

A study to which leadership behaviours are best suited for implementing digitalization at public organizations

Implementation of digitalization FOR PUBLIC MANAGERS

Name student: Floris van den Heiligenberg

Student number: S2182548

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1st supervisor: A.C. Bos-Nehles

2nd supervisor: M.R. Renkema



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Preface

In front of you lays the thesis 'Implementation of digitalization for public managers'. This study is conducted at the department of educational support at a university in the Netherlands. This thesis serves as a final project to conclude my master Business Administration at the University of Twente. The start of this thesis was in January 2019 and 15 months later in March 2020, the project will come to an end.

The first step was to find a teacher who would want to supervise me and help me to find the topic of my thesis. I found my supervisor in Anna Bos-Nehles, who not only helped me to find a topic but also was able to set-up correspondence for the data-gathering. If I had any questions, she was there to answer them and she always provided me with more than enough feedback, which was very constructive to finalize my thesis. At the final stage, my second supervisor, Maarten Renkema, also helped me by providing feedback on a different angle on my draft version, that guided me in the right direction.

I would like to thank both of my supervisors for their patience, since 15 months is a bit longer than scheduled, and for their support during this project. Furthermore, I would like to thank all the respondents who cooperated to this study. Without their cooperation, I could never have completed this research.

I would like to thank my friends and family for supporting me during my thesis. A special thanks to Mart, Mike and Pieter. Mart thank you for reading through my thesis and reminding me that interpunction creates order in a sentence. Mike and Pieter thank you for taking the time to join in the library and reminding me that I should not let myself get so distracted all the time. Lastly, I would like to thank my girlfriend, Nicolien. Thank you for your patience, insights and support during this what sometimes seemed never-ending period.

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Abstract

The past decade many organizations are wanted to digitalize. However, transforming into a more digital organization is not done easily. Organizations have to implement more tools and systems that allow them to become digital. This process is called digitalization. Digitalization is especially hard in public organizations, because of the many actors that need to be reckoned with during digitalization. Research points out that the line-managers have a crucial part in the implementation, but there is no research combining the role and behaviour of line-managers in the process of implementing digitalization in a public organization. To get an in-depth view on the digitalization by line-managers, a qualitative study at the educational support department of a university was conducted. The results showed that relationship and change-oriented behaviour were leadership behaviours that are necessary to help the implementation of digitalization. Next to this three more leadership behaviours were encountered that were not addressed and are used by managers in the process of implementation digitalization. Lastly, this study shows the necessity of a context open and willing for change during the implementation of disruptive changes such as digitalization.

1. Introduction

History tells a story of four revolutions that changed the whole world. First, the introduction of steam power, followed by the introduction of electricity. The third revolution consists of information technology and nowadays many organizations are facing the fourth 'revolution': digital industry. Organizations all around the world are engaging in digitalization. Digitalization is '*the adoption or increase in the use of digital or computer technology by an organization, industry or country*' (Brennen & Kreiss, 2006, p. 1). Organizations want to digitalize because these technologies make an organization run more efficiently. These technologies can help to decrease paperwork and manual tasks that take too much time. It will create more efficient organizations. Research shows that not only will employees benefit from digitalization by a better work-life balance (Schwarzmueller et al., 2018) but also entire countries benefit from digitalization. Sabbagh et al. (2012) found that countries that are in an advanced stage of digitalization, 20% more economic benefits compared to countries in the initial stage. The increase in benefits is because digitalization supports governments to operate more efficiently (Parviainen et al., 2017). Therefore, if governments digitalize, there would be an increase in economic benefits for the country and its inhabitants.

However, innovating and trying new ideas such as digitalization is not one of the strong sides of governments and other public organizations. While it is the goal of private organizations to improve by innovation, public organizations improve their service quality and problem-solving capacity (De Vries, Bekkers & Tummers, 2016). Public organizations also do not improve by the same standards as they are funded by governments (Hartley, 2005) and their income does not depend on their market position. Even if public organizations try to innovate by e.g. implementing new policies to improve service quality, it often gets sustained due to a changing government (Buchanan, 1975) that has different plans for the budget than their predecessors.

Although it might seem that there are not many innovative ideas going on at public organizations, the opposite is true. Many innovations and new ideas are going on at public organizations, but the rate is rather slow compared to private organizations due to the many obstacles these new plans and policies have to face during implementation (Buchanan, 1975). On the brink of global digitalization, this is not the place that you want to be as an organization. Previous research already pointed out that public organizations need to become more flexible and open to change (Nahavandi, 1993; Valle, 1999), but now almost 20 years later not much has changed. Change is needed because a faster implementation process leads to a position where public organizations are capable of handling digitalization, which thrives on the ability to respond quickly to new technologies.

In general, public organizations have struggled with the implementation of innovations (Bos-Nehles, et al., 2017), which is the last step of digitalization. Janssen (2004) stated that implementation is '*the realization of ideas so that those can be experienced and applied within the work, group, role or organization*'. Van Mierlo and colleagues (2018) see what Janssen (2004) calls 'realization of ideas' as the implementation process. They argue that the implementation process consists of two parts, policies formed by managers and the behaviour of employees regarding those policies. Additionally, they state that the process of implementation is dynamic. Managers need feedback on their policies from the employees, on what should be improved in the policies. Conversely, the behaviour of employees is guided by new policies. The continuous interaction between policies and behaviour causes an implementation to succeed.

Another study by Mirfakhar et al. (2018) created a model based on the idea that implementation is dynamic. The model puts emphasize the content, context and process of the implementation. They argue that the implementation of new policies will always be influenced by pre-existing policies. So, if new policies become regular, they become part of the 'pre-existing' policies for the next implementation of new policies. Nevertheless, this would not be the case with disruptive innovation such as digitalization. Nevertheless, this cannot be said with certainty about digitalization. The model does not make any distinction between different types of innovations that are implemented. Digitalization is often characterized as a radical organizational innovation (Parviainen et al., 2017), because of its disruptive nature. So, there is no knowledge about whether disruptive innovations have a different implementation process, but this is necessary to understand how the implementation of digitalization works.

Looking closer to the implementation itself, there are a few key actors in the processes that have a large influence on the outcome. One of these key actors are line-managers. The line-managers in an organization must push the innovation and or/new policies to the work floor and receive the feedback from the employees, that is why are important (Van de Voet et al., 2014). They are a key factor in the process of top-down communication and bottom-up communication, which is crucial to effective implementation (Van Mierlo et al., 2018). The first step in implementing digitalization concerns leadership (Kohnke, 2017). Line-managers need to show leadership to let employees engage in digitalization (Larjovuori et al., 2018). Larjovuori et al. (2018) found that managers need to keep an open mind about changing their role when implementing digitalization. This suggests that line-managers might need to change if they want an effective implementation of digitalization.

Line-managers cannot change their character and who they are but they can change their behaviour and the way that they are managing/leading their department. One study already argued the importance of relationship-oriented leadership (Schwarz Müller et al., 2018). They argue that managers should engage more in relationship-oriented behaviours because employees will receive more influence on how they perform their work due to digitalization. However, Schwarz Müller et al. (2018) conceptually studied digitalization. There is no empirical evidence if relationship-behaviour would stimulate the implementation of digitalization. Therefore, there is a need for an empirical study that can provide evidence instead of conceptual studies.

Summed up, the following research is to be empirical research that will study the behaviour of line-managers during the implementation of digitalization. Line-managers are key actors when it comes to implementation in general, so their role will be extra important if it concerns a disruptive change such as digitalization. With the global uprising of digitalization and the benefits that could be achieved by public organizations if digitalization gets effectively implemented, there is a necessity for research. However, there has been no research that combines the topics of line-management behaviour and implementation of digitalization at public organizations. Thus, this study will focus on what leadership behaviours should be shown to implement digitalization effectively at public organizations. Therefore the following research question is formulated:

Which leadership behaviours do managers need for the implementation of digitalization in public organizations?

The study provides new insights by combining pre-existing knowledge on leadership behaviour and disruptive change implementation at public organizations. This leads to a better understanding of leadership behaviour in times of digitalization, but also it will help to gain insights on the perception of digitalization by managers and employees. Many organizations both private and public are trying to adopt digitalization but there is not much research conducted to the topic of digitalization yet. Research like this can help to get a grip on digitalization and will add to a better understanding of the impact it has on organizations, line-managers and employees. In addition to the topic of digitalization, there is a lack of literature on the implementation of disruptive innovations at public organizations, because they do not happen that often on this scale. Understanding what these innovations can do to an organization can help prepare organizations if they see another global change coming.

Furthermore, the more practical goal of this research is to provide a form of feedback for managers during an implementation process. Managers gain insights into which leadership behaviours are best used for implementation. The insights into an implementation process especially the process of digitalization helps to acquire knowledge on the implementation of innovations that are similar in disruptive character. Lastly, this research provides an answer to what sort of behaviours public managers need to show to their employees concerning digitalization. Times are changing and digitalization will become the most relevant topic. Managers must know what their role is in and how they can deal with the upcoming of digitalization.

2. Literature

2.1. Digitalization

When it comes to digitalization at organizations El Sawy and colleagues (2016) argue that lack of clarity results in missed opportunities and false starts. Therefore, this part will define digitalization, because a definition will clarify what is meant when the construct of digitalization is used. This will be followed by the benefits that can occur when if an organization is engaging in digitalization. In the last part, the challenge of implementing digitalization will be discussed.

2.1.1. Definition

Defining digitalization is difficult due to many definitions that various scholars give to digitalization because digitalization is often confused with digitization (Legner et al., 2017) or with digital transformation (Larjovuori et al., 2018). So, when defining digitalization, one needs to know the difference between the three concepts and where the boundaries lie for each concept. To begin with, digitization, which is the technical process of converting analogue signals into a digital form (Brennan & Kreiss, 2014; Hess, 2016). This means that analogue data such as receipts and tax papers are turned into digital forms to reduce working with large amounts of papers or as Gassmann and colleagues (2014) put it: *"the ability to turn existing products or services into a digital variant, and thus offer advantages of tangible products"*. This differs from digital transformation in which the change to a digital organization is central. Digital technology is used to materially improve performance (Wade & Marchant, 2014). Additionally, Kohnke (2017) sees digital transformation, not as one single initiative rather as "a portfolio of initiatives that work together to scale the change". So, digital transformation is the changing of an organization to improve performance with the use of digital technologies.

Digital transformation is not merely close to the scale which is meant by digitalization. Brennan and Kreiss (2016, p1.) argued that digitalization is *"the adaptation or increase in the use of digital or computer technology by and organization, industry, country etc."*. This indicates a much wider spread than just one organization changing to become more digital. Stolterman and Fors (2004) go even further to say that digitalization is the change associated with the application of digital technology in all aspects of human society. Therefore, digitalization is not just a change between business models to be able to cope with digital technologies but also considering the impact of the technologies on society.

Parviainen and colleagues (2017) divided the influence of digitalization into four levels. These levels are the process, organization, business domain and society (Parviainen et al., 2017). The process level is about operations, digitalization relates to adopting new digital tools and streamlining processes. The organizational level refers to a branch within the organization, digitalization helps to offer new services, improve existing services and dismantle useless practices. The business domain relates to the whole organization and at this level digitalization causes for changing roles and value chains in the organization. The last level, society, includes the impact it has on societal structures, like the type of work offered to people.

2.1.2. Benefits

Digitalization enhances the internal processes of an organization. Organizations start to digitize their data because of digitalization. All this data is centralized in one place instead of spread out through the organization. The centralization of data makes it easier for employees to work on information-intensive projects and improves cost-efficiency (Parviainen et al., 2017). Besides the cost-efficiency going up, centralization of data provides managers with more information about the course of the

organization and on which employees are doing well (Butts et al., 2013). Data is better accessible; therefore, managers can address problems before they turn critical (Markovitch & Willmont, 2014).

Besides the centralization of data, digitalization leads to a less hierarchical structure because employees do not have to go to their managers if they need specific information. The increase in data accessibility and internal networks results in the employee having to take fewer steps up the hierarchical ladder to get the necessary information. So, digitalization will flatten organization structures (Schwarz Müller et al., 2018), which enhances the flexibility of the organization.

Also, the digitalization of society has an impact on the design of work (Barley, 2015). Employees are not restrained to their desks anymore, because of, amongst others the internet and laptops. Employees can work when and where they want. This is beneficial to the work-life balance of employees (Schwarz Müller et al., 2018), who for instance can work from home and take care of their children. This is a good example of how not only businesses and organizations but also society is influenced by digitalization.

2.1.3. Challenges

Most organizations underestimate the impact of digitalization on organizational implications and people dynamics (Kohnke, 2017). Parviainen and colleagues (2017) argue that most efforts to engage in digitalization fail because of previous generations' management systems. While the organization changes to new technologies, they do not change their mind-sets or processes. They remain in the same organizational culture, which is not adapted to digitalization and a dynamic innovative environment. Larjovuori et al. (2016) add that less digital organizations often apply individual technologies to solve problems, but without integrating these technologies in their strategy. Larjovuori and colleagues (2016) described the phenome of Digital Fashionistas, which is the term that Westerman et al. (2014) used for companies with high digital intensity and low management intensity. These companies use digital technologies to solve problems on the short-term and they do not have a synergy between their technologies because of the lack of long-term visions. Westerman et al. (2014) also described three other types of digital maturity as can be seen in figure 1.

Digital Beginners are not digitally matured. They do not work with a lot of digital technologies, which might be a choice, but these organizations often are also not able to recognize digital opportunities or have the effective management to see these opportunities through.

Contrasting to the *Digital Beginners*, *Digital Conservatives* already have effective management in place. These organizations understand the need for vision and a strong organizational culture. However, when it comes to new digital trends, they remain sceptical and are not willing to take risks, which leads to a lot of missed opportunities.

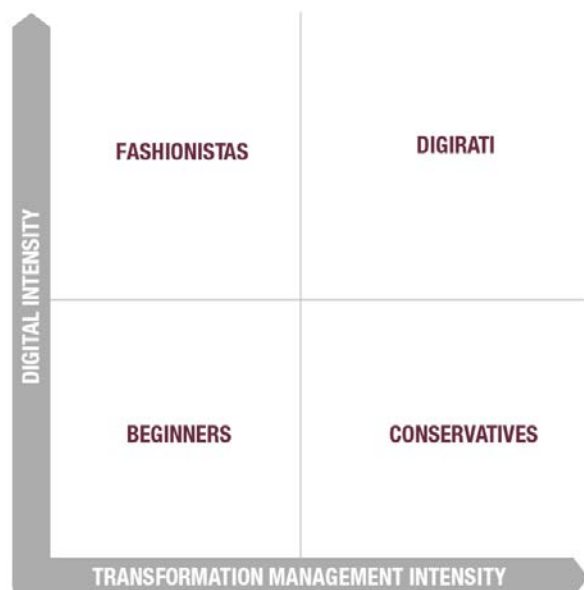


Figure 1: The model of digital maturity (Westerman et al., 2014)

The last group, the *Digirati*, are the most digitally matured organizations. These organizations have an organizational culture and a vision that is based around new digital trends. They invest in new digital technologies with care and they design how these new technologies will fit in the organization. By selecting the right technologies and getting these implemented through a supportive climate, these organizations gain a competitive advantage. The model of digital maturity of Westerman et al. (2014) argues that the drive to look for new opportunities, a long-term digital strategy and proper management is necessary, to be relevant in the digital era. Nonetheless, a long-term digital strategy and proper management also seem to be the biggest of many obstacles that are in the way for organizations to become *Digirati*.

A digital strategy can help an organization with the transformation during the integration of digital technologies and it guides companies on how to operate after “transformation” (Matt et al., 2015). Matt et al. (2015) did not provide any guidelines or implications for a digital strategy, but Parviainen et al. (2017) addressed that mind-sets, processes as well as the organizational culture should promote the changes that are paired with digitalization. Otherwise, digitalization will lack the internal support necessary to get accepted throughout the organization. Furthermore, the new technologies should fit together in the organization (Westerman et al., 2014), meaning that the new technologies should not be implemented to solve short-term problems. They should be part of a long-term vision or strategy in which these technologies complement each other.

Besides a digital strategy, there is a need for well-functioning effective management that ensures the implementation of digitalization gets accomplished. Digitalization is described as a top-down innovation (Kane et al., 2015), meaning that the role of management becomes crucial to the success of getting an organization more digitalized. In the digital era, managers will face a lot of challenges such as digital capability, because the current generation managers did not grow up with digital tools as their second nature. Since an increasing amount of the workforce has grown up with digital tools, they have more expertise (Larjovuori et al., 2018). This might create a problem for the position of the manager. If the employees know more about the technologies than the manager, they might find him less capable to lead them. This results in a decrease in the power of the manager since the employees lose respect for him. Another challenge for managers in hierarchical organizations is the flattening of the organization because the organization flattens managers are not the central point of information. Employees do no longer work in silos (Kane et al., 2015). They are not disconnected from the rest of the organization with the manager as the only way of communication, so that will change the role of the manager.

Furthermore, managers will have to deal with the motivation of the employees. Employees can get anxious because they believe that digital processes will take over their jobs (Larjovuori et al., 2018), which will have an impact on their motivation to work with these digital technologies. Employees can also become innovation fatigue, which occurs if the intensity of innovations is too high (Chung et al., 2017). However, the continuous innovations are what digitalization stands for, an organization that is flexible and keeps up with the digital trends to remain a competitive advantage. Innovation fatigue will lead to employees opposing more innovation. Thus, managers must keep employees from getting innovation fatigue or digitalization will stagnate.

Managers will have to deal with these problems in the future whilst trying to get employees to digitalize. In the next chapters, it will be discussed how digitalization can best be implemented and what leadership behaviours are expected to get digitalization implemented.

2.2. Implementation

Implementation of new practices and policies is not an easy task. Most of the time employees do not want to change because they prefer the current way of working, even though it is inefficient. This chapter argues that implementation is not a straight line with a clear target, rather a dynamic process without a clear end. After this, the different factors influencing implementation will be discussed with the use of the model of Mirfakhar et al. (2018).

2.2.1 Defining implementation

According to Van Mierlo and colleagues (2018) implementation is a dynamic process that consists of the continuous interaction between structure and action. They build their dynamic process theory on the structuration theory by Giddens (1984). This theory explains how social systems are produced and reproduced. Giddens (1984) states that social systems do not exist because of the presence of a structure or action, but because of the interaction between the two. He argues that a structure shapes actions, but at the same time if actions are not aligned with the structure, the structure will adapt to these actions, therefore the actions will change again and so forth. Van Mierlo and colleagues (2018) applied this logic to HRM implementation in an organization. They state that the structure is much like the rules and regulations that management puts on the employees and the behaviour of employees represents the actions. So, if a new practice gets implemented from management to employees, the employees will change their actions accordingly to the structural change. The theory of Van Mierlo et al. (2018) presumes that not all actions will adapt to the structural change and that management must adjust their structure to match these actions resulting in a continuous interaction spiral (Van Mierlo et al., 2018).

The same concept was found by Trullen and Valverde (2017), however, they investigated the relationship between top-management and line-managers, but the concept of executing orders in a hierarchical structure remains the same. Trullen and Valverde (2017) found that if line-managers were to be included in the development of a new practice, the rate of successful implementations would increase. They argued that since line-managers were involved in the development, they felt like 'owning' the new practices and could make better sense of what the practice was meant to accomplish.

Lastly, a simulation study by Lee and Puranam (2016) found that effective implementation is still possible if strategies are imperfect, by the use of feedback-related learning, meaning that even if digital strategies are not complete, they can still be implemented although this will take a lot longer because the feedback needs to be provided by organizational actors and after this, the strategy will be transformed. These examples contribute to the idea that implementation is continuous rather than a final state that can easily be measured.

2.2.2 The model for effective implementation by Mirfakhar et al. (2018)

One of the first researchers that came up with a concept for effective implementation was Pettigrew (1987). The research pointed out three main categories that were linked to effective implementation which were: content, context and process. He stated that content relates to what is going to change and what is being implemented. The 'why change is needed' can be derived from investigating the context and the process reveals how the change can be implemented (Pettigrew, 1987). On the base of this theory, Mirfakhar and colleagues (2018) conducted a literature analysis and created a model

that included the three categories that influence effective implementation, but also added various sub-categories that were found in their research. The model can be seen in Figure 2.

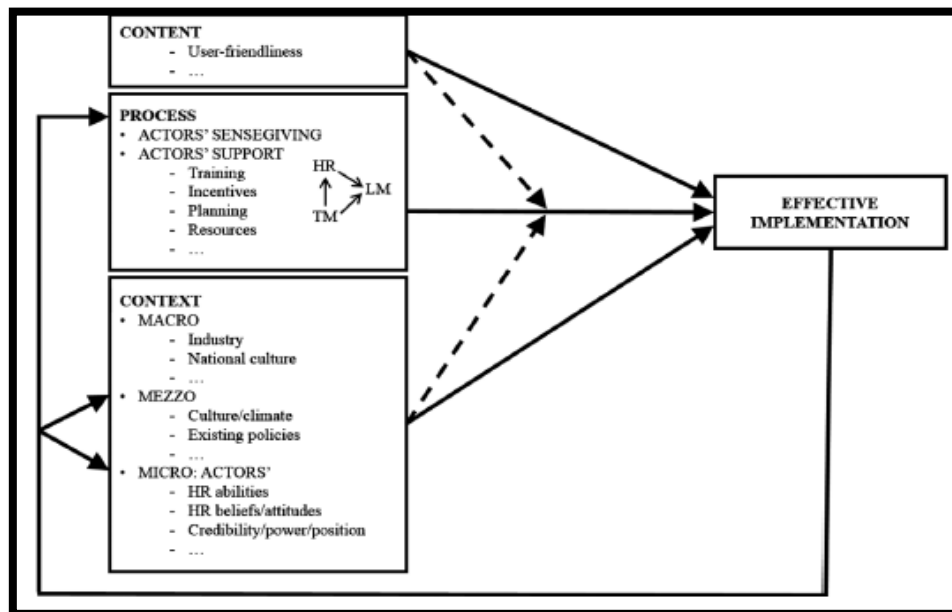


Figure 2: The model of factors influencing effective HR implementation (Mirfakhar et al., 2018)

According to Mirfakhar et al. (2018), it will be easier to achieve effective implementation of the content of the new practice is user-friendly. Their conclusion is based on research which implicates that user-friendliness is a clear facilitator of implementation (Khilji & Wang, 2006; Kim & O'Connor, 2009), but user-friendliness could not be specified (Khilji & Wang, 2006) as user-friendliness is a wide-range term and not every actor in the organization might feel the same way about the user-friendliness of a practice. Furthermore, if users would agree on easiness to use, it is not clear that this would directly result in overall effectiveness (Bondarouk, Looise & Lempsink, 2009). Despite the lack of clarity surrounding user-friendliness as an indicator for content, there is evidence that points out that complex practices do not enhance the implementation process, because employees reject practices that they do not understand (Haga et al, 2010). User-friendliness would help employees better understand new practices, therefore understanding the content of a policy or technology is essential to the use of the practice. Thus, organizational actors involved with the execution of new practices need to understand what the new practice is, what it does and how it functions. This can either be done by teaching them and explaining the in's and out's or by making the new practice less complex.

The next category context can be divided into three sub-categories: macro, mezzo and micro. The largest structural influence can be detected at the macro level. Macro describes changes which are influenced by the culture of the country in which an organization is established, but also the industry in which an organization operates affects changes and attitudes of organizational actors towards new practices (Mirfakhar et al., 2018). The second subcategory is mezzo, which includes organization-wide dynamics (Mirfakhar et al., 2018) and can be described as organizational culture. Mirfahkar and colleagues (2018) point out that the mezzo level is based on pre-existing policies. The introduction of a new practice or policy always has to compete with the existing policies. Sikora and Ferris (2014) claimed that changing from existing policies to an organizational climate focused on implementation would work if managers getting more involved in the implementation process as well. An organizational climate focussed on implementation would improve the acceptance rate of new

practices amongst employees (Stripe et al., 2015). So, this reveals again that implementation is about trial and error rather than a straight line, but an organizational climate supportive of innovation would ultimately get employees to work with the new practices. The last level of context is the micro level. This level consists of the factors that are depended on individuals (Mirfahkur et al., 2018). The last level is equally important to the others as the sense-making of employees on new practices is related to them showing affective commitment (Sander & Yang, 2016). Each group within the organization perceives the new practices in their way. While top management might think highly of a new practice, the line managers do not see the value of a certain practice. These different perspectives have to be aligned to provide a micro context that supports effective implementation.

The last category process deals with the 'how' of effective implementation. It takes into account the actions taken by different organizational actors. These actions can either help or compromise the implementation process. Organizational actors influence the perceptions of other actors when it comes to adaption new practices. Depending on the power of the organizational actor one can remove obstacles or incentivize the use of practices (Mirfakhar et al., 2018). The actions made by organizational actors can be seen as the behaviour of the organizational actors. This research will focus mainly on the different forms of leadership behaviour, that will be discussed in the next chapter, that the line managers in an organization can show. The actions and behaviour are important to the process category, but actions and behaviours are also affected by the content and context (Mirfakhar et al., 2018). Line managers have to deal with changing contents of practices and context that will change over time, these factors influence the actions and behaviour of the actors that are trying to implement new practices. Therefore, the process changes because of the influence of content and context.

The model by Mirfakhar et al. (2018) is aligned with the point of view of Van Mierlo (2018). Both argue that implementation is not a straight line, but it is a dynamic process of continuous steps, which is finished after it becomes fully adopted in the workplace. In their study, Van Mierlo et al. (2018) relied on the definition of Klein & Sorra (1996, p. 1057) that HRM implementation is *“the process of gaining ‘targeted employees’ appropriate, committed, and skilful use of an HRM practice, aligned with the corporate strategy”*.

Looking deeper into the research of Klein and Sorra (1996), there are similar components compared to Mirfakhar et al. (2018). Klein and Sorra (1996) argued that two components are essential to implementation effectiveness. These are a climate for innovation and individual value fit. A climate for implementation is created by the managers of an organization. The climate consists of three actions: ensure that employee skills are used in the innovation, provide incentives for innovation use and discourage innovation avoidance and remove obstacles that are in the way of innovation use (Klein & Sorra, 1996). It is the task for the managers to actively engage in these practices to create a climate that can foster implementation. The second component relates to how the values of the organization fit with the values related to the innovation. If the values of innovation are not congruent with the values of the organization this will negatively affect the implementation process. Employees become less committed to innovation when it is not in line with their values (Klein & Sorra, 1996). The two components can be linked to the context mezzo level and the context micro level since they address the same topics: organizational culture and individual values.

Thus, while looking into leadership behaviours and their influence on the implementation of digitalization, there are a few things to keep in mind. First, implementation is a dynamic process (Van Mierlo et al., 2018), that gives feedback a prominent role when it comes to the process of implementation. Second, three categories need to be studied which are content, context and process

if a researcher wants to capture the know-how of effective implementation. Lastly, since this study focusses on the action and behaviours of leaders, one should account for the effects that content and context might have on these behaviours. The next chapter explains which leadership behaviours are useful when trying to implement digitalization.

2.3. Leadership

This chapter is about what leadership behaviour is of best use for implementing digitalization. This will be done by looking into what leadership behaviour is, after which will be explained which categories of leadership behaviour can be distinguished. If the different categories are explained, it will be argued which leadership behaviour is best suited to satisfy one of the five necessities for implementation provided by Klein and Sorra (1996). Lastly, it will be discussed which leadership behaviours can help to overcome the challenges managers face in the implementation of digitalization.

2.3.1. Leadership style vs leadership behaviour

Leadership is the process of influencing others towards the desired outcome (De Jong & Den Hartog, 2007, p.44). In an organization, this role is often taken by the managers. They are responsible for other employees to achieve the desired outcome. However, a manager remains an employee, since he has a manager as well who is can be held accountable for what the employees lower in the hierarchical ladder do. So, it depends on the situation what the role of a manager in an organization is, it can be an employee or a leader. In this study, the focus will be on the role of a manager as a leader, since digitalization can best be implemented by the leaders via a top-down approach (Kane et al., 2015) in the organization. Besides the leader-role, there is the style in which he takes on the leader role. Some argue that leaders are born (Stogdill, 1948; Ogbonna & Harris, 2000), which would indicate that managers cannot be trained to be a leader. However, the character traits of 'born' leaders were impossible to categorize, since there were so many character traits (Stogdill, 1948) and some contradicted each other. Years later others found that that leaders can adopt leadership styles or behaviours (Likert 1961). Researchers reasoned that if a manager could adopt a leadership style, it would be possible that there is only one 'best' leadership style (Ogbonna & Harris, 2000). On the other hand, Fielder (1967) argued that there was no such thing as the best leadership style. He stated that leadership style is situation or context depended, which means that managers switch leadership styles according to what the situation asks. Following the logic of this situational-based leadership, leadership-styles are not determined at birth and managers can train themselves in other leadership styles. Many studies have been conducted on leadership styles, and these leadership styles are a build-up of leadership-behaviours and it is the behaviour of leaders that characterizes their style. Since leadership styles are often predetermined by specific behaviours, it could be that a manager does not relate himself with only one leadership style but shows behaviour that relates to various leadership styles. To find out what managers should do, it would be best not to investigate which leadership style is best for the implementation of digitalization but to investigate what leadership behaviours are associated with the implementation process.

2.3.2. The 4 meta-categories of leadership behaviour

There are numerous studies on the topic of leadership behaviours for over 70 years (Yukl, 2012). In the early stages, studies focussed mainly on explaining what the leaders' influence was on the attitudes and performance of employees. This research delivered two broadly defined categories of behaviour: task-oriented and relationship-oriented behaviour (Yukl et al., 2002; Yukl, 2012). Over the years these two meta-categories went by different names such as production-centred and employee-centred leadership (Likert, 1961) or instrumental and supportive leadership (House, 1971), but all of them describe somewhat the same definition. It is the primary objective for task-oriented behaviour to accomplish work efficiently and reliably (Yukl, 2012). This includes high efficiency in the use of resources and personnel and high reliability of operation, products and services (Yukl et al., 2002). For relationship-oriented behaviour the primary objective is to increase the quality of human resources and relations, meaning the behaviour should create a strong commitment to the organization and the mission together with aiming for a high level of trust and cooperation among employees (Yukl et al., 2002).

As researchers were solely focussing on studying these two meta-categories, they ignored the direct facilitation and encouragement of change (Yukl, 2012) and they overlooked a potential third meta-category, change-oriented behaviour. Yukl (2012) states that change-oriented behaviour is more relevant for executives than for lower-level leaders and that change-oriented behaviour is more important in the dynamic, uncertain environments. Concerning the digitalization of the past decade, the change-oriented behaviours increased in presence as many organizations operate in dynamic, uncertain environments due to digitalization. Although, to state that change-oriented behaviour is more relevant for executives compared to lower managers does not seem right as they are leaders as well. They also have subordinates that follow them, and they have to make important decisions but only on a smaller scale. So, change-oriented behaviour can also be applied to managers who are hierarchically lower than executives. Furthermore, digitalization flattens organizations and therefore decreases the gap between executives and managers, making change-oriented behaviour relevant for all leaders in the organization. The primary objective that leaders try to achieve with change-oriented behaviour is to increase innovation, collective learning and adaption to the external environment (Yukl, 2012).

Despite the first three meta-categories focusing on how leaders deal with the internal processes of an organization, the external behaviour of leaders was only included by some researchers (Stogdill et al., 1962). Only after finding out the importance of influencing not only subordinates but also bosses, peers and third parties (Kaplan, 1984) and because of the uniqueness of external leadership behaviour (Yukl, 2012), it became also a category included in the taxonomy model of Yukl (2012). The primary objective that needs to be accomplished with external-oriented behaviour is to gain necessary information and resources to promote or defend the values of the group.

Task-oriented	Clarifying
	Planning
	Monitoring operations
	Problem solving
Relations-oriented	Supporting
	Developing
	Recognizing
	Empowering
Change-oriented	Advocating change
	Envisioning change
	Encouraging innovation
	Facilitating collective learning
External	Networking
	External monitoring
	Representing

Figure 3: Hierarchical taxonomy of leadership behaviours by Yukl (2012)

These four meta-categories form the basis for the hierarchical taxonomy of Yukl (2012). This taxonomy includes leadership behaviour used to influence the performance of a team, unit or organization. Yukl (2012) describes the taxonomy that he created as the final solution for classifying leadership behaviour. To understand the types of leadership behaviour and to determine how effective a leader will be, the taxonomy includes multiple behavioural constructs, because these components are much more useful when constructing theories and guidelines (Yukl, 2012). The constructs can predict and explain the influence of leaders better if they are measured more accurately (Yukl et al., 2002; Yukl, 2012). The four meta-categories and their behavioural components can be seen in figure 3.

2.3.3. Leadership behaviours for creating an implementation climate

As discussed in the previous chapter, there are several points on which a manager can help to create an implementation climate. He must make use of employees' abilities, encourage innovation, discourage innovation avoidance, remove obstacle in the way of innovation and get the innovation to fit the values of the employees (Klein & Sorra, 1996). With the use of the hierarchical taxonomy of leadership behaviours of Yukl (2012), it is possible to link leadership behaviours to these objectives and find which behaviours help to achieve each objective. A detailed description of each leadership behaviour can be found in Appendix 1.

Planning would have a positive influence on the use of employees' abilities, as managers determine where an employee can be of the most useful to get innovation implemented. After this, managers can monitor to see whether they made a good choice or that the abilities of the employee are of more use somewhere else in the organization. Additionally, managers who develop the abilities of employees will see that employees become more skilled. Skilled employees will work more efficient and they do more tasks. Finally, if managers want to make use of employees abilities, they should facilitate collective learning to get the maximum potential out of the workgroup. The facilitation of collective learning contributes to more knowledge in the workgroup. It also increases the understanding of the goal of their job, which makes implementation easier as employees understand the need for innovation.

The next part is about how managers can get employees to use more innovations. Managers can either encourage the use of innovations and/or discourage innovation avoidance by employees. Managers encourage the use of innovation by practising the behaviour of encouraging innovation. They talk to the employees about the importance of innovation and motivate them to actively use

innovations. Another behaviour that can enhance the use of innovations is advocating change. Managers who advocate change, tell the employees the urgency for change, which encourages them to use innovations. Furthermore, advocating change is also useful if managers need to discourage innovation avoidance since this behaviour is not just about promoting change but also explaining why the current procedures are no longer functioning as they should. Therefore, discouraging the employees to use the old procedures and switch to the new ones.

The last part of an implementation climate is for managers to remove obstacles to improve innovation. Managers can do this by empowering employees. This can be accomplished by providing the employees with more freedom and more authority to resolve their work-problems. Managers can also engage in problem-solving themselves and try to remove obstacles in the way of innovation. The last behaviour that could be displayed by managers is representing. By representing, managers can solve possible hierarchical problems by lobbying for innovative ideas with superiors within the organization.

Klein and Sorra (1996) also argued that it is important that the innovation fits with the individual values of the employees, otherwise they will not accept the innovations. Therefore, managers have to make sure the innovations fit the values of the employees. There are a few ways this can be achieved. The first way is by envisioning change. Managers have to convince the employees that the proposed innovations will better the organization. Meaning that the values of the employees might change due to the persuasive behaviour of the manager and they will accept the innovation. The other way is for managers to listen to their employees to find out what their values are and adjust the innovation in a way that matches the values of the employees. The leadership behaviour that is most related to this is supporting. Managers support their employees by listening to their concerns and taking them into account because they are concerned about the needs and feeling of the employees.

These different behavioural constructs can be used to accomplish a climate for innovation and a good individual value fit, but that does not necessarily mean that new technologies and policies will get accepted and used. Klein and Sorra (1996) came up with the concept of implementation effectiveness, which is the consistency and quality of targeted employees using an innovation. This is what managers want to achieve when they try to implement digitalization. Yet, this definition does not include the effective leadership behaviours that are managers show to get targeted employees to use an innovation. Looking at what managers do to get targeted employees to use an innovation, leadership effectiveness can best be defined as how well managers succeed in getting targeted employees to consistently and with quality use an innovation. If a manager does not get targeted employees to use for the innovation, that means that the manager is less effective compared to a manager can. This leaves the possibility to compare two managers and study on what grounds their behaviour is different for each other and if this has had an impact on the targeted employees' use of the innovation.

This paragraph explains that leadership behaviours could contribute to the implementation of digitalization. The behavioural constructs that contribute the most are planning, monitoring, developing, problem-solving, supporting, empowering, advocating change, envisioning change, encouraging innovation, facilitation collective learning and representing. This is a wide combination of out of all the 4 meta categories. In the next paragraph, the categories are narrowed down by looking at specific behaviour that could relate to digitalization. This is done based on the challenges that are described in paragraph 2.1.3.

2.3.4. Digitalization behaviours

There are multiple challenges that managers have to overcome if they want to implement digitalization. Not only do they have to implement a whole new organizational culture and get every employee to take on a digital mindset, but they also must figure out what their role will be and what behaviour fits this role in a digitalized organization. In the next paragraph the proposed challenges in paragraph 2.1.3. will be addressed combined with the behaviour managers must show to deal with these challenges. To begin with the shift in work-life balance (Schwarz Müller et al., 2018). Digitalization will change the work-life balance (Schwarz Müller et al., 2018), as it increases flexibility since employees can work when and where it suits them, so managers will see their employees less often. Therefore, managers will not be able to control the employees and to make digitalization work, managers have to grant employees more autonomy and trust (Schwarz Müller et al., 2018). So, managers must empower their employees to be able to do more on their own.

This will result in the flattening of the organization (Schwarz Müller et al., 2018), which will have an impact on the role of the manager in an organization. Before managers were used to showing more task behaviour because it is very common in hierarchical organizations to do (Hambleton & Gumpert, 1982). However, if the organization flattens, the hierarchy flattens and there becomes less need for task behaviour from managers. Gimpel and Rölinger (2015) are even of the opinion that team and project culture is more effective compared to hierarchical structures to be open to innovations. The issue of digitalization being a top-down process (Westerman et al., 2014; Kane et al., 2015), which requires a more hierarchical structure, causes a struggle. Organizations are decreasing in a hierarchical structure, but managers are still in charge, therefore there will always remain a little hierarchy. Managers should work on a relationship with their employees that is more team/project related, meaning that the relation boss-employee become the relation group-leader-group member. This would strengthen the claim that task behaviour becomes less relevant as managers become leaders who inspire their employees (Cascio & Montealegre, 2016) rather than bosses who control and monitor the employees.

Besides the organizational changes, there will be a lot of changes that are directly related to the employees, which will have a big impact on their jobs. Employees can get anxious because digitalization will take their job (Larjovuori et al., 2018) or they can become innovation fatigue (Chung et al., 2017). Managers can solve this by focussing on the development of the employees and by supporting them. They can help their employees to deal with these new problems caused by digitalization (Schwarz Müller et al., 2018). Thus, managers must show relationship behaviour if they want digitalization in their organization to succeed (Schwarz Müller et al., 2018).

In conclusion, the role of a manager switches from a director who practices task behaviours to a group leader who inspires and is integrated with his team members. Digitalization will ask a lot of relationship-oriented behaviour from managers (Schwarz Müller et al., 2018).

2.4. Theoretical framework

Based on the last three chapters the following theoretical framework can be established:

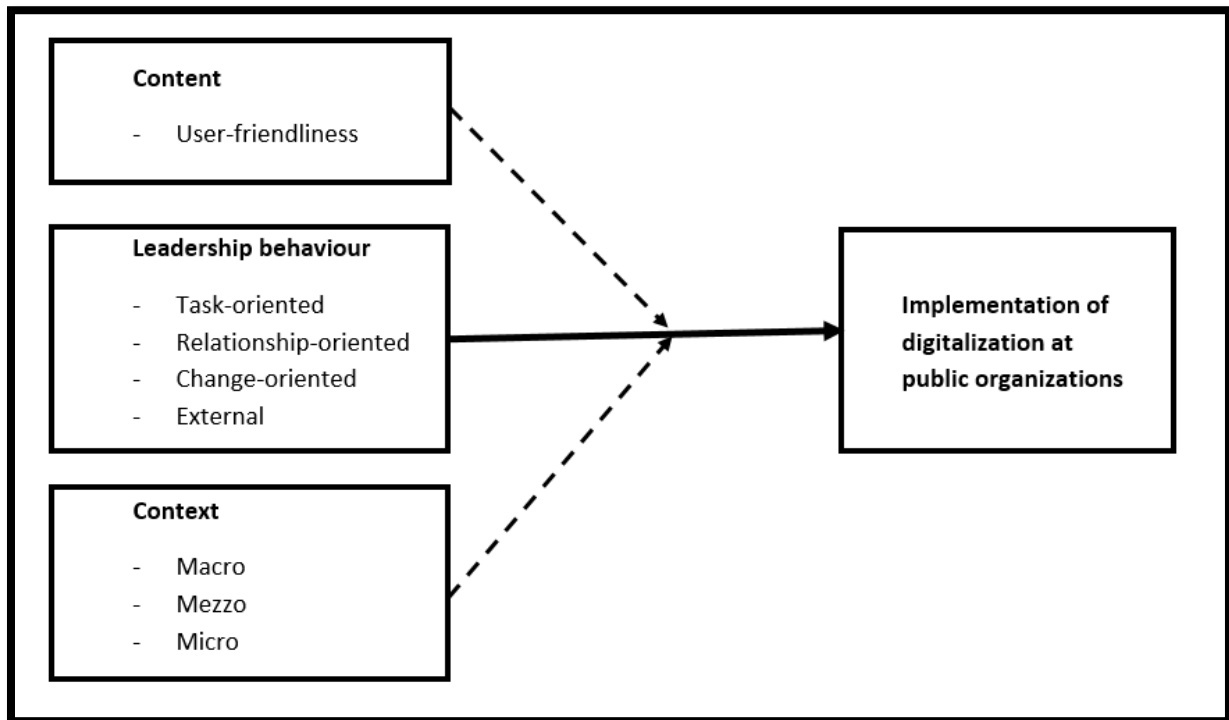


Figure 4: A model on the influence of leadership behaviour on implementation of digitalization

The framework consists of the two frameworks, the model for effective implementation of Mirfakhar et al. (2018) and the model of leadership behaviours of Yukl (2012). The model of implementation states that there are three categories influencing implementation which were content, context and process. The factor process is the most important one of the three since this factor focusses on how new practices get implemented. In this study, the main actors are the line-managers who are tasked with the implementation of new practices. Their actions come together in the process category. As mentioned before, the actions of managers can also be referred to as leadership behaviour. Thus, the category process is filled out with leadership behaviour. If we want to look into leadership behaviour, there has to be reckoned with the content and context as they do not only influence implementation as a whole but also the process category. The different leadership behaviours that will be studied are obtained from the leadership framework formed by Yukl (2012). Furthermore, the framework relies on the theory that implementation is dynamic meaning that new practices and the implementation of digitalization will affect not only how managers will behave in the future but will also influence the organizational culture or the mezzo context and the micro context as well. This will also be addressed in the study.

3. Methods

The purpose of this research is to get an understanding of which behaviours managers show while trying to implement new digital technologies or systems and what the role of alternative factors is on the process of implementation. This research was set-up as qualitative research. Qualitative research is necessary for the topic of implementing digitalization because it provides more in-depth information (Patton, 2005) about, for example, the motivation of managers and the perception of the employees. Next to this, via a qualitative study, it is possible to create a good overview for the researcher of the context in which the managers and employees work. This is important since the context can have an impact on the behaviour of managers and employees. The choice for a qualitative study over a quantitative study was made because quantitative research is often used in purely deductive research. The goal is to test theories, but there is little information known about leadership behaviour in digitalization. So, it would have been difficult to formulate questions without extensive knowledge on the topic to gather data in a way that it can be quantitatively analysed and theories can be tested. Instead, because there is little known about leadership behaviour in digitalization this research took on an exploratory standpoint to the topic.

Previous research into the topic of digitalization was conducted in case studies. For example Parviainen and colleagues (2017) researched digitalization by comparing the results of four different cases. They concluded that each organization handles digitalization differently, meaning that there is not a general way of tackling digitalization. Since the process of digitalization is complex and differentiates for each organization, the best-suited research method was a case study, as this method facilitated researchers to explore complex and not repeatable circumstances (Parviainen et al., 2017) and look at the circumstances from a holistic view (Yin, 2003a).

3.1. Case study

The research was conducted as a single case study. The reason for a single case study over a multiple case study was made because in single case study requires less time, which was of the importance to the researcher as the time was limited conducting the research (Gustafsson, 2017). Moreover, in this study, the process of implementation is a big part in the research topic and context plays a major role in the process of implementation (Mirfahkar et al., 2018), therefore the context has key-influence on the phenomenon and had to be considered as well. A multiple case study is commonly used a mean to compare the phenomenon in different cases, whereas a single case study allows the researcher to focus on the phenomenon and the context in which the phenomenon happened (Gustafsson, 2017). So, the choice was made to conduct a single-case study, in the research the data was collected at the department for educational support at a university (educational institution) in the Netherlands by means of semi-structured interviews, which were executed by the researcher alone. In the next paragraphs, there is some background information on the university followed by the accountability for how and why semi-structured interviews are conducted.

3.1.1. Background information

The single case study was conducted at the department for educational support from an educational institution in the Netherlands. In the last years, the educational institutions in the Netherlands had to deal with a decrease in subsidies (POraad, 2018), therefore the educational institutions had to cut in their budgets. This university had to cut the department's budget to save money and spend it where

it was necessary. The department had a few years of a low budget because the university had to cut the budget, which was felt by the department.

Furthermore, the department of educational support provides line-services to staff and students. In total there are seven divisions which are included in the department of educational support and because they will remain anonymous they are given the names of the seven dwarfs. The researcher assigned the names randomly. The different divisions and their general activities can be found in Table 1.

Division	Activities
Bashful	Activities related to the support of various educational systems
Doc	Activities related to scholarships of national and international students and relationship management with international universities
Dopey	Offering professional language and academic courses for students and staff
Grumpy	Activities related to educational tracking of students, logistics and examination
Happy	Activities surrounding study counselling and study guidance
Sleepy	Activities related to the support of teachers and education teams
Sneezy	Activities related to the enrolment of students

Table 1: Explanation of different divisions

The department consists out of roughly 150 employees divided over these divisions. There is one director and there are 7 managers who are each responsible for their own division. The divisions Sneezy and Grumpy are the largest divisions that roughly make up for half the employees, which is why the managers of these divisions have coordinators working under them to help manage the employees. Despite these two larger divisions having coordinators, the hierarchy in the department is relatively flat. Nonetheless, there is a hierarchy in the university, the overarching organization of which the researched department is a part of. The size of the university makes it hard to flatten the hierarchy in the whole organization. The size also evokes a bureaucratic system, in which managers of departments all need to come together to make decisions and it must always be according to the strict regulation, which is prescribed by the government. In conclusion, the department that is researched is part of a larger bureaucratic institution but despite the size of the university, this department has a flat hierarchy.

3.1.2. Semi-structured interviews

Interviews were chosen as research-instrument because the single case-study is meant to create an in-depth understanding of the topic of implementation of digitalization. There is little known about this topic, meaning that there is a need for new information or more insights at all for that matter. Interviews are an instrument that provides the researcher with the opportunity to ask open-ended questions which contribute to the understanding of choices made in the process of digitalization and reveal new perspectives on the topic. Besides, the usage of interviews provides respondents with the option to elaborate their answers in a safe environment.

The choice for semi-structured interviews instead of structured interviews was made because the semi-structured interview method allowed the researcher to go deeper in certain topics or to deviate from the protocol to other topics that seem relevant. Especially the deviation to other relevant topics adds value since the literature about digitalization is still scarce and relevant topics might not be included in the interview protocol.

The interviewees included the director, line managers and employees because by looking at these actors the researcher was able to look from different angles into the digitalization in the organization. The choice to collect data on managers of different hierarchies was made to get a triangulated look in the organization. The ideas for digitalization are usually brought up by top management, which passes it on to the line-managers who will have to execute these ideas on to the employees. By looking at multiple actors, the researcher was able to get a complete view on how leadership behaviour and digitalization is intended and perceived. Considering the hierarchy within the organization, the sample group reflected the hierarchy as well. Furthermore, each manager has a different task or a different goal that he needs to achieve. The goal for the director deviates from line-managers, yet both need to implement digitalization. This will lead to different interactions trying to achieve the goals, which made it important to look at different positions in the department.

To get a clear view of the digitalization in the organization multiple divisions had to be represented in the dataset. There needed to be divisions that already implemented digitalization and other divisions where digitalization did not play a major role. This provided the opportunity to compare groups in the organization to spot factors that contribute to effective implementation. Since the number of employees per division is higher compared to the managers, a larger sum of the respondents were employees, who were working under the selected managers. By including employees and managers who are hierarchically dependent on each other, it was possible to see whether the intended behaviour of managers is understood by the employees. In total 20 interviews were conducted which included the director of the department, 5 line managers and 14 employees from different divisions who are hierarchically dependent on the line managers. Considering the number of employees, there has been chosen to interview at least three employees per division because two employees might contradict one another, and a third employee can be decisive. The respondents were selected randomly by the managers, meaning that there was not looked at sex, age, gender, tenure or educational background while choosing employees. The random selection also contributed to a good representation of the department. The respondents will remain anonymous. Since there were multiple respondents there were two different interview protocols one for managers and one for the employees. The protocols can be found in Appendices 2 and 3.

Also, the researcher minimized problems with misinterpretations since no language barrier was present during the interviews. The interviews took around 45-60 minutes and they were recorded. Afterwards, the interviews were transcribed in Dutch but the quotations in the results are translated

into English. The translation was verified with the respondents to reduce the chance of misinterpretations of the researcher in the translation.

3.2. Data analysis

After the interviews were transcribed and verified, the data was analysed. The data analysis was conducted via open coding and template coding. As mentioned before the nature of this research is exploratory, because there is a lack of literature on digitalization and leadership behaviour. In exploratory research, it is common that open coding is used as a coding technique to create theory from the data (Strauss & Corbin, 1990). By open coding, the data was utilized to get every detail related to digitalization and leadership behaviour and to form new theories on the newly found constructs. The first step in open coding was to select quotations, after that step the quotations were grouped to form codes and the codes were grouped into categories which are addressed in the results. The process can be found in Figure 5.



Figure 5: Process of open coding

Next to open coding, the analysis also consisted of template coding. Template coding is coding that is based on an already established framework (Crabtree & Miller, 1999), meaning that the researcher used categories based on a priori knowledge (Fereday & Muir-Cochrane, 2006) making this deductive coding. The template coding technique was applied to the research to oversee which leadership behaviours were already shown by the managers and which aspects of the content and context were already present in the department. The creation of the categories was done with the literature using predefined definitions of the authors of Yukl (2012) and Mirfahkar et al. (2018). After the categories were made, the data was coded and the outcome is addressed in the next chapter. The process of template coding can be found in Figure 6. The codebook, which includes the construct name, a definition of the construct and an example quotation can be found in Appendix 4.



Figure 6: Process of template coding

The coding was done with the use of an electronic coding system called Atlas.ti. The choice for an electronic coding system was made because there was a large number of interviews that had to be coded (Basit, 2003). The researcher was already familiar with this system which is why the choice for Atlas.ti was made over another coding system. First, the templates were added to the coding system then the data was uploaded. During the reading of the data, the researcher applied the templates to pieces of text, quotations, that he seemed fit. After this was done for each interview, the researcher read the interview again and applied open coding. This led to the creation of various codes that were

combined if they were somewhat related. That was done after the interviews had been open coded. Both these ways of coding will be checked by two other researchers to ensure the trustworthiness and credibility of the codes and quotations fitting to the right code. Next, there will be looked for patterns in the codes and categories to build theory out of these patterns.

4. Results

In this chapter, the results of the interviews will be discussed. First, the results that were found following the codes in the codebook are presented. Additionally, the open coding produced three extra codes, which will be addressed during the presentation of the codes of the coding scheme.

The three codes that were found were all new forms of leadership behaviour. They are called: enforcing, evaluating and involving. The order of codes will start with the code group digitalization, followed by content, context and leadership behaviour, which is divided into task, relationship, change-oriented and external behaviour

The results are based on the data and the evidence for certain claims will be provided in the form of quotations. The quotations can be traced back to the source by the different letters which are behind the quotations to keep the managers and employees anonymous. The capital letter M stands for a manager, the capital letter E for an employee. After these letters, a number will follow, which indicates to what division within the department the respondents belong. The numbers range from 1 to 6, the number 6 is used for the director of the department. Since there are multiple employee respondents per division, the different employees can be distinguished by the letters a, b and c.

4.1 Digitalization

4.1.1. Benefits

Benefits of digitalization are characterized by past or present beneficial developments by digitalization for the organization or individuals in the organization. In the interviews, two main benefits were mentioned by the respondents: work becomes easier and more efficient. According to the respondents, the work becomes easier because it is more clear and it shifts workload. *'it works easier, faster and is more accessible compared to non-digital work'* (M4), *'I have the feeling that it goes easier, it is less diffused and more clear'* (E4a), *'I think that it made the work easier and more clear'* (E5a). Before digitalization, the employees had to deal with a lot of paperwork or incoming post letters for admissions. Since this has become a digitalized process, managers see the reduction in paperwork as a positive change, because the reduction of paperwork made the work of the employees less sensitive to mistakes, therefore easier. *'this project sped up everything, no more piles of letters, and the beauty of digitalization is that it goes automatically, there is no human interaction needed'* (M3). *'we use digitalization to become more efficient and to make fewer mistakes in dealing with larger volumes'* (M6), *'the benefit is that digitally you cannot lose something, on paper you can'* (E3b).

The other main benefit is that digitalization enables employees to work more efficiently. Digitalization allows employees to work with digital systems by which specific data can easily be traced. Especially the transfer from a self-made system to a third-party system made it possible to handle more work *'the system had to be sufficient to the education as it is designed at this educational institution and had to cover larger sums of students, a self-designed system could not do that, this system can'* (M3). The employees work in the same systems nowadays and somewhat in the same way. This leads them to ask less from others, which keeps them focussed on doing their job *'at the moment we can do it ourselves in Osiris, that is much easier so the collaboration goes better'* (E4b). So, digitalization makes the work of employees easier and more efficient.

4.1.2. Opportunity's

Digitalization can also create opportunities that are beneficial to individuals or the organization. One of the opportunities is a shift in workload. Some departments work in peak periods with a very high workload. Due to the introduction of digitalization, a lot of the processes were digitalized, which led to the decrease of peak periods, because the work could be more evenly spread over time as employees did not have to do everything manually *'I think that digitalization caused that the peaks concerning work can be divided differently'* (E4c). This is an opportunity for other departments if they get digitalization going, to spread out the workload more evenly.

Another shift is the content of the work employees and managers have to do. The work that needs to be done, should be done more efficiently. There is no time to waste on long and repetitive work, that is why administrative tasks such as registration change to a more controlling task, in which employees only have to check whether all the information is present. It was possible to change from registration to controlling because of the digitalization of many manual processes. This leads to more time for employees to develop themselves and for managers to focus on other tasks. *'you cannot escape the fact that you want to become more efficient. You turn to automation, which does not mean less work, but different work'* (M2), *'whereby strong repetitive work is replaced by a digital system, so that you can do nicer work activities'* (M6), *'It is more controlling at the moment, we went from registering to directing'* (M3).

Furthermore, digitalization leads to centralization within the organization, which is what some managers want: *'in the end, we want to work to a central system, but the organization has to want this as well'* (M5). Due to a central system, the availability of information for employees increases. This will improve the collaboration between employees, as they are less dependent on others for information involving their work. *'It is more for the speed and that letters do not get lost anymore, plus we had to work together and now we can see each other's work'* (E4b). In the central system, the work-processes are similar because the system requires it to be, otherwise, there is no use for a system that centralizes information. *'at the moment everything runs according to the steps of the tool, which results in more equality'* (E5a). Besides being less dependent on colleagues, the equality of processes makes it easier for employees to take over the work of a colleague if they become ill, which also makes it easier for managers to manage the processes. In conclusion, digitalization shifted work activities and provides an opportunity to get work more evenly distributed and to get rid of the repetitive tasks and centralization of the systems will enhance the efficiency of the department.

4.1.3. Obstacles

Contrasting to benefits and opportunities, there remain some obstacles in the way of the implementation of digitalization. The first obstacle that occurs is in the mind-set. In general, people do not want to change and resist to change. If something has changed, they want to go back to what they know, but that is not possible if the goal is to engage more in digitalization. *'but there were still users that wanted to go back to the previous way'* (M6), *'not everybody is happy about computers'* (M1). On the other hand, some employees have already accepted that change needs to happen, but they think that change is happening too quickly at the moment. This makes it difficult for them to adjust to the changes *'apparently not that much, because then we get a new system again, that we have to get used to'* (E1b), *'it just goes quicker. Sometimes I think it goes to quick, why can it not be a year just like it is'* (E4a). If changes occur rapidly after one another and the employees are not given the time to adjust, the amount of change becomes too much and employees become hostile towards change in the future. Like the employees, some managers find it difficult to see the benefits and opportunities that

digitalization might bring to the table. *'that does not fit in our work and I do not dare to use AI for educational advice. Apart from whether I ask myself if it is possible, but I do not think it can be done'* (M1). If managers do not see benefits and opportunities of digitalization, so they become hostile towards the subject, resist and will not easily accept changes regarding digitalization, which will also impact the way employees see the subject of digitalization.

Despite resisting employees, some want digitalization, but they are forced to deal with a product that is not optimally functioning because there is not a better product available *'I think my team wants to, but we continuously experience that the alternative is bad'* (M5). If the goal is to implement more digitalization, employees rely on systems and tools to do their job, it cannot happen that the technology is defective and that employees have to deal with what they got. *'you cannot do everything'* (M1), *'my work starts when I have data, but it seems to be difficult to provide me with a complete dataset'* (E5b), *'it is what is and often it cannot be done differently'* (M6). Another factor in the environment is the legislation because the legislation often needs to be adjusted. Therefore the systems have to be made according to what the law prescribes, which does not stimulate the usage of a system when it is continuously changed. *'in some cases, it had to be this way, because the numbers are too great or because the government forces it onto us'* (M6), *'I think it becomes harder to close pilots, because of the increase in demands like the AVG, it is not that we try a pilot with teachers and students without obstacles anymore'*. Therefore the business-environment forms an obstacle in the way of implementing digitalization.

Besides, obstacles from an external environment, there are obstacles in the internal environment of an organization. Within the educational institution, there is often uncertainty on who the owner of a system or project is, which slows down the rate at which digitalization can be enrolled. When no one has responsibility for a project, no one will take responsibility for a project, which leads to the problem that no one can be held accountable if it does not work and no one has to fix it if it does not work *'it was figuring out if it was for the supporting services or the ICT department, that went back and forth for a while, mainly because both stated that they could not do it'* (E1b). Departments keep pushing ownership away because they have limited capacity. Even though there is a lack of capacity the educational institution still wants to develop its systems and tools. The work they deliver is of good quality, but it takes up a lot of time and resources, which could be spend more efficiently when there is low capacity available. *'the institution wants to develop it themselves, and they do it a lot, and it works very good, but it takes a little longer compared to applications that are already available'* (E2b).

The obstacles the department faces, to get digitalization implemented, are the mind-set of employees and managers towards change, the environment and also the culture within the university.

4.1.4. Challenges

Followed by the obstacles are the challenges that occur during a later stage of the implementation of digitalization. The most addressed challenge by employees and managers is the lack of capacity and budget to work on digitalization. The shortage of these two resources is in the way of the progress of digitalization. *'The biggest challenge is freeing capacity to work on digitalization'* (E5c), *'one of the challenges is the extension of capacity'* (M2). Employees want to work on new projects but they lack the time to get things going for a new project or they are caught up by their daily job. *'It is trying to empty the ocean with a thimble, you are continuously busy with putting out fires, that is why you cannot pick up something new'* (E5a). Nonetheless, when a pilot or project turns out to be a success such as digital examination, managers must appoint an employee to be responsible for the project. If the

interest for the project rises and no one is in charge, it will never get completed or enrolled and the interest will drop. When the interest drops no one will see the benefits and no one will make the investments necessary to complete the project anymore. If there was capacity and budget, it would be easier for managers to manage these promising projects and the department can move forward, but with the lack of manpower to work on projects they are destined to fail *'digital examination took a flight, so now the examination bureau needs to be taught how to support the testing as well'* (E3b), *'We lack people but we need them, otherwise, we will go down because of the success'* (E3b).

Another challenge is the digital skills of managers and employees. The digital skills are underdeveloped, but they are required for digitalization. This is seen as a challenge rather than an obstacle since employees and managers can acquire digital skills to prepare themselves for more digitalization. For many employees digitalization causes a circumstantial change in the way their job is filled in. They worked before with pen and paper and now they are working with different digital systems, which has a major impact on the way they do their jobs. *'digitalization also brings a different way of thinking and working with it.'* (M3), *'you need to be more digitally skilled, you have to work independently with digital systems.'* (M2). So, getting employees on a minimum digital level that is required, is a challenge. If this challenge is completed, employees can propose and make changes in systems because they have the knowledge to do so, this would change the challenge into an opportunity.

Moreover, employees do not want to work with a computer all day long and, because they took the job for the human factor that is included *'I would not want to miss that, I do not want to work behind a computer every day'* (E5a). Although the director states that face-to-face contact will always remain important *'I think digitalization is useful and we are well on the way, but there will always be a few aspects where face-to-face contact is wishful and maybe even necessary'* (M6). The resistance of employees can be explained by the increase in the amount of computer usage in their jobs. This will form a challenge for the managers on how to deal with employees that are not willing to shift to more digital work.

The last challenge managers face is that they are part of a larger organization and they have to conform to the vision of the educational institution. This vision includes that the institution wants to develop a lot of systems themselves, but this takes up a lot of time. The institution has high ambitions, *'what you see is that we as an educational institution are ambitious, but the portfolio is too big to be realized'* (M3), but the result is that there are too many ideas for the future. Some of these ideas come from the employees themselves and are ideas more or less revert current way to a unique system for a specific group of users, which is overturning the implementation of a uniform system. These suggestions lead to a higher workload for the employees working on the systems and limit the time for them to work on new projects. *'You see that the wishes of the users change and become more focused on the way that it was, so the workload rose fairly'* (E2b).

4.2. Task behaviour

Task behaviour described by Yukl (2012) relates to accomplishing tasks efficiently and reliably. When looking at the managerial respondents there are a few things that stand out. Clarifying behaviour should help employees to do their task more efficiently because their tasks become clear. That can be achieved through good communication, but some managers do not communicate well. In one division the employees are represented by one of their own to communicate with the manager, which should make communication more efficient. Yet, the manager communicates not only with the one who represents the group but also past her, which leads to unclarity. *'We noticed that within our group, we got a 'leader', but what we see is that our manager communicated with me and with others, but the 'leader' is not aware or it is done in duplicate'* (E1c). Clarifying is not only a struggle for the line managers, but an employee mentioned that the problem reached higher in the organization. The higher management does not provide clarity, therefore, it is difficult for line managers to do the same to their employees *'I think that higher in the organization there are no clear agreements on who does what and when you point it out, nothing happens'* (E5a).

Besides clarifying, the culture within the university also influences planning behaviour. For the planning of projects like digitalization, these managers rely on managers of other departments and/or divisions. This makes it difficult for every manager plan ahead by clearing time and budget to work on mutual projects. They are dependent on others if they do a project, but this comes after the daily activities which have priority. *'We are highly dependent on the time available on other departments, because it is not structurally invested'* (M5), *'what also occurs when they (pilots) are enrolled is that we need extra support for the aftermath. If we have a successful pilot, we want to move forward but we cannot due to problems like little capacity'* (M3).

The last two behaviours related to task behaviour are closely linked to one another. There is little monitoring of operations and work activities because managers don't want to monitor and employees don't want to be monitored. They agreed that the employees are the experts and that employees are capable of monitoring themselves. *'I have experts in my team who are content experts, I cannot tell them much about that'* (M2), *'the role of my superior is someone who keeps us within the borders and guarantees the quality of the output and maintains the quality'* (E3b). This set-up works for both and it works well because managers can engage in problem-solving behaviour. Managers have more time to solve problems because they are not monitoring the employees. The solving of problems is also behaviour that is expected from them by the employees. Yet again employees and managers agree that this is a key task of managers, which is also carried out by the managers. They engage in this behaviour by as they called it facilitating the employee in his job. *'I make sure they have the resources to do their job'* (M2), *she is busy solving problems so that we can have access'* (E5b).

The task behaviour that could be improved is planning and clarifying, but managers are also dependent on internal actors to perform better at these two behaviours. In general, the most important behaviour regarding the implementation of digitalization is problem-solving. Problem-solving is needed to clear the way for factors that obstruct implementation, and this is already noticed by managers as they perceive their role to facilitate change. *'my role is how to facilitate that change'* (M3).

4.3. Relationship oriented behaviour

Managers who show a lot of relationship-oriented behaviour are trying to create a strong commitment to the organization and aim for high levels of trust and cooperation among employees (Yukl et al., 2002). Recognizing, supporting, empowering and developing are four behaviours that are described by Yukl (2012) as relationship behaviours. There already has been enough evidence that managers are empowering their employees. Managers trust that their employees will do their jobs because they want autonomy in their job. In return managers want their employees to do their job as best as they can. *'I do not need to give internal guidance, they are very capable and dare to take their responsibilities'* (M2). Empowering is closely linked to developing. Although managers recognize the need for developing their employees to become more digitally skilled, managers gave employees autonomy over that part and they expect that employees develop themselves. Managers provide the space and encourage them to develop themselves but in the end, the employee has to tell in what area he wants to develop himself in. *'I offer the employees, who have a hard time coming along, support, not personally, but I offer them the opportunity to come along'* (M4), *'She offers me the space to follow education to become a functional administrator'* (E5a). However, employees need to have a good understanding of a new tool or system if they are expected to work with it. They need training and preparation before the new tool is used. This is not always the case as employees in some cases were not given proper training and introduction to the new tool. It is not only up to the employees to suggest development, but also to the managers to provide training preparing employees to a new tool. *'I did it myself, we got a workshop but then you still do not have an image how it works'* (E3b), *'It would have been nice if we got more guidance in how to work with Osiris and I think it is difficult because everyone works with it in its own way'* (E4b).

Furthermore, when it comes to the support of the employees, managers are very supportive of their employees. They provide an open conversation, listen to ideas of employees, they do not place themselves above the group and they give help to those who ask for it. This is observed for all managers throughout the department. *'The possibility to talk to my managers is present and it's relatively open'* (E1b), *'That has been evaluated and something was not working and now it works fine. So I have the feeling that my feedback has an impact'* (E1c), *'Not as a managers or boss of the team, but as part of the group'* (E2b), *'If you ask her for help, she gives it to you'* (E3b), *'Then he went after it. For those things, you can go to him and he fixes it quickly'* (E3b), *'I got the idea that I am being taken seriously and that my ideas are being looked into and sometimes the ideas are not realistic or difficult to execute, but then we get that as feedback'* (E4c) *'Her coaching way of leading has a positive influence on me'* (E5c).

The last behaviour of recognizing does not appear in the data. Managers do not explicitly praise employees on good performance or somehow reward achievements. They show the recognition by listening to the employees and acting on the information or ideas that they propose so that something is done with the effort employees put into that idea *'because she knows we did the best we could, that we do not come up with something and that we do not want to push without reason'* (E4c).

Lastly, as mentioned before there were three new leadership behaviours found through the open coding. One of these behaviours relates to relationship behaviour. This behaviour is called **involving**. Involving is behaviour that is related to the involvement of a group into the process of implementation. Involving usually happens before the implementation has started. Managers consult their employees and users or any group that is affected by the upcoming change to get a good impression of the wishes and demands. After the information is gathered, the managers must act on the gathered information and adjust changes in line with the demands and wishes as much as possible.

Involving is can fall under relationship behaviour because relates to the goal of all the other relationship-behaviours. Involving is a mean to work on the relationship the manager has with his employees. By involving employees in the process before the actual implementation, a manager gives employees more control and influence over their work. Involving also shows that the manager recognizes and supports the employee by letting them take part in this process. *'she likes developing and discussing it with employees and what are our ideas and insights'* (E4c), *'Involving is very important so that people are busy with the design of the systems and the processes and then you get the best result'* (M3), *'They have to fill it in and sometimes I miss steps beforehand. Then I think by myself involve us earlier then we are more willing to go along'* (E4a).

In conclusion, the relationship behaviour of the managers in the department is present and it is practised well. Although the recognizing behaviour could be increased to create a better band with the employees and giving them feedback by the means of recognition.

4.4. Change behaviour

As with task and relationship behaviour, change-oriented behaviour consists out of four sub behaviours: facilitating collective learning, encouraging change, envisioning change and advocating change. Change behaviour deals with change in any form. Therefore, this behaviour is often mentioned in the data as implementation is a form of change.

The first surprise was to see that despite the separation of tasks between divisions and the high autonomy granted to employees, managers are still trying to facilitate collective learning. By facilitating collective learning, managers encourage employees to share knowledge to improve group performance. They let employees look at other departments at the university to learn from others, reminding employees that they work in a chain and that their actions have consequences for the rest of the chain. *'She hammered on process optimization because we would be able to see more from each other and work together, that is why it must be in one system'* (E4b), *'If we want we can walk along with HR or ICT to learn from each other and see how they do it'* (E2b). Together with another department, they started an interdisciplinary team that collectively experiments with digitalization in education, because there was a demand for new educational developments on the digital level. *'The choice was made to make an interdisciplinary team. The thought behind it was to bring educational advisors and ICT people together to share knowledge'* (M1).

Managers are already engaging in encouraging change by facilitating collective learning. The managers are supportive of their employees and they are mainly there to solve the problems that occur for the employees. This leads to the support of employees with good ideas by encouraging and helping those employees to realize their ideas. Adding to this, when managers show the behaviour of involving, they are indirectly encouraging change by giving employees a platform to share ideas and involving them in the decision. *'We always get involved, then we can share our opinion and ventilate what we see as possibilities'* (E4c). The downside is the lack of time employees have to work on these ideas. The formation of an interdisciplinary team was a good step towards innovative work behaviour because members who are part of the team get more time to think about innovation and change. Whilst other employees who might have innovative ideas do not have the time and resources to work out their ideas. *'She stimulates it, and I become enthusiastic about it, but I get caught up by the daily activities'* (E2b). Thus, a lack of resources squashes the good efforts of managers to encourage change, which also stagnates implementation.

The lack of resources is related to the lack of vision from the board of the educational institution. There is not a clear vision on digitalization and how this should be accomplished, but a vision from the board is what managers and directors want and need. Employees observe a lack of vision from their managers but they relate it to the lack of vision from the board. *'I believe that it is also an interplay because I think that the institution does not have a real vision for 2030, so that is an interplay'* (E1b), *'There is no explicit goal for digitalization and how to support and implement this in the institution'* (M1). The absence of vision further stimulates involving behaviour as managers often ask employees for input, because when it does not come top-down, they try to get it bottom-up.

Another behaviour that is closely related to envisioning change is advocating change. In contrast to envisioning change, advocating change is about explaining why change needs to happen. Advocating change is an essential part of implementation because employees need to understand why it is necessary to change. At the department, advocating change is not a consistent behaviour of managers. In general, the managers are positive towards change but the reality shows two different images. On the one hand, managers are eager to explain why change needs to happen, but on the other hand, they forget to communicate that changes are coming. *'you have to make clear why digitalization is important and why we work with new systems'* (M4), *'That was it, things keep changing in the system without us knowing about it'* (E3b).

When employees are not explained why a change needs to happen, they resist, which will obstruct the implementation process. For this problem, managers have found a way to deal with resisting employees. They show another sort of leadership behaviour which is called **enforcing**.

Like involving, the behaviour of enforcing was founded due to open coding. Enforcing can be described as imposing new policies, practices and processes onto employees using the legitimacy of the role as manager. Enforcing has its benefits for the manager but also disadvantages for the employee, starting with the benefits. Managers enforce policies and new processes onto employees as a last resort when they tried everything but it did not work. One way of enforcing is by turning off the old systems, forcing employees to work with the new ones. *'I tell them they have to use it, it is what it is and often it cannot be done differently'* (M6), *'If you say that there is only 1 system, then they must work with it'* (M6). This is not conducted to get employees to transfer quickly from one system to another, just as a last resort. Managers know that it does not work to enforce change if employees are in the blue about a new tool or system. *'It is stupid to enforce a system out of the blue, that does not work'* (M3). Enforcing is done to provide clarity to employees and to draw a line for them and to get the last resisting people in the organization to let go of the old ways *'Clarity helps people to get over it, often it is not easy for them, then they dislike me, but they have to use it'* (M4), *'I would have liked more support from management to get the educational side to get to work with mobility online, they should have shown more strength'* (E3a).

One of the biggest disadvantages of enforcing is that the resistance gets even higher when employees are forced to work with a system of policy that is not aligned with their values. If it is, in fact, a bad system or a bad call by the manager, enforcing that onto the employees can lead to tensions in the division. That does not enhance the implementation of future changes. *'It was just announced, at the start we were resisting, because we thought it was useless, but now it is fine'* (E4b). In short, enforcing can help managers to get employees working with a new system because digitalization allows managers to flip a switch and turn off the old tool or system and force employees to use a new one. That does not mean that employees are willingly working with the system and when future changes get implemented by enforcing, they will resist even more for the next implementation process.

In conclusion, managers are engaging in change behaviour, but they lack the input from the higher management to get real change going. The managers are ready for change, the employees are ready for change but the board does not envision the change.

4.5. External behaviour

Behaviour that enables managers to engage with the external environment is called external behaviour. The external environment is considered to be outside of the educational institution or inside the institution, but not in the department. The behaviour of external monitoring, for instance, is related to the environment outside the educational institution, because managers practising this behaviour monitor what happens on the market and with competitors. However, there is not a market for education and being ahead of the competitors is not relevant. There are no competitors within the educational institution and outside the educational institution that provide educational services for this specific university. The department cannot lose or win market share, there is no competition. Despite the absence of competition in the external environment, the managers are continuously searching for new ways to improve the services that they provide. They try to innovate by looking at the external environment and searching for opportunities that fit their needs. *'we looked nationally what was in use'* (M5), *She is also curious what will come at up, digitalizing education, but what will digitalization do in the future. Those meetings she attends as well'* (E2b). Line-managers also look into what the educational institution is going to do in the future as this will affect their division as well. *'most of all we waiting what the educational institution portfolio will do and what the vision of the educational institution on digitalization will be so that we can join in on this'* (M5). Thus, managers are trying their best to monitor the external environment out of intrinsic motivation to be better. Given that digitalization is important in for them and the external environment, line-managers are currently environment looking for new ways to digitalize.

Besides monitoring the external environment, managers have to network within the institution to get the project going. They rely on other departments to get projects going and to work on the implementation of those projects together. However, what stands out is that this behaviour is necessary for a large organization. Everything is connected and depends on multiple actors that need to approve before something is done. Managers need to be in favour of the right people in the organization to approve projects. *'You see that often if you know the right people something is possible and if you do not know them it is not possible'* (E5b). Therefore, managers are networking with other departments to get approval and to have more influence over their activities and future projects. *'I talk to strategy and policy about the developments of where we are going to in the future'* (M1).

Networking is important to the division, but it is just as important that during the networking that the division is represented by the manager. Although, there seems to be a small problem with representing. Managers are not always aware of the daily activities of the employees because they are not monitoring everything as mentioned before. The result of less monitoring is that managers who do not communicate well to their employees are not aware of the issues that they are struggling with. *'They come up with something nice that works for them, but they do not consider the impact it has on other departments of the institution. How that goes, that it is discussed with the right people, but not with the actual users'* (E3b). Nevertheless, when managers find it necessary to ask for input, they consult their employees. *'I am not aware what goes with the daily activities, but I make sure the input is brought into the open'* (M3), *'She sends us important pieces so that we can provide input so that she can take it to others'* (E5b). So, when managers deem it useful, they consult employees.

Thus, of the external behaviours networking is important for implementation in a large organization, because it provides the power to a manager to get rid of obstacles in the way of digitalization. External monitoring is also practised by almost all of the managers, which shows that managers want to innovate.

4.6. Content

Content is seen as a mediator to leadership behaviour. This especially can be stated for user-friendliness. User-friendliness is about being easy to use for the employees. If a new tool is easy to use, employees will adopt it quicker compared to a difficult to use the tool. Employees state that a new tool should be easy to use because that is the only way that it will save them time. If the tool is difficult to use, it will cost employees time to learn how to use a tool rather than save them time. *'It became a success because it saves time and is very user-friendly'* (E3a). There are a few ways that make a new tool user-friendly and therefore more easy to implement. The first way is to make the tool intuitive, because if employees can figure out how to use a tool by themselves this saves a lot of time instead of following a training or reading a manual. *'there might be a manual, but I won't read it, it should be intuitive, everybody can work with computers, especially then it should be easier'* (E5a). The other way that user-friendliness can be enhanced is by making fewer steps in a system or anything digital. Fewer steps are better because they consume less time, the steps are easy to remember and if there are lesser steps the chance of making mistake also decreases. *'Considering the systems, I find it difficult to adjust the contracts, because that does not happen often and then I have to call how it works'* (M1), *'my experience is the more steps you have to take, the more can go wrong'* (E3a), *'I would like less steps since it does not often happen'* (M1). Furthermore, there have not been found any other constructs related to content that would be valuable as a mediator for leadership behaviour on implementation. Thus, user-friendliness is an important mediator. If users have to put effort into understanding the new tool or system they tend to see this as 'extra time'. However, time is scarce in this department, which means that employees will resist difficult-to-use tools. Therefore, a manager has to ensure that the tools or systems are user-friendly before the implementation otherwise the employees will not even try it, which will hinder the start of further implementation dynamics.

4.7. Context

In addition to the content, the other mediator is the context. A good context can be beneficial for managers. In this case, a good context can be defined as employees who are willing to change and see the benefits of change, managers who support change and employees and managers who propose changes. This starts with a good work atmosphere. The atmosphere in each division is good, employees want to do their job the best they can and managers give them the autonomy to do their job the way they want. However, because of the high rates of autonomy in their jobs employees estrange from each other as they do not need each other all the time. This separation can also be seen in between the divisions as not all divisions feel like they are a part of the department. This indicates that there is an absence of coherence and a feeling of separation among the employees. *'We became small islands, and nobody knows what the others are up to. We all do different work'* (E5a), *'I think that my division is a different group within the department'* (E1b), *'Because we sometimes feel like we became the cesspit of the department'* (E5a).

The separation is due to some divisions having to work closely together because they work in the same 'student chain', which is the trail that a student undergoes from pre-study to graduation. The divisions that work together are also more willing to invest in digitalization because it allows them to automatize certain processes which enhances their efficiency. This adds to the separation within the department, as not every division has the same goals *'You see that Sneezzy, Grumpy and Doc are dependent on systems but they are also forced by fewer resources or by high work pressure to work efficiently, so they support automatizing and digitalization'* (M2), *'My division and Sneezzy are in the same chain, so we know each other well, we are also close to SAC, because of the international students. On the other hand, we are not linked to Sleepy and Grumpy'* (M5).

The lack of cohesion between the divisions plays into the hands of the formation of islands. Add this to the lack of capacity and the results are that managers are becoming protective over their people, which stagnates the work that is done by the divisions because they refuse to take up more work. After all, it does not belong to their duties *'Everyone says no that does not belong to their processes'* (E5a).

The culture of divided divisions is also influenced by the lack of vision from the educational institution itself. There are no plans to what will happen in the future surrounding digitalization. The lack of vision from board gave no point at the horizon for the divisions and departments. In addition to lack of long-term vision, it also results in less top-down innovation/changes, because the board does not know what to implement. The lack of vision combined with a culture where employees are intrinsically motivated to innovate created a culture where employees come up with the ideas. They want to improve and present innovative ideas to management to do so, leading to a bottom-up culture. The problem with this culture is that there is a call for more time and budget from the bottom, but there is no support regarding digitalization from higher management. *We had put in a lot of effort to get it higher. Our manager backs us, but she also does not get feet in the ground, maybe with the director but not the board'* (E4a), *'the educational institution has to join as well. I can think of good IT-projects but if the educational side is not ready or does not, it is useless'* (M3), *'regarding digitalization I think the educational institution is bottom-up'* (E1c), *'I ask myself looking at the portfolio of the educational institution what they want if they do not create the right environment for it'* (E5c).

The intrinsic motivation of employees is not only seen in their effort to work on new concepts. It can also be detected in the amount of monitoring the external environment they do. Managers and employees are always looking for ways to make their work easier and more time saving as the lack of time is the biggest problem in the department concerning digitalization. There are more problems related to the external environment which are the legislation and the availability of alternatives. Since this educational institution is a public organization, they are bound by legislation, which in this case challenges the implementation of digitalization. Besides legislation, the managers and employees are facing a lack of alternatives. There are not many options that are innovative or can make the work more efficient. *'it could be that the law dictates something, which causes change'* (M5), *'The administrative support is often prescribed by legislation'* (M2), *'It is not available in the Netherlands, the industry tried to look for it together, but that did not work out'* (M5). The intrinsic motivation originates from supporting culture. The task of the department is to provide educational support to the faculties. It is the nature of the department to always look for new ways to improve the way they can support others. The supporting culture might be why the last extra leadership behaviour was discovered at this department. This behaviour is called **evaluating**. It is linked to the culture because evaluating is a very common behaviour for these managers and employees. In their jobs, they want to

provide the best support. Therefore, it is necessary to ask for feedback and to actively evaluate processes and policies to improve and deliver better services.

The behaviour of evaluating can be described as getting information from the people working with the implemented change, adjusting the implemented policy process or practice to the evaluation, putting policies in practice that increase evaluation. So, even in their digitalization projects the managers at the department are open to suggestions from the employees and they are actively creating policies that are meant to stimulate evaluation. *'we come together every week, with questions about obstacles and in general how is it going'* (E3b), *'I always try to listen to the needs'* (M2), *'We try to gain information actively using our key-users, who are closer to the educational side'* (M2). After the evaluations are given, the managers see it as their task to use the information to improve the different tools if it is their hands *'So that we can evaluate, optimize, evaluate, optimize and the next year it works better, so that you can work better with the system'* (M4).

Evaluating is good, but there is a lack of aftercare after the projects have been implemented, which is not only a problem of this department but can be observed throughout the institution. *'what often misses is that projects are decently finished, but in reality, they are not nestled, there is a lack of aftercare'* (M3), *'that is not used as much, while it was developed to the wishes of the faculties. I think that is a shame'* (E5c).

In conclusion, the context can be very influential when implementing new tools or policies. It can either make or break an easy implementation. If the context is not positive to change, it will be more difficult for managers to achieve effective implementation. The employees have to be supportive, like in this case they are supportive of change, but the organization in which they operate in is not ready for changes and do not have the goal or a vision how to get on to the place they want to be. The lack of the vision on how they want to get there makes that there is a lot of indecisiveness in the organization, which does not stimulate effective implementation.

5. Discussion

In the discussion, the findings derived from the data will be interpreted. Together with the literature study the findings will be interpreted and discussed along with the theoretical framework from paragraph 2.4. This is done to create a better understanding of which leadership behaviours must be shown by managers to improve the implementation of digitalization. Lastly, additional literature is used to discuss the findings that were not discussed in the literature study before. To begin with, the influence of content on implementation, followed by leadership behaviour and ending with the context.

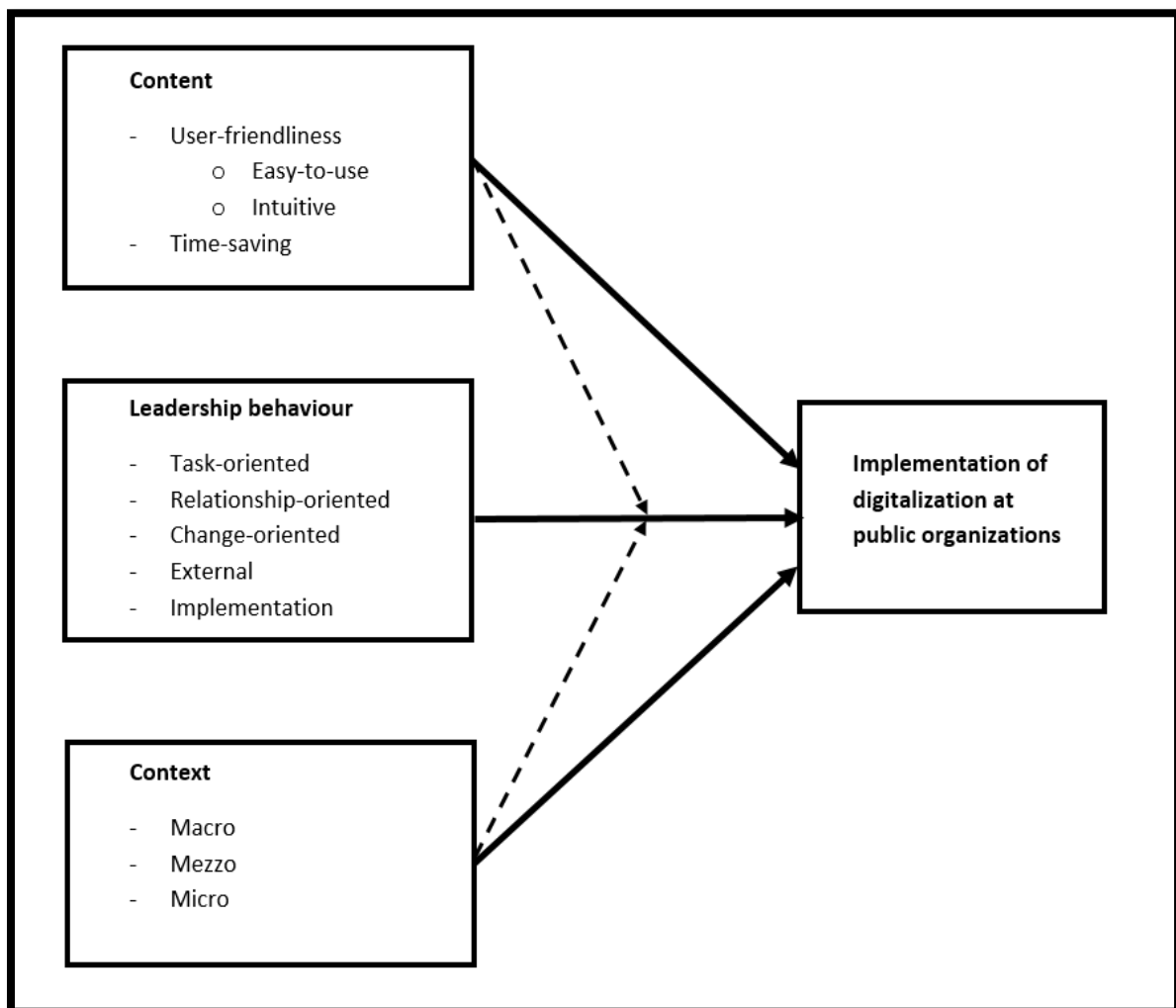


Figure 7: A model for the implementation of digitalization at public organizations

5.1 Content

The content of a system or a tool, that gets often implemented because of digitalization, is highly relevant to the process of effective implementation of that tool. Past studies already pointed out that **user-friendliness** is a facilitator of effective implementation (Khilji & Wang, 2006; Kim & O'Connor, 2009), but a definition for what could be seen as **user-friendliness** is absent. The findings indicate that to define **user-friendliness** one does not only include **easy-to-use** in this definition. **User-friendliness** should also include **intuitiveness** because **intuitiveness** cannot be treated as a characteristic of content but should rather be seen as part of **user-friendliness**. Both **easy-to-use** and **intuitiveness** were used by the respondents interchangeably. This indicates their similarity, however, they remain different in their definition, because intuitiveness relates more to easy usage without prior explanation whereas

easy-to-use relates to each time the tool is used, it goes easily. These two constructs fit under **user-friendliness**, but each of them has a separate influence on the **user-friendliness** of a new system or tool. Therefore, for a tool to be user-friendly, there should be looked at the **intuitiveness** and **easy-to-use** of the tool.

Another factor that is not included in the framework is **time-saving**. **Time-saving** is important to employees since they see no use for a new tool or system that increases or equals the time to spend on their tasks. A new tool should decrease the time to spend on a task or it is inefficient. **Time-saving** and **user-friendliness** are both content facilitators for leadership behaviour. Employees will not try new tools or work with a new system if a tool or system takes too much time to understand. It does not only impact effective implementation but it also impacts the leadership behaviour of managers. They have to anticipate on resisting employees or make an example of employees that already use it. Therefore, the content has a significant influence on the leadership behaviour that would lead to effective implementation. The relationships between content, leadership behaviour and effective implementation can be seen in figure 7.

Thus, managers who engage in digitalization, have to be aware that new systems and tools are **time-saving** and **user-friendly**. Managers must explain to the employees why it is **time-saving** and how it is **user-friendly**, but in the end, the employees need to experience if it is **user-friendly** and **time-saving**.

5.2 Leadership behaviour

The leadership behaviour of the line-managers matched what was expected for a good implementation climate. The implementation climate of Klein and Sorra (1996) states that for changes to get implemented, managers must ensure that employee skills are used in the innovation, provide incentives for innovation use and discourage innovation avoidance and remove obstacles that are in the way of innovation use (Klein & Sorra, 1996). In addition to the implementation climate, they state that there should be an individual fit between the values of the innovation and the employees working with it.

The findings show that concerning the individual value fit, that this is already achieved at the department. The employees are willing and eager to change and to improve their work with more digitalization. They are prepared for more because that is what the employees want. As this is already the case for many divisions in the department, no clear behaviour can be linked to the value fit. At the moment the responding employees all had a positive attitude towards change, which might be due to **advocating change** for a long time to get all the employees on the same page concerning digitalization. However, this cannot be stated with absolute certainty, so further research is required regarding leadership behaviour and individual value fit.

The other component is the organizational climate of the department. According to Klein and Sorra (1996) managers should remove obstacles in the way of innovation, which can be compared to **problem-solving** behaviour that is described by Yukl (2012). The line-managers are very active in **problem-solving** because they see it as their job to facilitate the employees in their wants and needs. The increase in **problem-solving** behaviour goes together with an increase in **empowering** at the department. Digitalization shifts the role and therefore the behaviour of the manager. The manager takes a step back and empowers the employee to do their job, while he focusses on removing obstacles in the way of the employees (Prentice et al., 2013). The employee becomes the expert (Larjovuori et al., 2018) and the manager becomes a leader who inspires employees (Cascio & Montealegre, 2016). Managers do not only empower employees, but the managers also engage in **developing** behaviour

and **facilitate collective learning**. This adds to the implementation climate because the skills of employees are used and they are provided with some freedom to develop themselves how they think they can contribute the most. Lastly, the managers of the department engage a lot in different forms of **change-oriented** behaviour. That leads to the encouragement of change and at the same time to the discouragement of a conservative attitude.

However, regarding the **change-oriented** behaviour, a few steps must be made to improve the envisioning of change. Envisioning change is meant to lay down a vision. The vision is necessary to work towards and for the managers to use whilst advocating change, providing base argumentation of why change is needed. Without a vision or plan, an organization will put together different technologies and systems inefficiently (Westerman et al., 2014), which will also influence the implementation. If the different systems do not cooperate well, it will become inefficient and does not save time.

Another behaviour that stood out was **networking** behaviour. Public managers engage often in networking behaviour to prepare for future problems or to get approval for new policies or systems. In a large public organization such as this university, line-managers do not have all the power to make decisions. They need the approval of someone else somewhere in the department or they must work together with another department. By **networking**, managers are **future problem-solving**, because if you are on a good foot with the person that approves, it will get done. So, in a public organization **networking** behaviour is also an important behaviour that relates to removing obstacles

The different behaviours that have a direct impact on the implementation of digitalization at public organizations. The line-managers create with their behaviour an organizational climate that supports innovation. Relationship behaviour next to change behaviour seems to be the key behaviour categories that support the implementation of disruptive innovations such as digitalization. Not only are these behaviours important for the implementation, but also during the time after implementation. Digitalization is becoming a global trend, which in time will be a new standard, it is truly is the next big thing. Managers need to keep in mind that as their organization goes down the path of digitalization, they might have to reflect on their behaviour and change their ways if necessary.

The other major finding concerns the three new behaviours that were detected. The behaviours of **evaluating**, **involving** and **enforcing** were not included in the matrix of Yukl (2012). These behaviours have a strong connection to the implementation process since line-managers are showing them during times of implementation. Each of these behaviours has its impact on implementation which will be discussed in the next section.

The behaviour of **evaluating** relates to the theory that implementation is a dynamic process. In a dynamic process, feedback is important as is pointed out by Mirfahkar et al. (2018) and Van Mierlo et al. (2018). Policies and practices have to be evaluated by management as well as the employees, otherwise, the policy would never fit the wishes of both parties. At the department, the line-managers actively engage in this behaviour by asking for feedback after they started to work with new technologies. Despite their efforts, managers cannot always change what needs to be changed. The feedback of the managers is heard by the director of the department, but when it reaches the board of the organization, actual changes stays out. So, the behaviour of evaluating proves to be good for implementation, but it needs to be carried out throughout the whole organization, otherwise change does not occur.

On the other hand, there is involving. Conversely to **evaluating**, which happens after a new policy or technology gets implemented, **involving** is done by managers before implementation. Trullen and Valverde (2017) stated that if managers are involved in the design of a policy or practice they are

more willing to put that practice/policy into place. The same concept can be seen between managers and employees. If employees are involved in the creation the technology or policy, they are more willing to work with it, which improves effective implementation. Employees tend to be more favourable towards innovation or change because their voices were heard and the effort they put into the innovation or change. As the employees put effort in a policy that is to come, they already invested in it. When people invest in something like this policy, they are also putting more effort into seeing that it succeeds (Kahneman & Riepe, 1998). That is why **involving** is a behaviour that should be carried out by managers to achieve effective implementation.

Both evaluating and involving are two behaviours that rely heavily on communication. According to Jakubik and Berazhny (2017), communication will be the most important factor in digitalization. They argue that since most communication will be conducted electronically, it becomes the task of the manager to handle the human factor in communication. **Evaluating** and **involving** are together two behaviours that managers must practice because those are essential to the communication around implementation for management and employees. While **evaluating** and **involving** are based around communication, **enforcing** does not revolve around communication.

Enforcing is seen by managers as a last resort to push employees to get them to work with a new digital tool. This behaviour is particularly possible in an era of digitalization because managers can simply turn off a system or tool. This way the manager forces the employees to use the intended system. This behaviour does not come easily, because managers force employees against their will to change. In the future, this might lead to employees resisting even harder to changes. **Enforcing** can help the last resisting employees to switch to another system, which they will have to work with and once they work with it they will find out that it works better. So, **enforcing** can help managers, but they have to be careful if they want to engage in this behaviour since it can also weaken the relationship between manager and employee.

In conclusion, leadership behaviour is important for creating a climate for implementation. The climate is necessary to smoothly implement new digital tools and systems on a high rate. To create this climate line-managers have to actively engage in **relationship** and **change** behaviour. But especially in a public organization **problem-solving** and **networking** behaviour are important too to form an implementation climate. Furthermore, communication to employees before and after implementation is crucial. Managers should engage in this by **involving** and **evaluating**. After these options are tried but none worked, a manager can always **enforce**, but this is not the ideal behaviour for implementation.

5.3 Context

The context in which managers operate also has a major impact on the leadership behaviour that they engage with. The context is build up out of three levels which are **macro**, **mezzo** and **micro**. All these different levels impact the manager's behaviour differently. The **macro** context cause managers to be looking for the next innovation. In the whole country, educational support services are looking for ways to improve their current business. The same eagerness for innovation is seen at the **micro** level, where the values of employees and managers are aligned. They both strive for improvement and innovation in regards to digitalization, there is an individual value fit so to say (Klein & Sorra, 1995). Therefore, it is expected that managers show a lot of change behaviour which they do. Despite the **macro** and **micro** context being positive towards innovation, the **mezzo** context differs on that matter.

First of all, this research is conducted at the educational support department of an educational institution. This has a few implications for the organizational culture of **mezzo** context that need to be addressed before delving deeper into the influence of the **mezzo** context. The department serves as a tool for students, teachers and other staff and provides support to those at the institution who ask or require it. The supporting nature of the department leads to a culture that relies on evaluation. If the support that is provided does not work, this has to be evaluated otherwise a whole department will work for nothing. Managers want to move forward with their divisions and want to be innovative. They transfer these values to their employees, creating a department that actively searches for progress and innovation, which in their case relates to digitalization. That is one reason why the department favours digitalization. Digitalization already transferred a lot of processes from manual to digital, which led to a high-efficiency sweep. Efficiency is necessary for the department because of budget cuts but at the same time the growth of the university. So, for a lot of people working in the department digitalization is the solution.

The other issue in the **mezzo** context rises because the educational institution is a public organization. As mentioned before **networking** is an important behaviour to get innovations going. Nevertheless, what stands out in the organizational influence is the lack of time and space provided by the board to work on innovation and digitalization for the department. Despite the efforts to get on a good foot with the board, managers and employees cannot fully work on innovations getting implemented. The implementation of digitalization is hard at the department because it is not a dynamic process. Implementation included that policies go from top to bottom and from the bottom to the top continuously (Van Mierlo et al., 2018). For digitalization goes that it is an implementation that goes top-down (Kane et al., 2015), but here the digitalization goes bottom-up. Therefore, digitalization is not always a top-down implementation. However, the top management is needed to coordinate the digitalization of it comes from bottom-up. As Westerman et al. (2014) pointed out a digital strategy is important to get digitalization under control. Due to the bottom-up digitalization, the educational institution is now in the stage of *Fashionistas* (Westerman et al., 2014), there is a high intensity of digital technology, but there is a low transformation of management. Digitalization can be a bottom-up implementation, but there is still a need for management to coordinate it for all different departments.

Earlier studies already pointed out that context is an important factor when it comes to implementation (Fernandez & Rainey, 2006; By & Macleod, 2009). This study points out that during implementation at public organizations, the **mezzo** context should be in favour of change and everyone in the organization has to agree to the vision for the whole organization. Top-management around the organization needs to set the goals together based on the vision of the organization. Setting the goals together is important because that way the isolation from one another and the protection of their division will decrease. If they can work together they can move from *Fashionistas* with a lack of strategy and vision to *Digirati*.

5.4 Limitations & further research

This research has been conducted to be the best extend possible, yet there are some limitations to the study that should be improved in further research. To start with the selection method of the respondents, initially, the researcher wanted to select employees for the research, but the research had to be set up via the managers of the divisions. The managers wanted to know exactly what kind of study it was and what the interview would include selecting employees that were able to help in the research. This leads to a process where after the managers were interviewed, the researcher was given

names of the employees that did want to help or had knowledge about digitalization. Since the managers were the ones that provided the list with employees, the group of employee respondents might be biased. Managers can easily propose employees that are favourable to their leadership or have a good work-relation with a manager. This could out filter employees that are not aligned with the opinions of the managers, which would have resulted in different findings. On the other hand, during the interviews, several interviewees were not favourable in their answers to the managers. The respondents were critical to their managers' leadership style, organizational culture and other subjects that were discussed. This suggests that the bias of the group employee respondents was limited since they were not all favourable and even critical on management.

Furthermore, not all divisions of the department were interviewed, which impacts the internal validity as the whole department is not represented in the data. The study has only been performed with five of the seven divisions. Out of those five divisions, only one division was not very occupied with digitalization like the remaining two that were not represented in the data. If the divisions that are not occupied with digitalization would have been interviewed this would have provided more diverse insights into digitalization in the department. Despite the exclusion of some departments because of time-limitation, the representation between more digital and less digital divisions fit the department, because even the lesser digital divisions are digitalizing. Meaning, that in the whole department digitalization is a topic, so any division would have fitted.

This study is performed to find differences or similarities between divisions that are working towards digitalization. The differences and similarities were studied by looking into divisions who are digitalizing and divisions that are not. It was good to see how managers were handling digitalization at their division, but for further research, it might be interesting to look into the implementation of digitalization on a department level or even organizational level. It is good to see that digitalization can get implemented on a division level, but it would be interesting to compare departments and organizations. By comparing departments and organization a researcher can check whether the same rules apply if the number of employees increases. In addition to this, a researcher should study the role of context and culture more extensively. There might be two different cultures between departments and organizations, while this is not easily the case between small divisions. Moreover, this research should not only be conducted at public organizations, but there needs to be looked into private organizations as well. There might be a big difference between public and private organizations on how they handle digitalization, but there might also be similarities between how the managers in both these organizations deal with the implementation of digitalization.

Lastly, more research should be conducted to the behaviours of involving, evaluating and enforcing. These three behaviours widen the spectrum of leadership behaviours provided by Yukl (2010) and they have the potential to contribute to the literature regarding leadership if they are further studied. Some research addresses that the transformational leadership style is essential to implementation (Van der Voet, 2014; Herold et al., 2008). Further research should study the link between this leadership style and various leadership behaviours whether there is a particular leadership style linked to change and implementation or that there are just independent behaviours that managers show because the situation asks for it.

6. Conclusion

This study aimed to find out which leadership behaviours are required to be shown by managers during the implementation of digitalization. This was done based on the effective implementation model from Mirfakhar and colleagues (2018) which also took the content and context into account whilst looking into the behaviour of managers. This study provides empirical evidence that relationship behaviour of managers is required the implementation of disruptive changes, but it also found that relationship behaviour is not the only type of behaviour that needs to be shown by managers. Besides relationship behaviour, change behaviour was also found to be positively related to effective implementation. There were also 3 new behaviours discovered that do not fit in both of these categories. These behaviours are involving, evaluating and enforcing. Besides, the change and relationship behaviour managers should show these behaviours because it has a positive influence on the implementation of digitalization at a public organization. The used model shows that there is a link between what leadership behaviour and the content of the innovation and the context in which the innovation gets implemented to. This study provides evidence for this model as both content and context have a significant effect on the leadership behaviour that managers show given the implementation of new technology.

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8. Appendix

Appendix 1 Leadership constructs by Yukl (2012)

The definitions of each leadership behavioural construct from the hierarchical taxonomy according to Yukl (2012).

Planning: develops short-term plans for the work; determines how to schedule and coordinate activities to use people and resources efficiently; determines the action steps and resources needed to accomplish a project or activity.

Clarifying: clearly explains task assignments and member responsibilities; sets specific goals and deadlines for important aspects of the work; explains priorities for different objectives; explains rules, policies, and standard procedures.

Monitoring: checks on the progress and quality of the work; examines relevant sources of information to determine how well important tasks are being performed; evaluates the performance of members in a systematic way.

Problem Solving: identifies work-related problems that can disrupt operations, makes a systematic but rapid diagnosis, and acts to resolve the problems in a decisive and confident way.

Supporting: shows concern for the needs and feelings of individual members; provides support and encouragement when there is a difficult or stressful task and expresses confidence members can successfully complete it.

Recognizing: praises effective performance by members; provides recognition for member achievements and contributions to the organization; recommends appropriate rewards for members with high performance.

Developing: provides helpful feedback and coaching for members who need it; provides helpful career advice; encourages members to take advantage of opportunities for skill development.

Empowering: involves members in making important work-related decisions and considers their suggestions and concerns; delegates responsibility and authority to members for important tasks and allows them to resolve work-related problems without prior approval.

Advocating Change: explains an emerging threat or opportunity; explains why a policy or procedure is no longer appropriate and should be changed; proposes desirable changes; takes personal risks to push for approval of essential but difficult changes.

Envisioning Change: communicates a clear, appealing vision of what could be accomplished; links the vision to member values and ideals; describes a proposed change or new initiative with enthusiasm and optimism.

Encouraging Innovation: talks about the importance of innovation and flexibility; encourages innovative thinking and new approaches for solving problems; encourages and supports efforts to develop innovative new products, services, or processes.

Facilitating Collective Learning: uses systematic procedures for learning how to improve work unit performance; helps members understand causes of work unit performance; encourages members to share new knowledge with each other.

Networking: attends meetings or events; joins professional associations or social clubs; uses social networks to build and maintain favourable relationships with peers, superiors, and outsiders who can provide useful information or assistance.

External Monitoring: analyses information about events, trends, and changes in the external environment to identify threats, opportunities, and other implications for the work unit.

Representing: lobbies for essential funding or resources; promotes and defends the reputation of the work unit or organization; negotiates agreements and coordinates related activities with other parts of the organization or with outsiders.

Appendix 2 Employer questions

Goedendag mevrouw/meneer ...

Mijn naam is Floris van den Heiligenberg en ik ben een Master student in de richting Human Resource Management. Het interview dat ik zal gaan afnemen is voor mijn afstudeerscriptie. In dit onderzoek kijk ik naar het leiderschap gedrag dat nodig voor de implementatie van nieuwe digitale systemen. Ik doe mijn onderzoek in opdracht van de HR afdeling van de UT, daarom zal ik mij ook richten op de HR-systemen die in gebruik zijn.

Ik zou dit interview graag willen opnemen, zodat ik dit later kan uitwerken. Als u wilt kan ik de transcript van het interview nog naar u terug sturen voor controle zodat ik de correcte weergave heb van het interview. Heb ik uw toestemming dit interview op te nemen?

In het onderzoek zult u anoniem blijven. Er zullen geen namen of functies worden genoemd in het onderzoek. Heeft u verder nog vragen voorafgaand aan het interview?

Introductie

- Wat is uw functie en wat zijn uw verantwoordelijkheden?
- Hoe lang geeft u al leiding?
- Aan hoeveel mensen geeft u leiding?
- Wanneer bent u begonnen bij de CES?
- Wat is de visie van uw afdeling op digitalisering?

Digitalisatie

- Wat doet uw afdeling aan digitalisering?
- Hoe digitaliseert uw afdeling?
- Wat is de reden voor digitalisering bij uw afdeling?
- Wat vindt u van de toenemende digitalisatie bij uw afdeling?
- Hoe belangrijk is digitaal werken voor de toekomst van uw afdeling?
- Op welke manier verandert uw werk door de toename van digitalisatie bij uw afdeling?
- Wat is er veranderd voor de medewerkers van uw afdeling door digitalisatie?
- Wat zijn de grootste uitdagingen op het gebied van digitalisering binnen uw afdeling?
- Hoe kan de CES volgens u nog meer gebruik maken van digitalisering?
- Welke ingevoerde systemen zijn een succes geworden? Hoe zijn deze systemen geïmplementeerd?

Leiding geven

- Hoe ziet u de rol die u heeft binnen uw afdeling?

- Hoe zou u de relatie tussen u en uw medewerkers beschrijven?
- Hoe zou u de communicatie tussen u en uw medewerkers omschrijven?
- Wat vraagt digitalisatie op dit moment van u in uw functie als leidinggevende?
- Hoe bereidt u uw medewerkers voor op de toename van digitalisatie?
- Hoe gaat u om met nieuwe systemen die ingevoerd moeten worden?
- Welke stappen onderneemt u bij het implementeren van digitalisering in uw team?
 - Hoe zorgt u voor gebruik van digitale systemen door medewerkers?
 - Hoe stimuleert u het gebruik van nieuwe systemen bij medewerkers?

Organisatie cultuur

- Wat wordt er van u verwacht omtrent de verbetering van digitalisatie van de directeur?
 - Wat verwacht u van uw medewerkers betreffende de verbetering van de huidige systemen?
- In hoeverre ziet u een verschil tussen andere afdelingen van de CES op het gebied van digitalisatie?
 - In hoeverre speelt de organisatiestructuur een rol in uw handelen als leidinggevende?

Inhoud van Digitalisatie

- Hoe vaak maakt u gebruik van de digitale HR-systemen?
- Wat vindt u van de huidige digitale HR systemen?
- Wat zijn belangrijke factoren bij het gebruiken van een nieuw systeem?
- Wat zou er kunnen veranderen aan de huidige digitale HR systemen?
- Wat vraagt digitalisatie van HR op dit moment van u in uw functie als leidinggevende?

- Mocht ik nog aanvullende vragen hebben, bent u dan bereidt om deze te beantwoorden?
- Heeft u verder nog vragen?

[Appendix 3 Employee questions](#)

Goedendag mevrouw/meneer ...

Mijn naam is Floris van den Heiligenberg en ik ben een Master student in de richting Human Resource Management. Het interview dat ik zal gaan afnemen is voor mijn afstudeerscriptie. In dit onderzoek kijk ik naar het leiderschap gedrag dat nodig voor de implementatie van nieuwe digitale systemen. Ik doe mijn onderzoek in opdracht van de HR afdeling van de UT, daarom zal ik mij ook richten op de HR-systemen die in gebruik zijn.

Ik zou dit interview graag willen opnemen, zodat ik dit later kan uitwerken. Als u wilt kan ik de transcript van het interview nog naar u terug sturen voor controle zodat ik de correcte weergave heb van het interview. Heb ik uw toestemming dit interview op te nemen?

In het onderzoek zult u anoniem blijven. Er zullen geen namen of functies worden genoemd in het onderzoek. Heeft u verder nog vragen voorafgaand aan het interview?

Introductie

- Wat is uw functie en wat zijn uw verantwoordelijkheden?

- Wanneer bent u begonnen bij de CES?
- Hebt u hiervoor een soortgelijke functie vervuld bij een andere organisatie?
- Wat is de visie van de CES op digitalisering?

Digitalisatie

- Wat doet uw afdeling aan digitalisering?
- Wat is de reden voor digitalisering bij uw afdeling?
- Wat is uw visie op de digitalisering binnen op uw afdeling?
- Welke ingevoerde systemen vindt u succesvol?
- Wat is de reden dat deze systemen wel een succes zijn geworden en anderen niet?
- Wat zijn de grootste uitdagingen op het gebied van digitalisering binnen uw afdeling?
- Hoe kan de CES nog meer gebruik maken van digitalisering?

HR-systeem

- Hoe vaak maakt u gebruik van de digitale HR-systemen?
- Wat vindt u van de huidige digitale HR systemen?
- Wat zijn belangrijke factoren bij het gebruiken van een nieuw systeem?
- Wat zou er kunnen veranderen aan de huidige digitale HR systemen?

Rol van de leidinggevende

- Hoe ziet u de rol van uw leidinggevende binnen het team?
- Hoe zou u de relatie met uw leidinggevende omschrijven?
- Hoe is de communicatie tussen u en uw leidinggevende?
- Op welke manier verandert uw werk door de toename van digitalisatie op uw afdeling?
- Op welke manier gaat uw leidinggevende om met toenemende digitalisatie?
- Hoe wordt u voorbereidt door uw leidinggevende op de toenemende digitalisatie?
- Hoe zorgt uw leidinggevende ervoor dat u meer gebruik gaat maken van digitale systemen?
- Wat doet uw leidinggevende om het gebruik van nieuwe systemen binnen de afdeling te vergroten?

Appendix 4 Coding Scheme

Category	Subcategory	Definition	Example
Digitalization	Benefits	Current/Past developments which are directly/indirectly linked to be beneficial to the organization or to individuals in the organization	<i>'But you cannot escape the fact that you want to work efficiently. Then you will automatize, which does not mean less work, just different work'; 'I feel like it is easier, less chaotic and more clear'</i>
	Obstacles	Problems related to the implementation of digitalization	<i>'You cannot do everything and not everyone likes computers'; 'The process was laborious, we looked for an owner of the process for a long, because there was none'</i>
	Opportunities	Potential digitalization developments which are beneficial to the organization or to individuals in the organization	<i>'Eventually we want to work with a central system, but the organization also has to follow'; 'Now everything works according to the steps of the tool, which creates some consistency'</i>
	Challenges	Possible challenges that will occur in a later stage of implementation of digitalization	<i>'You see that the wishes of the users change to what they were used to, so our work increased by a lot'; 'I think that capacity on the systems should be raised significantly'</i>
Content	User-friendliness	Easy to use digitalization content for individuals, easy and understandable content of an implementation	<i>'It became a success because it saves time and it is extremely user-friendly'; 'There might be a manual, but I am not going to read it. It should be a bit intuitive, everyone can work with computers'</i>
Context	Macro	Industry or country wide norms and values that	<i>'Because the government obliges it'; 'We looked at the impact at</i>

		influence the behaviours of leaders	<i>other institutions'; 'You cannot escape it, it is a development that runs globally'</i>
	Mezzo	Organizational cultural spread values that influence behaviours of leaders	<i>'Generally on the topic of digitalization the university is bottom-up; 'I wonder from my own experience what the university wants, if they do not create the right circumstances'</i>
	Micro	Individual or group level values that influence the behaviours of leaders	<i>'I have an open-door policy, I am accessible and I notice that people come to me quicker'; 'We became small islands, and no one knows what the other is doing, because the work is so different'</i>
Task-oriented	Clarifying	Clearly explaining assignments, rules, policies, procedures, priorities	<i>'You must make sure that your people are informed, what does that mean for their job'; 'I was informed, not directly, but after the meeting, he walked in to check on me'</i>
	Planning	Developing plans for the short-term goals, determining how to achieve the set goals	<i>'We wanted to make Osiris more flexible, to prepare for the flexible education that the university wants'; 'But then we encountered problems like capacity, technical support and logistics'</i>
	Monitoring operations	Checking progress of the work, checking the quality of delivered work, systematic evaluating	<i>'We only control on the headlines to provide support'; 'I don't have the feeling that he is looking over my shoulder while I work'</i>
	Problem solving	Identifying problems, actively trying to resolve the identified problems	<i>'I cannot fix some issues, that my manager can'; 'I see a manager as someone who makes it possible for others to do their job'</i>
Relationship-oriented	Supporting	Encouraging employees to get through difficult situations, showing concern for the feelings of employees	<i>'I enjoy her coaching way of managing'; 'I like short lines and actively approaching people' 'We have always time to discuss private stuff with each other'</i>
	Developing	Providing employees with feedback, encouraging employees to sees opportunities	<i>'She offered me that space for educate myself as functional manager'; 'I see that some struggle to get along with</i>

			<i>digitalization, then I offer them support'</i>
	Recognizing	Recognizing achievements, praising good performances	<i>'Putting people who easily go along with digitalization in their strength so that they take others with them'</i>
	Empowering	Giving employees more autonomy in their tasks, delegating responsibility to employees	<i>'He tries to stimulate responsibility'; 'I think it is important that the experts are in the division, they know what goes on. They control their own activities.'</i>
Change-Oriented	Advocating change	Explaining why change needs to happen, proposing desired change, taking personal risks	<i>'I emphasize that we are dealing with digitalization, which needs continuous attention and that is what I expect'; 'I do not see my manager as a pioneer on digitalization'</i>
	Envisioning change	Communicating a clear vision, linking vision to individual values	<i>'Sometimes I expect more guidance'; 'We are waiting for the vision of the university on digitalization, so we can adapt'</i>
	Encouraging innovation	Showing the importance of innovation, encourages innovative thinking, support innovative ideas	<i>'He supports the initiatives and says we should try it out the next period of time'; 'Digitalization to me is not a goal of itself. It has to contribute to the processes in the university'</i>
	Facilitating collective learning	Encouraging members to share knowledge, putting procedures in place that improve group performance	<i>'There is an interdisciplinary team. The thought behind this team was to put ICT people and educational experts together to share their knowledge'; 'If I want, I can go to another departments to learn and see their way of working'</i>
External	Networking	Maintaining favourable relationships, gaining possible relevant relationships for the future	<i>'We came together to discuss what the adjustment meant to other divisions. You cannot adjust it alone, because it creates problems earlier or later in the process'; 'We also improved our contact and tuning with the strategy and policy department, but we do not see any concrete differences'</i>

	External monitoring	Analysing external information, deciding whether it is a threat or opportunity	<i>'I am part of a national think-tank on functional management and professionalization of the discipline'; 'We also closely watch what happens developments outside the university'</i>
	Representing	Lobbying for funding, defending the reputation of the workgroup, negotiating with others for the group	<i>'I am not always aware how he presents our division to others'; 'I am also involved in the digitalization strategy and I provide feedback to my division and ask them for input'</i>