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Individual level impediments to digital transformation

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A structured literature review identifying six resistances to change factors

Preface

This master's thesis marks the completion of our master's degree in business and administration at Oslo Metropolitan University. The specialization in strategy, organization and management has been a very exciting supplement to our professional combination, and contributed with both motivation and practical contributions in meeting future work life.

We have gained valuable knowledge that helps us reflect on challenges we will face, in hope that we can later in our professional life contribute to a better future. The master's program has also given us a chance to research and study digitalization, consequently highlighting the importance of it through digital transformation in organizations. This will make us be able to develop into dynamic employees who are future-oriented. Furthermore, reliable and future-oriented leaders, in regard to an ever-faster pace of change.

We would like to thank our supervisor, Karl Joachim Breunig for sharing his knowledge and experience. His enthusiasm and reinforcing mentoring method have been invaluable in meeting practical challenges throughout this process. We would also like to give our gratitude for the incredibly exciting opportunity he brought us with being part of this project, to write our thesis as a research article. Through this, we have obtained an experience that we otherwise would not have. Thank you for your dedication and guidance.

We submitted research proposals and was accepted to two world renowned conferences, IFKAD (International Forum on Knowledge Asset Dynamics) and ISPIM (The International Society for Professional Innovation Management), and decided to submit the final paper to IFKAD. The final submitted article (see Appendix 1) have been accepted for presentation and will included in this year's IFKAD conference proceedings.

We would also like to express gratitude to our partners, Magnus and Mehtab. They have motivated and supported us throughout the study and guided us through every challenge we have encountered. Finally, a thank you to our family and friends who have shown understanding and given assistance whenever required.

Abstract

Digital transformation has become an important and well-known phenomenon. It creates opportunities through new digital technologies, but it also puts pressure on organizations to change the working environment. As new technologies provide new opportunities, it also creates resistance among individuals within the organization.

We sought to provide a foundation both for future research and for practical implications that would guide organizations and leaders on individual level impediments through the change process with digital transformation. We enlighten this gap, which we analyzed and discussed using a structured literature search conducted in Web of Science. The findings were analyzed using a content analysis and a through literature review. Research related to the digital transformation and change resistance shows an exponentially growing interest among researchers on these concepts. Surprisingly there is very little research that address our research question, resulting in identifying a clear gap. Considering the amount of available research on the two bodies of literature separately, it's particularly concerning that there exists little research on these two concepts jointly, especially on an individual level. A content analysis was conducted to further discuss similarities and discrepancies, before we discussed the findings. Our findings and discussion provided us information of the most important elements for change resistance at an individual level faced during a digital transformation.

Six factors were identified in this study based on a very meticulous literature search through a content analysis of our 20 core articles. The findings indicate a strong focus on management, in the transformation process, and their importance for success. This was surprising, since the articles didn't explicitly focus on the individuals in terms of employees, but rather the managers influence over the employees. Beyond that, the other topics addressed the most were beliefs and mindsets, preparedness and strategy framework, culture, competencies and communication. All of these factors will affect the resistance individuals experience, caused by the change process of digital transformation. This is further discussed in the paper, as well as to how this can assist organizations and practitioners with having a more agile digital transformation.

Keywords: Digital Transformation, Resistance to Change, Digitalization, Change Management, Structured Literature Review

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1. Introduction

Digital transformation is definitely a hot topic for researchers and practitioners alike (Sainger, 2018). A quick search on google scholar with the search text "digital transformation" yields overwhelming searches of over 3.5 million hits. Since 2020, more than 60,000 articles have been published, which indicates an overwhelming interest in the topic. Digital transformations provide new opportunities through digital technologies, but the transformations also put pressure on organizations and leaders to change the organizational structure as well as the working environment in organizations to yield the benefits from the adaptation of these technologies (Frick, Mirbabaie, Stieglitz, & Salomon, 2021). This affects and involve individuals in the organization – however little is empirically documented to enlighten how individuals react to a digital transformation process – this is puzzling since change management however point to resistance to change – accentuating the role of individuals.

According to Ismail (2019) *"It's important to keep in mind that digital transformation is not a single project or change, but an organization-wide restructure that extends to the people, the operations and the technology"*, thus, despite the overwhelming interest many digital transformation endeavors fail. McKinsey (2016) found that 70 percent of organizations going through a digital transformations process fail. This adds to how complex and comprehensive a digital transformation is.

Theories on resistance to change have developed for a long time, and early sources document the Luddites resistance to the technological adaptations of the early industrial age (Brynjolfsson & McAfee, 2016). The body of literature encompassing resistance to change related to technology adaptation amounts to an overwhelming 131,000 contributions. However, to date the relation between resistance to new digital technologies have been less documented. The importance of a specific theory on resistance to digital transformation is important for organizations to establish since this process can be highly challenging and more complex than an ordinary change process. The reasons for this varies between the fact that digital evolution never ends, as well as digital transformation can result in effects that span the whole organization. It impacts both positively and negatively, and what makes it more challenging is that it can be difficult to predict (Smith, 2018).

There is a pressing need to gather up the current published research on these two bodies of literature to provide a stronger foundation for other researchers and practitioners that seek to reduce the amount of digital transformation endeavors that fails. We focus on the individual level, as digital transformation is a restructure of the whole organization that specifically affects the people, since they are the ones that face the changes of the transformation. Improving understanding of potential causes for individual level resistance will improve success in digital transformation processes. Therefore, we explore the following research question: *How can a structured literature review utilizing bibliometric analysis of current published scientific research contribute to identify and reduce individual level impediments to digital transformation?*

To take stock and provide a foundation we will conduct a structured literature review of extant published research to establish a thorough link between digital transformation and the phenomenon of resistance to change. More than half of the employees face anxiety and fear regarding their job security when digital initiatives are introduced (Sandle, 2017), where the reason is often automation causing insecurity on how this will affect their position (Writer, 2017). This affects their moral and impacts the productivity. Insecurity and lack of competencies can be reasons for organizations not having a successful digital transformation (Zoria, 2020).

A bibliometric analysis approach was implied, since there was a substantial amount of research on digital transformation and on change resistance. Based on this, it was anticipated that a lot of research would be found on them jointly as well. However, this was not the case. We therefore ended up changing to a structured literature review to help us find the right articles to cover this research gap.

Through this process we found that digital transformation is more complex than other change processes, it affects all individuals in the organization, both managers and employees. Digital transformation is often met with resistance to change, which we found can come from role ambiguity, fear of lacking experience and motivation, unpreparedness to learn new skills, anxiety about further job stability and the unknown results in change resistance. This resistance to change that individuals experience can be solved with communication, shared thinking and believing in one's own skills and being confident in the digital transformation will help reduce role ambiguity. We found that the main topics addressed in the articles were

management, communication, culture, competencies, beliefs and mindsets, preparedness and strategy framework. The contribution of this paper will be to give a more structured overview of existing literature, as well as to provide a foundation both for further research and for further practice to guide organizations and leaders through the change process with digital transformation.

1.1. Limitations

Through our perspective the research of the past decade is more fragmented than anticipated. There does not appear to be an explicit framework for resistance to change and digital transformation, or other important variables (e.g. management, communication, culture, and mindset, etc.), nor is there identified a set of measurement approaches to create a clear path through all the research.

The goal of the research is to provide a more specific framework for practitioners and organizations, as well as providing a more structured and useful link between research and practice.

Some of the limitations we made were to not take variables such as size of organizations, and differences in industries into account. Another limitation we made is the research method of the 20 identified articles, this was not taken into account, making our core articles more comparable. There are also limitations associated with our structured literature search, as it is not possible to identify and carry out all possible search strings, this could have potentially yielded more findings than the 20 articles we found.

2. Theory

In this part we will firstly present the theory on digital transformation, and then connect this at an individual level. The same will be for resistance to change, where we first present the theory, then the theory of change management is emphasized, and at last it will be connected at an individual level as well. Lastly, we will present the theory gap between digital transformation and resistance to change.

2.1. Digital Transformation

Digital transformation (DT) has no unifying definition. Taking a look at different definitions, Piccinini (2015) defines it as something that involves leveraging digital technologies to enable major business improvements, such as enhancing customer experience or creating new business models. Demirkan (2016) says it is the profound and accelerating transformation of business activities, processes, competencies, and models to fully leverage the changes and opportunities brought by digital technologies and their impact across society in a strategic and prioritized way. Whereas Morakanyane (2017) defines it as an evolutionary process that leverages digital capabilities and technologies to enable business models, operational processes and customer experiences to create value. The definition we found to be best suiting to our study is by Vial (2019) "*a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies*" (p. 121).

Studies show that the terms *digitization, digitalization and digital transformation* often are used interchangeably, and even though they are closely related, there is a slight difference. The taxonomy identifies each of these as part of a step-by-step process (Svadberg, Holand, & Breunig, 2019). Information is digitized, processes and roles that make up the operations of a business are digitalized, and the business and its strategy is digitally transformed. Where each of them is necessary for the others to be in place, but not sufficient by itself to the next in line. Additionally, where digitization and digitalization are all mainly about technology, digital transformation is about people and their adoption to the technology (Bloomberg, 2018). Digital transformation is related to the changes that digital technologies bring in an organization's business model, products, organizational structure and processes. These changes can be observed in both organizational contexts and individual contexts (Gregory, Keil, Muntermann, & Mähring, 2015; Lee, Sambamurthy, Lim, & Wei, 2015). Whereas digitalization is referred to as the pace of change in society driven by digital technological development. This can involve multiple technologies at different stages of maturity that will merge and create new technologies (McAfee, 2009).

Almost all industries have tried to initiate digital transformation in different ways, and also tried to explore new digital technologies. This has often involved transformation of their key business operations, organizational structures, products, processes and more. These types of

complex transformations need strong management practices in order for them to be implemented in the organizations (Abdelaal, Khater, & Zaki, 2019). All organizations may have the same goal to digitally transform their organization, however the way the initiatives are implemented will vary depending on the different variables. These variables can be the organizations size, customer base, and most importantly the industry. For instance, the challenges facing the banking industry will be very different from those faced by the health sector, in connection with digital transformation. Empirical studies supporting this is e.g. by Wakefield (2020) and McKinsey (2018). The healthcare industry has the potential to dramatically improve the quality of patient care and have more humanitarian challenges. Whereas fintech companies such as digital banks, with their competitive rates and ease of use need to offer better alternatives for their clients than competitors. The reasons and needs for DT are different for different industries, also making them face different challenges (Harris, 2020).

Our focus is on digital transformation, which is a complex issue that affects all or many parts of an organization. Leaders and managers have to constantly balance the exploration and exploitation of the organization's resources in order to accomplish organizational agility (Lee, Sambamurthy, Lim, & Wei, 2015).

Organizations have to find ways to innovate with the new and emerging digital technologies, and strategies that embrace the use of digital transformation will have a chance for better driven operational performance (Hess, Matt, Benlian, & Wiesböck, 2016). Changes in strategy and the organization are needed to yield the capability to create new ways for value creation. Within the organization this may be changes in the structure, the processes and the culture (Bharadwaj, 2013; Matt, Hess, & Benlian, 2015). In order for digital transformation to be successful, organizations have to take into consideration all factors that can set back or delay the implementation of the process. By doing this organizations can get positive outcomes (Vial, 2019). Another step in order to fully form digital transformation into the organization's strategy is to completely coordinate, prioritize and implement the integrating of the process (Hess, Matt, Benlian, & Wiesböck, 2016).

Several articles look at the relationship between engagement among individuals and digital transformation. McAfee and Brynjolfsson (2016) emphasize the importance of individuals and write that technological processes will cause some individuals to fall behind, and in some cases many individuals. They emphasize the importance of special abilities and the right education, since this will be decisive for who is able to use the technology to their advantage. They name it the "second machine age" and refer to the luddites and when they were introduced to technology and automation. The luddites felt threatened and a low degree of job security. McAfee (2009) mentions that this fear is relevant to the digital changes which organizations are facing today. And although it is not directly comparable, there are many of the same challenges that individuals face today as the luddites faced before.

In previous research, there has been a lot of focus on why digital transformations fail, and one argument is the lack of skills, competence and experience in regard to digital transformations. This can lead to individuals setting unrealistic goals, underestimating risk, and not allocating enough resources (Angelani, 2020). It is emphasized that in a digital transformation, organizations should have employees with special competence in their field, acquired understanding and being able to solve problems with high complexity (Hernaes, 2020). New skills in analytics, design and technology must be acquired to succeed with digital transformation. New roles that are more diverse and adaptive are also needed (Bughin, Catlin, Hirt, & Willmott, 2018). A study by Dr. Tim Sandle found that 59% of employees were concerned about how automation would affect their job security, and 49% expressed fear of change when digital initiatives are introduced (Sandle, 2017). Employees seem to fear job security, and the most common reason for the underlying fear is automation. Another study shows that 63% of employees feel like new technologies will not help them with keeping their job, and 64% feel insecure about how automation and robots will affect their position. The fears of job security affect employee morale, and consequently impacting the productivity of the organization in a negative way (Writer, 2017). This is also found to be a reason for employees being resistant to change (Zoria, 2020).

Additionally, organizations need employees who are committed and fully support the digital transformation, and that this type of employees can act as change agents who can contribute to optimism and positive thoughts among other employees. Committed employees will also

help to create a culture where innovation occurs naturally during the transformation, and that the culture will be able to bind all employees within the same goal (Winasis, Wildan, & Sutawidjaya, 2020). Kompaso (2010) stated that employees with high commitment will work passionately and provide maximum creativity so that they can ensure the organization good performance. He also says that from the organization's side, it is important that they provide the support and resources that the employees need to undergo the digital transformation. The other types of individuals that are highlighted are leaders, and the importance of them being reliable and having a supportive attitude.

Communication and collaboration are also elements that are highlighted when talking about individuals in connection with digital transformation, (Leonardi, 2007). The importance of teamwork will also be increased in such a transformation, since "knowledge as a resource can only be developed and advanced together", thus these two elements are a prerequisite for digital transformation for individuals (Schwarzmüller, Brosi, Duman, & Welpe, 2018). This is also supported by Moore (1998) who states the importance of managing one's own knowledge, as well as to build new knowledge through employee interaction. He also states that employees would benefit from building knowledge from a team of experts, so untimely this interaction will gain everyone. This will provide individuals with the best training and practices within digital technology and methods. The collaboration can generate new insights that gives the entire organization advantages during transformation.

Previous research has shown that structural changes also affects individuals, and especially when it comes to new job descriptions or changed roles (Schwarzmüller, Brosi, Duman, & Welpe, 2018). Higher requirements are often set for the positions, at the same time increased competence requirements. In this connection, the importance of relationship-oriented leadership is emphasized. High relationship orientation from managers will be important to support employees and help them through challenges related to role uncertainty and new work requirements. Coaching and counseling are resources that managers should offer to address these challenges. These challenges are not limited to employees, but all individuals in the organization, including managers. Increased technology focus leads to a need for IT competence and other technology-oriented competence among managers. Especially when routine tasks are automated, there is a greater need for creativity and problem-solving competence among managers (Schwarzmüller, Brosi, Duman, & Welpe, 2018). Guinan (2019) classifies this type of leaders as digital leaders, they emphasize that leaders must be

promoters of digital competence, and therefore must step out of their technical comfort zones so that they can recognize and support the necessary competence extension. Developing strong digital leaders will involve risk-taking. Managers must dare to take chances and fail, so that they can show employees that it is an important part of idea generation and innovation. The faster leaders learn and change, the more effective the rest of the organization can be at achieving the digital transformation.

The framework for dynamic capabilities has also been utilized important to examine in the context of digital transformation of organizations in traditional industries at both individual levels and at organizational levels. Dynamic capabilities are innovation-based that provide the capacity to create, expand and modify the organization's resource base (Helfat & Peteraf, 2009). The focus on dynamic capabilities is largely linked to digital transformation, but it is suggested at the organizational level. Nevertheless, there is some research that emphasizes the importance of building strong dynamic capabilities to get individuals to implement and transform conception models faster. At the same time, this type of capability is viewed as important to have in order to remain relevant in the emerging digital economy (Achtenhagen, Melin, & Naldi, 2013; Teece D. , 2018).

2.2. Resistance to Change

In the literature *resistance to change* and *change resistance* are used interchangeably, but in reality, they describe different levels. Change resistance is a phenomenon at an organizational level, it occurs within the organization. However, other parts of research have stronger focus on the individual, therefore; resistance to change. Throughout this study we will use both, for a holistic view.

When the effort to transform the organization doesn't succeed an explanation usually is that employees display the strongest resistance to change (Coch & French Jr, 1994; Coch & French Jr, 1994; Coch & French Jr, 1994; Ismail, 2019; Ismail, 2019). Change resistance (CR) is a negative reaction in the form of expressions of resistance, stress, or cynicism regarding the change. It's also common for employees to be holding conflicting emotions and cognitions about the change, and for the attitudes toward change to vary over time, across different stages of change transformation (McKay, Kuntz, & Näswall, 2013). Resistance to change is used frequently in research on organizational change and has several definitions. It ranges from Laumer (2011) that defined it as "forces that counteract changes at work", to

Chawla and Kelloway (2004) that defined it as "an adherence to any attitudes or behaviors that thwart organizational change goals", and Kotter (1995), who finds that "resistance is the obstacle in the organization's structure" (Laumer, 2011). Beer, Eisenstat, & Spector (1990) said that "resistance is a function of the fallacy of programmatic change". These definitions more fully illustrate the different perspectives on the term resistance to change and gives a wider overview on the phenomenon.

Resistance to change is not a new phenomenon, since more than half a century ago researchers found that people naturally prefer to keep to what they know and feel familiar to, rather than to accept the unknown – and therefore to accept innovation (Laumer, 2011). Chawla and Kelloway found through their research that resistance comes in two components – either you reject the need for the change or you are unwilling to support the change (Chawla & Kelloway, 2004). These two components emphasize that humans have it in their nature to resist change. The findings of this research is also supported by Goodyear (1990).

2.2.1. Change Management

Change is constant, especially for the individuals that play a central role in it, and it's therefore hardly surprising that management practice and its academic training are increasingly important regarding these issues. Change management seeks optimal adaptation primarily directed inward, toward the members of the organization undergoing change (Lauer, 2021). Digital transformation brings a radical shift in the norms of the organization and requires change on a larger scale and the active support of employees and managers, and thus of people who have their own needs, ideas, experiences, emotions, characters, etc., and who are also embedded in social structures (Armenakis, Harris, & Mossholder, 1993; Lauer, 2021).

2.2.2. Treatment of the individual level in the change resistance theory

Resistance to change arises from those whose jobs are directly affected (Dent & Goldberg, 1999). McKay, Kuntz and Näswall (2013) found that resistance to change comes from an experience of personal loss, especially when routines are valued and feel safe and familiar for the employees. Change will now impact the individuals' sense of security and trust within the organization and bring feelings of anxiety about further job stability and growth (Erwin, 2009).

Dubrin & Ireland (1993) found that individuals fear changes because of the poor outcomes that might arise. They fear that they might earn less money, be personally inconvenienced, or be required to perform more work. People fear the unknown, and they fear they might fail (Kreitner, 1992; Dubrin & Ireland, 1993). Erwin stated that many employees fear that they will lose their job because of the changes, this is also supported by Griffin (1993) and Kreitner (1992). Erwin also stated that a lot of employees, even at the management level, can lack the experience and motivation to see the urgency and the need for change. They can also be unwilling or unprepared to learn and develop new skills. This can therefore increase the likelihood of resistance, since the need to change is not realized.

Resistance is also much more likely to happen when agreements and trust is broken (Ford, Ford, & D'Amelio, 2008; Kreitner, 1992). Ford therefore stated the importance of relationships between the individuals and communication within the organization (Ford, Ford, & D'Amelio, 2008). Employees that feel their managers don't talk about the needs for change and the potential consequences of it, have more fear and uncertainty, due to lack of information. They are more uncertain of the change process and the intended outcomes of it. This will weigh down the employees and can damage morals and prevent successful implementation (Bateh, Castaneda, & Farah, 2013).

Lines (2005) found that if employees have negative behaviors toward change over a longer period of time there is an increased likelihood of sabotage and boycotting in regard to changes. It's therefore important to strengthen and support individuals going through change to better the likelihood of its success. Research shows that many authors agree that dynamic capabilities are connected to organizational change management (Andreeva & Chaika, 2006). The concept actually indicates that it's difficult to sustain a competitive advantage without responding to and creating change (Teece D. J., 2007), since dynamic capabilities focus on organization's potential to adapt and take advantage of fast-moving environments. The concept's idea is that when the competitive landscape evolves rapidly and unpredictably, an organization can achieve and sustain advantage by regularly adjusting and developing resources and routines (Teece, Pisano, & Shuen, 1997; Prieto & Easterby-Smith, 2006).

Lewin (1995) stated that organizations persist in a steady state until external forces, as new disruptive technologies or stronger competition, pushes them to change. In response to this,

the organization pursues adaptation and change (Quoted in Swanson, Jin, Fawcett, & Fawcett (2017). When this happens, resistance might occur, that pushes back at the change initiative. This resistance, and how it is handled, will determine the outcome of the change initiative and its success (Swanson, Jin, Fawcett, & Fawcett, 2017). Lewin highlights the importance of managers, and that they need to consider the nature of the resisting forces. Resistance might exist anywhere within the organization and can vary in strength and influence (Kotter J. , 1995). Barnett and Carroll (1995) stated that existing routines, procedures and other structural features, in connection to adaptation, keeps individuals from making the changes needed. The longer these structures and behaviors have been in place, the more entrenched and resistant they are to change (Swanson, Jin, Fawcett, & Fawcett, 2017). Resistance will therefore hinder change unless managers take action to change the balance between the drive for change and the resistance against it. If managers and their team have enough commitment to change, then they can influence both the change process and the outcomes of it. It is important that they encourage collaborative change (Swanson, Jin, Fawcett, & Fawcett, 2017).

2.3. Summary of the theoretical discussion

Even though there is an astonishing amount of research on change resistance and digital transformation, there is a need for an improved conceptual link to integrate knowledge from these two fields of research. From the theory and research around digital transformation it is seen that at an individual level a great extent of the focus is on transforming employees and managers to be better equipped for continuous change. A lot of the research is also about how to generate more innovation and an innovation-oriented way of thinking within individuals. In the DT framework there is more or less no research or theory that looks specifically at resistance to change at an individual level.

We see that this is also reflected in the extant research on resistance to change and change management, where the research emphasizes the role of the individual in transforming the organization, however, it is less documented in relation to digital transformation. All research focuses on change in general, not specifically when going through a digital transformation - that a lot of organizations definitely will go through more and more in the years to come. We also see that most of the research found is older, from the early 1990s or late 2000s, and since new and digital technologies, as well as research on it, have been more in vogue the last

decade this creates a gap. We therefore want to study the gap connecting change resistance with the changes of digital transformation, on an individual level.

3. Methodology

3.1. Research design

The following paragraph provides details on how the relevant literature is identified. Given our research question we chose to build a foundation by looking at previous research. To fulfill the objectives of this research, a literature review approach is adopted. We review a collection of relevant literature using the Web of Science (WoS) database. We chose to test our searches in the search engines Web of Science and EBSCO as these have research from fields that are suitable for our purpose and focus mostly on business and technology. These are also compatible with the visualization program VOSviewer which we intend to use. We found that we got more results using WoS, and it gathered research from the technological field as well as the business field. This will give us access to a broader array of relevant research.

We initially chose a bibliometric analysis because we saw that there was a lot of research on the two bodies of literature change resistance and digital transformation. Which is why we assumed that there would be a lot of research around our specific research area. Bibliometric methods have been used to measure scientific progress and is a common research tool for systematic analysis of publications (Kalantari, et al., 2017). Bibliometric analysis can either be descriptive, e.g. Look at how many articles an organization has published, or for evaluation. This for example by using a citation analysis to view how those articles are affected by other research, or different from other research. It can be useful for making comparisons but is best suited in cases where there is a lot of research to take as a starting point. This turned out not to be the case for us. We found that there was limited research that looked at exactly what we are looking for regarding our research and thus managed to identify a gap in the research. Further we chose to proceed with a structured literature search in order to do a literature review (McBurney & Novak, 2002).

A literature review can provide a base of the knowledge connected to the research topic and show where there is a gap in the theory framework that already exists, to further have

arguments for why there is need for future studies. For our research the purpose is to identify discrepancies (Upstate Library , 2021), and the reason we chose a literature review is because there is an identified gap.

3.2. Research sample

Initially we experimented with different structured search term combinations, using the search string "digi* transformation" OR "digitalization" on February 15th, 2021 we got 6152 publications. To further address this research topic, we needed to combine digital transformation and the resistance to change, where we started with examining published academic research. We experimented with different search phrases and combinations, related to the search in topics, to figure out what would give us the most relevant dataset with all relevant articles. The search strings are developed independently, since they look on two different terms, digital transformation and resistance to change. For the search not to exclude possible useful findings, we didn't limit it to a specific field or index. To seek insight into previous research on digital transformation and resistance to change we combined the keywords "digital transformation" and "resistance to change".

The search string was therefore: "digital transformation" OR "digitalization" OR "digitization" OR "digi* transformation" AND "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness" OR "change capacity" OR "Change barriers" OR "resistance" OR "readiness" OR "barriers".

The literature search was carried out in April of 2021 and yielded 427 hits in total. When we only included the results in English and excluded all findings from 2021, we got 365 results. We chose to read the abstract of a selection of articles from the search results of 365 articles, we did this by choosing the categories business and management. This gave us 72 articles. We did this to test whether our search gave us research that was relevant to us, and to investigate how much was at the individual level. We excluded only 2021 from the publishing year, keeping all whole years to retain potential developments in the field. We analyzed these 365 results using VOSviewer to see if we would find research on an individual level. We conducted different co-occurrence analysis, using "all keywords" and "author keywords", choosing these analysis as they were more relevant to the type of research we wanted to conduct. Key words can create clusters that show how different terms

are related and connected to other terms. We first tried to combine the search with the word "individual" which gave us 33 articles. Unfortunately, this gave very few relevant hits, so we chose to try the word "employee". This returned several relevant hits, while it contained many of the relevant articles from the search combined with the word "individual". Through this meticulous process we identified 20 core articles upon which a foundation could be build. Before proceeding with the analysis of the 20 articles, we chose to do a quality check on our search. This by going back to the search process and doing it in reverse order. We therefore chose to combine the subject "individuals" with the subject "change resistance". We downloaded the search results gathered by using the search string "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness" OR "change capacity" OR "change barriers" OR "resistance" OR "contingency" OR "barriers" OR "Change management" AND "employee" OR "internal" OR "personnel" OR "individual *" OR "employee *".

Based on a "hot or not" trend analysis, we chose to look only at the last 5 years of published research, and excluded 2021 to keep it to whole numbers again, and to keep the research consistent with the original search. In addition, we chose to keep published literature in English only. This resulted in 84,878 articles. We further applied our results in VOSviewer to see if there was a link found to digital transformation. By implementing this, we could ensure that relevant articles were not overlooked. Additionally, to investigate whether our search conducted in February and April was giving us a correct picture of the amount of published work within this specific research topic. This determining if our original search was narrow or if our findings receive support.

To really support and examine our findings and validate our research further, we chose to combine the topic change resistance with a related topic to digital transformation. The examined topic was *technology implementation*. We did this primarily to investigate whether there is a lot of research around our study topic that we may not have been able to discover through our previous search strings. Although this is not directly related to digital transformation, this step can help us decide whether we should continue to explore our search to try and find a larger number of published documents, or if we have found enough support to move forward with our original search. This will further help to predict if we should conduct a bibliometric analysis or a structured literature search.

After using the search string "technology implementation" OR "Tech * implementation" OR "tech * transfer" AND "change management" OR "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness" OR "change capacity" OR "change barriers" OR "resistance" OR "emergency" OR "barriers" OR "Change management" OR "management change" AND "employee" OR "internal" OR "personnel" OR "individual *" OR "employ *". We got 117 hits, after refining for English documents and excluding all findings from 2021, for the same reason as before, we received a hit of 107 articles.

3.3. Research analysis

Based on our research, we chose to proceed with a structured literature search. To decide if the articles we found in our structured literature review are relevant or not the 20 articles were read by two of the researchers independently. The articles were identified as relevant and non-relevant. The articles were then analyzed and categorized and became the object of examination for our paper. We also used a coding system in Excel for all articles, and this was implemented to ensure that the same variables in all articles are identified. This will also make the comparison of the articles easier. We also chose to encode all differences among the articles that may be relevant to our study or have an impact on the research findings. Further the results were compared, and discrepancies discussed to attain a higher objectivity in the selection procedure.

4. Findings

The findings presented here will start with a descriptive analysis of our initial search, subsequently we will present the results of our bibliometric analysis, finally we'll end with our content analysis.

4.1. Descriptive Analysis

Research related to the topics digital transformation and change resistance combined in general was published 3 times more in 2020 compared to 2018.
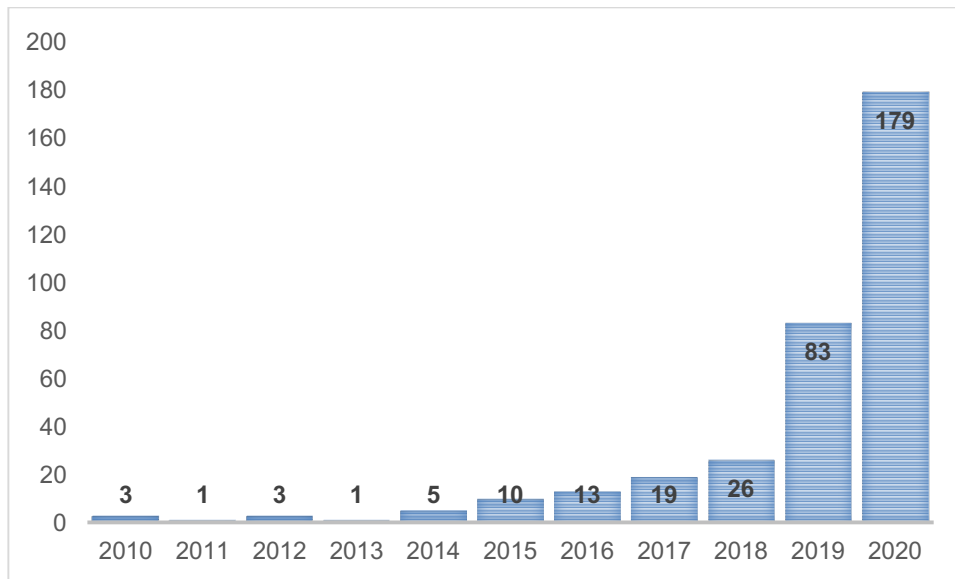
Figure 1: Bar-graph representation of publication years, using our main search results including 365 results

The exponentially growing interest among researchers clearly supports our understanding of the importance of this topic and its relevance in the future. While research on digital transformation is gaining increased attention in the later years, there still exists a research gap. The literature on digital transformation and resistance to change appears complicated and unstructured, and the number of empirical insights are limited. Even though we first thought there was an astonishing amount of publications regarding digital transformation and resistance to change, through our structured search and various analysis we saw that this was not the case.

All the 20 articles studied shows more recently attained focus as they were all published between 2018 and 2020 of which 75% of the articles were published in 2020. This corresponds with the exponential development we saw around the articles for our main search as well, and it shows that there is a growing interest in this field. At the same time, it shows that digital transformation in connection with resistance to change at individual level has not been researched much, but is beginning to receive more attention.

A search with "digi *" returns 515,347 articles, of which only 20 articles are written around the topic we have chosen to address. This means that only 0.0039% of all articles are published within what we have chosen to examine. Talking in consideration that individuals and employees make the organization, it is a highly relevant aspect of the digital transformation process, the lack of publications about this indicate that research still remains in its incipient stage.

4.2. Bibliometric Analysis

By carrying out a analysis in VOSviewer using the result from our first search with 365 hits using the search string: "digital transformation" OR "digitalization" OR "digitization" OR "digi * transformation" AND "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness" OR "change capacity" OR "Change barriers" OR "resistance" OR "readiness" OR "barriers" we got this diagram:
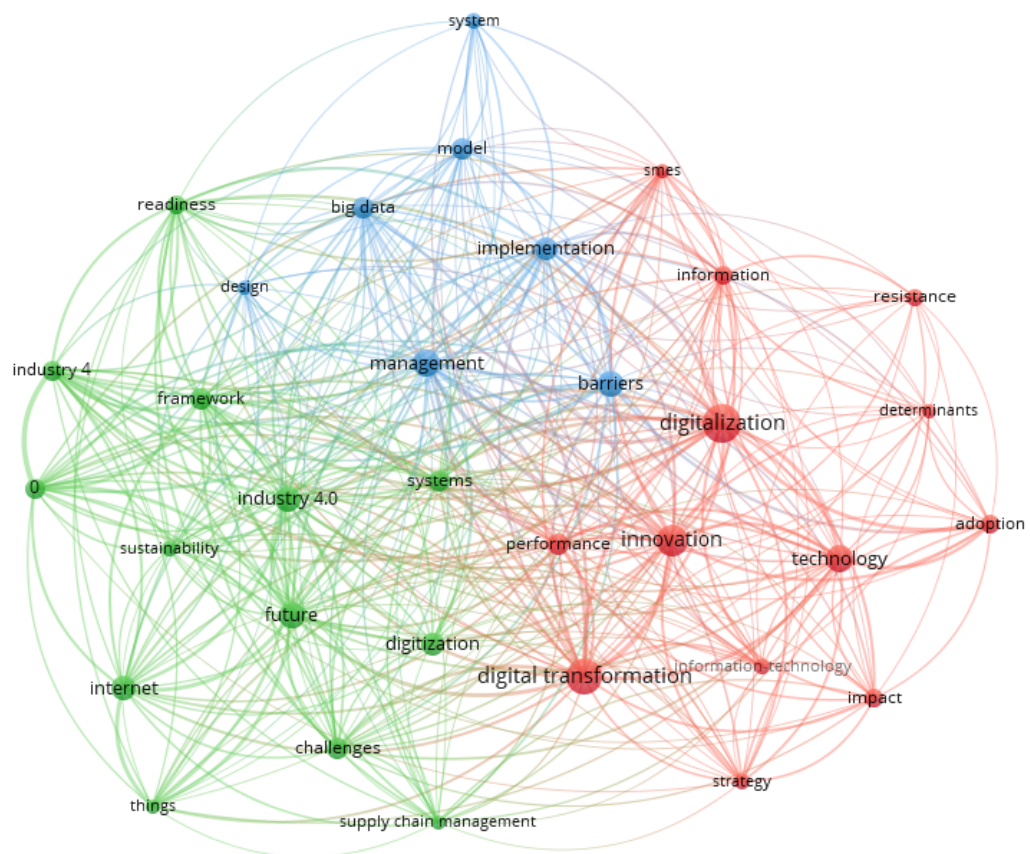

Figure 2: Showing bibliometric analysis conducted in VOSviewer using Co-occurrence analysis with all keywords (10 occurrences)

We see three clear clusters, the green cluster focusing on the industry 4.0 and the digital aspects. The blue clusters main focus was management, implementation and barriers. The red cluster focuses more on the strategic view, the innovation, adoption and impact. This cluster does also include both digital transformation and resistance, but when looking closer at the cluster we tried to extract some information from this cluster but did not find anything useful for our research. Two of the clusters include relevant keywords, blue and red cluster, but still

does not give us an indication as to how these terms are related or the individual aspect. We therefore tried to do a co-occurrence analysis with author keywords.
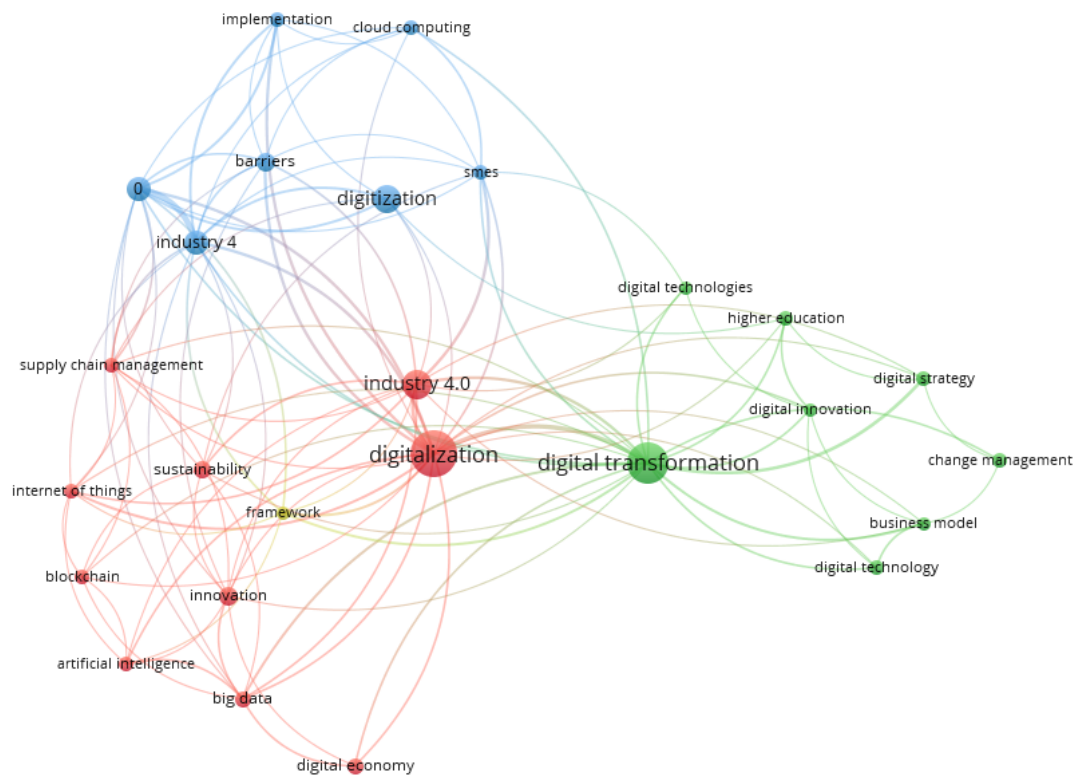

Figure 3: Showing bibliometric analysis conducted in VOSviewer using Co-occurrence analysis with author keywords (5 occurrences)

To our disappointment, we did not get anything usable here after analyzing the chart either. We hoped to find a cluster that could show us more about the connection between digital transformation and resistance to change at the individual level, but there were almost no keywords related with resistance to change in any of the clusters. The only keyword we found was "barriers" in the blue cluster, but nothing indicated if this was general barriers towards digital transformation or at an individual level. The other two clusters show a clear technological focus rather than a change management perspective.

From analysis of the results, using search string: "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness" OR "change capacity" OR "change barriers" OR "resistance" OR "contingency" OR "barriers" OR "Change management" AND "employee" OR "internal" OR "personnel" OR "individual *" OR "employee *", in VOSviewer we discovered a weak link between the topics. This indicates that there is

research on this intersection, but minimal. In total only 1.44% of the research was in the field of digital *, and furthermore it was unspecified for industry, and thus included many irrelevant articles for our research. Hence another argument for it being a topic which has received little attention.
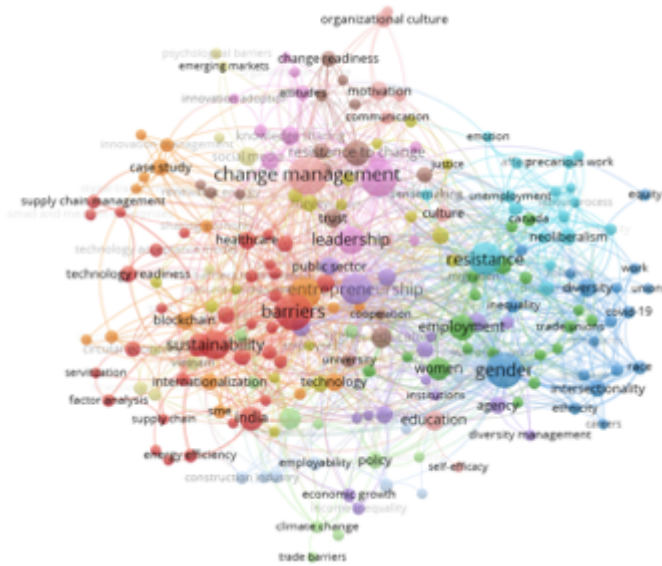

Figure 4: Showing bibliometric analysis conducted in VOSviewer using Co-occurrence analysis with author keywords (15 occurrences)
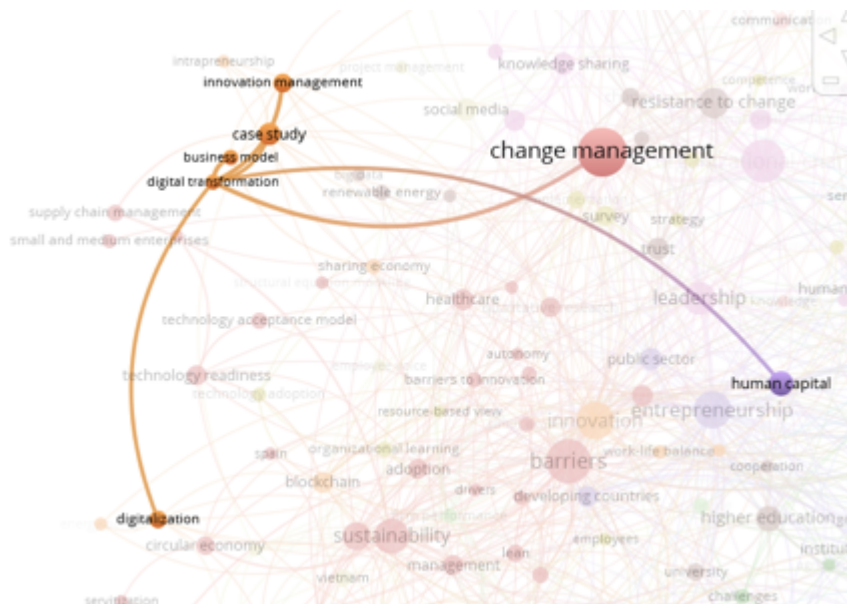

Figure 5: Showing close up of figure 4, a cluster in connection with digi*, bibliometric analysis conducted in VOSviewer using Co-occurrence analysis with author keywords (15 occurrences)

The next examination of our research using the search string: "technology implementation" OR "Tech * implementation" OR "tech * transfer" AND "change management" OR "change resistance" OR "resistance to change" OR "cognitive inertia" OR "change readiness "OR" change capacity "OR" change barriers "OR" resistance "OR" emergency "OR" barriers "OR" Change management "OR" management change AND "employee "OR" internal "OR" personnel "OR" individual * "OR" employ * " concluded in 107 results. The results of 107 articles is a broader finding than the 20 we got earlier, but after reading through the abstract on all the articles swiftly we found that there were many irrelevant articles, and thus cannot be compared directly with our initial findings. Admittedly, 107 articles are not overwhelming, it is a bit small in relation to how much has been written about technology implementation or change resistance separately. This analysis shows literature at the individual level, and if we look at the diagram from VOSviewer we see that the concept of change management belongs to one cluster, while digital transformation belongs to another cluster. This further helps to express how weak the link between these two fields is. To investigate further about this search, we chose to analyze the results in VOSviewer using a keyword analysis co-occurrence analysis with the focal point author keywords, we obtained this figure:

Figure 6:   Showing bibliometric analysis conducted in VOSviewer using Co-occurrence analysis with author keywords (15 occurrences)

This shows a clear comparison between topics, but at the same time digital * does not show up as a keyword here. Another finding that supports the notes from earlier is the placement of the concepts in their respective clusters, the fact that they are not in the same cluster indicates that there is little research that combines both terms at the individual level. The analysis

additionally supports our finding that there is little research in the exact field we want to study.

After the classification assessment, 17 articles got identified as fitting to our purpose. Then the process of sorting the articles and extraction of relevant information began, where one more paper was excluded due to language barrier, since half was written in English and half in German. The final amount of papers we decided to analyze further and discuss were 16.

4.3 Content Analysis

All the 20 documents we analyzed in the content analysis were articles. Furthermore, 8 were of quantitative research, 8 of qualitative research, 1 evolution based / secondary data, 1 single case study, 1 typology and 1 methodological approach.
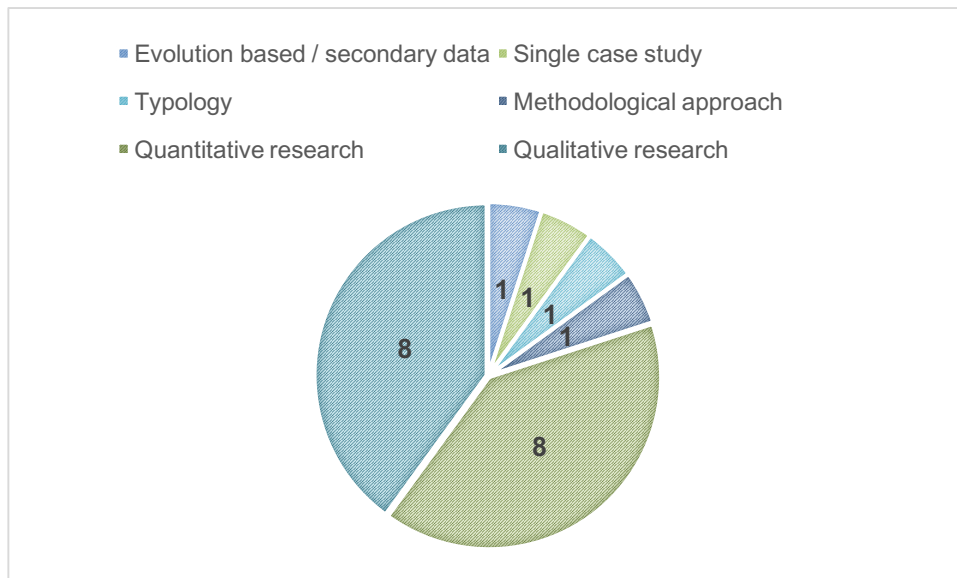
Figure 7: Pie chart presenting research methods for the 20 articles analyzed in the content analysis

Within these, 60% of the articles were in the research area *business economics*.

Through the content analysis we found 4 articles to be irrelevant to our research question. Of the 16 relevant articles, 9 of the articles used the term "digital transformation", 5 of the article's "digitalization", 1 article "digital innovations" and 1 article "digital strategy". After analyzing the use of these terms, it was clear that "digital transformation" and "digitalization" are used interchangeably, which is reinforced by the findings we have in the theoretical framework.

References	Article name	Digi*	Change resistance*	Level	Research gap
(Gfrerer, 2020)	Ready or Not: Managers' and Employees' Different Perceptions of Digital Readiness	Digital transformation	Digital readiness	Individual level	Digital readiness on an individual and organizational level is a strategic key element for corporates' future success and a primary leadership task.
(Trivedi, 2020)	HR: Digital transformation	Digital transformation	Barriers/Challenges/Resistance to change	Individual: leaders and employees	
(Schneider, 2020)	Employees' Perspectives on Digitalization-Induced Change: Exploring Frames of Industry 4.0	Digital transformation	Change management/resistance to change	Individual: employee	
(El-Haddadeh, 2019)	Digital Innovation Dynamics Influence on Organizational Adoption: The Case of Cloud Computing Services	Digital innovations	Barriers/Resistance to change	Individual: managers	SMEs must be capable of adopting and adapting such innovative technologies by continuously upgrading themselves and staying ahead of change by learning and re-learning. These efforts should focus not only at a senior level and middle management but also at an operational level amongst employees.
(Solberg, 2020)	Digital Mindsets: Recognizing and Leveraging Individual Beliefs for Digital Transformation	Digital transformation	Change resistance	Individual: employee	The majority of research available on the topic is founded on traditional, top-down models emphasizing employees' technology acceptance and adoption based on their beliefs about technological attributes (e.g., ease of use, usefulness). Less research has addressed

					why and how employees voluntarily and actively engage in the digital transformation process, with its characteristic ambiguity that makes assessing technological attributes difficult, or conversely, why and how employees may actively avoid or withdraw from this process.
(Črešnar, 2020)	Speeding Up the Implementation of Industry 4.0 with Management Tools: Empirical Investigations in Manufacturing Organizations	Digitalization	Readiness	Individual: Employee	With regards to planning for Industry 4.0, organizations usually do not focus on individual areas, or, it may indicate that these factors are more important than the rest.
(Blštáková, 2020)	Reflection of Digitalization on Business Values: The Results of Examining Values of People Management in a Digital Age	Digitalization	Readiness	Individual	The individual feeling of satisfaction is more important now than ever before. Therefore, we constantly re-evaluate and look for roads to sustainability through the perfection of production. Research is dedicating efforts to the development of business models and systems, network integration and digital process solutions and equipment, therefore increasing research related to human factors and product-service offerings that will bring a valid contribution to industry 4.0 [64]. We have recognized the value of evolution as the gap in research of managing people in the

					digital era, which, due to the focus on business sustainability, needs to be examined.
(Nasution, 2020)	Digital mastery in Indonesia: the organization and individual contrast	Digital transformation	Barriers	Individual	A lot of companies reported that they have reached the Digital Master at the organization level, but not at the individual level. companies who do not possess organizational-centric actions when delivering their digital transformation activities are not able to recognize the importance of encouraging a digital culture, do not have a clear understanding of the important factors in the delivery and are too much focused on the technology than the organization in delivering the change.
(Meske, 2020)	Bridging formal barriers in digital work environments – Investigating technology-enabled interactions across organizational hierarchies	Digital transformation	Barriers	Departments: employee	Digital transformations are initially embarked from shifting in mindset, leading to the efforts to achieve a certain level of digital mastery, that does not only happen at the organization level but also, most importantly, at the employee (individual) level.
(Peter, Kraft, & Lindeque, 2020)	Strategic action fields of digital transformation: An exploration of the strategic action fields of Swiss SMEs and large enterprises	Digital transformation	Change management	Individual level and organizational level	Unfortunately, research insights and practical guidance for businesses in the field of DT are still limited. Although digital frameworks and models have been developed in recent years, the procedures

					and methods that support the frameworks and models have been only vaguely documented.
(Bagration i & Thurner, 2020)	Using the future time perspective to analyze resistance to, and readiness for, change	Digitalization	Resistance to change	Individual level	Our presented method fills a long-standing gap as more employee-focused insights are in great demand by change agents who look for information on potential difficulties throughout the change process.

This paper should also function as an invitation for further research in this field. To our knowledge no previously published papers have linked the concept of FTP with the topic of readiness to change and employee resistance. Introducing a reliable toolset that is suitable for application at a company level is a matter of urgency, as change will happen more frequently, and, consequently, the environment in which firms' function is likely to destabilize further. |
| (Christ-Brendemü hl & Schaarsch midt, 2019) | Frontline backlash: service employees' deviance from digital processes | Digitalization | Resistance to change | Individual level | Based on the findings of this study, it is critical that managers assess whether and why their employees perceive role ambiguity – as one form of role stress – because of the usage of digital technologies at work. |
| (Tekic & Koroteev, 2019) | From disruptively digital to proudly analog: A holistic | Digital Transformation | Employees' inertia, | Individual level | Too many diverse perspectives on digital transformation create |

| | | | Transformat ional change | | problems understanding and evaluating strategic choices and their consequences on performance.

The outcome is increased variability and diversity of topics covered, constructs used, and relationships between them. This translates into unclear and blurry understanding of the whole of digital transformation. The result is high uncertainty in decision making, sometimes preventing successful identification and analysis of strategic options in digital transformation, their comparison, and evaluation of their consequences. |
|---|---|---|---|---|---|
| (Horváth & Szabó, 2019) | Driving forces and barriers of Industry 4.0: Do multinational and small and medium-sized companies have equal opportunities? | Digital strategy | Barriers, Organizatio nal change | Organizati onal level | There are very few empirical studies on Industry 4.0, and the research sample in these papers is usually small. Studies on the driving forces and barriers of Industry 4.0 often focus only on one factor, and several studies are limited to the technological side. However, Industry 4.0 is much more complex. This study therefore aimed to understand the whole phenomenon, and analyzed business, management and technological issues. |

(Birkel, Veile, Müller, Hartmann, & Voigt, 2019)	Development of a Risk Framework for Industry 4.0 in the Context of Sustainability for Established Manufacturers	Digitalization	Resistance to change	Organizational level and individual level	Conclusively, the paper discusses the framework with the extant literature, proposes managerial and theoretical implications, and suggests avenues for future research. In sum, there is still a research gap in the area of Industry 4.0-related risks, as there has been no holistic framework that gives an overview of the possible risk dimensions of Industry 4.0. However, a holistic approach that provides an overview is essential for research and practice.
(Hirte, 2018)	The Role of Middle Managers in the Implementation of a Corporate Incubator: A Case Study in the Automotive Sector	Digital transformation	Resistance to change, barriers, organizational change	Individual level	To date, no explicit research on middle management in the field of corporate incubation has been conducted, which indicates a significant gap.

Table 1: Shows the different taxonomy used in the articles, and quotes from the articles supporting the identified research gap

After conducting a content analysis, we found that there were some topics that identified a pattern. The topic that all articles addressed was related to management. Beyond that 11 about preparedness and strategy framework, 8 articles talked about beliefs and mindsets, 7 about culture, 6 about communication and 5 about competencies. Other topics that were addressed by more than one article were cognitive frames, SMACI, HR, and business models. We have decided to further discuss the topics that were addressed by more than 5 articles to get a better basis for comparison, and for there to be enough perspectives around in order for thorough reflection and discussion.

Through our content analysis, of the articles presented above, a pattern of factors was identified. These were factors that specifically related individuals with organizational level. Below is a table that shows an overview of which factors are addressed in the various articles.

The factors presented was addressed by a minimum of five articles, all other factors addressed by less are left out since they do not provide enough basis for comparison.

Article	Management	Communication	Culture	Competencies	Beliefs and mindsets	Preparedness and strategy framework
Ready or Not: Managers' and Employees' Different Perceptions of Digital Readiness	X	X	X	X		X
HR: Digital transformation	X				X	
Employees' Perspectives on Digitalization-Induced Change: Exploring Frames of Industry 4.0	X	X			X	
Digital Innovation Dynamics Influence on Organizational Adoption: The Case of Cloud Computing Services	X		X	X		X
Digital Mindsets: Recognizing and Leveraging Individual Beliefs for Digital Transformation	X				X	X
Speeding Up the Implementation of Industry 4.0 with Management Tools: Empirical Investigations in Manufacturing Organizations	X		X			X
Reflection of Digitalization on Business Values: The Results of Examining Values of People Management in a Digital Age	X				X	X
Digital mastery in Indonesia: the organization and individual contrast	X		X	X	X	
Bridging formal barriers in digital work environments – Investigating technology-enabled interactions across organizational hierarchies	X	X			X	X
Strategic action fields of digital transformation: An exploration of the strategic action fields of Swiss SMEs and large enterprises	X			X		X
Using the future time perspective to analyze resistance to, and readiness for, change	X	X	X		X	X
Frontline backlash: service employees' deviance from digital processes	X				X	X
From disruptively digital to proudly analog: A holistic typology of digital transformation strategies	X					X
Driving forces and barriers of Industry 4.0: Do multinational and small and medium-sized companies have equal opportunities?	X		X			
	X	X	X	X		

Development of a Risk Framework for Industry 4.0 in the Context of Sustainability for Established Manufacturers						
The Role of Middle Managers in the Implementation of a Corporate Incubator: A Case Study in the Automotive Sector	X	X				X

Table 2: Overview of the factors that are addressed in the various articles

5. Discussion

In this section we will discuss the findings against existing theory on both digital transformation and resistance to change. First, we will discuss issues identified through our analysis relating management, the challenges with management and then the importance of management to the digital transformation process. After that communication will be presented, followed by culture, competencies, beliefs and mindsets and preparedness and strategy framework.

Research suggests that resistance often occur since change does not come naturally to people (Tekic & Koroteev, 2019). Tekic and Koroteev stated *"Change is not a natural state for humans or companies; it is risky, painful, time-consuming, and expensive"*. Change is therefore something a lot of individuals would rather not undergo, and explains why both employees and managers often show resistance toward new technologies (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). This is also in line with what found in the theory, by Chawla and Kelloway (2004).

For a successful transformation it will depend upon how organizations manage the process and how they implement the new technologies. Organizations with the most digital transformations have experienced remarkable growth both in their productivity and in their profit margins (Nasution, 2020).

When talking about individuals and their role in a digital transformation, it is difficult not to talk about the organization. Individuals make up and influence the organizations, but organizational factors also affect individuals. Thus, many of the topics that are to be discussed further can be perceived at both individual level and at organizational level. Giddens (2017) sees structure as something that does not exist outside the individual, but only patterns of practice. When practice changes, the structure changes and vice versa. We

will discuss many factors, which are usually seen as organizational, at the individual level (Gibbs, 2017).

5.1. Management

According to our content analysis we found that managers play an essential role in the digital transformation of an organization (Nasution, 2020; Bagrationi & Thurner, 2020), because they act as role models for digital readiness among the employees (Gfrerer, 2020). Quinn (1985) stated that managers are a strong value and of high importance in regard to the innovative process of organizations. They possess a strong understanding of the organization and have a lot of expertise, and can therefore influence systems, processes and the employees. Managers attitude and initiative impact and encourage change by allowing their employees to take risks (Hirte, 2018). We see that this also matches what we found in all of the theory parts, that also highlights the importance of management. However, the fact that managers are encouraging readiness is not mentioned in the research to theory.

Managers have the ability to influence their employees and therefore have a lot of power for the change process to succeed. However, it is also important to remember that managers themselves are also individuals. The change process will also affect them and that they, like their employees, also can have resistance towards change (Birkel, Veile, Müller, Hartmann, & Voigt, 2019; Peter, Kraft, & Lindeque, 2020).

5.1.1. Challenges with Management

When going through the change that a digital transformation brings, the effect of resistance in management can be even more crucial than the effect of resistance in their employees. Managers are the leaders of change and will eventually transfer their attitude to their team (Hirte, 2018). They can therefore hinder implementation of new technology and be a barrier towards the success of digital transformation (Birkel, Veile, Müller, Hartmann, & Voigt, 2019).

Research has shown that a strong reason for why organizations struggle to succeed with digital transformations is because their managers or leaders were not encouraging enough to their employees (Trivedi, 2020). Managers often adopt the concept of digital transformation, but does not always support it wholeheartedly. Reasons for this might vary, but often center

around not feeling the intense pressure to change (Tekic & Koroteev, 2019), fear of the unknown (Horváth & Szabó, 2019), as well as not having enough knowledge about it (Hirte, 2018). This also supports our findings in both the DT and CR theory. In the CR theory Erwin (2009) stated that managers can lack the experience and motivation to see the urgency and the need for change. This type of Inadequate management are likely obstacles when going through a transformation process (Horváth & Szabó, 2019).

Longer employment with the organization can also affect management negatively, since they might already have gone through several transformation initiatives before, and then this often leads to an overestimated feeling of security (Hirte, 2018). As also highlighted by Kotter (2012) this attitude is often found in large corporations, where employees and managers rely on past successes and high availability of resources. They then tend to underestimate the sense of urgency of digital transformation (Hirte, 2018), and are more reluctant to change and show more resistance. The need for change is not perceived since they believe what they have done for many years will continue to benefit the organization. (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). The theory on resistance to change states that people are more resistant when structures and routines have been in place for a longer time, and the theory mentions that managers can be unwilling or unprepared to learn and develop new skills. We see that the theory supports our finding, that longer employment could affect managers' sense of urgency in regard to digital transformation, but it's not stated explicitly, which makes this a very interesting find.

5.1.2. The Importance of Management to the Digital transformation process

As seen, management can definitely affect how employees perceive change, and can affect it negatively. So, one question might be; why not just get rid of the old management when going through a major change process like a digital transformation? This would not be advisable since managers influence digital readiness in employees (Gfrerer, 2020). Digital transformation brings a lot of changes that can lead to role ambiguity and stress, causing resistance in employees if not handled right by the managers (Christ-Brendemühl & Schaarschmidt, 2019). According to (Hirte, 2018) managers refer to challenges with digital transformation as the employee's willingness to adapt to new work environments. It's therefore important that managers support their employees through the changes, and to best support them they also need to be aware of their influence over them (Birkel, Veile, Müller,

Hartmann, & Voigt, 2019). Management support and influence is also highlighted in the theory part, where it's stated that managers can change the balance between the drive for change and the resistance against it through enough commitment. Managers are recommended to coach and counsel to help through challenges and uncertainty regarding work requirements for employees. Greater need for creativity and problem solving is also mentioned.

The requirements for employees are changing, as well as the need for new expertise (Birkel, Veile, Müller, Hartmann, & Voigt, 2019), these changes bring on new fears in the employees. They might be afraid of losing their jobs with the increasing digitalization and not having the appropriate skills to handle new technologies (Horváth & Szabó, 2019; Birkel, Veile, Müller, Hartmann, & Voigt, 2019). This supports what we found in the theory part, where we stated the findings from McKay, Kuntz and Näswall, that resistance comes from an experience of personal loss, especially in connection to safe and familiar routines. Changes will therefore impact the individual's sense of security and trust (Christ-Brendemühl & Schaarschmidt, 2019). If organizations then were to fire the role models the employees have in the management, it would strengthen the fear of losing their jobs. This would not benefit the change process, which is also supported by (Trivedi, 2020). This article expresses, what we also found in the theory, that it is critical for the management to identify the additional opportunities offered by new technology and encourage and motivate new technology. Additionally, the changes that come with it (Trivedi, 2020). Managers need to improve their engagement across all organization members (Nasution, 2020), and assess their own beliefs about the changes they are leading. They need to be aware that they shape the messages sent out to employees about new technologies (Solberg, 2020), as well as to get closer to employees' beliefs, and use their influence to encourage readiness. Knowing employees' perceptions and addressing their readiness becomes even more important for managers in a world where new digital technologies are used more frequently (Gfrerer, 2020).

To influence the employees in a proactive way the managers need to change with the changes the organization goes through (Hirte, 2018; Solberg, 2020). They need to have the necessary skills, experiences and knowledge to control and support in implementing the changes of a digital transformation (Horváth & Szabó, 2019; Birkel, Veile, Müller, Hartmann, & Voigt, 2019). In the theory on digital transformation we found that managers need new knowledge and skills to change, but we found nothing explicit on the matter in regard to employees. In

the DT framework employees were mostly mentioned as an asset, not as something that needed to transform as well, it was more focus on transforming the organization rather than the individuals. The change process will affect all individuals in the organization, it's therefore important that individuals, both managers and employees, assess new knowledge and skills.

Managers should also take advantage of their employees who possess knowledge within new digital technology and motivate other employees to join in transforming the organization (Nasution, 2020). As seen in the theory on DT managers should be digital leaders, but the theory says nothing about using the knowledge of the employees. We therefore find some similarities as well as variations. They might need to appoint an additional board member with main responsibility of the digital transformation and the changes, as well as reinforced job-rotation for managers for more holistic experience and view of the whole organization. To reduce resistance; hierarchy should be dismissed, since employees need freer communication and increased responsibility to feel adequate (Hirte, 2018). The content analysis here highlights some important findings that we did not find in the theory. We knew from the theory that managers were an important influence on the employees, but our research mentions the changes the management needs to do. Appointing an additional board member, reinforcing job-rotation and to lose hierarchy, as well as, to take advantage of their employees who possess knowledge within new digital technology.

5.2. Communication

Resistance is connected to shortcomings in the interactions between individuals and the firm (Bagrationi & Thurner, 2020), and internal resistance will be a result of unclear or dishonest communication from management to employees (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). Communication is also useful to measure and to improve the understanding of organizational readiness (Gfrerer, 2020). Good communication inside the organization should to be established, especially from the management. This is also supported in the theory on digital transformation and in the theory of change resistance, but the theory did not find that communication could be useful to measure and to improve the understanding of organizational readiness.

Research to the theory stated that relationships between individuals, employees and managers, are important for communication. Further that resistance is much more likely to occur when agreements and trust is broken, as well as lack of good communication leading to more fear and uncertainty (Bagrationi & Thurner, 2020; Christ-Brendemühl & Schaarschmidt, 2019). Research also suggests, that the potential advantages of a new technology cannot be communicated top down, but rather have to be introduced one-to-one on an individual basis (Meske, 2020). Through our content analysis we have also found, through Bagrationi and Thurners (2020) research, that openness was a strong value among the employees, as well as being heard, valued and included. They also found that individuals that communicated with other individuals often had a more positive attitude towards organizational change. Employees should participate actively in the change management process, to point out weaknesses and have an impact on what processes are necessary and important from their point of view (Hirte, 2018; Bagrationi & Thurner, 2020). This is not highlighted in the theory. By actively empowering and involving their employees in digital transformation projects management creates a culture of engagement and ensures necessary organizational capabilities (Gfrerer, 2020).

Managers need to explain why new technology is beneficial and how changes will lead to work simplifications (Schneider, 2020). Installing online communications blogs where employees can pose direct questions and suggestions to the management team could be useful and improving the understanding of organizational readiness (Gfrerer, 2020). The most crucial step for managers is to communicate decisions of symbolic importance that emphasize the organization's roots and preserve employees' identities, thereby addressing employees' emotions and feelings (Schneider, 2020). This is also supported by the theory on change resistance.

While actively interacting with the employees the management will eventually also reduce the fear employees might have of losing their jobs. Since they establish a feeling of security in the interacting culture, the changes will not be seen as occurring to rapidly (Hirte, 2018). Fear and security is discussed a lot in the theory, the difference here is that the focus within the CR theory lies on how to establish stability during change processes like a digital transformation, and DT theory focuses more on the need for continuous change. There exists a gap between these two, and our findings address this particular gap. It focuses both on the stability aspect as well as the need for continuous change, and how the fear and need for

stability creates resistance to change for individuals during a digital transformation. Birkel and Voigt (2019) found that if the employees were not welcomed in the change process, and some of the top managers handled the process alone, these employees reported they felt replaceable and not valued as individuals. Therefore, not including them in the process will only strengthen the fear of being replaced. Good communication within the organization is vital. In the theoretical framework relation-oriented leadership is mentioned as helpful, but the importance of employee participation is not highlighted.

5.3. Culture

With new technology it's also important that the organization has a strong culture that supports change (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). Since the organizational culture is so rooted in the daily practices it can hinder employees from innovating and using new digital technologies effectively, as well as it can make implementation even harder. This is because the culture can prevent the free flow of information across departments, and it can therefore become a significant barrier to form collaboration and creativity among employees in transformation. Kane et al. (2015) also supported this view of organizational culture (Nasution, 2020). It's therefore crucial that managers work on organizational capabilities to overcome cultural barriers in the beginning of the transformation process, as the corporate culture often needs adjusting to accelerate their innovation activities and encourage innovativeness (Gfrerer, 2020). This is not found in the theory.

Research from Horváth and Szabó (2019) emphasize the important role of organizational culture, since the culture plays a huge part in how employees perceive and accept change and how successful the transformation is. An inadequate corporate culture contributes to a rise of additional risks in a transformation process (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). This is also supported in the DT theory, where we found that committed employees will help to create a culture where innovation occurs naturally during the transformation, and that the culture will be able to bind all employees within the same goal (Winasis, Wildan, & Sutawidjaya, 2020).

A culture that constructively analyses and does not conceal errors should be developed within the organization to encourage employees to try something new, even if they might fail. If

failure is viewed as wrong, then employees will be too afraid to contribute and adapt to what's new. This also supports our findings in theory. New technology cannot be implemented without trying something and possibly failing. It's important to have an open innovation culture and reaction speed (Gfrerer, 2020). Special innovation formats like design thinking workshops or innovation sprints might also be useful to strengthen an appropriate innovation and digital culture, as would easy access to experimental funding (Gfrerer, 2020; Peter, Kraft, & Lindeque, 2020). The risk for an organization to be paralyzed and miss important developments, due to a lack of courage and an open culture to do something new, would be vital (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). The theory on DT mentions the importance of an innovative culture but does not come with examples on how to achieve this.

5.4. Competencies

Competencies and capabilities are terms that often are used interchangeably (Hadziomerovic, 2017). Different studies show that these terms often talk about the same and are used to cover the same purpose (Arend & Bromiley, 2009; Barreto, 2010), as they both focuses on knowledge and skills within the individual (Hirt, 2020) and therefore their competencies. We saw through our research that the term *dynamic capabilities* were most frequently used. Some of the articles also used the terms *capabilities, innovative capabilities* and *digital capabilities*, as well as some of them focused on *knowledge and competencies* within their organization. Since these terms are used interchangeably, we will use the term the articles mentions.

Dynamic capabilities allow organizations to create, extend and modify their resource base to gain competitive advantages, and are essential for organizations to integrate and take advantage of the digital technologies (Peter, Kraft, & Lindeque, 2020). Warner and Wäger (2019) emphasize the need for organizations to develop dynamic capabilities for digital transformation, and Vial (2019) identifies the contribution of these dynamic capabilities. Vial also states that the development of dynamic capabilities as two key streams of future digital transformation research *quoted from* (Peter, Kraft, & Lindeque, 2020).

Dynamic capabilities are especially important to establish within the organization early on, since the change from digital transformation gives new demands on employees and additional

tasks at work that can lead to overload and strain. This is not stated explicitly in the theory. As mentioned earlier, new competencies are required for employees, and especially in the field of information and communication technology. Usage of these new systems and technical components will place additional demands on employees and some employees will receive more responsibility. This will increase the pressure to learn and change even more and is perceived as a heavy burden, and could result in the feeling of being overtaxed and overloaded in their job (Birkel, Veile, Müller, Hartmann, & Voigt, 2019). It's therefore important to invest in an environment that will appreciate the adoption and use of new technology. Since this environment will promote organizational innovativeness, that is equipped with the right capabilities while carefully realizing the risks and associated barriers in order to facilitate the adoption process for innovative technologies. Research shows that immediate adoption of innovative technologies can enhance performance and facilitate innovation. The results of the study by El-Haddadeh (2019) reveals how innovative capabilities and organizational innovativeness plays a significant role for new technologies (El-Haddadeh, 2019). These findings are additional to what we found in the theory, these findings dig deeper into the individual perspective, and very little theory focuses on dynamic capabilities as a resource or tool for employees. However, the theory states that dynamic capabilities are of importance to managers. Neither does the theory say anything about the repercussions of an innovative environment, and its effect on internal innovativeness.

Organizations need employees with digital capabilities, and Nasution (2020) found that you can either bring in new important competencies to the workplace or you can also create a workforce with digital fluency, where they would be able to build their interpersonal skill for collaborating in ways that provide significance for organizations. This is in line with the study of Colbert et al. (2016) in evaluating the influence of the digital workforce in a workplace (Nasution, 2020). This is partly found in the theory, the importance of bringing in new important competencies in the form of experts and digital leaders. Whereas creating a workforce with digital fluency is more discussed in the DT theory framework and therefore supporting our research. The aspects of particularly dynamic capabilities are more organization oriented in theory, whereas our findings look at it from an individual level as well. Strong leadership will promote dynamic capabilities and are important components of the digital transformation processes to increase the performance of businesses in the digital age (Peter, Kraft, & Lindeque, 2020). With focus on creating a strong workforce the

organization will be able to strengthen the competence they already have in a lot of their employees. With this workforce that has digital fluency, the employees will have a strong combination of skills, knowledge and resources to invest in a strong digital future. It's important for organizations to have the ability to utilize digital technology and to gain full usage from new capabilities (Nasution, 2020). Both theories on DT and CR state the importance of new competence.

5.5. Beliefs and Mindsets

According to our content analysis, we found that resistance to change is rewritten in several articles in connection with beliefs and mindsets regarding the digital transformation. Bagrationi and Thurner (2020) states that the beliefs and mindsets the employees hold towards organizational change affects how successful the change processes is. The importance of changing the general mindset it to a "digital" mindset and not holding on to your old one is highlighted (Solberg, 2020; Trivedi, 2020; Tekic & Koroteev, 2019). A digital mindset will make employees believe in their personal abilities, and the degree of their digital mindset is determined by the degree to which they look at new technologies to provide opportunities for personal growth and resources for personal growth. In addition, a high degree of complexity and being ambitious will strengthen the digital mindset. This is also mentioned in the theory where it's highlighted that the type of employees' organizations should have are those who look at new technologies with optimism and fully support the digital transformation. The main difference here is that our findings from our literature review focuses on transforming the general mindset of the current employees, rather than seeking for employees with existing digital mindset. Transforming the employees will contribute to them believing in themselves which will help with change resistance which can be a solution to change resistance - referring to the change resistance theory that claims change resistance come from different types of fairness and uncertainty.

In our content analysis it's pointed out that individuals do not normally inspect for change unless it is important (Trivedi, 2020; Tekic & Koroteev, 2019). This is supported by what we found in the change resistance theory. We already know that it's important to communicate the advantages of the change, and the intended outcomes. A digital mindset can help to influence the commitment of employees. Resistance to change may occur where the digital

transformation instead causes employees to withdraw from digital transformation initiatives. Whether the employees disengage or work in line with what is defined as a digital mindset will depend on the employees' belief in the formability of personal ability and the availability of resources. These will be important moments for whether the employees see new technology as new opportunities for professional growth or as an intervention in their ability to show competence (Solberg, 2020). The importance of resources and seeing DT as an opportunity is also stated in digital transformation theory, but the aspect of personal ability and employees' beliefs is not mentioned there. Nasution (2020) had research results that showed that only 18% of respondents believe that technological proficiency is required for managers to succeed in a digital environment, but that management attributes are the most important for managers. Within this, emphasis is placed on creating a transforming vision, being forward-thinking and having a change-oriented mindset. This again shows that a lot of the causes for resistance to change can be rooted within the mindset of the individuals.

This is supported by other research as well, they draw out autonomy, meaningfulness in the work, and being able to know and be aware of the purpose of their work (Blštáková, 2020). These are elements that are less mentioned within the theory we presented earlier. Some of the research from our literature review goes even further and highlights communication, collaboration and shared thinking with other employees. Blštáková (2020) emphasizes the importance of having meaning in work and communication, as well as cooperation. Together, these are values that will be important for leading people through a digital transformation. Their research also showed that this distinguishes between the thought of importance for future business and actual implementation. Solberg (2020) discusses shared thinking, and it being an important tool for adapting employees' behavior with the organization's vision and goals regarding digital transformation. Nasution (2020) also supports these findings, expressing it is important to have a change-oriented mindset, and collaboration skills. Lack of this can lead to poor and uncoordinated digital transformation, which in turn affects business performance. This finding is also supported by the study by Kane et al., (2016) and Valentine and Stewart (2015), as well as in the DT theory. The importance of communication and collaboration is mentioned in theory around both CR and DT. The knowledge sharing and creation aspect is discussed related to this in the theory, but less acknowledged in our findings.

From our content analysis, we also found a lot of focus on positive and negative beliefs and mindsets, which is not directly addressed in the theory, giving some variation between the theoretical framework and our findings. Some of the articles looked into having a high level of awareness, access to information and being able to profit from collaboration as the key to being prepared for the digital transformation, and as values that are crucial for their success and competitiveness in relation to digital transformation. Whereas a positive attitude is highlighted as a positive reinforcer of the digital mindset, a negative attitude is talked about in relation to employees feeling threatened and scared (Schneider, 2020; Blštáková, 2020; Bagrationi & Thurner, 2020; Christ-Brendemühl & Schaarschmidt, 2019). It is implied that it is important to have a positive spirit and positive attitude, as it arouses a kind of enthusiasm and curiosity, at the same time as the employees become less afraid of change (Schneider, 2020). A positive outlook on the future makes it more likely to embrace change and find a new role for oneself in the new environment (Bagrationi & Thurner, 2020). All of this is also mentioned in the earlier presented theory, though not as clearly as in the findings. The theoretical framework around change resistance focuses on uncertainty and fear, which is similar to the negative attitude presented here. The same goes for benefits from collaboration, awareness and positive outlook. The difference here is mainly regarding the change of mindset, which is not mentioned in the theory, but found to be important here.

The role of ambiguity is also much discussed in the article of Christ-Brendemühl and Schaarschmidt (2019), and its role in generating resistance to change. It will also increase role stress. The article mentions that believing in one's own skills and being confident in the digital transformation will reduce role ambiguity. Self-efficiency, on the other hand, will reduce resistance to change. The article also looks at the connection between self-efficacy and role ambiguity, and it appears from several articles that employees with high self-efficacy will be better able to seek relevant information and have a greater focus on tasks. Higher work efficiency will also help to give a lower degree of role ambiguity (Fida, Paciello, & Tramontano, 2015; Shoemaker, 1999). Role ambiguity is also much discussed in the change resistance framework, where new or changed roles oftentimes bring fear of lacking experience and motivation, unpreparedness to learn new skills, anxiety about further job stability and the unknown. The digital transformation framework addresses role uncertainty as well, where higher requirements are discussed, and supportive relation-oriented leaders are presented as a solution to this challenge.

A negatively charged mindset will make individuals easily feel threatened by any change in the status quo (Bagrationi & Thurner, 2020). Negative attitudes can arise from different cognitive frameworks, examples can be functional skepticism, fear and traditional defiance (Schneider, 2020). Changes related to new technology can be perceived as stressful especially if it promotes major deviations from prescribed processes, in these cases the negatively charged mindset will come in addition to supervision. This is in line with the theory presented earlier, showing that this is relevant in general scenarios of change resistance and in regard to digital transformation.

After studying the various articles, it is quite clear that beliefs and mindsets help to influence the degree of change resistance that organizations will encounter when they go through a digital transformation. Therefore, it will be especially important to focus on values such as collaboration, meaningful communication, role clarity, opportunities for personal and professional growth, autonomy, shared mindset, access to information. This should also be cross-hierarchal, cross hierarchical interaction creates more knowledge across hierarchical levels. This also influence individuals to access information and knowledge from different levels, creating shared beliefs and goals (Meske, 2020). This will also help to change the mindset to a "digital mindset", which is more receptive to new changes related to digital transformation and new technology. A lot of the presented findings are in line with the theory presented, which shows that a lot of the research on change resistance and digital transformation is relevant for the specific gap we are studying. However, there are some new additional resonations mentioned like the importance of creating a digital mindset, rather than just having one to begin with. Further autonomy, and the effects that the preexisting mindset and beliefs has on the degree of change resistance one perceives from individuals.

5.6. Preparedness and Strategy Framework

There is a lot of the research focusing on preparedness, strategies and solutions that should be put in place before going through a digital transformation. What is repeated throughout is the need to form a common understanding of digital transformation. Raising awareness of this and collaborating to create a framework can be crucial to the potential and application of digital transformation which organizations can achieve. Digital transformation of organizations are never just about the new technology that is being implemented. The digital

transformation is expected to have a significant impact on both, private as well as professional lives of individuals. Having a strategy that takes this into consideration is therefore crucial (Meske, 2020). Gfrerer (2020) mentions that a large number of organizations are still not digitally prepared enough and that they feel unmotivated to adopt to new changes.

Something that is highlighted in several articles is resource planning for organizations, especially in connection with improving collaboration and communication (Peter, Kraft, & Lindeque, 2020). Introducing technologies alone will not be enough, employees must be introduced to the new technologies and solutions so that it can be perceived as sustainable and utilized successfully (El-Haddadeh, 2019). Further address the utilization of innovation environments and the importance of being equipped with resources such as technical knowledge and other related resources that are necessary for flexibility in the adaptation process for employees. Limited financial and human resources will consequently lead to organizational dynamics being affected to a greater extent by changes and adoption of new technology, whilst the influence of the perceived risks and barriers will be emphasized (El-Haddadeh, 2019; Smith, 2018). In the theoretical framework we found that creating a common understanding is important in digital transformation in general, but preparedness is not addressed specifically. Improving collaboration and communication is mentioned in regard to the digital transformation, and not beforehand, which is a difference we found. Another difference is the lack of classification of resources, in the general theory about DT the focus was primarily on knowledge-based resources, whereas here they categorize different types of resources needed. Introducing technologies with solutions is also discussed in the CR framework, it implies the importance of removing uncertainty around the change process and intended outcomes.

In addition to resources and digital business strategies, it is also important that organizations have their own independent strategy that solely focuses on digital transformation (Peter, Kraft, & Lindeque, 2020; Tekic & Koroteev, 2019). This can help managers navigate through the transformation process. The organizational structure should also be adapted to the new requirements initiated by a digital transformation, and the management should recognize potential risks (Tekic & Koroteev, 2019; Birkel, Veile, Müller, Hartmann, & Voigt, 2019; Christ-Brendemühl & Schaarschmidt, 2019). It is important to both understand and take into account the internal and external dimensions and have a common understanding of what

opportunities new technology can create internally. Recognizing the organization's role in facilitation will make sense in these strategies (El-Haddadeh, 2019). Lack of strategic focus in the digital transformation can result in a poorer transformation, implicating there can be resistance to change, and the employees not understanding the scope of the digital transformation (Črešnar, 2020). Strategies may also include organization-centric measures to develop a digital culture and create an understanding of the success factors of a digital transformation. It is also important to focus on the entire organization and not just the technology to deliver change (Peter, Kraft, & Lindeque, 2020). The theoretical framework does take a lot of the factors discussed in consideration, but the concept of creating an independent strategy that solely focuses on these factors is new. However, the theory does support the factors mentioned here: recognizing potential risks, understanding both internal and external dimensions, common understanding, discussing opportunities, clarifying the roles of individuals and creating an understanding with success factors. This answers to the roots of change resistance and can help with reducing the change resistance which organizations face.

If one goes even further into the individual aspect, it is crucial that managers assess employees 'current abilities and potential abilities related to the digital transformation, and do not limit these assessments to employees' current and previous jobs. They should be creative and try to have a broad perspective, as well as considering how the employees can be qualified and retrained to take on different roles and jobs in the organization (Blštáková, 2020). Whereas a lot of research on DT is about finding the right employees, the research discussed here focuses on developing potential abilities and utilizing the current capabilities in an adapted way.

Although a digital transformation may result in the loss of some jobs, there may still be opportunities to create new jobs or opportunities during the transformation (Solberg, 2020). This becomes especially important to convey to employees, as the study of Blštáková (2020) shows that organizations are least prepared to create and maintain employee engagement, ownership, enthusiasm and job satisfaction. Their study also shows that the results around cooperation and trust are problematic. This is again supported by the change resistance theory. This being something the management must tend to and inaugurate. The results of the study are admittedly specific from a selection of organizations in Slovakia and cannot be generalized for all organizations. The study of Peter, Kraft, and Lindeque (2020) points out

that leading employees through transformation-management will be the most effective in terms of stimulating knowledge sharing and innovation behavior (Bednall et al., 2018) required to realize digital transformation. Bagrationi & Thurner (2020) supports this, they write that it is necessary to show support from the organization to the employees, and provide further coaching to ease the situation. The importance of support from managers is mentioned in the DT theory as well.

Creating and nurturing a positive attitude towards change among employees will be important. It will be especially vital to create group affiliation, and this can be done through team building exercises. Here, too, the importance of management is emphasized. All employees will have different perceptions of their personal life, and this will affect how prepared and willing they are to change, and therefore it is substantial that management can adapt to individuals' needs and mindsets. Having the same type of management for all employees will not be fitting to their individual needs. Some practical solutions the organization can provide can be a good daycare solution or financial support. Such forms of support will create a greater sense of loyalty to the organization and within the organization. It will be especially important if the well-being of the employee's personal life is linked to an active participation in a job or function. In such cases, employees can feel motivated to participate in the changes. Having different types of management for individuals and adapting the management is a newer perspective which is not mentioned a lot in the research within change resistance or digital transformation.

The study further shows that this does not necessarily apply to all types of employees, employees in management positions showed high resistance to stress levels and a strong sense of personal control over their lives. They also generally showed a higher willingness to change, and this can be especially good considering that they act as role models and can help to increase preparedness among the employees who are led by them. Christ-Brendemühl & Schaarschmidt (2019) further supports this and expresses the importance of the management examining why the employees feel insecure and stressed. The study concludes that it is important for managers to assess whether employees perceive the role of ambiguity, and what it is due to. This can be an important component behind role stress, which can often occur from larger processes such as digital transformation. Thus it is important that the management before such a process is prepared to take it into account. Building a common consensus, involving employees and having methods to provide support and build trust can

therefore be important as preventive measures before a digital transformation. If they are given clear roles, this will make them less insecure and create less resistance to change. Communicating why technology is implemented makes employees feel more secure, and support in the form that they can more easily cope with new requirements that arise from new technology. Furthermore, it may be a good idea to identify in advance potential problems that may arise around a digital transformation. This lets organizations plan for desired behavior among the employees, and make sure the employees effectively cope with new demands from the organization as a result of the digital transformation. This will also help to anticipate what measures can be implemented to reduce the role of ambiguity.

Along the way, organizations should also learn from the perceived resistance to change which they experience and learn to improve employees' experience of the digital transformation along the way. If they try to understand where negative feelings and reluctance to embrace change come from, it will help to take preventive measures for the future (Bagrationi & Thurner, 2020). The importance of management and their preventive measures they can take are discussed both in the articles we studied in our content analysis, as well as in the theoretical framework, and seems to be very similar. The variation we found is studying different types of individuals, and the distinguished degree of change resistance. In the digital transformation theory, the management is talked about more as a resource or tool, rather than examining managers as individuals, whereas in the research we collected it was mentioned in almost all articles.

6. Conceptualization

Through our analysis we have identified articles that have made it possible to distinguish between different factors that affects the individuals and their resistance to the transformation process. We identified six factors; management, communication, culture, competencies, beliefs and mindsets and preparedness and strategy framework. Ultimately, these six factors will affect the likelihood of the digital transformations success.

The table will present the six factors more in depth on why they are of importance, their practical implication and individual level-impediments.

Factors	Aspects of the factors	Practical implication	Individual level
Management	- Play an essential role in the digital transformation - They act as role models - Influence systems, processes and the employees - Possess a strong understanding of the organization and have a lot of expertise - Impact and encourage change - Power over the change process and its success - Can give support - Managers transfer their attitude to their team - Encourage digital readiness	- Allow employees to take risks* - They need to adopt digital transformation, in order for employees to adopt DT* - Support employees through change - Be aware of their influence - Identify additional opportunities offered by new technology* - Assess their own beliefs about the changes they are leading* - Take advantage of their employees who possess knowledge within new digital technology - Appoint an additional board member - Job-rotation* - No hierarchy* - Participate in the change process - Cross hierarchical communication	- Affects employees' sense of security and trust - Resistance in managers as individuals are much more crucial - Less afraid of losing their job - More encouraged - Affect employee's beliefs - Influence the adoption of changes - Experience more digital readiness - Less resistance
Communication	- Good communication leads to strong relationships between individuals - Creates free-flow of information - Clarifying how it will change individuals' roles, now and in the future	- Discuss opportunities - Talk about the changes to come and how it will change their role both now and, in the future* - Let employees participate actively in the change process*	- Feel valued - Being heard and included - Less uncertainty and role ambiguity - Less fear - Know more about what's expected - Trust between individuals - Less resistance

	- Gather employees' point of view	- Creating an understanding of all the success factors - Initiate communication, both through groups and individually - Having platforms that eases the communication process, allowing free-flowing information* - Installing online communications blogs where employees can pose direct questions and suggestions to the management team*	
Culture	- Need a strong culture to support change - Plays a huge part in how employees perceive change - Not be paralyzed and miss important developments - Promote collaboration	- Work on organizational capabilities to overcome cultural barriers in the beginning of the transformation process - Develop a culture that constructively analyses and does not conceal errors* - Encourage employees to try something new - Important that failure is not viewed as wrong - Design thinking workshops or innovation sprints* - Addressing employees' emotions and feelings	- Gives more courage - More innovativeness - Acceptance of change - Individuals are more likely to adapt and implement new technology - More creativeness - Feel valuable and less likely to be replaced - Less resistance
Competencies	- Dynamic capabilities allow organizations to create, extend and	- Establish within the organization early on - Invest in an environment that will	- Less overload and strain - Innovativeness

	modify their resource base to gain competitive advantages - Integrate and take advantage of the digital technologies - Realizing the risks and associated barriers in order to facilitate the adoption process - Increase the performance of businesses in the digital age - Employees will gain the capacity to invest in a strong digital future	appreciate the adoption and use of new technology* - Can either bring in new important competencies to the workplace or you can also create a workforce with digital fluency* - Strong leadership promote dynamic capabilities	- Enhance performance and facilitate innovation - Interpersonal skill for collaborating - Strengthen the competence - Digital fluency - Strong combination of skills, knowledge and resources - Less resistance
Beliefs and mindsets	- Perceive new technologies to provide opportunities - Influence commitment - Helps adapt employees' behavior with the organization's vision and goals - Lead to a more coordinated digital transformation - Change is more likely to be embraced - Easier for individuals to find new roles for themselves	- Communicate the advantages of the change, and the intended outcomes - Create a digital mindset* - Make aware of the purpose of their work - Create shared thinking by collaborating and cross hierarchical communication* - Create opportunities for learning collaboration skills - Create and help individuals vision a positive view of the future - Have workshops that boost their self-image and confidence*	- Believe in their personal abilities and become more confident - Personal growth and resources for personal growth - Lack of it can cause individuals to disengage and withdraw from digital transformation initiatives - Feel less threatened and scared and more enthusiastic and curious - Different cognitive frameworks makes

		- Provide access to information and give opportunities for personal and professional growth	individuals feel threatened - Less role ambiguity - Less resistance
Preparedness and strategy framework	- New technologies will be perceived as sustainable and be utilized successfully - Less perceived risks - Barriers will be less emphasized - Easier to navigate through the transformation - Better transformation, and more understanding from employees - Saves resources by using and evolving the competence your employees have, rather than looking for new employees - Keeps stability in the organization	- Form a common understanding of digital transformation* - Resource planning, provide enough resources for individuals - Having flexibility in the adoption process for employees - Having an expertise center with experts equipped with technological knowledge* - Provide solutions to common problems, and have a strategy on how to create new solutions for individuals who experience different problems* - Communicating the intended outcomes of the DT - Recognize and communicate potential risks - Create a common understanding of the success factors - Assess employee's current abilities and not limit them to their current or previous jobs*	- Feel like they are a part of the change - Sense of ownership - Individuals are more prepared and know the risks beforehand - Less uncertainty and insecurity - Individuals feel more creative and opt for different roles in the organization - Less resistance

Table 3: The six factors presented of importance, their practical implication and how individuals are affected by the factors.

Table 3 shows why the factors are important, how they can be implicated in practice and how the factors affect individuals. These factors should be valued and focused on by organizations in order to affect digital transformation in the best possible way and increase the likelihood of success, whilst reducing and preventing resistance to change. Organizations should create their own independent strategy customized to their employees and organization. It should focus solely on digital transformation and the factors presented. This will help managers navigate through the transformation process and create a common understanding, while reducing and preventing resistance.

Table 3 additionally presents an overview of how all the different factors has an impact on the resistance individuals show when going through digital transformations. However, many of the aspects and practical implications presented are found in already existing change resistance theory, and will be important for any type of change process. What we want to present now is the variation we found between already existing literature, and what has been changed or added to be more apt to a digital transformation. To express this variation, we have chosen to put a "*" by those that are more specifically addressed to digital transformation.

Based on these six factors presented in table 3 we also suggest a figure (figure 8). The goal of this figure is to help practitioners and organizations in understanding and addressing the resistance to change that comes with digital transformation, by transforming and working with the individuals.
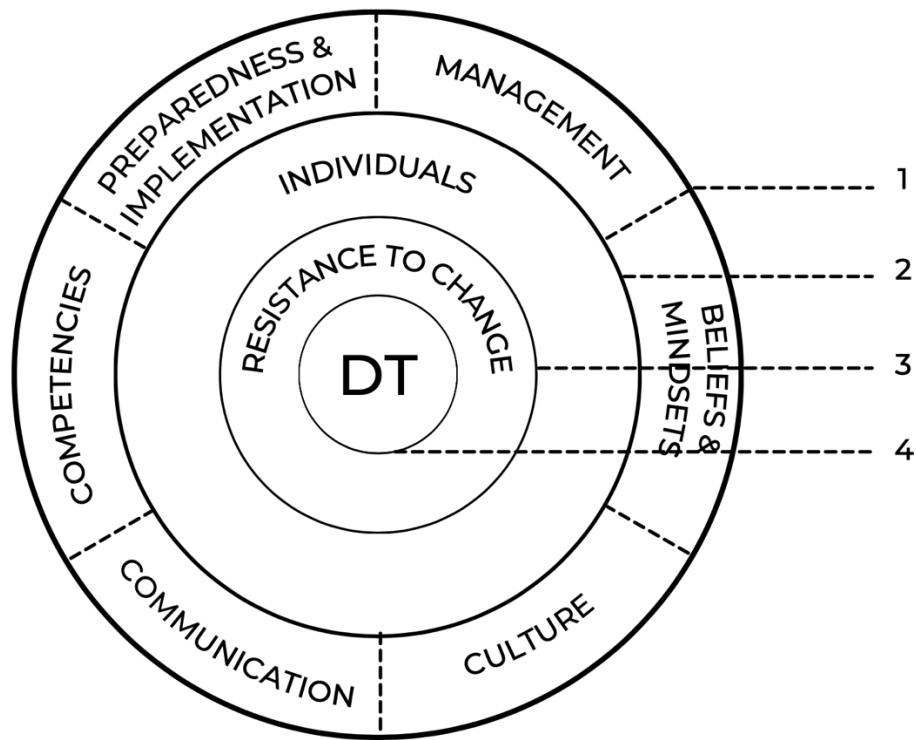
Figure 8: Relationship between the six identified factors which connects the individuals and their resistance to the transformation process

To explain this figure, we need to highlight that the focus is not on how resistance to change occurs, but rather how to reduce and minimize resistance in individuals in regards to digital transformation. We do this by identifying the six most crucial factors.

The figure goes from the outer ring and inwards. The six factors (1) will affect the individual and influence how individuals perceive change (2) when going through a digital transformation process. How these factors are handled will affect the perception of the individuals and help determine how much resistance individuals might have in regard to the changes of the transformation process (3). The degree of resistance to change will consequently determine how agile and successful a digital transformation process is (4).

6.1. Propositions

Due to the focus of our research question, we chose to not look at other possible propositions for the findings but encourage other researchers to study this further. Some examples of propositions to study might be:

Figure 10 explained from the core going outwards. Where the digital transformation process (4) will affected how much resistance to change (3) the individuals will express and feel (2). The individual's resistance will affect the six factors (1). An example of this could be that the employees' relationship with the management is affected by this, in that they trust them less, or that they express dissatisfaction with managers. The effect can also be positive, which is why it is particularly interesting to investigate this effect in more detail to determine what it will be. The same applies to the other factors, how will employees be involved in influencing these. The factors can in turn affect each other, which is another proposition for research, dotted lines have therefore been used in the figure. The figure can be used in different ways which creates opportunities for future research, but we have chosen to use it how it's best suited to our research question.

7. Conclusion and implication in practice

By conducting a structured literature review of extant published research to address the question, *How can a structured literature review utilizing bibliometric analysis of current published scientific research contribute to identify and reduce individual level impediments to digital transformation?,* this paper provides a foundation both for future research and for practical implications that would guide organizations and leaders on individual level impediments through the change process with digital transformation.

The study confirms that the field is fragmented, as there turns out to be surprisingly little research that address our research question. Considering the amount of available research on DT and RC separately, it's particularly concerning that there exists little research on these two concepts jointly, especially with focus on the individuals. In order to provide this foundation for research, we identified six crucial resistances to change factors; management, communication, culture, competencies, beliefs and mindsets and preparedness and strategy framework. These six factors should be valued and focused on by organizations, since they improve the understanding of potential causes for individual level resistance, and how to improve the success of the digital transformation processes. Without a focus on the individual the likelihood of a successful transformation is reduced.

Digital transformation is a comprehensive process and will affects all individuals within the organization, including both managers and employees. These changes are often met with resistance. Change resistance can come from role ambiguity, fear of lacking experience and motivation, unpreparedness to learn new skills, anxiety about further job stability and the unknown results in change resistance. Which can be solved with communication, shared thinking, believing in one's own skills and being confident in the digital transformation.

Internal resistance is heightened by unclear or dishonest communication between individuals. Openness is seen as a strong value, as well as being heard, valued and included. Actively empowering and involving employees in digital transformation is seen as important. By doing this projects management creates a culture of engagement and establishes a feeling of security in the interacting culture, reducing fear. Having a supportive culture that does not conceal errors will help individuals to not fear failing and adapting in new ways and promote organizational innovativeness. Lack of this can become a significant barrier to collaboration and creativity among individuals in the transformation.

Managers affect the success of DT by encouraging their employees to change and identifying additional opportunities offered by new technologies. When management shows resistance to change it's much more crucial. Their resistance often comes from overestimating the feeling of security and underestimating the sense of urgency of the digital transformation. Managers need to assess their own beliefs and have the necessary skills, experiences and knowledge to control and support in implementing changes. Management needs to communicate the advantages of change, as well as the intended outcome of the digital transformation. Continuous communication, collaboration and involving employees will create shared thinking between the individuals in the organization that provide support and build trust. They should also take advantage of the employees who possess knowledge within new digital technology, acting as digital leaders.

Competencies are crucial for individuals in order to reduce resistance, as the need for change and adoption is increasing, especially when going through a digital transformation. Another concept that could be a solution is changing the mindset to a *digital mindset.* Individuals will believe in their personal abilities and the degree to which they look at new technologies to provide opportunities and have a supportive attitude towards digital transformation.

The focus needs to be shifted from trying for find the right employees, to rather transform the employees you already have - developing potential abilities and utilizing the current capabilities in an adapted way can be a more efficient way to digitally transform an organization.

7.1. Implication in practice

Findings from studies have shown that a large number of employees in organizations are still not digitally prepared enough and do not feel capable or motivated enough to change and adopt the necessary behavior (Gfrerer, 2020). What can organizations do in practice? Business rituals have proven to be valuable, these can help employees feel they are preserving their identity, while at the same time alleviating concerns related to digital transformation (Schneider, 2020). Organizations may implement accelerator programs and hackathons or organize innovation labs to prevent resistance to change. This type of activity can be done in collaboration with start-up companies, and the goal will be to drive transparency around technology, and the employees to think more freely about technology. It can also generate a lot of innovation and knowledge sharing (Tekic & Koroteev, 2019). Interactions with external clusters and start-ups can help them gain a stronger sense of the importance of new technology and change, while at the same time learning and adopting new processes with less degree of change resistance. Securing a sufficient and skilled workforce as a temporary replacement can also be a measure, a team of experts can ease the pressure from the employees and make the transition easier. Furthermore, having team goals instead of individual goals can take away the stress from the employees, and some of the performance anxiety. Admittedly, this does not mean removing responsibility, on the contrary, it may be wise to give employees a sense of responsibility, but it does not need to be measured individually. Flexible working hours can also contribute to increased innovation activity and training (Hirte, 2018).

7.2. Future Research

Returning to our original study question, we have gotten strong insight and numerous interesting findings from several of the existing research articles used. With this, our research paper has focused on providing a framework that connects the research gap on digital transformation and change resistance. We want the findings of this paper to provide a framework that functions as an invitation for further research in this field, since we believe

this may be a starting point to help practitioners in understanding and addressing the resistance to change that comes with digital transformation.

There is a lot of focus on how managers and organizations can influence employees, but there is very limited research about how employees affect managers and the organization. What could be the consequences of resistance to digital transformation by individuals? Resistance to change is also mostly discussed in a negative context, but the positive outcomes it could have should also be discussed. This is an interesting perspective that future research should take into consideration.

There is a lot of academic research on digital transformation and resistance to change, but only a handful on these two topics together. We see a clear need to conduct related studies in other countries, as our findings showed that most of the research took place in European countries. This is also important considering that the validity will vary greatly depending on the country and regions. It may also be interesting to compare differences in this team for European countries compared to Asian countries e.g. The studies we analyzed were further within different types of organizations, both in relation to position, industry and organization size. All these factors can be investigated further in future research, and at the same time it can be interesting to compare the research to find which factors determine large differences. The studies analyzed in this research paper looked at individuals in general, but some were particularly focused on employees, and others a little more on managers as individuals. However, they did not compare or explicitly focus on one or the other. Having clear research that looks at different individual groups could be exciting, in addition to studying factors such as gender and age. Our hypothesis is that there will be a difference in the resistance to change in regard to DT depending on this, but it would be even more interesting to see this tested in the form of research.

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