Journal of Business Management, Volume 22, 2024, ISSN 1691-5348
DOI: 10.32025/JBM25003

CARING ABOUT INDIVIDUAL MOTIVATION TO ADOPT AND LEARN? A SYSTEMATIC LITERATURE REVIEW OF DIGITAL TRANSFORMATION IN HEALTHCARE

SANDRA STARKE [1]

IVETA LUDVIGA [2]

Citation:
Starke, S., Ludviga, I. (2024). Caring about individual motivation to adopt and learn? A Systematic Literature Review of Digital Transformation in Healthcare. *Journal of Business Management*, Vol. 22, pp 55-78. DOI: 10.32025/JBM25003

Received: 30.05.2024.
Accepted for publication: 27.12.2025.

ABSTRACT

Purpose: It is unavoidable for organisations and individuals to deal with the issue of digital transformation. Legislators are striving to accelerate the transformation in the healthcare sector. Despite potential opportunities and external pressure, digital offerings are far away from expectations with inauspicious prospects for future affordability. The reasons for this setback remain unclear. Literature on this issue is quite fragmented, and knowledge on an individual level with relevant factors and mechanisms is missing. Therefore, this study aims to create a theoretical framework on how individual actors in healthcare can drive the change.

Design/methodology/approach: With a systematic literature review approach, two search strings on learning and dynamic capabilities were conducted. The objective is to investigate impacting factors as a starting point for further research on the delay of digital transformation in healthcare.

Findings: In the constructed framework, the need for action to acquire relevant competences with learning as new leverage is identified, contributing to dynamic capabilities theory. Based on this, further research is required on the role of individual actors and their motivation to adopt and acquire digital competences with learning as a fundamental capability.

Research limitations: This study has limitations due to the inclusion and exclusion criteria for the literature review. Future research could follow up on the development.

Practical implications: The research provides advice for managers on shifting their employees' mindsets, fostering openness towards innovation for sustained learning to enable employees to deal with new technology.

Originality/value: A framework is provided for a better understanding of impacting factors on digital transformation in healthcare. The research streams of dynamic competences and learning are investigated and combined, introducing sustained learning as a relevant dynamic capability of organisations and individual actors in healthcare.

Keywords: Digital transformation, human capital in healthcare, dynamic capabilities, learning, innovation adoption, digital competences

Type of paper: M10 General

[1] Sandra Starke, BA School of Business and Finance, Latvia. E-mail: Sandra.Starke@ba.lv
[2] Iveta Ludviga, RISEBA University of Applied Sciences, Latvia. E-mail: Iveta.Ludviga@riseba.lv

INTRODUCTION

The current ongoing Industry 4.0, characterised by the digital transformation (Raja Santhi and Muthuswamy, 2023), is changing the nature and context of work through substitutions or changes in occupational tasks, introducing new technologies (Dengler and Matthes, 2018; Kim, Choi and Lew, 2021). The United Nations has set up 17 Sustainable Development Goals (SDGs) to ensure sustainable development worldwide on an economic, social, and ecological level. Goal 3: "Ensure healthy lives and promote well-being for all ages" is crucial for global health development (Hone, Macinko and Millett, 2018). In this regard, healthcare is indispensable to every nation worldwide, and health is a social and economic investment for nations, as well as an individual interest and benefit for patients (Laurenza *et. al.*, 2018; Akter *et al.*, 2022). Nations' spending on health is increasing; global spending more than doubled between 2000 and 2019, reaching 9.8% of the global gross domestic product (GDP) (World Health Organization, 2022). The correlation between GDP growth and spending on healthcare is described by Jakovljevic et al. (2020). A primary driver of expenditure is the demographic structure, with an ageing population (United Nations, 2019) and a correspondingly higher need for medical treatments or possible risk of chronic diseases (IQVIA Institute for Human Data Science, 2021). The political task remains to ensure the healthcare system is adequate but affordable in the long run (Agarwal *et al.*, 2010).

Research concerning digital transformation has evolved since the early 2010s, with the manufacturing industry as a starting point. Opportunities and advantages of a movement towards digital services or entirely new business models are highlighted (Hausberg et al., 2019; Li, 2020; Akter et al., 2022; Kolagar, Parida, and Sjödin, 2022). This new digital work affects all sectors, but specific challenges and tasks must be considered when investigating healthcare.

Digital transformation in healthcare strives for a comprehensive solution, providing virtual healthcare services and improving process efficiency by applying artificial intelligence, telecommunications, and interoperable data exchange (Gjellebæk *et al.*, 2020; Deloitte, 2021). Process improvements and digitalisation are necessary despite the already mentioned cost containment and healthcare service delivery aspects due to increased self-responsibility and higher expectations of patients (Hübner *et al.*, 2018; Singhal, Vinjamoori and Radha, 2022). Various research studies point to an increase in efficiency and a corresponding reduction in costs through new digital technologies and digitalisation, improving processes and efficiency of services with benefits for plenty of stakeholders in the healthcare market (Laurenza et al., 2018; Schallmo and Williams, 2018; Gjellebæk et al., 2020; Kraus and Jones et al., 2021). Due to the expected advantages, legislators aspire to increase digitalisation (World Health Organization, 2021) and pressure stakeholders through mandatory implementation of digital offerings. However, the progress is still lagging behind expectations (Thiel *et al.*, 2018). The reasons remain unclear, and concrete leverages are lacking. Since Industry 5.0 is at its advent, offering even more promising opportunities to optimise processes and create added value for all stakeholders through customised solutions with artificial intelligence, it is all the more important to dig deeper into this topic to understand how to overcome adoption barriers (Kumar *et al.*, 2023; Ghobakhloo *et al.*, 2024).

Three main streams can be observed in the literature (Herzlinger, 2006; Kraus and Schiavone et al., 2021; Skare, de las Mercedes de Obesso and Ribeiro-Navarrete, 2023), focussing on customers

(patient-centred care), technology (virtual medicine and process improvements) and strategic decisions (new business models). This literature highlights the focus on technology and strategic decisions (Biloslavo *et al.*, 2020) in current research. Research on individuals and their willingness and motivation to participate in the change process is insufficient. Existing literature on these individual impacting factors mainly highlights knowledge and learning as relevant dynamic capabilities to sense, seize and reconfigure existing human resources (Kokshagina, 2021). Another research stream on the topic of digital transformation, mainly in education, highlights the need for future competencies, knowledge and "Learning 4.0" (Matusiewicz, Pittelkau and Elmer, 2017; Ehlers, 2020). Therefore, we assume that existing competencies must be matched with new, changed workplaces to enable individuals to participate in the change.

Since various stakeholders, such as healthcare actors, patients, and legislation, need to be considered, the soft infrastructure must be investigated to understand better how competencies can be matched with new tasks. Learning is key to building dynamic capabilities to withstand and create advantages (Chirumalla, 2021; Melhem, 2021; Ellström *et al.*, 2022).

This study explores the factors that restrain the adoption of digital transformation and the key mechanisms influencing this process. A systematic literature review was conducted using a structured review methodology to achieve this objective. This approach allowed for the comprehensive analysis of existing research, facilitating the development of a conceptual framework to explain the interaction between organisational capabilities, the mechanisms of change, and the potential for enhancing workplace experiences.

This research aims to investigate two fundamental aspects that impact digital transformation: innovation & dynamic capabilities and knowledge & learning. The paper is structured as follows. Section 2 describes the applied methodology of the structured literature review. Section 3 highlights the results and is divided into two main subsections. These introduce the theoretical background of digital transformation by reviewing the need for active innovation adoption, its linkage to dynamic capabilities, and the role of knowledge and learning. Section 4 discusses these topics, and Section 5 concludes with an outlook on further research.

LITERATURE REVIEW METHODOLOGIES

This paper combines two methods to synthesise existing knowledge as the fundament for the conceptual framework. A bibliometric analysis was applied to identify the literature review's needs, cluster previous research, and develop the search streams. Based on this, a systematic literature review was conducted to locate and evaluate recent studies (Chirumalla, Leoni and Oghazi, 2023). This review method is suitable for identifying gaps based on previous summarised work (Grant and Booth, 2009), especially in digital transformation (Almasri *et al.*, 2021). We chose this research method because it answers questions in a specific context, structuring and categorising previous literature transparently and reproductively. The data was collected using the databases Scopus, Web of Science, and Emerald to include only peer-reviewed journal articles as higher-quality sources, which were also used as the basis for other research on this topic (Kraus, Breier and Dasí-Rodríguez, 2020; Cobelli and Blasi, 2024). The gathered data was synthesised according to underlying theories and methodological approaches.

This study includes literature from 2019 that characterises these relevant technologies and the current digital transformation with its legislation. Appropriate documents to consider for the review had to be selected in the first step. For this purpose, a bibliometric analysis was conducted. Searching for the keywords "Digital transformation" and "Healthcare" in the database Scopus (the search was conducted on 11/04/2023) in the title, abstract, and keywords led to 1,012 documents. We further limited our inclusion criteria to the subject areas "Social science" and "Business, management & accounting" since these match our research objectives; an additional filter from 2019 up to 2023 left 218 documents remaining.

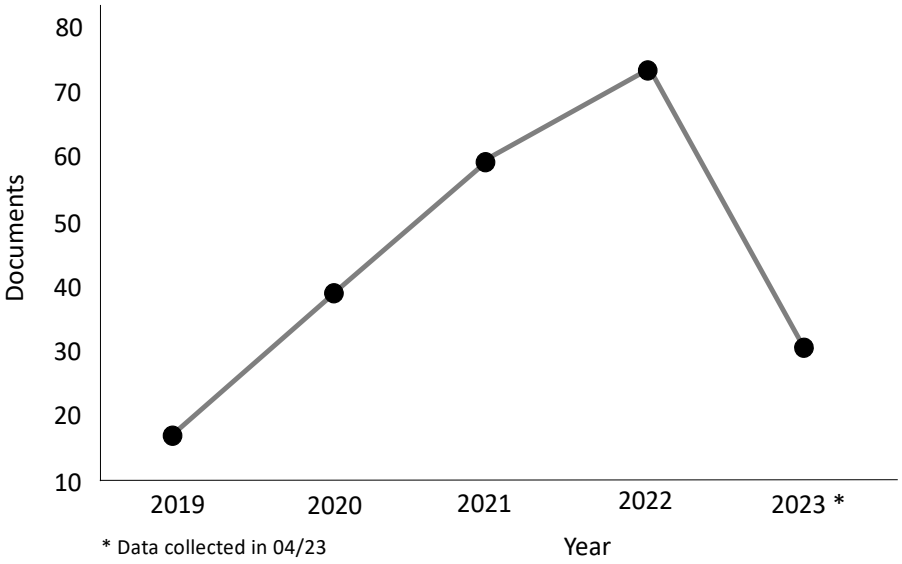


Figure 1. Published documents containing the search terms "Digital transformation" and "Healthcare" by year

Source: Scopus

Based on this search, Figure 1 shows the relevance of the topic in recent years, as evidenced by the rapidly increasing number of published documents since 2019.

Visualising and mapping keywords from bibliometric analysis provides an overview of the relation between keywords (Su and Lee, 2010), and the co-occurrence analysis (Figure 2) can form the basis for deriving categories. For this visualisation, the tool VOSviewer was used. The circle sizes depict the frequency, the colours depict the related cluster and the lines depict the linkage between the keywords (Ragazou *et al.*, 2022).

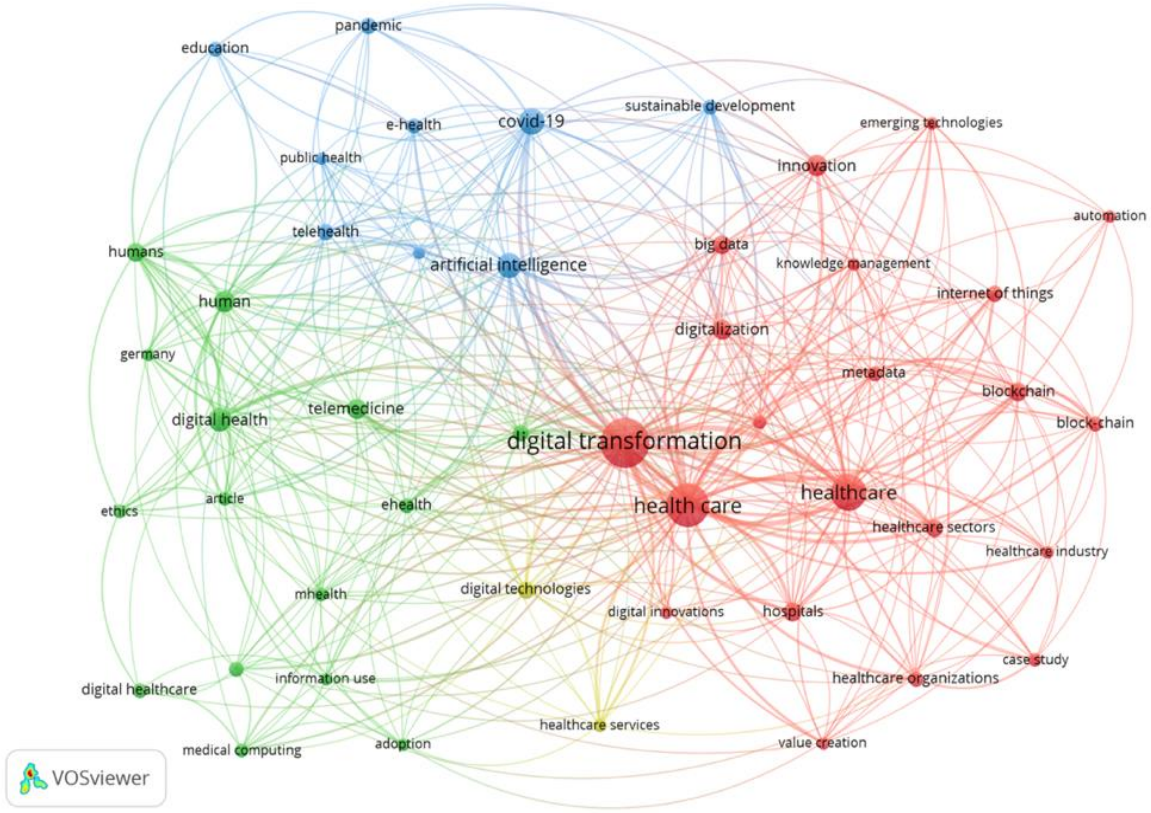


Figure 2. Co-occurrence analysis for the keywords "Digital transformation" and "Healthcare"

Source: Scopus, analysed with VOSviewer

The search string TITLE-ABS-KEY ((digital AND transformation) AND (healthcare)) AND (LIMIT-TO (PUBYEAR, 2023) OR LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019)) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "SOCI")) turns up 1,367 instances of the authors' keywords.

Limiting the minimum number of everyday occurrences to 5 results in 47 keywords meeting the threshold (Figure 3), classified into 4 Clusters, as shown in Table 1.

These clusters depict the focus of current literature on technology, strategic decision-making, and health technology regarding digital transformation in healthcare.

We examined these four clusters more closely and identified connections between them. (Technological) Innovation adoption is a key part of building dynamic capabilities. (Organisational) Learning appears as another leverage point for digital transformation, which was the scope of papers concerning relevant capabilities under uncertain conditions in digital transformation.

Based on this first explorative bibliometric investigation of current literature, we found two relevant streams out of the initial four clusters: the relevance of innovation adoption and building dynamic capabilities and the effect of (organisational) learning in digital transformation.

Table 1. Illustration of network clusters based on co-occurrence analysis conducted with VOSviewer

Cluster	Content in literature	Keywords	Example articles
Red	Innovative technology & dynamic capabilities	Automation, big data, block-chain / blockchain, case study, digital innovation, digital transformation, digitalisation, emerging technologies, health care / healthcare, healthcare industry, healthcare organizations, healthcare sectors, hospitals, innovation, internet of things, knowledge management, metadata, technological innovation, value creation	(Kokshagina, 2021; Alqazzaz, Elsharawy and Eid, 2022; Johannson *et al.*, 2022)
Yellow	Digital technologies (related to red cluster)	Digital technologies, healthcare services	(Hermes et al., 2020; Kraus and Jones et al., 2021)
Green	Adoption and use of digital health, tools, services, and medical computing	Adoption, article, digital health, digital healthcare, ehealth, ethics, Germany, human / humans, information technology, information use, interoperability, medical computing, mhealth, telemedicine	(Andersen, Nielsen and Kim, 2019; Iyanna *et al.*, 2022)
Blue	Education and learning	Artificial intelligence, covid-19, digital technology, e-health, education, pandemic, public health, sustainable development, telehealth	(Leone *et al.*, 2021; Wong *et al.*, 2021; Kulchar *et al.*, 2022)

Source: authors' data

The following research questions (RQs) should offer deeper insights into these two research streams on dynamic capabilities and organisational learning to address the existing gap in the literature as a basis for further research.

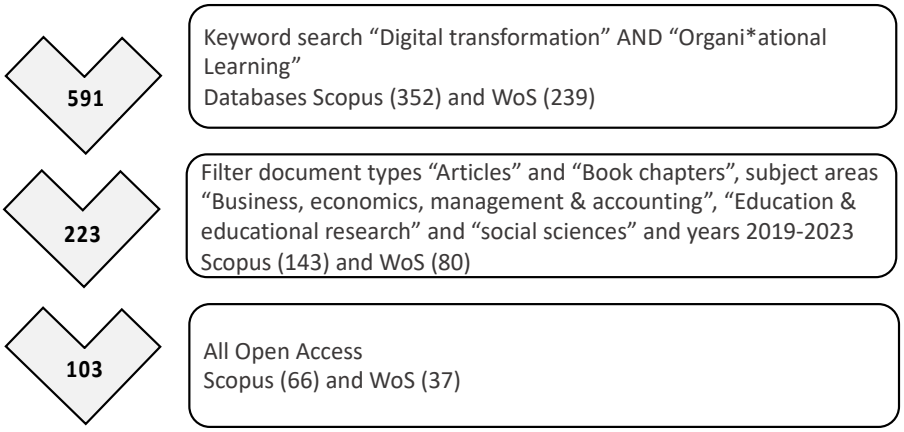
RQ1: What is known in the literature about adopting new technological innovation and building dynamic capabilities?

RQ2: What is the current state of research regarding acquiring knowledge and organisational learning in digital transformation?

Two search strings were undertaken on 4/23 in the databases Scopus and Web of Science to answer the research questions. Since these databases include a large corpus of scientific information (21,000 journals in Scopus, 12,000 journals in WoS), both are widely applied in the social sciences in general and in research concerning digital transformation in particular (Hausberg et al., 2019; Kraus and Schiavone et al., 2021).

- Innovation adoption and dynamic capabilities (IADC)
  Search in article title, abstract and keywords for the search terms ("Innovation" AND "Adoption") AND ("Dynamic" AND "Capabilities")
- Digital transformation and organisational learning (DTOL)
  Search in article title, abstract and keywords for the search terms ("Digital" AND "Transformation") AND ("Organi*ational" AND "Learning")

Search stream "Digital transformation" AND "Organi*ational Learning"



Search stream "Innovation adoption" AND "Dynamic capabilities"

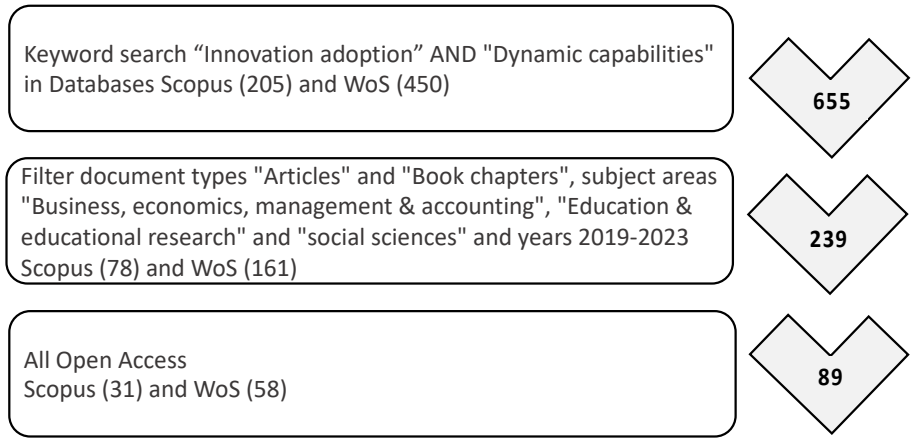


Figure 3. Keyword search results

Source: authors' data

The search results were narrowed down in the next step, filtering to include only journal articles and book chapters published between 2019–2023 in "Business, economics, management & accounting", "Education & educational research", and "Social sciences". To enable a review of the article and evaluate whether it is relevant to the questions under investigation, the selection was further narrowed down to open access (Figure 3). These documents were screened in a first step to limit the dataset to the topic. Thirty-seven duplicates were sorted out. Next, 28 articles were excluded due to their specific scope of environmental sustainability aspects; others were unavailable in English.

After this elimination, the following high-ranking journals (Academic Journal Guide 2021, ranked 3 or 4) were screened for articles matching the topic using the keywords digital transformation, innovation, learning, and dynamic capabilities and applying the same filters as mentioned above. To obtain a broader picture and to avoid bias, the snowballing procedure was additionally applied in all documents reviewed to check and add articles from the references (no further filters were used to e.g. limit to the availability of the article as open access) that contribute to a better understanding and overall view of the subject matter. To get the latest developments on this topic, an additional search was conducted on 5/24 in the database Emerald to include sources from another relevant database (Tinmaz *et al.*, 2022), with the search terms "digital transformation" and "healthcare". Fifty-four articles were added, resulting in 181 documents as a dataset for the literature review, as shown in Table 2.

Table 2. Stages of dataset selection (authors' data)

Stages	Stage 1		Stage 2	Stage 3	Stage 4
	Search terms in article title or keywords. Duplicates eliminated.		Limiting to directly related to the topic	Additionally chosen	Dataset for analysis
	DTOL	IADC	Eliminated	Added	Total
Number	80	75	28	54	181

Source: authors' data

RESULTS AND DISCUSSION

The analysed articles were structured and categorised to display the applied method and level of research (Table 3).

The review of these papers reveals a higher amount of qualitative than quantitative research, which indicates that there are many unanswered questions about this phenomenon, with new or additional theories to explain it. There is a need for quantitative testing of the theories. The review also shows that there is less research on the individual level.

Table 3. Results of the literature review

Basic Theory	Method	Level
Dynamic capabilities (54)	Qualitative (30) Quantitative (23) Mixed methods (1)	Business (19), Organisational (10), B & O (1) Business (12), Organisational (11) Individual & Organisational (1)
Organizational Culture and Learning (43)	Qualitative (31) Quantitative (11) Mixed methods (1)	Business (3), Organ. (16), Individual (7), O & I (5) Organisational (6), Individual (3), O & I (2) Individual (1)
Innovation (35)	Qualitative (23) Quantitative (10) Mixed methods (2)	Business (8), Org. (10), B & O (2), Ind. (2), O & I (1) Business (3), Organisational (3), Individual (1) Organisational (1)
Resource-based theory (19)	Qualitative (12) Quantitative (5) Mixed methods (2)	Business (6), Organisational (5), Individual (1) Business (2), Organisational (3) Business (1), Organisational (1)
Engagement & Behavioural Intentions (10)	Qualitative (3) Quantitative (2) Mixed methods (6)	Individual (3) Individual (2) Individ. (2), Business (2), Individ. & Organisational (2)
Others (29)	Qualitative (18) Quantitative (10) Mixed methods (1)	Business (9), Organisational (8), O & I (1) Business (7), Organisational (1), Ind. (1), O & I (1) Organisational (1)

Source: authors' data

The results were categorised, and a framework (Figure 4) was developed to make them more comprehensible. The framework is explained below.

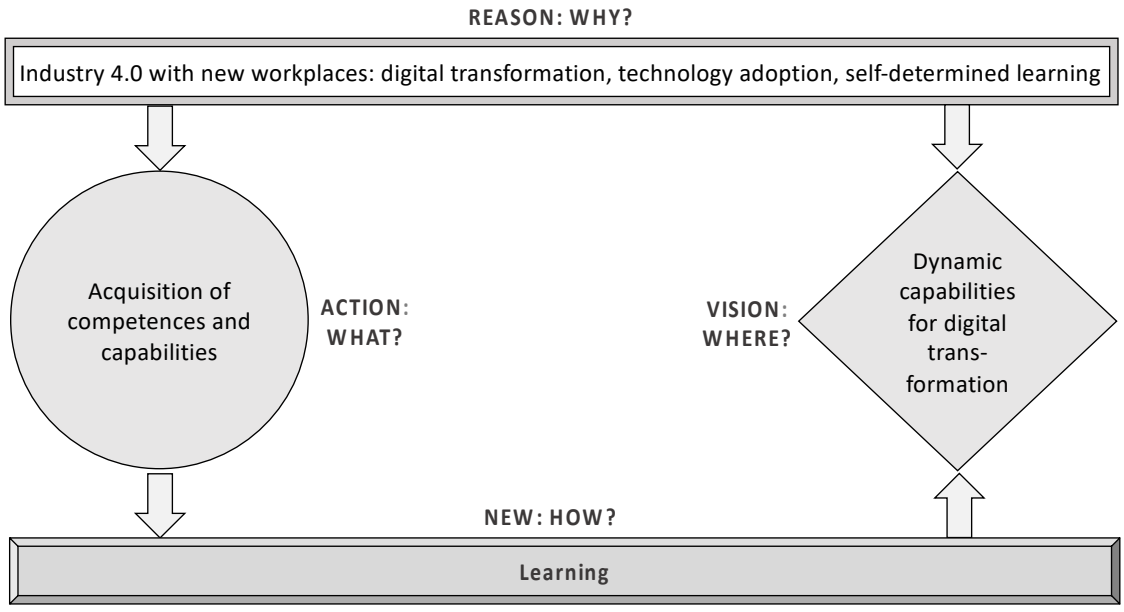


Figure 4. Framework

Source: authors' data

Reason: Digital transformation with the need for innovation adoption and motivation to participate

Digital transformation as a new phenomenon is described as the reason (Why?) behind a fundamental change in almost all work environments. Some tasks are replaced, and new work content or jobs are created (Dengler and Matthes, 2018). This requires a shift towards new knowledge, openness to innovation, and continuous learning to act in uncertain environments (Raghavan, Demircioglu and Orazgaliyev, 2021; Fernandez-Vidal *et al.*, 2022; Nurhas *et al.*, 2022; Haffar *et al.*, 2023). The availability and high velocity of new digital technologies are the main drivers for the transformation, but the benefits of these technologies are often ambiguous for the participants (Mishra, Singh and Papadopoulos, 2022). A particular mindset with openness for innovation, knowledge-building, and curiosity is needed to discover the potential for successful adoption (Colli, Stingl and Waehrens, 2022).

Regarding the specifics of the healthcare sector, employees, managers, and owners are often medical professionals who continue to focus on their existing competencies, maintaining the accustomed processes, and are more reluctant to discover and learn new digital methods and technologies (Gjellebæk *et al.*, 2020). Since they are used to following standards and regulations, they accept and integrate technologies into routine processes or mandatory offerings but mostly prefer professional experience to digital innovations with a high emphasis on competence and autonomy (Huber and Gärtner, 2018). An organisation's digital innovation capability depends on the individuals' ability and willingness to participate in and adopt innovation (Kensbock and Stöckmann, 2021). It is, therefore, even more important to consider how individuals can be motivated to be open to innovation and adopt new technologies to enable digital transformation in healthcare (Qvarfordt and Lagrosen, 2024).

Innovation Adoption

Digital transformation may be conducted by organisations in the case of strategic aspects generating value, digital infrastructures, and establishing new standards (Scott and Orlikowski, 2022). It is closely linked to innovation capability and aligning individual, organisational, and contextual factors (Kimberly and Evanisko, 1981). Digitalisation and new technologies positively affect innovation (Valdez-Juárez, Ramos-Escobar and Borboa-Álvarez, 2023). Innovation and technology adoption are highlighted in current literature as essential factors connected with digital transformation in healthcare (Gjellebæk *et al.*, 2020). However, merely providing the technology or forcing the use by legislation is not enough; digital alignment and adoption are needed (Khin and Ho, 2019).

Kohli and Melville (2019) define digital innovation as outcomes (products, processes, or services) based on actions to initiate, develop, implement, or exploit. Digital innovation aims to engage all relevant stakeholders. (Talwar et al., (2020) showed in a systematic review that even the best digitalisation strategy could fail due to resistance to innovations. External implementation specifications are insufficient, and organisational changes are inevitable (Ellström *et al.*, 2022). Organisations must align digital innovation and competencies to benefit (Shakina, Parshakov and Alsufiev, 2021). It is a managerial challenge to foster and enable employees to be creative and innovative to prepare the organisation for Industry 4.0 (Nylén and Holmström, 2015). Therefore, new employee competencies are required (van Laar *et al.*, 2020). To take a comprehensive look at the

slow implementation of digital transformation, it is crucial to also focus on individual attitudes, as a reluctance to adopt innovative technologies slows down the process of digital transformation in the healthcare sector (Kraus and Schiavone *et al.,* 2021).

Motivation

Work engagement and motivation are well-researched. Employees are essential for organisations, especially those providing services. There is a high demand for people's knowledge, and maintaining sustainable employability is inevitable (Schaufeli, 2021). Employee involvement and information are important factors for performance and innovation (Hansen and Nørup, 2017).

Self-determination theory (SDT) was developed to understand intrinsic motivation and why people do things out of interest for their own sake (Gagné, 2014). Applying this theory to digitally transformed workplaces explains motivation as an essential mechanism for employees to withstand changing situations (Meyer, Gagné and Parfyonova, 2010). Postulating that individuals want to contribute to their work, they might feel they could not participate and keep pace in digitally transformed workplaces (Ohlert, Giering and Kirchner, 2022). Interacting with the environment and adapting leads to learning over time (Wang and Panaccio, 2022). In digitally changed environments, individuals are more motivated to acquire digital competencies when their basic needs are satisfied by empowering, strengthening, and connecting them (Schaufeli, 2021). Therefore, it is essential to understand how to motivate and integrate individuals for a successful change process and improve working conditions and well-being (Qvarfordt, Lagrosen and Nilsson, 2024).

SDT emphasises autonomy as a basic human need that, when supported, leads to more effective and sustained behavioural regulation (Ng *et al.*, 2012). Even if employees might have no intrinsic motivation to engage in digital transformation in the first place, there is a possibility to design external factors, like facilitating a work environment or organisational learning culture with freedom of choice, to foster autonomous motivation (Deci, Olafsen and Ryan, 2017).

Vision: Dynamic capabilities for digital transformation

Digital transformation is in the scope of various research due to its massive impact. Therefore, there exists a variety of definitions, as indicated by Vial (2019) in his review of previous research on this topic. This paper adopts his findings and defines digital transformation as a process aiming to improve services, processes, or treatments by triggering significant changes through combinations of information (documentation, data), computing (AI), communication (networking, virtual therapies), and connectivity technologies (interoperability) (Vial, 2019). Despite the steady increase in new technologies and digital offerings and the high expectations legislators have of the resulting benefits for companies and citizens, the acceptance of digital technologies remains restrained (Ohlert, Giering and Kirchner, 2022). For a better understanding of the reasons, it is essential to consider the underlying theory of dynamic capabilities.

Dynamic capabilities are defined as the "…firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano and Shuen, 1997). Dynamic capabilities and digital transformation are intertwined as digital technologies can fundamentally transform organisations, yet there is currently insufficient research on how to build these capabilities for organisational transformation (Warner and Wäger, 2019). Developing

individual digital capabilities is an essential challenge for managers and governments. Fostering innovation and engagement are key to an organisational learning process, depending on the individual and organisation's flexibility and agility in responding to new technological developments (Dabić *et al.*, 2023). However, to successfully accelerate the transformation and build dynamic capabilities for change, the specifics of healthcare must also be respected, such as the close doctor-patient relationship and the many different stakeholders (Herzlinger, 2006).

Action: Knowledge & learning for digital transformation

Knowledge and learning appear as common factors combining these concepts of innovation and dynamic capabilities (Silva, 2021). Various studies highlight the capability of organisations to sense, seize and reconfigure new technologies with the relevant competencies and skills, which are hard to imitate by competitors (Vial, 2019; González-Varona *et al.*, 2021; Mishra, Singh and Papadopoulos, 2022). The technological infrastructure, financial resources, perception of technological advantages, and trial opportunities are mentioned as relevant organisational capabilities. In addition to that supportive conditions, competencies and knowledge are inevitable enablers for technology adoption in organisations (Graham and Moore, 2021; Verhoef *et al.*, 2021; Omrani *et al.*, 2022). Smaller companies tend to have more difficulties than larger ones, not only because of the financial resources for technologies but also because of the lack of employees with IT skills or training required for this (Ohlert, Giering and Kirchner, 2022).

Knowledge

Knowledge-based capabilities are a fundamental basis for the transition towards an innovative culture and mindset for continuous technological competency and capability development, adoption, and performance improvement (Zhou and Wu, 2009; Khin and Ho, 2019; Sasmoko *et al.*, 2019; Songkajorn *et al.*, 2022; Dwivedi *et al.*, 2023).

As high workloads inhibit a learning process, which consumes time and energy for exploring and reflecting, cognitive demands to solve problems and bridge knowledge gaps foster learning but require information, new skills, and insights (Kubicek *et al.*, 2022). Kohli and Melville (2019) identified knowledge in their review of different research streams in the field of digital innovation as a key factor with the same importance as the adoption or diffusion of innovation. This is supported by Bello-Pintado and Bianchi (2020), who highlight that knowledge determines the tendency towards technology. Smaller companies tend to have more difficulties than larger ones, not only because of the financial resources for technologies but also because of the lack of employees with IT skills or training required for this (Ohlert, Giering and Kirchner, 2022).

Assuming knowledge is a prerequisite for adopting and applying digital technologies, learning is a fundamental element in the change process.

Learning

Organisational learning improves future performance through knowledge and better understanding, which enables organisations to align with their environment, being competitive and innovative (Fiol and Lyles, 1985). Fiol and Lyles define organisational learning as "…the process of improving actions through better knowledge and understanding" (Fiol and Lyles, 1985). Argyris and Schön set

individual needs and organisational structures in context (Golembiewski, 1979) and illustrated the importance of the ability to learn for the survival of organisations. The challenge is establishing organisations' adaptability and improving learning (Argyris, 1997). Learning organisations can derive strategies to withstand environmental events (Starbuck, Greve and Hedberg, 1978), such as the ongoing digital transformation. While indispensable for change, organisational learning is complex and can be viewed from different angles. Crossan *et al.* provide an overview of the various views of organisational learning, such as individual, group, and organisational levels, as well as cognitive and behavioural aspects (Crossan *et al.*, 1995). Argyris and Schön show that organisational learning and individual learning are interdependent but differ since organisational learning is not the sum of personal learning (Dörner and Rundel, 2021). Due to the aim of this study in the context of digital transformation, we focus on learning on the individual level, leading to an earlier adoption of digital technology to facilitate the targeted change in organisations (Ivory *et al.*, 2020). Argyris and Schön developed the concept of single-loop (problem-solving without changing basic principles) and double-loop (questioning underlying assumptions) organisational learning (Argyris, 1977). Later research introduced triple-loop learning as a fundamental change and innovation (Peschl, 2006; Gardner, 2022).

Regarding digital transformation as a radical transition, this triple-loop learning requires new concepts of individual learning as a prerequisite for innovation and adoption (Gardner, 2022); building new digital competencies and capabilities stands out as a key dynamic capability for successful digital transformation. Marx et al. (2021) postulate that organisational learning is relevant for digital transformation, but to speed up the change, there is a need for individual, continuous development. Considered individually, learning is defined as an active process with engagement to increase skills, ability, and adaptation through stimuli (goals, experiences) and interaction with the surroundings (Washburne, 1936; Bandura, 1988; Fosnot and Perry, 1996; Lachman, 1997). Sustained is something continuous or maintained for a more extended period. Institutions of higher education strive to define the skills required in the future and to teach these to their students to provide a suitably skilled workforce for the requirements of the labour market (Bello-Pintado and Bianchi, 2020). However, in the ongoing digital transformation, it is not enough for the future workforce to be suitably trained at universities. Similarly, companies must invest in their current employees as human capital and develop or expand future competencies (van den Berg, Stander and van der Vaart, 2020). The desired outcome is introduced as sustained learning. This paper provides a first conceptual definition of sustained learning in digital transformation as a mindset of individuals willing to continuously acquire knowledge, competencies, and innovation adoption, which should be investigated and tested in further research.

As the main finding of this research, the authors postulate that sustained learning, including basic principles and attitudes of individuals towards learning, is forming a behavioural pattern that allows organisations to sense or reconfigure skills and innovation adoption continuously. We assume that this new aspect explains the "how" to lead digital transformation in healthcare successfully; sustained learning must be established as a new dynamic capability for mastering change.

Digital transformation is a comprehensive phenomenon that offers opportunities and competitive advantages but often fails in implementation. Existing research points to strategic planning based on

the expected benefits and investments in infrastructure as a necessity to prevent failure (Vial, 2019; Mero, Tarkiainen and Tobon, 2020; Rodríguez-Abitia *et al.*, 2020). Jun and Weare (2011) argue that external factors foster technical innovation, but their expected efficiency in further application fails after the first benefit. The bibliometric investigation displays that existing literature on the topic of digital transformation in healthcare also focuses on (medical) technology (Marques and Ferreira, 2020; Kraus and Jones *et al.*, 2021). Innovation and technology adoption are key drivers of the change legislators strive for, but adoption and implementation are progressing very slowly. Uncertainty and anxiety about the benefits or challenges of new technology hinder adoption (Manuti and Monachino, 2020). Digital transformation changes workplaces and working conditions, and new workplace conditions require a conversion of mindsets and culture (Hur *et al.*, 2019). Complexity and trust issues are limiting the advantages and are causing less willingness to use new technologies since the benefits expected from legislation remain uncertain (Howcroft and Taylor, 2014; Kraus and Schiavone *et al.*, 2021; Iyanna *et al.*, 2022).

In contrast, adoption barriers like the need for investments in infrastructure and knowledge have been mentioned (Laurenza *et al.*, 2018; Chirumalla, 2021; Thiel *et al.*, 2022). Therefore, a shift in mindset, competencies, and learning processes is inevitable, and external pressure due to legislation and mandatory offerings is insufficient. Previous research points out the need to engage and participate as individuals. In their study about ICT innovation in hospitals, Hansen and Nørup (2017) proved the strong impact of participative leadership on performance. Similarly, Gjellebæk et al. (2020) highlighted the importance of individual engagement and participation with the need for a shift towards continuous learning to empower employees in changed workplace contexts. The authors assume that matching existing competencies to changed tasks and transferring external pressure to intrinsic motivation are relevant leverages with the need for further investigation.

For active participation in innovation and transformation processes, new capabilities are needed (González-Varona *et al.*, 2021), creating new competencies in an environment that enables self-determination, trust, and networking (Roman *et al.*, 2019). In addition to the training of complex (technological) competencies, a higher emphasis is needed on soft (personal) competencies, which relate to self-confidence and the ability to handle technology independently and reliably (Heideman Lassen and Waehrens, 2021). However, sufficient knowledge on the organisational micro level with factors influencing individuals to participate in the change voluntarily is still missing (Morris and König, 2020).

CONCLUSIONS AND RECOMMENDATIONS

The findings of this study provide insights into the processes underlying digital transformation, addressing the research questions (RQs):

RQ1: What is known in the literature about adopting new technological innovation and building dynamic capabilities?

RQ2: What is the current state of research regarding acquiring knowledge and organisational learning in digital transformation?

This research introduces a framework for accelerating digital transformation, integrating theoretical and practical dimensions. We demonstrate that the adoption of new technological innovations is fundamentally linked to the reason ("Why") and vision ("Where"). At the same time, the acquisition of knowledge and organisational learning delineates the necessary actions ("What") required for transformation. Moreover, the emergent question of "How" to operationalise this transformation provides a promising field for further research.

The present study makes three significant contributions to a better understanding of the digital transformation process. First, it underscores the role of voluntary participation in driving change. Second, it identifies knowledge acquisition and learning as leverage points, enabling the development of critical capabilities and competencies necessary for transformation. Third, it offers actionable insights for managers, emphasising the importance of fostering employee openness to innovation and adaptability when facing technological and environmental shifts. These insights suggest that empowering employees to sustain learning, navigate new technologies and transform work environments can significantly enhance the quality of working life.

From a theoretical perspective, this study extends the existing literature on dynamic capabilities theory by emphasising the critical role of knowledge acquisition and learning. While traditional research on dynamic capabilities has focused on organisational processes (Teece, Pisano and Shuen, 1997; Ellström *et al.*, 2022), our findings highlight the significance of individual motivations, self-determination, and voluntary participation in fostering these capabilities. Consequently, they contribute to the discourse on digital transformation by underscoring individuals' roles, adoption, and learning processes in achieving sustainable change (Vial, 2019; Schaufeli, 2021). A novel contribution of this study is the conceptualisation of sustained learning as a key dynamic capability, building on previous studies that stress the importance of knowledge acquisition and learning for organisational change (Argyris, 1977; Fiol and Lyles, 1985). By linking sustained learning to the paradigm of Industry 4.0 and digital transformation, we emphasise the relevance of balancing technological advancements with the need to foster human-centric development. With the developed framework, we bridge the gap between organisational adaptability and individual-level action and provide a more granular understanding of digital transformation in complex environments like healthcare.

LIMITATIONS AND FURTHER RESEARCH

This study has limitations owing to the specified inclusion and exclusion criteria. Furthermore, the authors may exhibit bias in the selection process despite the structured criteria (Kraus, Breier and Dasí-Rodríguez, 2020).

As with any literature review, this research reflects knowledge confined to a limited investigation timeframe. Subsequent studies could further develop this area.

We identify several areas for further investigation to deepen understanding and enhance practical applications. First, future research should focus on the mechanisms of self-determined learning, examining its impact on the development of digital competencies and sustained engagement in

transformation processes. Self-determination theory may provide a valuable lens for exploring the role of fostering intrinsic motivation and adaptive behaviours among employees. Second, further empirical studies are needed to explore the relationship between evolving workplace environments, digital competence development, and employee motivation during transformation. These studies should assess how variations in work environments influence learning outcomes and adaptability. Third, research should investigate how higher education institutions that successfully navigated digital transitions during the COVID-19 pandemic can serve as role models for fostering innovation and adaptability. The extent to which these strategies are transferable to the healthcare sector merits detailed exploration. Finally, the concept of sustained learning, as introduced in this study, requires further refinement and empirical validation. Developing robust methodologies to measure and implement sustained, explorative learning across diverse sectors, particularly in healthcare, will provide critical insights into the dynamics of knowledge-based capabilities and their role in facilitating digital transformation.

REFERENCES

Agarwal, R. *et al.* (2010) "The Digital Transformation of Healthcare: Current Status and the Road Ahead", *Information Systems Research*, Vol. 21, No. 4, pp. 796–809, doi:10.1287/isre.1100.0327.

Akter, S. *et al.* (2022) "Transforming business using digital innovations: the application of AI, blockchain, cloud and data analytics", *Annals of Operations Research*, Vol. 308, Nos. 1–2, pp. 7–39, doi:10.1007/s10479-020-03620-w.

Almasri, H. *et al.* (2021) "A developed systematic literature review procedure with application in the field of digital transformation", *Studies of Applied Economics*, Vol. 39, No. 4, doi:10.25115/eea.v39i4.4559.

Alqazzaz, S.F., Elsharawy, G.A., Eid, H.F. (2022) "Robust 4-D Hyperchaotic DNA Framework for Medical Image Encryption", *International Journal of Computer Network and Information Security*, Vol. 14, No. 2, pp. 67–76, doi:10.5815/ijcnis.2022.02.06.

Andersen, K.N., Nielsen, J.A., Kim, S. (2019) "Use, cost, and digital divide in online public health care: lessons from Denmark", *Transforming Government: People, Process and Policy*, Vol. 13, No. 2, pp. 197–211, doi:10.1108/TG-06-2018-0041.

Argyris, C. (1977) "Double loop learning in organizations", *Harvard Business Review*, Vol. 55, No. 5, pp. 115–125.

Argyris, C. (1997) "Learning and Teaching: A Theory of Action Perspective", *Journal of Management Education*, Vol. 21, No. 1, pp. 9–26, doi:10.1177/105256299702100102.

Bandura, A. (1988) "Organisational Applications of Social Cognitive Theory", *Australian Journal of Management*, Vol. 13, No. 2, pp. 275–302, doi:10.1177/031289628801300210.

Bello-Pintado, A., Bianchi, C. (2020) "Workforce education diversity, work organization and innovation propensity", *European Journal of Innovation Management*, Vol. 24, No. 3, pp. 756–776, doi:10.1108/EJIM-10-2019-0300.

van den Berg, M.J., Stander, M.W., van der Vaart, L. (2020) "An exploration of key human resource practitioner competencies in a digitally transformed organisation", *SA Journal of Human Resource Management*, Vol. 18, pp. 1–13, doi:10.4102/sajhrm.v18i0.1404.

Biloslavo, R. *et al.* (2020) "Business model transformation toward sustainability: the impact of legitimation", *Management Decision*, Vol. 58, No. 8, pp. 1643–1662, doi:10.1108/MD-09-2019-1296.

Chirumalla, K. (2021) "Building digitally-enabled process innovation in the process industries: A dynamic capabilities approach", *Technovation*, Vol. 105, Art. 102256, doi:10.1016/j.technovation.2021.102256.

Chirumalla, K., Leoni, L., Oghazi, P. (2023) "Moving from servitization to digital servitization: Identifying the required dynamic capabilities and related microfoundations to facilitate the transition", *Journal of Business Research*, Vol. 158, Art. 113668, doi:10.1016/j.jbusres.2023.113668.

Cobelli, N., Blasi, S. (2024) "Combining topic modeling and bibliometric analysis to understand the evolution of technological innovation adoption in the healthcare industry", *European Journal of Innovation Management*, Vol. 27, No. 9, pp. 127–149, doi:10.1108/EJIM-06-2023-0497.

Colli, M., Stingl, V., Waehrens, B. V. (2022) "Making or breaking the business case of digital transformation initiatives: the key role of learnings", *Journal of Manufacturing Technology Management*, Vol. 33, No. 1, pp. 41–60, doi:10.1108/JMTM-08-2020-0330.

Crossan, M.M. *et al.* (1995) "Organizational Learning: Dimensions for a Theory", *The International Journal of Organizational Analysis*, Vol. 3, No. 4, pp. 337–360, doi:10.1108/eb028835.

Dabić, M. *et al.* (2023) "Future of digital work: Challenges for sustainable human resources management", *Journal of Innovation & Knowledge*, Vol. 8, No. 2, Art. 100353, doi:10.1016/j.jik.2023.100353.

Deci, E. L., Olafsen, A.H., Ryan, R.M. (2017) "Self-Determination Theory in Work Organizations: The State of a Science", *Annual Review of Organizational Psychology and Organizational Behavior*, Vol. 4, No. 1, pp. 19–43, doi:10.1146/annurev-orgpsych-032516-113108.

Deloitte (2021) "*2022 Global Health Care Outlook Are we finally seeing the long-promised transformation?",* available at: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-health-care-outlook-Final.pdf, *(accessed: 28 April 2025)*

Dengler, K., Matthes, B. (2018) "The impacts of digital transformation on the labour market: Substitution potentials of occupations in Germany", *Technological Forecasting and Social Change*, Vol. 137, pp. 304–316, doi:10.1016/j.techfore.2018.09.024.

Dörner, O., Rundel, S. (2021) "Organizational Learning and Digital Transformation: A Theoretical Framework", in Ifenthaler, D., Hofhues, S., Egloffstein, M., Helbig, C. (Ed.), *Digital Transformation of Learning Organizations*, Springer International Publishing, Cham, pp. 61–75, doi:10.1007/978-3-030-55878-9_4.

Dwivedi, Y.K. *et al.* (2023) "Resistance to innovation: A dynamic capability model based enquiry into retailers' resistance to blockchain adaptation", *Journal of Business Research*, Vol. 157, Art. 113632, doi:10.1016/j.jbusres.2022.113632.

Ehlers, U.-D. (2020) "Digital Leadership in Higher Education", *Journal of Higher Education Policy and Leadership Studies*, Vol. 1, No. 3, pp. 6–14, doi:10.29252/johepal.1.3.6.

Ellström, D. *et al.* (2022) "Dynamic capabilities for digital transformation", *Journal of Strategy and Management*, Vol. 15, Art. 2, pp. 272–286, doi:10.1108/JSMA-04-2021-0089.

Fernandez-Vidal, J. *et al.* (2022) "Managing digital transformation: The view from the top", *Journal of Business Research*, Vol. 152, pp. 29–41, doi:10.1016/j.jbusres.2022.07.020.

Fiol, C.M., Lyles, M.A. (1985) "Organizational Learning", *Academy of Management Review*, Vol. 10, No. 4, pp. 803–813, doi:10.5465/amr.1985.4279103.

Fosnot, C.T., Perry, R.S. (1996) "Constructivism: A Psychological Theory of Learning.", in Fosnot, C.T. (Ed.), *Constructivism: Theory, Perspectives, and Practice*, Teachers College Press, New York, pp. 8–33.

Gagné, M. (Ed.). (2014) *The Oxford Handbook of Work Engagement, Motivation, and Self-Determination Theory*, Oxford University Press, 2014.

Gardner, N. (2022) "Digital Transformation and Organizational Learning: Situated Perspectives on Becoming Digital in Architectural Design Practice", *Frontiers in Built Environment*, Vol. 8, doi:10.3389/fbuil.2022.905455.

Ghobakhloo, M. *et al.* (2024) "Generative artificial intelligence in manufacturing: opportunities for actualizing Industry 5.0 sustainability goals", *Journal of Manufacturing Technology Management*, Vol. 35, No. 9, pp. 94–121, doi:10.1108/JMTM-12-2023-0530.

Gjellebæk, C. *et al.* (2020) "Management challenges for future digitalization of healthcare services", *Futures*, Vol. 124, doi:10.1016/j.futures.2020.102636.

Golembiewski, R.T. (1979) "Organizational Leaming: A Theory of Action Perspective", *The Journal of Applied Behavioral Science*, Vol. 15, No. 4, pp. 542–548, doi:10.1177/002188637901500410.

González-Varona, J.M. *et al.* (2021) "Building and development of an organizational competence for digital transformation in SMEs", *Journal of Industrial Engineering and Management*, Vol. 14, No. 1, pp. 15–24, doi:10.3926/jiem.3279.

Graham, K., Moore, R. (2021) "The Role of Dynamic Capabilities in Firm-Level Technology Adoption Processes: A Qualitative Investigation", *Journal of Innovation Management*, Vol. 9, No. 1, pp. 25–50, doi:10.24840/2183-0606_009.001_0004.

Haffar, M. *et al.* (2023) "Organizational culture and affective commitment to e-learning' changes during COVID-19 pandemic: The underlying effects of readiness for change", *Journal of Business Research*, Vol. 155, Art. 113396, doi:10.1016/j.jbusres.2022.113396.

Hansen, M.B., Nørup, I. (2017) "Leading the Implementation of ICT Innovations", *Public Administration Review*, Vol. 77, No. 6, pp. 851–860, doi:10.1111/puar.12807.

Hausberg, J.P. *et al.* (2019) "Research streams on digital transformation from a holistic business perspective: a systematic literature review and citation network analysis", *Journal of Business Economics*, Vol. 89, Nos. 8–9, pp. 931–963, doi:10.1007/s11573-019-00956-z.

Heideman Lassen, A., Waehrens, B.V. (2021) "Labour 4.0: developing competences for smart production", *Journal of Global Operations and Strategic Sourcing*, Vol. 14, No. 4, pp. 659–679, doi:10.1108/JGOSS-11-2019-0064.

Hermes, S. *et al.* (2020) "The digital transformation of the healthcare industry: exploring the rise of emerging platform ecosystems and their influence on the role of patients", *Business Research*, Vol. 13, No. 3, pp. 1033–1069, doi:10.1007/s40685-020-00125-x.

Herzlinger, R.E. (2006) "Why Innovation in Health Care Is So Hard", *Harvard Business Review*, Vol. 84, No. 5, pp. 2-4.

Hone, T., Macinko, J., Millett, C. (2018) "Revisiting Alma-Ata: what is the role of primary health care in achieving the Sustainable Development Goals?", *The Lancet*, Vol. 392, Art. 10152, pp. 1461–1472, doi:10.1016/S0140-6736(18)31829-4.

Howcroft, D., Taylor, P. (2014) "Plus ca change, plus la meme chose? researching and theorising the "new" new technologies", *New Technology, Work and Employment*, Vol. 29, No. 1, pp. 1–8, doi:10.1111/ntwe.12026.

Huber, C., Gärtner, C. (2018) "Digital Transformations in Healthcare Professionals Work: Dynamics of Autonomy, Control and Accountability", *management revue*, Vol. 29, No. 2, pp. 139–161, doi:10.5771/0935-9915-2018-2-139.

Hübner, U. *et al.* (2018) "Technology Informatics Guiding Education Reform – TIGER", *Methods of Information in Medicine*, Vol. 57, Suppl. 1, pp. e30–e42, doi:10.3414/ME17-01-0155.

Hur, J.-Y. *et al.* (2019) "The "Smart Work" Myth: How Bureaucratic Inertia and Workplace Culture Stymied Digital Transformation in the Relocation of South Korea's Capital", *Asian Studies Review*, Vol. 43, No. 4, pp. 691–709, doi:10.1080/10357823.2019.1663786.

IQVIA Institute for Human Data Science (2021) *Global Medicine Spending and Usage Trends*, available at: https://www.iqvia.com/insights/the-iqvia-institute/reports/global-medicine-spending-and-usage-trends-outlook-to-2025 (accessed: 19 November 2022).

Ivory, C. *et al.* (2020) "Getting caught between discourse(s): hybrid choices in technology use at work", *New Technology, Work and Employment*, Vol. 35, No. 1, pp. 80–96, doi:10.1111/ntwe.12152.

Iyanna, S. *et al.* (2022) "Digital transformation of healthcare sector. What is impeding adoption and continued usage of technology-driven innovations by end-users?", *Journal of Business Research*, Vol. 153, pp. 150–161, doi:10.1016/j.jbusres.2022.08.007.

Jakovljevic, M. *et al.* (2020) "Real GDP growth rates and healthcare spending - Comparison between the G7 and the EM7 countries", *Globalization and Health*, Vol. 16, No. 1, doi:10.1186/s12992-020-00590-3.

Johannson, P.E. *et al.* (2022) "Creating balancing spaces for digital ambidexterity: Identifying divergence and competing demands in healthcare transformation initiatives", *International Journal of Innovation Management*, Vol. 26, No. 09, doi:10.1142/S1363919622400230.

Jun, K.-N., Weare, C. (2011) "Institutional Motivations in the Adoption of Innovations: The Case of E-Government", *Journal of Public Administration Research and Theory*, Vol. 21, No. 3, pp. 495–519, doi:10.1093/jopart/muq020.

Kensbock, J.M., Stöckmann, C. (2021) ""Big brother is watching you": surveillance via technology undermines employees' learning and voice behavior during digital transformation", *Journal of Business Economics*, Vol. 91, No. 4, pp. 565–594, doi:10.1007/s11573-020-01012-x.

Khin, S., Ho, T.C. (2019) "Digital technology, digital capability and organizational performance", *International Journal of Innovation Science*, Vol. 11, No. 2, pp. 177–195, doi:10.1108/IJIS-08-2018-0083.

Kim, S., Choi, B., Lew, Y. (2021) "Where is the age of digitalization heading? The meaning, characteristics and implications of contemporary digital transformation", *Sustainability*, Vol. 13, No. 16, doi:10.3390/su13168909.

Kimberly, J.R., Evanisko, M.J. (1981) "Organizational Innovation: The Influence of Individual, Organizational, and Contextual Factors on Hospital Adoption of Technological and Administrative Innovations", *Academy of Management Journal*, Vol. 24, No. 4, pp. 689–713, doi:10.5465/256170.

Kohli, R., Melville, N.P. (2019) "Digital innovation: A review and synthesis", *Information Systems Journal*, Vol. 29, No. 1, pp. 200–223, doi:10.1111/isj.12193.

Kokshagina, O. (2021) "Managing shifts to value-based healthcare and value digitalization as a multi-level dynamic capability development process", *Technological Forecasting and Social Change*, Vol. 172, Art. 121072, doi:10.1016/j.techfore.2021.121072.

Kolagar, M., Parida, V., Sjödin, D. (2022) "Ecosystem transformation for digital servitization: A systematic review, integrative framework, and future research agenda", *Journal of Business Research*, Vol. 146, pp. 176–200, doi:10.1016/j.jbusres.2022.03.067.

Kraus, S, Jones, P., *et al.* (2021) "Digital Transformation: An Overview of the Current State of the Art of Research", *SAGE Open*, Vol. 11, No. 3, doi:10.1177/21582440211047576.

Kraus, S, Schiavone, F., *et al.* (2021) "Digital transformation in healthcare: Analyzing the current state-of-research', *Journal of Business Research*, Vol. 123, pp. 557–567, doi:10.1016/j.jbusres.2020.10.030.

Kraus, S., Breier, M., Dasí-Rodríguez, S. (2020) "The art of crafting a systematic literature review in entrepreneurship research", *International Entrepreneurship and Management Journal*, Vol. 16, No. 3, pp. 1023–1042, doi:10.1007/s11365-020-00635-4.

Kubicek, B. *et al.* (2022) "Are all challenge stressors beneficial for learning? A meta-analytical assessment of differential effects of workload and cognitive demands", *Work & Stress*, pp. 1–30, doi:10.1080/02678373.2022.2142986.

Kulchar, R.J. *et al.* (2022) "Telemedicine, safe medication stewardship, and COVID-19: Digital transformation during a global pandemic", *Journal of Interprofessional Education & Practice*, Vol. 29, Art. 100524, doi:10.1016/j.xjep.2022.100524.

Kumar, A. *et al.* (2023) "Digging DEEP: Futuristic building blocks of omni-channel healthcare supply chains resiliency using machine learning approach", *Journal of Business Research*, Vol. 162, Art. 113903, doi:10.1016/j.jbusres.2023.113903.

van Laar, E. *et al.* (2020) "Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review", *SAGE Open*, Vol. 10, No. 1: doi:10.1177/2158244019900176.

Lachman, S.J. (1997) "Learning is a Process: Toward an Improved Definition of Learning", *The Journal of Psychology*, Vol. 131, No. 5, pp. 477–480, doi:10.1080/00223989709603535.

Laurenza, E. *et al.* (2018) "The effect of digital technologies adoption in healthcare industry: a case based analysis", *Business Process Management Journal*, Vol. 24, No. 5, pp. 1124–1144, doi:10.1108/BPMJ-04-2017-0084.

Leone, D. *et al.* (2021) "How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem", *Journal of Business Research*, Vol. 129, pp. 849–859, doi:10.1016/j.jbusres.2020.11.008.

Li, F. (2020) "The digital transformation of business models in the creative industries: A holistic framework and emerging trends", *Technovation*, pp. 92–93, Art. 102012, doi:10.1016/j.technovation.2017.12.004.

Manuti, A., Monachino, D. (2020) "Managing Knowledge at the Time of Artificial Intelligence: An Explorative Study with Knowledge Workers", *East European Journal of Psycholinguistics*, Vol. 7, No. 2, doi:10.29038/eejpl.2020.7.2.man.

Marques, I.C.P., Ferreira, J.J.M. (2020) "Digital transformation in the area of health: systematic review of 45 years of evolution", *Health and Technology*, Vol. 10, No. 3, pp. 575–586, doi:10.1007/s12553-019-00402-8.

Marx, S., Flynn, S., Kylänen, M. (2021) "Digital transformation in tourism: Modes for continuing professional development in a virtual community of practice", *Project Leadership and Society*, doi:10.1016/j.plas.2021.100034.

Matusiewicz, D., Pittelkau, C., Elmer, A. (2017) *Transformation, Innovation, Disruption: Die Digitale Transformation im Gesundheitswesen*, Medizinisch Wissenschaftliche Verlagsgesellschaft.

Melhem, S., Jacobsen, A.H. (2021) *A Global Study on Digital Capabilities*, available at: http://documents.worldbank.org/curated/en/959181623060169420/A-Global-Study-on-Digital-Capabilities (accessed: 14 April 2023).

Mero, J., Tarkiainen, A., Tobon, J. (2020) "Effectual and causal reasoning in the adoption of marketing automation", *Industrial Marketing Management*, Vol. 86, pp. 212–222, doi:10.1016/j.indmarman.2019.12.008.

Meyer, J.P., Gagné, M., Parfyonova, N.M. (2010) "Toward an Evidence-based Model of Engagement: What We Can Learn from Motivation and Commitment Research", in Meyer, J.P. (Ed.), *Handbook of Employee Engagement*. Edward Elgar Publishing, doi:10.4337/9781849806374.00011.

Mishra, R., Singh, R.K., Papadopoulos, T. (2022) "Linking Digital Orientation and Data-Driven Innovations: A SAP–LAP Linkage Framework and Research Propositions", *IEEE Transactions on Engineering Management*, pp. 1–13, doi:10.1109/TEM.2022.3153588.

Morris, T.H., König, P.D. (2020) "Self-directed experiential learning to meet ever-changing entrepreneurship demands", *Education + Training*, Vol. 63, No. 1, pp. 23–49, doi:10.1108/ET-09-2019-0209.

Ng, J.Y.Y. *et al.* (2012) "Self-Determination Theory Applied to Health Contexts", *Perspectives on Psychological Science*, Vol. 7, No. 4, pp. 325–340, doi:10.1177/1745691612447309.

Nurhas, I. *et al.* (2022) "Understanding the challenges of rapid digital transformation: the case of COVID-19 pandemic in higher education", *Behaviour and Information Technology*, Vol. 41, No. 13, pp. 2924–2940, doi:10.1080/0144929X.2021.1962977.

Nylén, D., Holmström, J. (2015) "Digital innovation strategy: A framework for diagnosing and improving digital product and service innovation", *Business Horizons*, Vol. 58, No. 1, pp. 57–67, doi:10.1016/j.bushor.2014.09.001.

Ohlert, C., Giering, O., Kirchner, S. (2022) "Who is leading the digital transformation? Understanding the adoption of digital technologies in Germany", *New Technology, Work and Employment*, Vol. 37, No. 3, pp. 445–468, doi:10.1111/ntwe.12244.

Omrani, N. *et al.* (2022) "Drivers of Digital Transformation in SMEs", *IEEE Transactions on Engineering Management*, pp. 1–14, doi:10.1109/TEM.2022.3215727.

Peschl, M.F. (2006) "Triple-loop learning as foundation for profound change, individual cultivation, and radical innovation: Construction processes beyond scientific and rational knowledge.", *Constructivist Foundations*, Vol. 2, Nos. 2–3, pp. 136–145, available at: https://constructivist.info/2/2-3/136.peschl (accessed: 13 September 2023).

Qvarfordt, M., Lagrosen, S. (2024) "Healthcare digitalisation and its association with quality and employee health, a mixed-methods study", *International Journal of Workplace Health Management*, Vol. 17, No. 1, pp. 1–20, doi:10.1108/IJWHM-03-2022-0045.

Qvarfordt, M., Lagrosen, S., Nilsson, L. (2024) "Medical secretaries' fears and opportunities in an increasingly digitalised workplace environment", *Journal of Health Organization and Management*, Vol. 38, No. 9, pp. 175–194, doi:10.1108/JHOM-04-2023-0127.

Ragazou, K. *et al.* (2022) "Investigating the Research Trends on Strategic Ambidexterity, Agility, and Open Innovation in SMEs: Perceptions from Bibliometric Analysis", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8, No. 3, p. 118, doi:10.3390/joitmc8030118.

Raghavan, A., Demircioglu, M.A., Orazgaliyev, S. (2021) "Covid-19 and the new normal of organizations and employees: An overview", *Sustainability*, Vol. 13, No. 21, doi:10.3390/su132111942.

Raja Santhi, A., Muthuswamy, P. (2023) "Industry 5.0 or industry 4.0S? Introduction to industry 4.0 and a peek into the prospective industry 5.0 technologies", *International Journal on Interactive Design and Manufacturing (IJIDeM)* (Preprint), doi:10.1007/s12008-023-01217-8.

Rodríguez-Abitia, G. *et al.* (2020) "Digital gap in universities and challenges for quality education: A diagnostic study in Mexico and Spain", *Sustainability*, Vol. 12, No. 21, pp. 1–14, doi:10.3390/su12219069.

Roman, A. V. *et al.* (2019) "Defining E-leadership as Competence in ICT-Mediated Communications: An Exploratory Assessment", *Public Administration Review*, Vol. 79, No. 6, pp. 853–866, doi.org/10.1111/puar.12980.

Sasmoko, S. *et al.* (2019) "Dynamic capability: The effect of digital leadership on fostering innovation capability based on market orientation", *Management Science Letters*, Vol. 9, No. 10, pp. 1633–1644, doi.org/10.5267/j.msl.2019.5.024.

Schallmo D.R.A., Williams, C.A. (2018) "Digital Transformation Now! Guiding the Successful Digitalization of Your Business Model", *Springer Briefs in Businesses*, doi:10.1007/978-3-319-72844-5.

Schaufeli, W. (2021) "Engaging Leadership: How to Promote Work Engagement?", *Frontiers in Psychology*. Frontiers Media SA, doi:10.3389/fpsyg.2021.754556.

Scott, S., Orlikowski, W. (2022) "The Digital Undertow: How the Corollary Effects of Digital Transformation Affect Industry Standards", *Information Systems Research*, Vol. 33, No. 1, pp. 311–336, doi:10.1287/isre.2021.1056.

Shakina, E., Parshakov, P., Alsufiev, A. (2021) "Rethinking the corporate digital divide: The complementarity of technologies and the demand for digital skills", *Technological Forecasting and Social Change*, Vol. 162, Art. 120405, doi:10.1016/j.techfore.2020.120405.

da Silva, S.B. (2021) "Improving the firm innovation capacity through the adoption of standardized innovation management systems: a comparative analysis of the ISO 56002:2019 with the literature on firm innovation capacity", *International Journal of Innovation*, Vol. 9, No. 2, pp. 389–413. Available at: https://doi.org/10.5585/iji.v9i2.19273.

Singhal, S., Vinjamoori, N., Radha, M. (2022) "The next frontier of healthcare delivery", McKinsey & Company, available at: https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/the-next-frontier-of-care-delivery-in-healthcare (accessed: 19 November 2022).

Skare, M., de las Mercedes de Obesso, M., Ribeiro-Navarrete, S. (2023) "Digital transformation and European small and medium enterprises (SMEs): A comparative study using digital economy and society index data", *International Journal of Information Management*, Vol. 68, doi:10.1016/j.ijinfomgt.2022.102594.

Songkajorn, Y. *et al.* (2022) "Organizational Strategic Intuition for High Performance: The Role of Knowledge-Based Dynamic Capabilities and Digital Transformation", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8, No. 3, doi:10.3390/joitmc8030117.

Starbuck, W.H., Greve, A., Hedberg, B.L.T. (1978) "Responding to Crises", *Journal of Business Administration*, Vol. 9, No. 2, pp. 111–137.

Su, H.-N., Lee, P.-C. (2010) "Mapping knowledge structure by keyword co-occurrence: a first look at journal papers in Technology Foresight", *Scientometrics*, Vol. 85, No. 1, pp. 65–79, doi:10.1007/s11192-010-0259-8.

Talwar, S. *et al.* (2020) "Consumers' resistance to digital innovations: A systematic review and framework development", *Australasian Marketing Journal*, Vol. 28, No. 4, pp. 286–299, doi:10.1016/j.ausmj.2020.06.014.

Teece, D.J., Pisano, G., Shuen, A. (1997) "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18, No. 7, pp. 509–533, doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

Thiel, B. *et al.* (2022) "Adoption of a Postoperative Pain Self-Report Tool: Qualitative Study", *JMIR Human Factors*, Vol. 9, No. 2, doi:10.2196/33706.

Thiel, R. *et al.* (2018) *Smart Health Systems: International comparison of digital strategies*, available at: https://www.bertelsmann-stiftung.de/en/publications/publication/did/smarthealthsystems-1 (accessed: 23 May 2023).

Tinmaz, H. *et al.* (2022) "A systematic review on digital literacy", *Smart Learning Environments*, Vol. 9, No., Art. 21, doi:10.1186/s40561-022-00204-y.

United Nations (2019) *World Population Prospects 2019 Highlights*, New York, available at: https://www.un.org/development/desa/pd/news/world-population-prospects-2019-0 (accessed: 23 April 2025).

Valdez-Juárez, L.E., Ramos-Escobar, E.A., Borboa-Álvarez, E.P. (2023) "Reconfiguration of Technological and Innovation Capabilities in Mexican SMEs: Effective Strategies for Corporate Performance in Emerging Economies", *Administrative Sciences*, Vol. 13, No. 1, Art. 15, doi: 10.3390/admsci13010015.

Verhoef, P.C. *et al.* (2021) "Digital transformation: A multidisciplinary reflection and research agenda", *Journal of Business Research*, Vol. 122, pp. 889–901, doi:10.1016/j.jbusres.2019.09.022.

Vial, G. (2019) "Understanding digital transformation: A review and a research agenda", *The Journal of Strategic Information Systems*, Vol. 28, No. 2, pp. 118–144, doi:10.1016/j.jsis.2019.01.003.

Wang, Z., Panaccio, A. (2022) "A Longitudinal Investigation of the Changes in Work Motivation and Employees' Psychological Health", *Administrative Sciences*, Vol. 12, No. 4, Art. 193. Available at: https://doi.org/10.3390/admsci12040193.

Warner, K.S.R., Wäger, M. (2019) "Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal", *Long Range Planning*, Vol. 52, No. 3, pp. 326–349, doi:10.1016/j.lrp.2018.12.001.

Washburne, J.N. (1936) "The definition of learning.", *Journal of Educational Psychology*, Vol. 27, No. 8, pp. 603–611, doi:10.1037/h0060154.

Wong, B.L.H. *et al.* (2021) "Harnessing the digital potential of the next generation of health professionals", *Human Resources for Health*, Vol. 19, No. 1, doi:10.1186/s12960-021-00591-2.

World Health Organization (2021) *Global strategy on digital health 2020-2025*, available at: https://www.who.int/docs/default-source/documents/gs4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf (accessed: 23 May 2023).

World Health Organization (2022) *World Health Statistics 2022*, available at: https://www.who.int/news/item/20-05-2022-world-health-statistics-2022 (accessed: 23 May 2023).

Zhou, K.Z., Wu, F. (2009) "Technological capability, strategic flexibility, and product innovation", *Strategic Management Journal*, doi:10.1002/smj.830.