

# **Digital Transformation in Property Development and The Role of Change Management: Structured Literature Review and Future Trends**

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## **Abstract**

Digital transformation affects all areas of business. Some industries are pioneers, whilst others lag behind in implementing digital solutions. The property development business as a traditional business is often neglected in the implementation of digital topics. Consequently, it is a particularly interesting topic to focus on. The paper gives an overview of the current literature on digital transformation and change management and lays bare those areas in the company which are affected, in addition to the role change management plays in the implementation of change processes. Finally, gaps in the research are identified, which may be of interest for future research.

**Keywords:** property developer, digital transformation, empirical study, change management

## 1. Introduction

The German property developer, an integral part of the real estate and construction industry, is facing a transformation driven by fundamental changes in technology, the economy and society (Pfnür & Wagner, 2020).

Currently, the industry is not sufficiently prepared for this massive change. In particular, the slow progress in user orientation, coupled with the good economic situation of construction and real estate companies and the acute shortage of skilled workers, are preventing the transformation of real estate industry. The urgency to act and adapt to this has not yet been sufficiently recognized by the real estate players. (Pfnür & Wagner, 2020)

However, other industries are already much further along in this area. Therefore, the author looks at the digital transformation processes of companies to transpose these to the property developers. Since digital change always affects employees, a particular focus on the topic of change management in relation to digitalization will be highlighted.

J.P. Kotter examined various companies. Successful companies which renew their organization have a structured change process (Kotter, 2009).

The short history of digital transformation (Kotarba, 2018) makes for a particularly interesting topic, in order to complement current research gaps.

Consequently, it makes sense to consider the topic of digital transformation in connection with change management. The author discusses traditional change process models, as well as current research.

In the first step of the structured literature review, the current state of research on digital transformation is considered. The second step focuses on the topic of change management.

## 2. Literature Review

### 2.1 Research Methodology

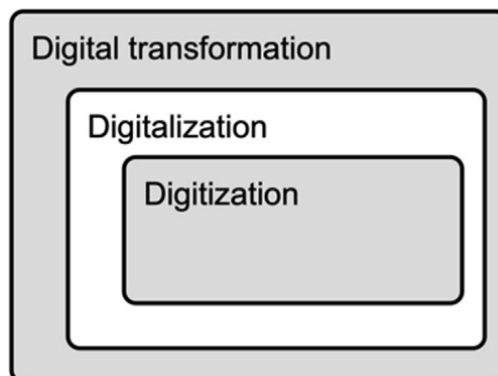
In this paper, the author examines the relationship between change management and digital transformation. For this purpose, current research studies are evaluated by way of a structured literature research and the identification of possible perspectives for future research. (D. Andreini and C. Bettinelli, 2017)

## 2.2 Digital Transformation

Digital transformation is one of the key challenges facing contemporary businesses. The need to leverage digital technology to develop and implement new business models forces firms to reevaluate existing capabilities, structures, and culture in order to identify what technologies are relevant and how they will be enacted in organizational processes and business offerings. (Saarikko, Westergren, & Blomquist, 2020)

The publications recognizes three stages of digital transformation: digitization, digitalization, and digital transformation. (Verhoef et al., 2021)

Figure 2.1: digital domains



Source: (Saarikko et al., 2020)

The publications show alternating definitions of these terms. Ritter & Peterson summarized them in the following table.

Figure 2.2: definitions of digitization and digitalization

Selected definitions of digitization and digitalization.

Authors	Construct	Definitions
Coreynen et al. (2017) based on Hsu (2007)	Digitization	"the increasing use of digital technologies for connecting people, systems, companies, products and services"
Brennen and Kreiss (2016) based on Oxford English Dictionary	Digitization	"the action or process of digitizing; the conversion of analogue data (esp. in later use images, video, and text) into digital form."
Brennen and Kreiss (2016)	Digitization	"the material process of converting analog streams of information into digital bits."
Ross (2017)	Digitization	"Digitization involves standardizing business processes and is associated with cost cutting and operational excellence."
Brennen and Kreiss (2016) based on Oxford English Dictionary	Digitalization	"the adoption or increase in use of digital or computer technology by an organization, industry, country, etc."
Brennen and Kreiss (2016)	Digitalization	"the way many domains of social life are restructured around digital communication and media infrastructures."
Ross (2017)	Digital	"To become digital, leaders must articulate a visionary digital value proposition. This value proposition must reassess how digital technologies and information can enhance an organization's existing assets and capabilities to create new customer value."

Source: (Ritter & Pedersen, 2020) quoted (Coreynen, Matthyssens, & Van Bockhaven, 2017)(Ross, 2020)(Brennen & Kreiss, 2016)(Hsu, 2007)

Ultimately, digitization is the conversion of analog data into digital data. It also describe the use of digital technology in making sense of these data.

The following section describes the current literature, starting with the literature search procedure.

In the paper, a structured literature review was conducted to determine the current state of scientific research. In order to consider high-quality literature, only scopus-listed papers were selected. The keyword "digital transformation" was searched, limited to the area of "companies". Only English-language publications from the years 2017-2021 were selected. A further restriction was placed on the area of "business management and accounting". So as to obtain solely high-quality literature, the author limited the search to conference papers, conference reviews, reviews and articles. The meta-search was recorded as follows: ( TITLE-ABS-KEY ( "digital transformation" ) AND TITLE-ABS-KEY ( companies ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2017 ) ) AND ( LIMIT-TO ( DOCTYPE , "cp" ) OR LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "cr" ) OR LIMIT-TO ( DOCTYPE , "re" ) ) AND ( LIMIT-TO ( SUBJAREA , "BUSI" ) ) AND ( LIMIT-TO ( OA , "all" ) )

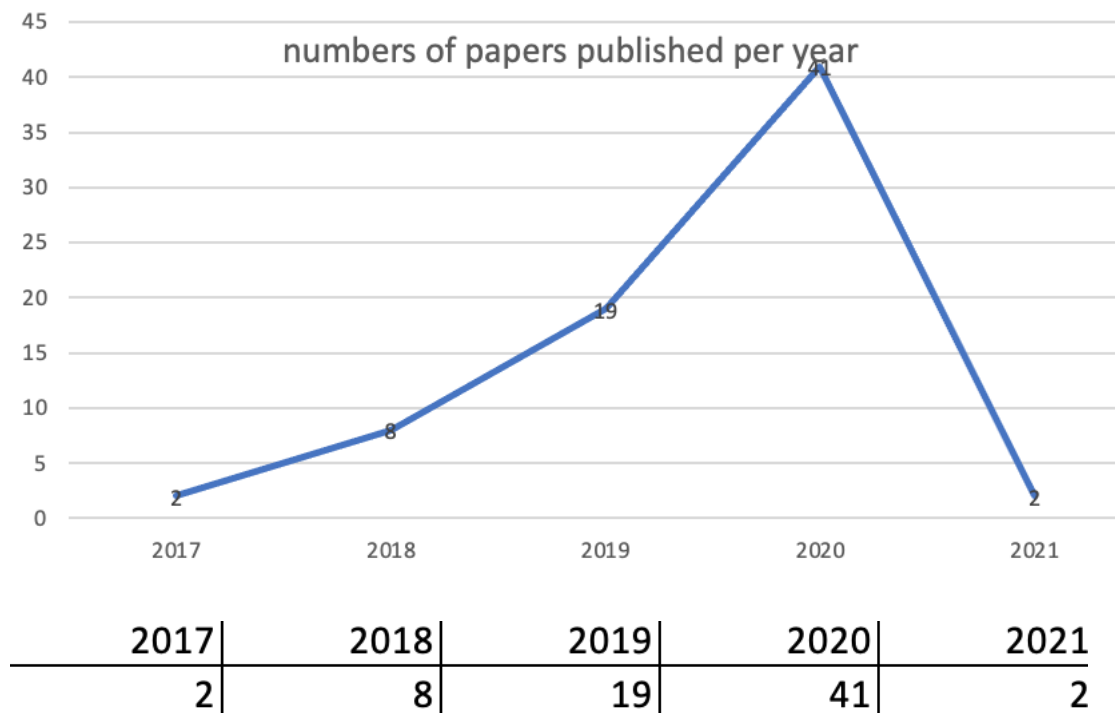
Figure 2.3: Structure of systematic Literature review

<u>First Step:</u> Identification of relevant studies, topic: digital transformation, 5.368 records
<u>Second Step:</u> limit to companies, language: English, 1.131 records
<u>Third Step:</u> limit to conferences papers, conference reviews, reviews, article, years 2017-2021, Business Management and accounting, 354 records
<u>Fourth Step:</u> limit to full text, abstract and conclusion screening 72 records

Source: Developed for this research

The following chart shows the published literature in Scopus from 2017 to 2021. During these years, the number of publications has increased significantly. 2020 recognizes the most publications with 41 search hits. Overall, it becomes evident that the topic of digital transformation has been dealt with extensively over the period of time, which shows the increased relevance of the topic.

Figure 2.4: numbers of papers published per year



Source: Developed for this research

The question of the necessity of the digital transformation of companies should be addressed first. The literature revealed various reasons and explanations, which are listed in the following table.

Figure 2.5: relevance of digital transformation

<b>author</b>	<b>relevance of digital transformation</b>
(Llopis-Albert, Rubio, & Valero, 2021)	“...digital technologies are transforming....disrupting traditional business models....”
(Dehnert, 2020)	“Digital transformation is a major challenge for traditional companies.”
(Gierlich-Joas, Hess, & Neuburger, 2020)	“Digital innovations drive an organization’s digital transformation”
(Becker & Schmid, 2020)	“The importance of digitalization continues to grow, with companies from all sectors and of various sizes to this influence.”
(Barmuta et al., 2020)	“...one of the most relevant phenomena today – digital transformation, which implies fundamental changes in the activities of organizations based on the use of digital technologies.”
(Correani, De Massis, Frattini, Petruzzelli, & Natalicchio, 2020)	“The rapid growth of digital technologies and the extraordinary amount of data that devices and applications collect each day are increasingly driving companies to radically transform the business architecture through which they create and appropriate value.”
(Nasiri, Ukko, Saunila, & Rantala, 2020)	“...to achieve competitive advantages in the digital supply chain.”
(Almeida, Duarte Santos, & Augusto Monteiro, 2020)	“...digitalization is also helping many companies to adapt and overcome the current situation caused by COVID-19.”
(Werth, Schwarzbach, Rodríguez Cardona, Breitner, & Graf von der Schulenburg, 2020)	“Digital transformation affects every area in societies and has consequences for incumbent companies.”
(Prügl & Spitzley, 2020)	“Digital transformation increasingly requires activities located outside from boundaries, for example via alliances with start-up companies.”
(Riasanow, Jäntgen, Hermes, Böhm, & Krcmar, 2020)	“Digital transformation is continuously changing ecosystems, with also forces established companies to re-evaluate their value proposition”
(Müller, Buliga, & Voigt, 2020)	“Technological innovations often lead to redesigns in the business models of established companies, requiring them to incorporate new external knowledge into internal activities.”

(Sehlin, Truedsson, & Cronemyr, 2019)	“Digital transformation are changing society, and they force industries to react to the marked more frequently.”
(Rambow-Hoeschele, Rambow, Hampel, Harrison, & MacLeod Wood, 2019)	“Digitalization forces industry players to adapt to transforming marked situations and buyer behavior.”
(Schwer & Hitz, 2018)	“The digital transformation will bring about extreme changes, as at the time when the steam engine was invented.”
(Kettunen & Mäkitalo, 2019)	“Digital transformation is rapidly causing major, even disruptive changes in many industries.”

Source: Developed for this research

In order to identify the impact of digital transformation, it is important to determine the areas of the business environment which are affected most prominently.

Figure 2.6: functional areas of digital business transformation



Source: (Barmuta et al., 2020)

**Customer relationship:** interaction with customers is evolving. This is due to a change in customer behavior.

**Information management:** new areas of responsibility are emerging in data processing, such as the topic of cybersecurity.



Production/Service: products and services are subject to change. Customization and personification are the primary focus.

Organization and structure: in organizations, greater flexibility is required. Jobs change and adapt to new challenges.

Operating activities: digital technologies are changing operational activities. Suppliers operate via a digital network.

Management: corporate development strategies are changing and involving change management. (Barmuta et al., 2020)

In particular, customer pressure in the form of changes in customer needs and behavior is a driving force for digital transformation. (Vey, Fandel-Meyer, Zipp, & Schneider, 2017) (Correani et al., 2020)

However, the question is not when companies will implement the necessary changes in digital transformation. The question is how they do so. (Hess, Benlian, Matt, & Wiesböck, 2016)

Porter and Heppelmann (Porter & Heppelmann, 2015) describe that the entire value chain is being transformed. They also show how traditional companies can learn from software companies as digital pioneers. They describe five categories:

Figure 2.7: lessons from the software industry

shorter development cycles	Companies need to respond more quickly to customer needs and bring products to market faster.
product-as-a-service business models	By moving to a service-based subscription basis, customers pay only for what they use and only when they need it.
focus on customer success	With the possibility of easily switching products, a company must ensure that the customer benefit is permanent. The orientation towards customer value is therefore of crucial importance.
products part of the broader system	It is important to always create new areas of application for a product and to be able to integrate them into processes.
analytics as a competitive advantage	The use of data analytics for a competitive advantage.

Based on (Porter & Heppelmann, 2015)

## 2.3 Change Management

The second search aimed for the keyword "change management", limited to the area of "digitalization" or "digital transformation". Only English-language literature from the years 2017-2021 was selected. So as to obtain only high-quality literature, the author restricted the search to conference papers, conference reviews, reviews and articles.

The metasearch was recorded as follows: ( TITLE-ABS-KEY ( "change management" ) AND TITLE-ABS-KEY ( digitalization OR digital AND transformation ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2017 ) ) AND ( LIMIT-TO ( DOCTYPE , "cp" ) OR LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "re" ) OR LIMIT-TO ( DOCTYPE , "cr" ) ) AND ( LIMIT-TO ( OA , "all" ) )

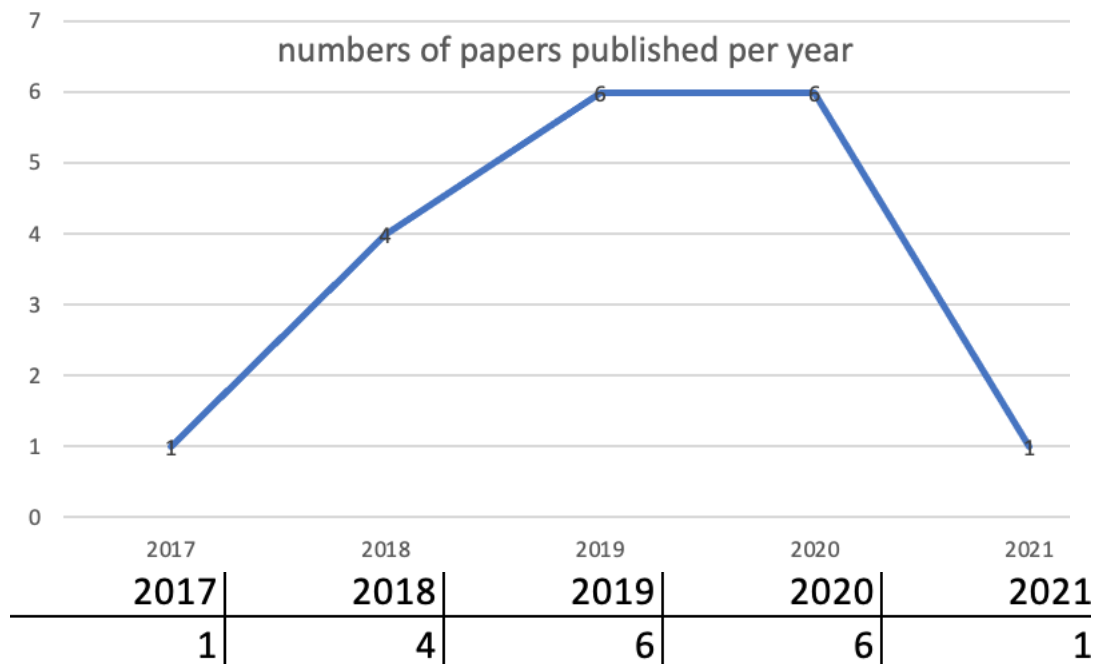
Figure 2.8: Structure of systematic Literature review

<u>First Step:</u> Identification of relevant studies, topic: change management, 11.660 records
<u>Second Step:</u> limit to digitalization or digital transformation, language: English, 113 records
<u>Third Step:</u> limit to conferences papers, conference reviews, reviews, article, years 2017-2021, 83 records
<u>Fourth Step:</u> limit to full text, abstract and conclusion screening 18 records

Source: Developed for this research

The following chart shows the published literature in Scopus from 2007 to 2021. Overall, only a minor amount of literature was found with the search specifications.

Figure 2.9: numbers of papers published per year



Source: Developed for this research

The best-known model for change management is the three-stage process of change by Kurt Lewin, known as unfreeze – change – refreeze. Another popular model is Kotter’s 8-Step Change Model. (Kotter, 2009)

Figure 2.10: Kotter’s 8-Step Change Model

Eight Steps to Transforming Your Organization
1. Establishing a Sense of Urgency
2. Forming a Powerful Coalition

3. Creating a Vision
4. Communicating the Vision
5. Empowering Others to Act the Vision
6. Planning for and Creating Short-Term Wins
7. Consolidation Improvements and Producing Still More Change
8. Institutionalizing New Approaches

Source: based on (Kotter, 2009)

Pasmore (Pasmore, Winby, Mohrman, & Vanasse, 2019) continues to regard Kurt Lewine's model as contemporary. However, since change is not static, but rather a constant process of transformation, he would replace the word "unfreeze" with "reorienting," for example. Change is a continuous process and must become a core competence for any leader.

The digitization of a company does not only concern the implementation of an IT department, but initiates the change of the corporate strategy and organizational forms (Plesner, Justesen, & Glerup, 2018).

However, not all employees have the same interest in digitization. Differences between the generations are prevalent here. Change management has to be implemented in a timeline parallel to the project activities. So as to implement the transformation sustainably, the change management process should not end with the respective project, but should go further. (Ulukan, 2020)

### 3. Conclusion

“Human beings are benefitting from and being threatened  
 by technological advances at the same time.” (Pasmore et al., 2019)

The digital transformation is a driving force for change in all industries, including the construction industry – it affects all areas of the value chain. Technologies help to improve processes, and effective change management supports their alterations. The digital transformation of companies and systems is the subject of many articles, but the topic of change management in this context is rarely discussed. In this context, the implementation of IT is not frictionless, the reasons of which often can be found in the way the implementation is dealt with. Statista (leading reasons for software project failure worldwide 2015) shows that 37% of the IT projects failed because of a poor team or organizational management. Recent studies from internet sources show that lack of communication is one of the main reasons for failed IT projects. This articulates the importance of change management.

Early change management models of Kotter and Lewin are still relevant and the basis of today's research projects. Managers must actively face the change and support their employees within the framework of a change process.

During the later stages of the research, it would be productive to provide empirical evidence of the how far developers in digitization lag behind, compared to other industries. This may be due to

the prosperous economic situation in the real estate market or the close links between developers and the construction industry, both of which have a more traditional structure. Furthermore, the obstacles to digitization could be explored and how a change management process can break down barriers.

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