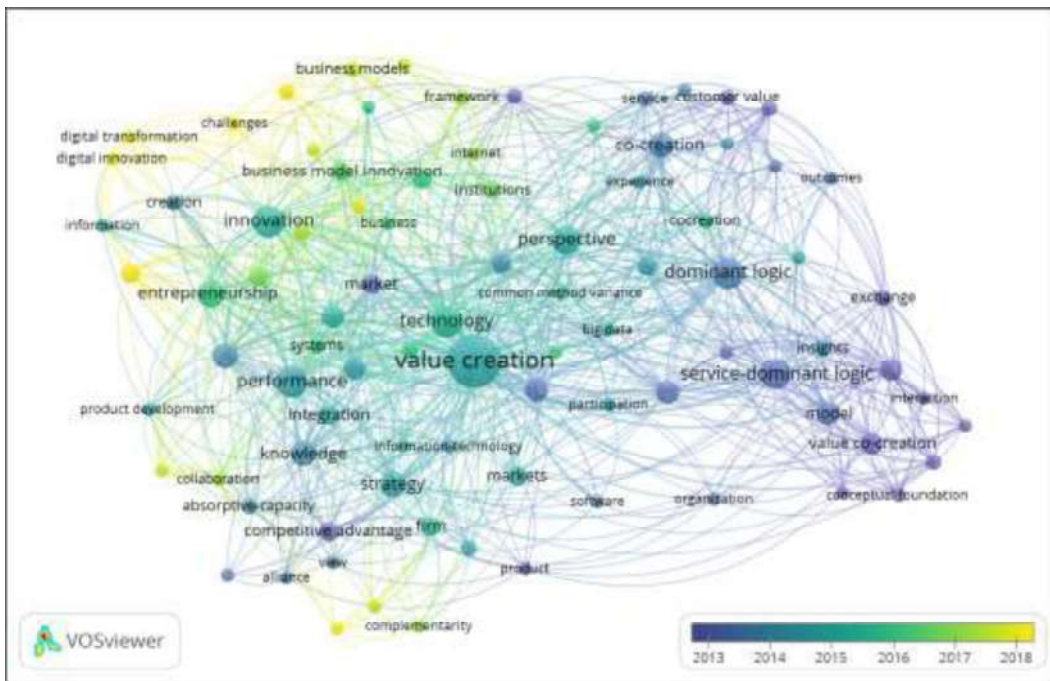


Figure 8: Mapping of value creation literature’s most influential papers with 2 co-occurrences (88 items in 6 clusters)

Source: Author’s research.

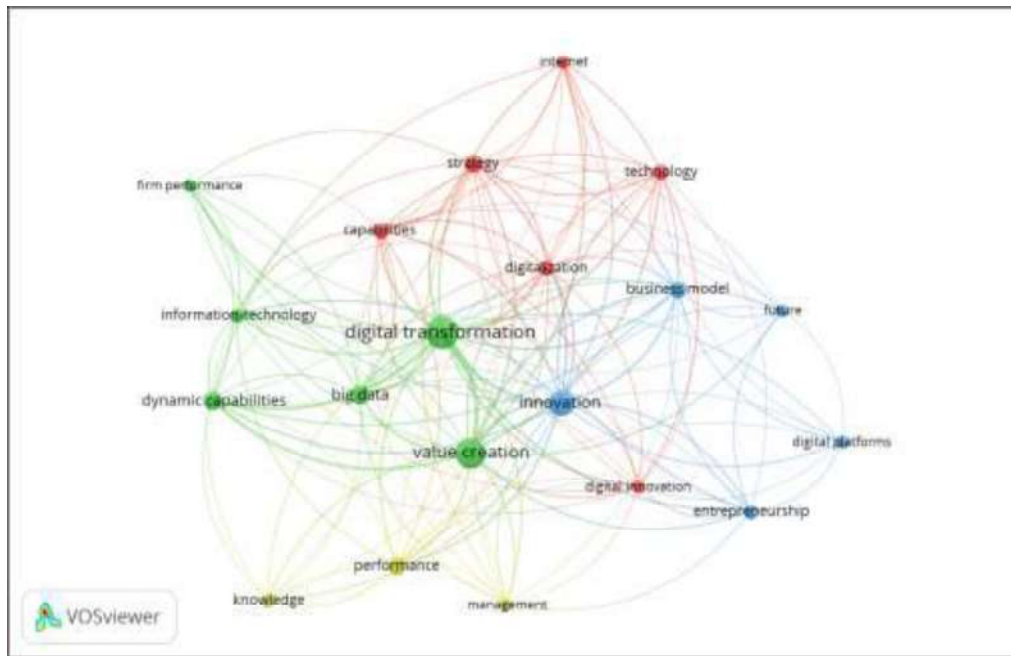


Figure 9: Mapping of value creation and digital transformation literature with 5 co-occurrences (20 items in 4 clusters)

Source: Author's research.

Conclusions

Literature review as well as bibliometric analysis shows that despite being a recent years' topic, digital transformation literature is flourishing making more and more room for the business and management angle in treating the subject. There is a strengthening stream of thinking that considers digital transformation the business strategy for a digitized and digitalized world while technologies are enablers.

Digital transformation is also treated more and more as a value creation method proven by the bibliometric maps and through the definitions and review articles published in the recent three to five years.

“Change management” is not so strongly linked to “digital transformation” in the bibliometric maps. However, it starts being present in the literature published after 2018. An improvement to this mapping exercise could be to cluster “change management” with other keywords (e.g. “erp implementation” “digitalization” “innovation”). However, the past two years have brought forward more voices that indicate that successful digital transformation initiatives should rely on and employ the change management principles and toolbox.

Further research on methods and even models to assess the value creation's impact of digital transformation initiatives is needed.

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