

RELATION OF BUSINESS PROCESS MANAGEMENT AND DIGITAL TRANSFORMATION - LITERATURE REVIEW

Radovan Kouřil¹

¹ Ing. Radovan Kouřil, Západočeská univerzita v Plzni, Fakulta ekonomická, Katedra financí a účetnictví, kourilr@kfu.zcu.cz

Abstract: Digital transformation, digitization, or business process management are terms often mentioned by academics and practitioners. Nowadays, the world could hardly function without any digitization. Together with business process management, it helps companies to increase their accomplishment in the current time of globalization and internationalization, which brings a highly competitive environment. Digitalization offers companies the possibility to make processes in their business more efficient, so they achieve save time, reduce costs and maximize profit. Using digital technologies, companies are also trying to innovate their already existing business models in order to create or strengthen their competitive advantage in today's environment. The objective of this paper is to provide an overview of the relation between digital transformation, digitization, and business process management based on a literature review. Bibliometric analysis shows that there is a growing interest in the researched area.

Keywords: business process management, digital transformation, digitization, digitalization, Industry 4.0

JEL Classification: M10, O14, O31

INTRODUCTION

World changes in global markets and technology development lead to the beginning of a new trend – digital transformation. New business models can be created with the help of digital economy opportunities (Tapscott, 1997). Further, he suggests the possibility to modernise existing business models and processes through digital technology usage. As stated in Terrar (2015), successful digital transformation of the process leads to the formation of new business models. According to Pejić Bach, Spremić, & Suša Vugec (2018), digital transformation relates to the creation of new business models and the change of old ones by implementing digital technologies. The existence of new business models, and technologies are only a few out of many drivers for digital transformation (Valdez-de-Leon, 2016). Business process management has huge importance in company practices due to its position at the core of every company. Modernization of digital transformation was also influenced by changes that are happening in the world that is now the world of globalization and internationalization. Nowadays companies have to adapt as quickly as possible to the new conditions in order to succeed in the market. Van Looy (2018) considers business process management as one of the ways organizations are able to follow global trends by evolving their processes. Considering the previously mentioned objective of this contribution is therefore literature research on the relationship between business process management and digital transformation. Following the introductions, the terms of business process management and digital transformation are explained based on the researched articles in the Scopus database. Followed by the research methods specification and clarification of the literature review process. The presentation of the results is followed with suggestions for future in-depth research.

1. LITERATURE REVIEW

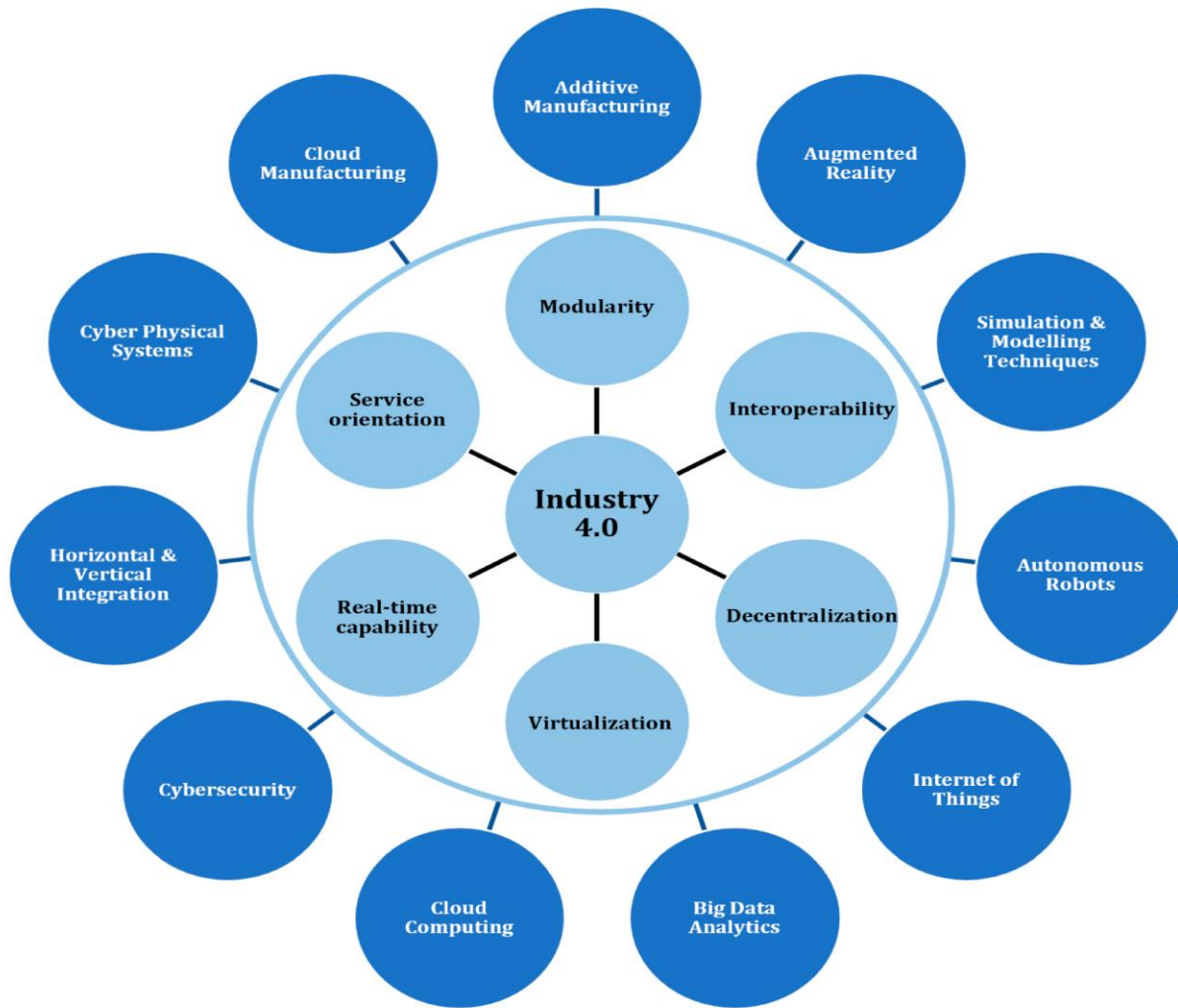
1.1 Business process management

A business process is a set of related functions in a specific sequence executed by machinery or people who deliver value to the customers, external or internal. All organizational levels have business processes present but several of them are invisible to external customers (Butt, 2020). Maintenance of business processes leads to higher efficiency and productivity of the business. Therefore business process management has been one of the driving force of optimizing growth and efficiency of organizations (Szelagowski & Bernika-Woźny, 2022). Methods, frameworks and tools of business process management were developed during the previous years. These are designed to improve working routine, processes to increase effectiveness and efficiency (Grisold, 2021). Over the years, researchers have characterized business process management as a technical discipline with focus on IT with intention of analysis, improvement and automation processes (Zairi, 1997; Harmon 2003). On the other hand, Harmon (2007) sees business process management as a managerial discipline. Nevertheless, last decade has shifted business process management to a multidisciplinary discipline with a holistic approach (Rosemann & de Bruin, 2005; Grau & Moorman, 2014; vom Brocke et al., 2014; Müller, Schmiedel, Gorbacheva, & vom Brocke, 2014; Van Looy, 2017). According to Hammer (2015, p. 3) business process management is “*a comprehensive system for managing and transforming organizational operations.*” Schmiedel, vom Brocke & Recker (2013, p. 1) say it “*a holistic management approach focused on organizational processes as opposed to organizational functions.*” The holistic approach to business process management according to Bosilj Vukšić, Suša Vugec & Lovrić (2017) should include its improvement and alignment with company strategy and aim. Organizations can accomplish better company results when alignment is successful (Harmon 2018; Van Looy, 2017).

1.2 Digital transformation

Digital transformation can be defined as the use of emerging and regularly developing digital technologies with the purpose to solve a unique issue (Butt, 2020). Thus, researchers nowadays offer multiple views on digital transformation. A key factor is also to distinguish the terms “digitalization” and “digitization”. Gartner (2022) refers to “digitization” as a change from analog to digital, and according to him “digitalization” refers to business model improvement, growing revenues, and creating value-proposition opportunities with the use of digital technologies. During the COVID-19 pandemic companies’ focus has shifted from digitization to digitalization remarkably. Even before the pandemic, the term Industry 4.0 was already frequently researched but the spread of COVID-19 has helped to accelerate efforts in order to improve strategies that take advantage of Industry 4.0. The use of technology trends from Industry 4.0, as shown in Figure 1 with design principles, helped to enable the creation of new processes.

Fig. 1 Industry 4.0 technology trends and design principles



Source: Butt, 2020

In the academic articles and conference papers, numerous drivers for digital transformation were found during the research and the trends above are just one of many. These technologies are crucial for a successful digital transformation as the choice of the appropriate strategy bearing in mind the existence of current limitations. Brkić, Tomičić-Pupek & Bosilj Vukšić (2020) define customer expectations (existing or planned) as one of the customer-driven drivers. According to them, the design of new business models based on these expectations should include a) adaption of the company that can deliver on its value proposition and b) mastering touch points design with great complexity of interactions across multiple channels. Followed by a business process reinvention, capacity management, resource management, and other possibilities that empower the organization and used technologies. Furthermore e.g. Reis et al. (2018, p. 417) describe digital transformation as „major business improvements like enhancing customer experience, streamlining operations or creating new business models.“ Digital transformation is the process of change from the original business model to a new one with the use of digital, mobile, social, and emerging technologies (Terrar 2015). Transformation of the business models not only changes main business operations and processes but also shifts organizational structure, way of leadership, and thinking of management concepts (Matt et al. 2015; Terrar 2015). According to Francis (2018), digital transformation includes five areas: (i) a shift in thinking, (ii)

changes in leadership, (iii) technology embracement, (iv) digitization of resources, and (v) innovation embracement. The formation of new business models leads to successful digital transformation at a moment when company management supports innovative thinking and digitization (Terrar, 2015).

In addition to Matt et al. (2015), a framework for successful digital transformation includes four dimensions: (i) changes in value creation, (ii) structural changes, (iii) use of technologies, and (iv) financial aspect. Further Kontić & Vidicki (2018) put more focus to competitiveness, products, services, and marketing rather than on the financial aspect. However, successful digital transformation is conditioned by the development of a clear and good digital strategy. The difference between digital strategy and IT strategy must be also taken into account. McDonald (2012) explains the difference - IT strategy is focused on isolated technologies, on the other hand digital strategy involves the use of multiple digital technologies which combine physical and digital resources with a concentration to business outcomes (McDonald, 2012; Spremić, 2017).

1.3 Relation between business process management and digital transformation

Relation between business process management and digital transformation comes with challenges. Grisold et al. (2021) explain that the core presumptions of business process management can not use the advantage of the emergence and unfolding events of digital innovation. Findings of their recent study show that there is a lack of support innovation from most BPM methods that make companies able to benefit from digital innovation opportunities. Similarly, Groß et al. (2021) point to the absence of research in the area of embracement of digital innovation within a company's business processes. The development of new frameworks, tools, and methods is dependent to answer the question of opportunities and challenges with digital innovation within business process management.

Digital transformation can be executed by creating an innovative business model or changing and improving the existing one (Pejić Bach et al., 2018). Change of the existing business model involves a change of the company's business processes. The study results conducted by Harmon (2018) show that majority of companies prefer the improvement of existing business processes with the use of new digital innovations to creating new processes. Heberle et al. (2017) explain that the success of digital transformation comes with a balance of automatization of existing business processes by digitization, data analysis, and establishing new business models by digitalization. Vom Brocke et al. (2017) point out the crucial role of structured data within digital transformation along with stable, credible, and incorporated processes. According to Rosemann (2014) relation between business process management and digital transformation offers opportunities for business process management improvement, which nowadays lack innovative and proactive initiation-seeking. During the past years of research, many academics and practitioners have recognized business process management as the main role of digital transformation (Araujo, 2017; Francis 2018; Sandle 2018; Kirchmer, Franz & Gusain 2017). Additionally, Sandle (2018) describes five ways in which business process management can support the process of digital transformation: (i) the use of process engines, (ii) the effective use of business analytics, (iii) the effective use of content management, (iv) the use of collaboration tools, and (v) using automation to become an agile organization. According to the authors mentioned above, a theoretical framework for business process management related to digital transformation is missing. Furthermore, some authors point out the need for further research on the role of business process management in digital transformation (eg., Van Looy, 2018). Therefore, based on the literature research conducted in this collaboration author choose to focus on these two terms.

2. BIBLIOMETRIC ANALYSIS OF BUSINESS PROCESS MANAGEMENT AND DIGITAL TRANSFORMATION

The following chapter of the contribution will focus on bibliometric analysis in the search for related areas in terms of business process management and digital transformation. The Scopus database was used as a

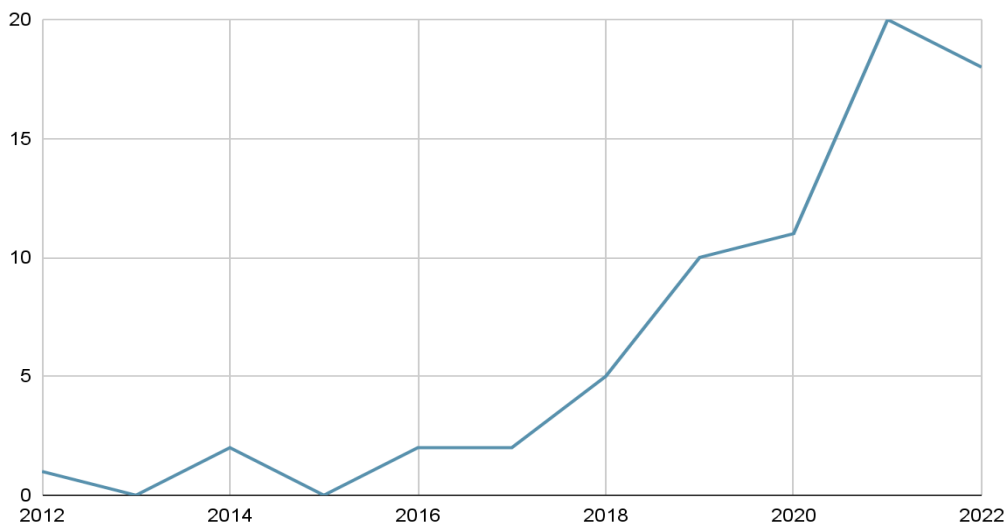
search engine for the analysis. Searching within the titles, keywords and abstracts was conducted on the following criteria:

TITLE-ABS-KEY (“digital transformation” OR “digital business” OR “digitization” OR “digitalization”) AND TITLE-ABS-KEY (“business process* management” OR “business process management” OR “process* management”)

In the selection process for the purpose of future analysis the author selected only contributions with “All open access”. Furthermore, the author extracted selection to the subject area of Computer science; Engineering; Business, Management and Accounting; Decision Sciences; Social Sciences; Economics, Econometrics and Finance. Selection of the literature review to particular subject areas may be considered as one of the research limitations. Only articles in peer-reviewed professional journals and conference papers in the English language were selected in the next step of selection without considering the place of publication. Due to the fact that a small number of research results were articles written before 2012, a decision was made to limit the bibliometric analysis within a time horizon from 2012 until 2022.

Scopus database searched 71 records after taking into account all the above limitations. When analyzing the records, over time there is a clear increase in the topic starting from 2017. It's a little bit, odd since the terms of business process management and digital transformation are decades old and mentions in the articles are only a few years old. On the other hand, there is no doubt that the topic is a good choice for future research and is becoming a trending topic nowadays. Fig. 2 displays a timeline of records found in each year of search.

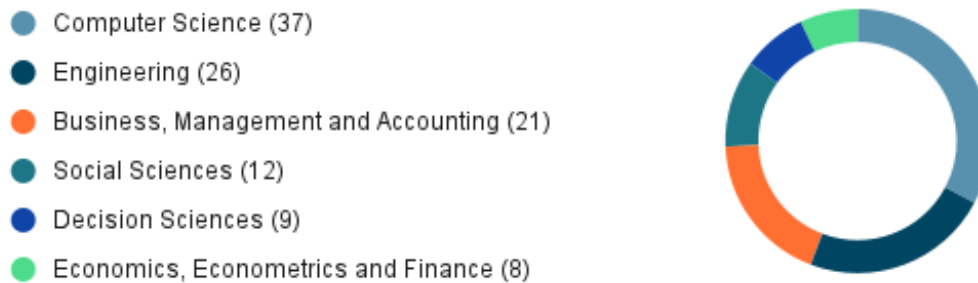
Fig. 2 Industry 4.0 technology trends and design principles



Source: Author research, 2022

One of the most frequently mentioned keywords were: BPM, business model, digital technologies, digital transformation, digitalization, industry 4.0, internet of things, and process management.

Fig. 3 Industry 4.0 technology trends and design principles



Source: Author research, 2022

Fig 3. displays the distribution of subject area fields of the final selection. Taking into account the amount of results in Computer Science and Engineering, we can confirm that Industry 4.0 makes up a big part of digital transformation. It's also important to mention that selection of these fields wasn't a random selection but was made from the most represented fields at the moment.

CONCLUSION

In the beginning, the strategy for the literature review and limitations were set. Secondly, the literature review was conducted with the use of the Scopus database, resulting in overall 71 conference papers or articles. The objective of this contribution was to conclude literature research on the relationship between business process management and digital transformation. A number of article outcomes should provide a foundation for future research where an author would read all of the articles related to his dissertation topic. After the primary review, the author limited 71 conference papers or articles to 37 based on reading the abstract of individual papers according to the focus of the author's dissertation topic. Therefore contributions not related to the topic were excluded.

In conclusion, it can be confirmed that conducted bibliometric analysis shows increasing interest in the given issue from the year 2017 and it's expected to be a more researched topic in the upcoming years. One of the drivers for topic popularization without a doubt was the spread of COVID-19. According to the literature review or Butt (2020), the trend of Industry 4.0 with its digital technologies like the internet of things, augmented reality, cloud computing, etc. are a few of the others.

Future research could be focused on the definition of the framework of the relationship between digital transformation and business process management that literature reviews and multiple authors pointed out is missing (Araujo, 2017; Francis 2018; Sandle 2018; Kirchmer, Franz & Gusain 2017).

Acknowledgment

The paper was created with the support of project No. SGS-2020-026 – „Economic and financial transformation in the context of digital society” which is solved at the University of West Bohemia, Faculty of Economics.

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