THE IMPACT OF DIGITAL TRANSFORMATIONS ON BUSINESS LEADERSHIP:

A Bibliometric Approach

Keywords:

Digital Transformation, Leadership, Innovation, Bibliometric Analysis

Abstract:

Digital transformation (DT) has aroused interest in recent decades in the academic world. Several studies have been published in this sense, as it becomes a challenge for management teams to lead in an environment of constant technological evolution. Indeed, this study has a twofold objective: to map the thematic evolution of research on the impact of DT on business leadership and elaborate a conceptual framework that brings together the ideas and concepts of other researchers. Based on the main objective, 44 articles published between 2012 and 2022 were collected from the Web of Science. Taking into account the collected sample, 17 articles correspond to exploratory studies, 15 articles to qualitative studies, 7 to quantitative studies and 5 to mixed methodology studies. Considering the results obtained, the studies under analysis are divided into 4 clusters, according to their contribution to the theme under analysis: i) Digital Transformation; ii) Industry 4.0; iii) Strategic People Management and iv) Innovation. The first cluster comprises 17 articles, the second contains 14 articles, the third comprises 7 articles and the fourth and last cluster results in 6 articles. Considering that the topic under investigation has been the subject of emerging research, the developed framework is understood as a solid basis for continued discussion and future research.

Authors:

Isaac Moreira[1]* ,
Pedro Ferreira[1] ,
João M. Lopes[2]
Sofia Gomes [1]

[1]REMIT-Research on Economics, Management and Information Technologies, University Portucalense, R. Dr. António Bernardino de Almeida 541, 4200-072 Porto, Portugal

[2] Miguel Torga Institute of Higher Education & NECE-UBI - Research Unit in Business Sciences, University of Beira Interior, Estrada do Sineiro, s/n, 6200-209 Covilhã, Portugal

***Corresponding author:**
isaac.r.moreira@hotmail.com,
REMIT-Research on Economics, Management and Information Technologies, University Portucalense, R. Dr. António Bernardino de Almeida 541, 4200-072 Porto, Portugal
School of Management, Polytechnic Institute of Castelo Branco, Portugal

INTRODUCTION

According to Guinan et al. (2019), He et al. (2022) and Imran et al. (2021), Digital Transformation (DT) corresponds to the organisational transformation that brings together digital technologies and business processes characteristic of the digital economy.

Also known as digitalisation, DT is defined as the changes in ways of working, services, business models and even customer relations (Tay et al., 2017; Solberg et al., 2020 and Baum et al., 2020).

DT presents itself as an opportunity to innovate and redefine business models within organisations (Rusly et al. 2021, Pihlajamaa et al. 2021 and Mooney et al., 2021). Digitisation requires skills that involve the extraction and exchange of data, as well as the analysis and conversion of that data into essential information. This information should be used to evaluate and calculate options, assisting the management team in the decision-making process (He et al, 2022 and Schaarschmidt et al., 2020).

The adoption of digital technologies is a competitive advantage for any organisation. From a perspective more focused on business models, management strategies had to be reformulated. These transformations are at the level of products, processes, customer relationships and, above all, leadership (Bendig et al., 2022, Brock et al., 2019 and Gaffley et al., 2021).

There is plenty of literature addressing the various types of leadership - autocratic, democratic, strategic, transformational, and transactional, among others. However, according to Porfirio et al., 2021, Mitra et al., 2020 and Schwarzmüller et al., 2018, more important than leading, is establishing close contact with employees and guiding them toward an innovative culture.

The promotion of an innovative culture by the leader allows maintaining the competitive strength within the organisation and increases the focus on DT opportunities. According to Schaarschmidt et al., 2020 and Gaffley et al., 2021, promoting innovative culture is much more than innovating products and business models. It corresponds to a continuous process of cooperation between management teams and employees in order to promote improvements in internal processes and easily arrange faster solutions in the face of digital innovations (Bendig et al., 2022 and Porfirio et al., 2021).

In order to establish a link between the impact of DTs on leadership, a conceptual framework was developed that aggregates the collected studies into 4 clusters: i) Digital Transformation; ii) Industry 4.0; iii) Strategic People Management and iv) Innovation.

RESEARCH METHOD

The current chapter addresses the methodology adopted to carry out this study. In this sense, in order to structure the existing research on the impact of DT in organisations and business leadership, we followed the research model of Sousa (2007) and Brizola et al. (2016), identifying the evolution of the sample collected and the respective methodological approach.

The research method adopted contains four fundamental steps: sample identification, screening, eligibility and inclusion of studies for final analysis. In fact, a topic search was carried out in the Web of Science journal on 12 May 2022, with the keywords "digital transformation",

"leadership", and "management". In addition to the topics mentioned above, only "articles" and "review articles" whose language was "English" were selected, resulting in a sample of 122 studies that, applied the filters mentioned above, resulted in 44 studies for full analysis, as illustrated in figure 1.

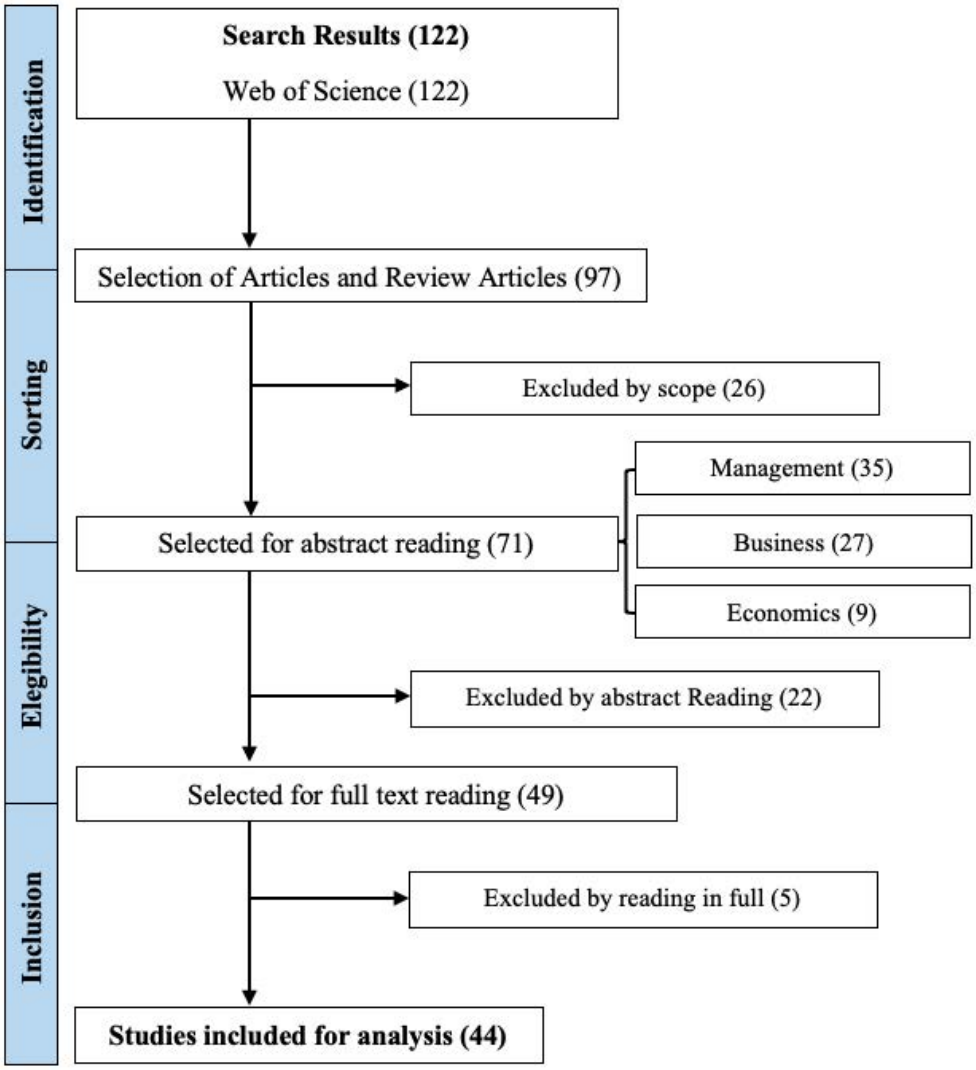

Figure 1

Research Method (Source: Brizola et al., 2016 and Sousa, 2007)

Identification and Evolution of the Sample

In a context where the impact of DTs on organisational leadership has been the subject of recent studies in the academic world, it is pertinent to analyse the evolution of the number of articles and citations on this topic.

In this sense, the first study on the topic under analysis appeared in 2017, revealing itself as a very current topic. From 2017 to 2021, the number of publications skyrocketed, with 19 studies published in 2021. As seen in figure 2, 11 studies will have been published by 13 May 2022.

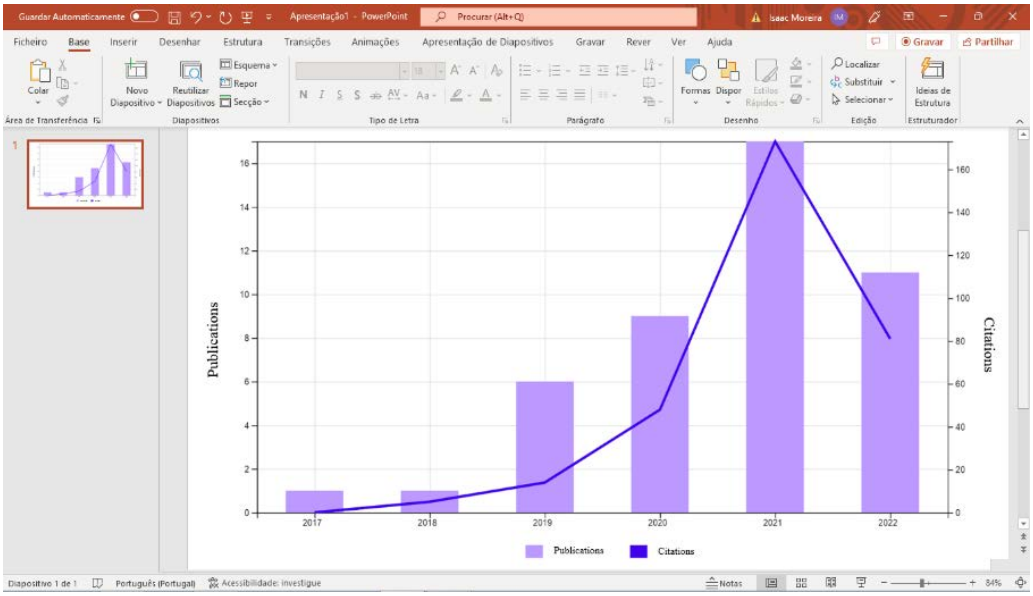

Figure 2

Evolution of the number of articles and citations (Source: Web of Science)

Methodological Approach to Studies

The most commonly adopted study methodologies by researchers are exploratory and qualitative, which accounted for 38.65% and 34% of the collected sample, respectively. Similarly, in methodological terms, the sample collected is diverse, enriching the development of the respective conceptual framework (Noor, 2008 & Quinlan et al., 2019).

Regarding the number of citations, the studies with the most citations are the exploratory studies - 139 citations - followed by qualitative methodology studies with 102 citations. As shown in Table 1, the citations are grouped according to the respective study methodology.

Table 1

Study methodologies and number of citations (Source: Web of Science)

Study type	Number of articles	% (articles)	Citations	% (citations)
Exploratory	17	38,65%	139	42%
Qualitative	15	34%	102	30,80%
Quantitative	7	15,95%	47	14,20%
Mixed	5	11,40%	43	13%
Total	**44**	**100%**	**331**	**100%**

Analysis of keywords

Figure 3 depicts the most frequent words in the titles of the studies and the keywords of the authors of the articles collected, indicating the main thematic focuses present in these works.

The most popular words are "digital transformation", "leadership", "management", "innovation", "dynamic capabilities", "technology", "change management" and "performance".

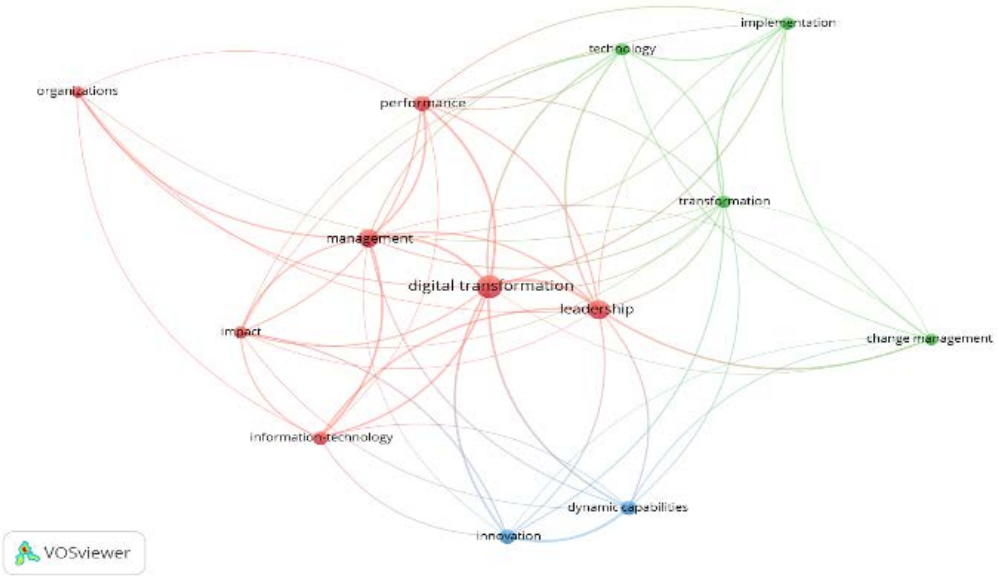

Figure 3

Summary of the keywords in the collected sample (Source: Web of Science and VOSviewer)

CATEGORIES OF STUDIES AND MAIN RESULTS

The current chapter explores the studies that were the object of analysis in this research. In the same sense, the 44 studies of the sample were grouped and subsequently divided into 4 clusters.

The division of studies by clusters through the VOSviewersoftware had as its main purpose the understanding of their contribution to the theme under analysis. That said, the first cluster is composed of 17 articles, the second cluster of 14 articles, the third cluster is substantiated of seven articles, and the fourth and last cluster is composed of six articles.

Finally, with the aid of the VOSviewer tool, it was possible to group the clusters by colours. In this follow-up, visualising Figure 4, the red colour belongs to cluster 1 - Digital Transformation, the green colour to cluster 2 - Industry 4.0, the blue colour to cluster 3 - Strategic People Management and the yellow colour to cluster 4 - Innovation.

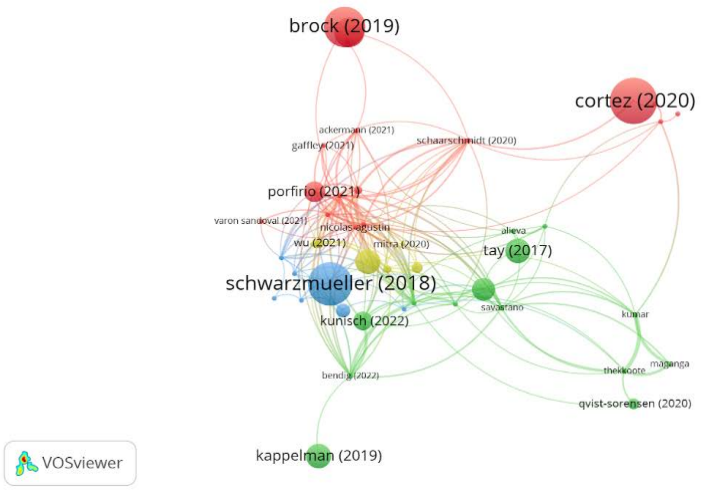

Figure 4

Division of clusters through VOSviewer (Source: VOSciewer)

FRAMEWORK

According to Ranjith et al. (2020) and Imran et al. (2021), a framework corresponds to the representation of how the researcher develops their knowledge on a particular subject, and as the research progresses, it can be changed by adding more knowledge.

In the same sense, and recalling that the objective of the research is related to the impact of DT in business leadership, a conceptual framework based on four fundamental pillars is presented: i) Digital Transformation; ii) Industry 4.0; iii) Strategic People Management and iv) Innovation. Each pillar is based on theories and concepts addressed by researchers in the analysed studies, as seen in figure 5.

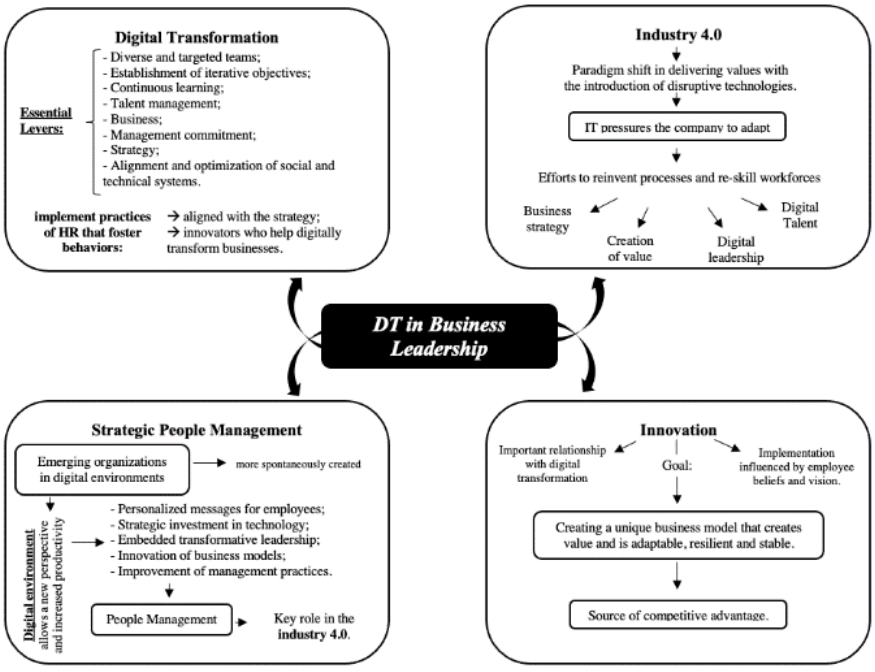

Figure 5

Research Framework (Source: Elaborated by the author)

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

Through the present systematic literature review, this work contributes to scientific knowledge insofar as it addresses how digital transformation, Industry 4.0, strategic people management, and innovation condition leadership strategies consider the digitalisation of business models.

In a century characterised by the advance in technologies, the impact of DTs on business models requires a greater commitment from management teams in terms of promoting innovative strategies, creating teams oriented toward the digitalisation of processes and also investing in digital knowledge and specialisation.

With the emergence of Industry 4.0, companies have had to adapt to Information Technology's (IT) demands. Even more, digitally-oriented strategies and efforts were needed to reinvent processes and retrain the workforce.

Strategic people management has been an ongoing process undertaken by most management teams in a digital transformation phase. With more and more organisations emerging into the digital environment, it has been necessary to convey to employees the importance of an innovative culture and the adjacent benefits to productivity and performance.

Innovation also plays an important role in digital transformation and leadership. Creating innovative business models that create value and are adaptable is a source of competitive advantage. An innovation-oriented vision should start from the leader, go through the employees and end with the customers.

Therefore, 44 articles with publication dates between 2017 and 2022 were analysed. The year with the highest scientific contribution to this theme was 2021, in which 19 studies were published on the topic under analysis. In this sense, the impact of DTs on leadership is a recent, complex and multidimensional phenomenon. Although it has been the subject of studies in recent years, there are gaps in the most efficient type of leadership given the constant transformations of business models and respective processes.

Although the studies in the sample are quite current and address specific cases of companies' adaptation to DTs, this study differentiates itself by addressing the adaptation of leadership to digitalization and the ability to develop new business models. In this sense, a correlation is made between concepts mentioned by the authors, thus assisting the scientific community

Finally, it is important to highlight some limitations of this study, such as the sample size (only 44 articles) and the fact that data were only collected in one scientific database. It should also be emphasised that the topic in question has been the subject of study in recent years, which is a favourable factor for other researchers.

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