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Employees' Technology Acceptance in the Workplace: Extending the Unified Theory of

Acceptance and Use of Technology

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Abstract

In response to new technology taking place in many organizations, this thesis intends to contribute to the literature of technology adoption. The current study applies the Unified Theory of Acceptance and Use of Technology and extends the model by adding different digital mindsets, such as growth/fixed digital mindset and zero-sum/expandable-sum digital mindset. The aim is to investigate to what extent digital mindsets may influence employee's technology acceptance and their intention to use new technology. This study relies on a cross-sectional design and examines 87 HR workers in a company that is in the process of implementing a new digital HRM system.

The findings show that performance expectancy, social influence, and effort expectancy, has a strong positive influence on employees' intention to use new technology. This study contributes to the research field of information technology by providing valuable insights about individuals' technology acceptance, and to better understand how new technology can be introduced successfully in the workplace. Also, it serves as a foundation for future research on technology acceptance, and employee's intentions to use new technology. Practical implications, limitations, and suggestions for future research are discussed.

Keywords: *Mindset, Digital Mindset, Technology, Employee Responses, Technology Acceptance, Information Technology, Unified Theory of Acceptance and Use of Technology*

1.0 Introduction

Digitization and automation of work are today considered by many to be one of the most important trends in the world, which will change the nature of work, businesses and society in the coming years (Arntz, Gregory, & Zierahn, 2016; Brynjolfsson & McAfee, 2014; Ford, 2015). Digitization can be explained as increasing penetration of digital technologies in society, which changes the connection of individuals and their behaviors (Gimpel & Röglinger, 2015). Digital transformation is change and must be managed with extreme care, like every organizational change initiative (Wade & Marchant, 2014). Many organizations underestimate the people dynamic of digitization and the need for aligning processes, people, and organizational culture (Kohnke, 2017). Professor Raffi Amit at Wharton University emphasizes that it is not technology that is the obstacle to digital transformation, but people (cited in Bonnet & Nandan 2011, p. 8). Consequently, leaders must understand the implications of digitization on their organizations and the people working in them (Kohnke, 2017). To succeed with new digital ways of working, it is important to win the hearts and minds of people at all levels in the organization (McAfee & Welch, 2013).

The importance of studying user adoption of information technology (IT), has been acknowledged since the 1980s, and to utilize technology and realize the potential value it requires user adoption (Hu, Chau, Sheng & Tam, 1999). There exist many theories on IT adoption, like innovation diffusion theory, the PC utilization model, and social cognitive theory (Min, Ji & Qu, 2008). However, there was missing a single theory covering all, or the majority, of the factors included in these individual models, and efforts were made to integrate them. After reviewing eight prominent theories on IT adoption, Venkatesh, Morris, Davis, and Davis (2003) proposed The Unified Theory of Acceptance and Use of New Technology (UTAUT). The model posits three determinants of intention to use new technology, including performance expectancy, effort expectancy, and social influence. Performance expectancy is defined as the degree to which individuals believe that using the system will result in performance gains (Venkatesh et al., 2003). Effort expectancy is described as the degree of ease related to the use of the system (Venkatesh et al., 2003). And lastly, social influence is defined as the extent to which individuals perceive that important others believe he or she should use the new system (Venkatesh et al., 2003). Intentions can be described as motivational

factors that influence behavior (Ajzen, 1991). Accordingly, the UTAUT model postulates that behavioral intention (BI) is a direct determinant of usage behavior (Venkatesh et al., 2003). After its publication, the UTAUT has served as a baseline model, and it has been applied to the study of different technologies.

Some studies have examined the UTAUT in new contexts. For instance, Chang, Hwang, Hung, and Li (2007), found support for the applicability of UTAUT in explaining physicians' utilization of a clinical decision support system in the context of a healthcare organization. Another study found the UTAUT model to be valid in terms of understanding the adoption and successful use of ICT (Information and Communication Technologies) in government organizations in developing countries (Gupta, Dasgupta & Gupta, 2008) Some studies have included exogenous predictors of the UTAUT variables. For example, one study integrated UTAUT with charismatic leadership theory and examined the role of project champions in influencing user adoption (Neufeld, Dong & Higgins, 2007). The results revealed that project champion charisma was positively associated with increased performance expectancy, effort expectancy, social influence, and facilitating condition perceptions of users, which further influenced behavioral intention and use. The many replications and applications of the entire model, and parts of the model, have improved its generalizability (Venkatesh, Thong & Xu, 2012). Moreover, the validity, viability, and stability of the UTAUT model in technology adoption surveys within different contexts, have already been recognized and practically confirmed (Waehama, McGrath, Korthaus & Fong, 2014).

The UTAUT model, however, has some limitations and encourages future research to attempt to identify and test additional constructs that may explain technology adoption (Venkatesh et al., 2003). We would argue that a construct missing from the original UTAUT model is the individual's general belief systems. Research on digital transformation emphasizes that employees are essential to succeed with the implementation of new technology (McAfee & Welch, 2013; Kane, Palmer, Nguyen-Phillips, Kiron & Buckley, 2017). Still, most research available has studied employee's technology acceptance and adoption based on their beliefs about technological attributes, such as the UTAUT model, which focuses on ease of use and usefulness of the system (e.g., Venkatesh et al., 2003). Less research has examined why and how employees engage with new technology, or why and how employees may avoid or withdraw from the process (Solberg,

Traavik & Wong, 2020). We seek to address this gap by positing how these general beliefs work as sensemaking guidelines for understanding digital transformation, which in turn influences individuals' intention to use new digital systems. The way employees make sense of, and engage with new technology, is in turn influenced by their beliefs (Solberg et al., 2020). Neither the UTAUT model nor the original eight models include digital mindset as a construct. We would argue that it is important to include this construct to understand more about the acceptance and adoption of new digital systems.

A digital mindset is defined as an individual's attitudes or perceptions of new technology (Solberg et al., 2020). Digital mindset affects employees' motivation to take on challenges and how to deal with failures and setbacks (Dweck, 1986, 1999, 2006). Solberg, Traavik, and Wong (2018) argues that the success of a company going through a digital change can be determined by the mindset of the employees working in the organization. That is because whether we perceive new technology as an advantage or a disadvantage in the workplace, and whether we intend to approach new technology is likely affected by our mindset (Solberg et al., 2018). Some organizations have through their research highlighted the importance of adapting and taking advantage of digital technologies to improve operations, where digital mindset has been discussed as an important aspect of success (Kane et al., 2017). Accordingly, identifying employee responses can be useful for organizations to develop successful employee experiences with a new digital system. Organizations are therefore most likely to benefit from establishing a digital mindset as a core value in the organization. However, research argues that employees, leaders, or both in most organizations, lack a digital mindset (Gimpel, Röglinger, Hosseini, Probst & Faisst, 2018). Based on previous research and the importance of digital mindset, this study argues that by adding digital mindsets to the UTAUT model it may enhance its ability to predict the acceptance of IT.

The purpose of this study is to examine the link between different digital mindsets and technology acceptance, to better understand how new technology can be implemented in an organization. Given this background, our study aims to investigate the following research question: *To what extent may digital mindsets influence employee's technology acceptance?* To address this question, we will apply the UTAUT model and its three determinants (performance expectancy, effort expectancy, and social influence) of behavioral intention. We are extending

the UTAUT model by including different digital mindsets such as beliefs regarding the malleability of personal ability (fixed/growth digital mindset) and how they perceive the availability of situational resources (zero-sum/expandable-sum digital mindset). We propose that fixed/growth digital mindsets have a stronger influence on effort expectancy and social influence, while zero-sum/expandable-sum digital mindsets have a stronger influence on performance expectancy. Also, we expect to find confirmation of the relationship between the three determinants and BI to use new technology.

This paper contributes to the theoretical and empirical literature on IT adoption by attempting to identify and test additional constructs that may explain technology adoption. By adding digital mindsets to the model one might gain a better understanding of employees' technology acceptance, as it is shown to have a significant influence when explaining behavior (Dwivedi, Rana, Jeyaraj, Clement & Williams, 2019). Additionally, this study contributes to understanding the utility of UTAUT in the context of HR professionals, and a new digital HRM system.

2.0 Theoretical Background and Hypotheses

2.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The acceptance and use of IT has been a major concern for research and practice (Dwivedi et al., 2019). Many researchers have tried to understand the adoption and usage of new technology, and several competing models with different sets of determinants have been generated (Venkatesh et al., 2003). The theoretical models that explain the individuals' intentions have their origins in information system, psychology and sociology (Venkatesh & Davis, 2000; Venkatesh et al., 2003). Some of the most important and influential theories on IT acceptance and use, include Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and UTAUT (Dwivedi et al., 2019; Venkatesh et al., 2003).

TRA is drawn from social psychology and states that individuals' behavior can be predicted through behavioral intention (Fishbein & Ajzen, 1975). Behavioral intentions (BI) can be defined as a measure of the strengths of an individual's intention to perform a given behavior (Ajzen, 1991; Fishbein & Ajzen, 1975).

Intentions capture motivational factors that influence behavior and indicate how much effort the individual is planning to exert, or how hard they are willing to try to perform the behavior. Hence, the stronger an individual intends to behave a certain way, the more likely it is to happen (Ajzen, 1991). In the context of technology acceptance, intentions to use a certain technology has been shown to be the strongest determinant of actual usage (Davis, 1989; Venkatesh, 2000; Venkatesh & Bala, 2008). According to TRA, BI is determined by an individual's attitude and subjective norm concerning the behavior in question (Fishbein & Ajzen, 1975). The validity of the TRA remains high, although many researchers have extended this model beyond its stated boundary conditions (Sheppard, Hartwick & Warshaw, 1988).

The theories of TAM, TPB, and UTAUT all originate from the TRA (Min, Ji, & Qu, 2008; Dwivedi et al., 2019). TAM was proposed by Davis (1989), and claims that an individual's intent of use, and behavior to use the new system, depends on the perceived ease of use and perceived usefulness. Usefulness and ease of use will influence the individual's attitude towards using the system, while BI is a function of attitude and usefulness. BI then determines usage behavior (Davis, 1989). TAM was further extended to TAM2, where social and organizational factors were included, like subjective norms, impressions, quality of output, and work relevance (Venkatesh & Davis, 2000). TRA was modified due to its limitations, and Ajzen (1991) proposed TPB as an extension of the TRA. The TPB extended TRA by adding perceived behavioral control as an additional construct. Perceived behavioral control was incorporated to account for situations where individuals lacked substantial control over the targeted behavior (Ajzen, 1991).

Although these theories made important contributions to the field of IT adoption theories, they all used different terminologies in their expression of acceptance factors and did not complement each other. Therefore, a theory covering all, or the majority of the acceptance factors, was missing (Min, Ji, & Qu, 2008). In order to solve this gap, and to formulate a unified model on user acceptance, Venkatesh et al. (2003) integrated the eight prominent models on technology acceptance (See Appendix 1: Comparison of the eight models). The eight models consisted of TRA, TAM, and TPB, as well as the motivational model, a model combining the technology acceptance model and the theory of planned behavior,

the model of PC utilization, the social cognitive theory, and the innovation diffusion theory (Venkatesh et al., 2003).

This resulted in a model called the Unified Theory of Acceptance and Use of Technology (UTAUT). It was tested using the original data from the individual models and was confirmed with data from two new organizations, showing similar results. Venkatesh et al., (2003), found that the UTAUT model outperformed the eight individual models. While the eight models explained between 17% and 53% of the variance in user's intention to use new technology, the UTAUT explained about 70% of the variance in behavioral intention. The model posits three direct determinants of intention to use technology which include performance expectancy, effort expectancy, and social influence (Venkatesh et al., 2003). Further, the model includes two direct determinants of use behavior, which are BI and facilitating conditions (See figure 1). In this study, facilitating conditions and use behavior will not be investigated further. That is based on the fact that intention to use technology has been shown to be the strongest determinant of actual usage (Davis, 1989; Venkatesh, 2000; Venkatesh & Bala, 2008) Hence, we would argue that it is possible to predict behavior by only looking at the intention.

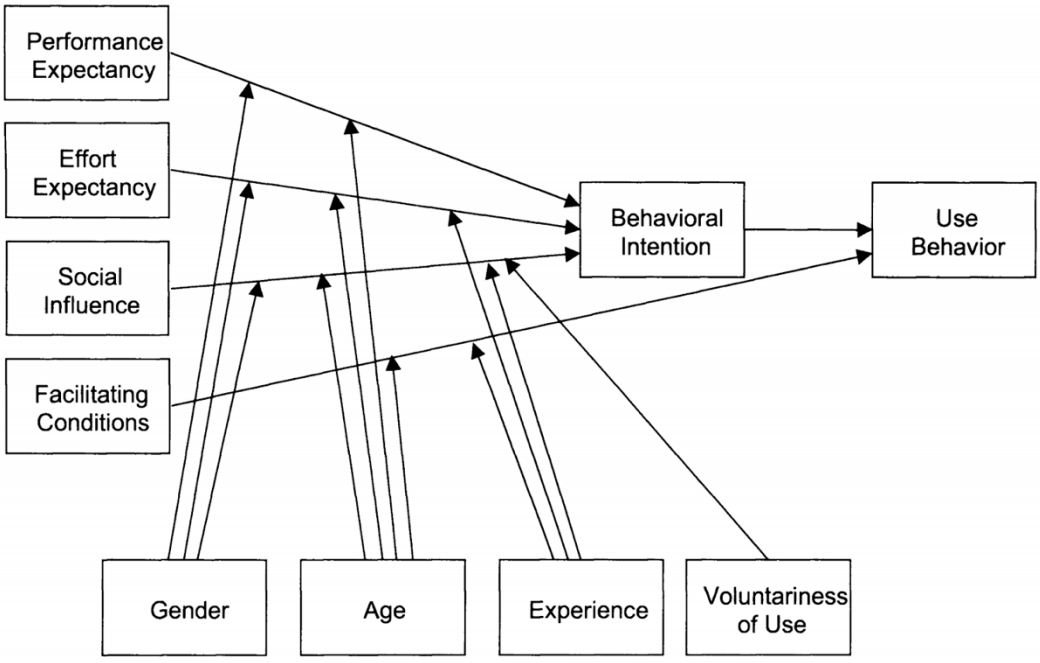

Figure 1: Unified Theory of Acceptance and Use of Technology (UTAUT). (Venkatesh et al., 2003, p. 447).

2.1.1 Performance Expectancy

Performance expectancy can be described as the perceived usefulness of technologies (Thomas, Singh & Gaffar, 2013). It follows from the definition of the word useful, which is described as capable to be used advantageously (Davis, 1989). Venkatesh et al. (2003), integrated similar concepts from other models to performance expectancy, including extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT), and outcome expectations (SCT). Researchers have previously recognized similarities between these constructs (e.g., Davis, 1989; Davis, Bagozzi & Warshaw, 1992; Thompson, Higgins, & Howell, 1991; Compeau & Higgins, 1995).

According to Davis (1989), individuals tend to use or not use a new digital system to the extent they believe it will help them perform better in their job. Often in work situations, employees are reinforced for good performance by bonuses, promotions, raises, or other rewards (Pfeffer, 1982; Schein, 1980). A system is therefore not likely to be received favorably if it does not help people perform in their job, even despite careful implementation (Robey, 1979). Hence, when there exists a positive use-performance relationship, a system is high in perceived usefulness and more likely to be used (Davis, 1989). Several acceptance studies have shown that performance expectancy is a strong predictor of intention to use (Davis, 1989; Chang et al., 2007; Taylor & Todd, 1995b; Venkatesh & Davis, 2000). Moreover, in the study of Venkatesh et al., (2003) performance expectancy was found to be significant at all points of measurement in both mandatory and voluntary settings, and the research argued that performance expectancy is the strongest predictor of intentions. Based on the extensive literature evidence, it can be proposed that:

H1: *Performance expectancy is positively related to behavioral intention.*

2.1.2 Effort Expectancy

Effort expectancy refers to the effort needed to use a system, and whether it is complicated or simple (Venkatesh et al., 2003). Effort expectancy is similar to perceived ease of use in TAM. According to this theory, usefulness and ease of use will have a large impact on users' attitudes towards using the system, which further

influences BI (Davis, 1989). Effort expectancy is also similar to the complexity of technology construct in the model of PC utilization, and the ease of use construct in the innovation diffusion theory. Further, the influence of perceived ease of use is supported by Bandura's (1982) research on self-efficacy (Davis, 1989). Self-efficacy refers to judgments of how well one can execute actions required to deal with potential situations (Bandura, 1982), and is similar to ease of use. According to this theory, individuals who doubt their capabilities are likely to reduce their efforts or give up when faced with difficulties. Therefore, behavior could be predicted by considering self-efficacy (Bandura, 1982). Effort is a limited resource that an individual may allocate between the various activities he or she is responsible for accomplishing (Radner & Rothschild, 1975). User-friendly technologies are thus more easily adopted or accepted by employees (Catherine, Geofrey, Moya, & Aballo, 2018). Many studies found effort expectancy to have a significant influence on BI (e.g., Davis, 1989; Thompson et al., 1991; Chang et al., 2007). Consistent with the UTAUT model, and extensive literature evidence we propose:

H2: *Effort expectancy is positively related to behavioral intention.*

2.1.3 Social Influence

Social influence refers to the individual's perceptions of the social pressures to adopt or not adopt a new digital system (Karahanna, Straub & Chervany, 1999). Venkatesh et al. (2003), integrated subjective norms, social factors, and image to this construct, which originates from TRA, the model of PC utilization, and the innovation diffusion theory. Image can be described as the improvement of class or solitary image in a social system by using the new system (Moore & Benbasat, 1991). Individuals' subjective norm refers to their perception that salient social referents think that they should or should not behave in a certain way (Ajzen & Fishbein, 1980). Examples of such referents are parents, employers, peers, teachers, and so on (Catherine et al., 2018). Lastly, social factors can be described as the individual's internalization of the reference group's subjective culture (Thompson et al., 1991).

The rationale for the direct effect of social influence on intention is that individuals may choose to perform a behavior, although they are not themselves favorable toward the behavior. This is dependent on whether they believe important referents think they should, and they are motivated to comply with the referents (Venkatesh & Davis, 2000). For potential adopters, innovation and digitization often create uncertainty about its consequences (Rogers, 1995). Since individuals in general are uncomfortable with uncertainty, they tend to increase communication (Katz & Tushman, 1979). The interactions with the social network may influence one's decision to adopt or not adopt through informational and normative influence. Informational influence includes information from close colleagues regarding their personal experience and evaluation of the new digital system. While normative influence refers to pressures from supervisors and peers to adopt the innovation, indicating the legitimacy and appropriateness of the adoption decision (Karahanna et al., 1999). Social influence has been found to have a significant influence on BI in many acceptance studies (e.g., Chang et al., 2007; Venkatesh & Davis, 2000; Karahanna et al., 1999). Consistent with the UTAUT model, we propose:

H3: *Social influence is positively related to behavioral intention.*

2.2 Digital Mindsets

In the field of psychology, implicit theories or mindsets can be defined as individuals' beliefs about the nature of human attributes or characteristics, such as intelligence and personality (Dweck, 2012). Further, mindsets create a mental framework for analyzing and interpreting human actions (Dweck, 1999). People's mindsets can explain the motivation and behavioral responses to take on challenges, and how people deal with setbacks and failures (Dweck, 1986, 1999; 2006; Zingoni & Corey, 2007). For example, individuals who view ability as more fixed, tend to avoid challenges. These individuals will most likely let one setback define them, and lead them unmotivated (Dweck, 2006). In contrast, when people view ability as something that can be improved, they are more likely to take on challenges, and effort may be seen as a tool in the process (Dweck, 2006, 2012). Thus, it is important to know what type of mindset employees have in terms of understanding employees' responses, for example in relation to a new digital system. The mindsets

a person holds can help explain why some employees resist a new digital system, while others approach it.

Digital mindset is a topic that has recently captivated the business world and has been used concerning digital transformations (Solberg et al., 2018, 2020). The term, digital mindset, has been used as a buzzword to express the need to think differently (Solberg et al., 2018). In line with Dweck's (1999, 2006, 2012, 2015) research on mindset, one can define the concept of a digital mindset as an individual's perceptions, beliefs, frame of reference, and attitudes towards new technology. The beliefs relate to digital transformation and employee's experience of a new digital system and will most likely influence their engagement towards a company's digital transformation initiatives (Solberg et al., 2020). Further, we propose that the concept of digital mindset is based on two general, individually held beliefs (Solberg et al., 2020). Consistent with Dweck's (2006, 2012, 2015) research, the first belief is self-oriented and refers to an individual's beliefs about the extent to which technological competence is fixed or malleable. The second belief is situation-oriented and refers to individuals' beliefs about finite resources that must be competed for in relation to new technology, versus expandable resources where everyone has the opportunity to gain (Sirola & Pitesa, 2017; Solberg et al., 2020). Individuals with different digital mindsets may have different responses and judgment patterns across various tasks and situations in the context of technological change (Dweck, Chiu, & Hong, 1995; Solberg et al., 2018, 2020). This is based on their general beliefs about the nature of resources available within themselves, in addition to available situational resources (Solberg et al., 2020). In other words, a digital mindset can impact whether there is a desire to embrace new technology or create avoidance or resistance. The belief regarding the malleability of personal ability (fixed/growth digital mindset), and the belief regarding how employees perceive the availability of situational resources (zero-sum/expandable-sum digital mindset), will be further explained in the next sections.

2.2.1 Fixed Digital Mindset vs. Growth Digital Mindset

Carol Dweck (2006) distinguishes between two different implicit theories that refer to contrasting beliefs about people's assumptions when it comes to the malleability of personal attributes. People can vary in their implicit theories from

more of a fixed or entity theory of intelligence or personality, to more of a malleable or incremental theory (Dweck, 2006). Those who hold an entity theory versus those who hold incremental theory, may have different judgment and response patterns across tasks and situations (Dweck et al., 1995). How the individual responds are related to the extent a person believes that his or her attributes are fixed, or can be developed (Yeager & Dweck, 2012). For instance, individuals with a more of a growth mindset tend to achieve more than those with a fixed mindset, because they worry less about upholding their image of looking smart and perceive challenges as a way of learning (Dweck, 2012; Dweck & Leggett, 1988; Zingoni & Corey, 2007).

An entity implicit theory is illustrated by some people who believe that human attributes are fixed by nature or uncontrollable, and cannot be further developed (Dweck 1999, 2006). People who are entity theorists thus hold a fixed mindset (Heslin, Latham & VandeWalle, 2005). Individuals who endorse a fixed mindset are more likely to avoid situations where they could be perceived as incompetent and tend to seek situations where their abilities or intelligence can be validated (Dweck & Leggett, 1988; Dweck, 2006). Consequently, they tend to be more willing to cheat or hide information to prove themselves (Blackwell, Trzesniewski & Dweck, 2007). Further, they may believe that each individual has a fixed amount of intelligence, without any ability to change (Dweck, 2006, 2012). If a person with a fixed mindset experiences setback due to the lack of ability, they often become discouraged or defensive. This can further lead individuals to be more resistant to development and new technology (Dweck, 2006). In situations where organizations must apply new technology, employees often look at personal conditions and the capacity to master the challenge (Solberg et al., 2018). Employees who endorse a fixed digital mindset about personal abilities to master a new digital system, may achieve less than their full potential, and will most likely not approach the system if they see it as a threat (Dweck, 1996, 2006; Blackwell et al., 2007; Dweck & Leggett, 1988).

On the contrary, incremental implicit theory assumes that human attributes are relatively malleable (Heslin et al., 2005). These people are also referred to as those with a growth mindset and tend to believe that people can change and develop their behavior over time (Dweck, 2006, 2012; Dweck & Leggett, 1988; Heslin, Vandewalle & Latham, 2006). People who endorse a growth mindset are more likely to seek situations where they can develop and stretch their abilities and

intelligence (Dweck & Leggett, 1988). For example, they may believe that all people can become more intelligent through effort and education (Dweck, 2012). Individuals with a growth mindset do not necessarily believe that anyone can be anything, however, they do believe that a person's true potential is unknown, and it is impossible to anticipate what can be accomplished with years of training and hard work (Dweck, 2006). The passion for stretching yourself and sticking to it is characteristic of a growth mindset. Also, people with this mindset see the importance of effort and recognize the value of a challenge. They are not only seeking challenges but thrive on it (Dweck, 2006; Blackwell et al., 2007). If they fail, it means they are not fulfilling their potential and need to utilize more effort to improve their abilities and performance (Dweck, 2006).

The two different mindsets have been shown to make a difference for success in academics, social contexts, and in the workplace (Heslin & Vandewalle, 2008). Research argues that employees with a growth mindset will have better job performance, compared to employees with a fixed mindset (Zingoni & Corey, 2007). There are several reasons why, like the fact that they respond to work situations with a learning approach (Zingoni & Corey, 2007), and are more likely to adapt to learning goals (Dweck & Leggett, 1988). In situations where they experience failure, they tend to increase their effort, instead of giving up. With a growth mindset, people are more driven to learn and tend to be more intrinsically motivated in comparison to a fixed mindset (Zingoni & Corey, 2007). Therefore, in terms of implementing a new digital system, people with a growth digital mindset tend to embrace new technology and put more effort into the challenge (Solberg et al., 2018).

As mentioned, mindsets are about beliefs that a person holds, and not about who a person is, which indicates that people's mindset or beliefs can change over time (Dweck, 2012). For example, if an employee has a fixed digital mindset about his or her own abilities to master a new digital system, it does not mean that his or her mindset cannot change in the future. Although two distinct mindsets are identified, one does not exclude the other (Dweck, 2015). Individuals can hold different mindsets in different situations (Dweck & Leggett, 1988), and most people hold a mixture of both, depending on the situation (Dweck, 2015). Dweck explains that individuals can have a dominant growth mindset in one area, but there can still emerge situations which triggers a fixed mindset trait (Dweck, 2015). For instance,

if individuals encounter someone who is better at something, they may believe that the other person has the ability, and not themselves. People may also hold a false growth digital mindset, which is when people believe they have a growth mindset, when they do not (Dweck, 2015). However, Dweck (2015) argues that nobody has a growth mindset in every situation all the time. Therefore, it is important to understand what triggers individuals into a fixed mindset and work with the triggers to keep staying in a growth mindset (Dweck, 2015)

2.2.2 Zero-Sum Digital Mindset vs. Expandable-Sum Digital Mindset

Zero-sum and expandable-sum is a phenomenon introduced in research on game theory, and is described as the tendency for individuals to either collaborate or compete in situations with ample or scarce resources (Von Neumann & Morgenstern, 2007). Both mindsets can influence human behavior, and whether or not individuals see situational resources as restricted or expandable are relevant in the context of new technology (Solberg et al., 2020). Individuals with a zero-sum digital mindset will consider change in a situation as a zero-sum game (Solberg et al., 2018), because the basic assumption for these individuals is that success for one person implies less success for others (Sirola & Pitesa, 2017). For instance, people with a zero-sum digital mindset are likely to look at new technology as a competitor which will take away resources in the workplace. Furthermore, they are more likely to be resistant to new technology, even though it is useful and user-friendly. The fear of new technology increases with a zero-sum digital mindset, in terms of individuals believing that new technology may replace them (Solberg et al., 2018), rather than becoming a supplement or tool to reach goals (Sirola & Pitesa, 2017).

In contrast, people with an expandable-sum digital mindset looks at new technology as an opportunity, rather than a threat, and believe gains are possible for all parties involved (Sirola & Pitesa, 2017). This can in turn be beneficial for both employees and organizations (Solberg et al., 2018) and they are more likely to approach new technology. In other words, people with a zero-sum digital mindset have a “winner takes it all” mentality, while people with an expandable-sum digital mindset argue that we all can be winners.

2.3 Digital mindsets in relation to UTAUT

Since individuals with a fixed digital mindset can be more resistant to development, change, and new technology (Dweck, 2006, 2015), one can assume that a fixed digital mindset is negatively related to BI. The implementation and learning of a new system or new technology can be challenging for many employees. Effort expectancy is often linked to the efforts required to use new technology and is described as the degree of ease related to the use of the system (Acharya, Junare & Gadhavi, 2019). The mindset can shape the way people think about effort (Blackwell et al., 2007). Research shows that individuals with a fixed digital mindset are more likely to anticipate poor outcomes when the required competencies are out of their comfort zone, and thus reduce efforts in situations when faced with challenges or obstacles (Solberg et al., 2020). Hence, individuals with fixed beliefs are likely to give up more quickly when they must learn something new and are confronted with challenges. These individuals believe that if they are not good at something right away, they may never be (Solberg et al., 2020). Through the lens of a fixed digital mindset, if individuals expend a great amount of effort, it indicates that one lacks the natural talent to succeed. It is thus not surprising that they are unwilling to exert high effort when they are focused on validating their own abilities (Keating & Heslin, 2015). Because individuals with a fixed digital mindset are more likely to put less effort and avoid challenging situations, we would argue that the level of effort required to use the technology may influence employees' intention to use it. Based on this we propose that:

H4: *Effort expectancy mediates the negative relationship between fixed digital mindset and behavioral intentions.*

Another factor that potentially could describe the negative relationship between fixed digital mindset and behavioral intention, is social influence. Social influence refers to the extent to which individuals perceive that important others believe they should use the new system and includes items regarding social and organizational support (Venkatesh et al., 2003). As mentioned, individuals with a fixed digital mindset are more likely to reduce efforts when faced with challenges, want to stay in their comfort zone, and care about their image (Dweck & Leggett, 1988; Dweck, 2006; Blackwell et al., 2007). In line with this, we would argue that

the level of social influence and encouragement to adopt a new digital system, may influence their intention to use it. Individuals with a fixed digital mindset will most likely experience uncertainty regarding the new digital system and might seek information from their peers and supervisors (e.g., Katz & Tushman, 1979). If these individuals either have a bad experience with the new system or do not encourage the use of it, it will likely reduce others intention to use it. Additionally, empirical support for the relationship between social norms and behavior can be found in many studies (e.g., Fishbein & Ajzen, 1975; Venkatesh & Davis, 2000; Taylor & Todd, 1995b; Venkatesh et al., 2003). Therefore, it is hypothesized that:

H5: *Social influence mediates the negative relationship between fixed digital mindset and behavioral intentions.*

Technological progress changes the nature of work, and can both eliminate and create occupations (Rotman, 2013). It is therefore not surprising that individuals can perceive technological development differently. As previously mentioned, individuals with a zero-sum digital mindset tend to believe that one person's loss is another person's gain (Sirola & Pitesa, 2017). Individuals who endorse this digital mindset may see technology as threatening and as something that can replace them. This is likely to be important for how they respond and perceive new technologies and might influence their decision to either cooperate or compete against the implementation of new technology in the workplace (Sirola & Pitesa, 2017). A zero-sum digital mindset can, therefore, be argued to be negatively related to behavioral intention. Moreover, performance expectancy involves the perceived usefulness of technologies. It is related to extrinsic motivation, job-fit, relative advantage, and outcome expectations (Venkatesh et al., 2003). Because individuals who pertain to a zero-sum digital mindset tend to believe that a situation consists of restricted resources, we would argue that there is a higher chance that these individuals choose not to cooperate when the perceived usefulness of the technology is low. Employees with such mindsets already feel threatened by the new technology and might be worried about their job (Sirola & Pitesa, 2017). It is therefore likely that when perceived usefulness is low, it could enhance their already existing cynicism, and influence their decision on whether or not to use it. Most employees wish to do well in their job, and good performance is often

rewarded with bonuses and promotions. A system is therefore unlikely to be received favorably if it does not help employees reach these goals (Robey, 1979). Given this, we believe that employees with a zero-sum digital mindset who do not believe new technology will increase his or her job performance, are less likely to cooperate. Therefore, we propose that:

H6: *Performance expectancy mediates the negative relationship between zero-sum digital mindset and behavioral intentions.*

3.0 Proposed model

The proposed mediation model investigates the mediating influence of the three determinants (performance expectancy, effort expectancy, and social influence) on the relationship between digital mindsets and behavioral intentions (see Figure 2). The dependent variable is BI, while the different digital mindsets are the independent variables. The three determinants serve as mediators.

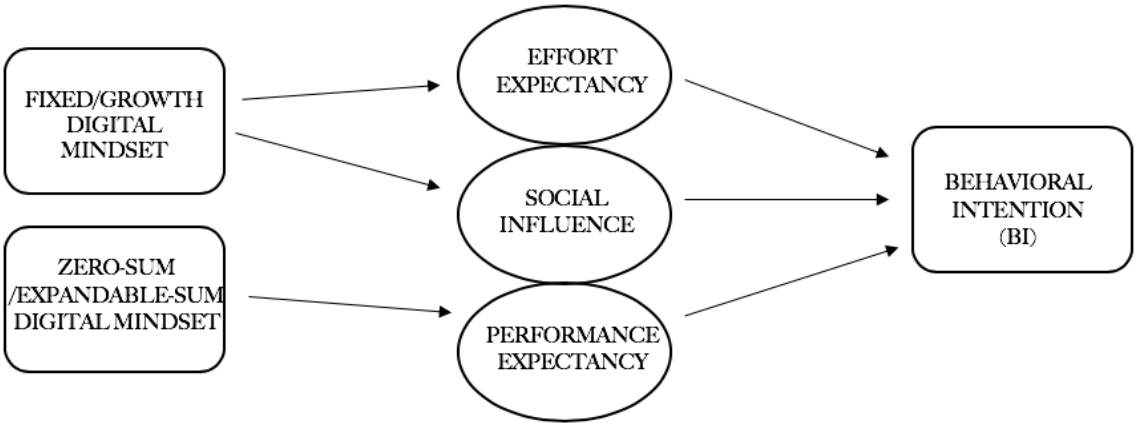

Figure 2: The proposed theoretical model based on Venkatesh et al. (2003). *The mediating role of the three determinants on the relationship between digital mindsets and behavioral intention.*

4.0 Methodology

Based on the theoretical grounding of this research, the following sections outline the research design, sampling, procedure, and measures.

4.1 Research design

In order to investigate the research question and to test the formulated hypotheses presented above, a quantitative approach with a cross-sectional design was used. A quantitative research strategy aims to quantify aspects of social life and allow us to look for numerical relationships between concepts (Bell, Bryman & Harley, 2019). Even though qualitative studies can be useful for insights in psychological processes in the workplace (Bell et al., 2019), a quantitative approach was chosen because we wanted to test an already existing model, and it provided us with a larger amount of data.

4.2 Sampling and procedure

In advance of the data collection process, the project was evaluated and approved by Norwegian Centre for Research Data (NSD), to secure the anonymity of the participants and to ensure that ethical guidelines were followed. Consistent with the guidelines of NSD, all personal information collected in the project was kept in accordance with the regulations of the Personal Information Act. During the process, no sensitive personal data was obtained, participation was voluntary, and information about guidelines for processing and storing data was given to the participants in advance. Before the survey was carried out, all respondents received an email with information about the purpose of the study as well as their rights (see Appendix B: Information Letter). Moreover, they were informed about confidentiality, how the data would be handled, and by whom, as well as anonymity.

The sample was drawn from an organization in the early planning stage of a new HRM system, called the new HRMS. The new digital system was planned to go live in Q4 2020, and system use would be mandatory for all HR employees working in the organization. The purpose and distribution of the survey were first clarified with the management of the company, and to ensure a high response rate,

employees were encouraged to participate. Additionally, a reminder to answer the survey was sent out to the respondents.

The survey was sent to 156 HR employees working in fifty-five different countries, as an electronic questionnaire and through an online survey software called Qualtrics. 56 percent of the invited employees (N =87) took part in the study, including 59% women and 41% men. Moreover, the participants were quite evenly distributed between the age of 25 and 54. A few respondents were under 24 and over 55 years. Most of the respondents reported having worked in the organization for less than five years. Region was quite unevenly distributed with the majority (41%) being from the region of the Middle East, India, and Africa. A demographic profile of the respondents is provided in Appendix C.

4.3 Measures

All the measurements included in this study, except fixed/growth mindset and zero-sum/expandable-sum mindset, were from theoretically established measures, which met the criteria of validity and reliability. The questionnaire contained questions about how employees perceived the new digital system. More specifically, it contained questions related to fixed/growth digital mindset, zero-sum/expandable-sum digital mindset, the three determinants, and BI. In order to control for sociodemographic differences that could have influenced the results, the survey contained questions about the participants' gender, age, seniority and region. All the demographic questions were measured in a scale of clusters, except for gender which consisted of male/female (see Appendix C). The measures of each of these variables will be further explained.

The items measuring the different mindsets were developed by our supervisor together with her colleagues (Wong, Solberg & Traavik, Working paper). The questionnaire for zero-sum/expandable-sum mindsets consisted of six items, while four items measured growth/fixed mindset. Fixed mindset was measured using statements such as: "A person's level of technological savviness is something basic about them, and there isn't much that can be done to change it". The following example represents a statement measuring zero-sum digital mindset: "When technological changes are introduced in organizations, employees often lose out". Higher scores on the items indicated a more fixed mindset or a more zero-sum

mindset (see Appendix D: Mindset Measures). All questions related to mindsets were measured using a five-point Likert scale, ranging from "strongly disagree" to "strongly agree" (such that 1 = strongly disagree and 5= strongly agree). In this particular study, Cronbach's alpha was found to be .78 for fixed digital mindset, and .81 for zero-sum digital mindset.

The measurement scale for testing the three determinants and BI was adopted from previous literature on technology acceptance and information system research to ensure the content validity. (see Appendix E: UTAUT Measures). Most items were adapted from Venkatesh et al. (2003) and carefully modified to fit the purpose of the current study. That is because the UTAUT model has been applied to several studies, and the validity of the model has been tested in several organizational contexts (Dutta & Borah, 2018). A section of the questionnaire was devoted to each dimension: performance expectancy, effort expectancy, social influence, and BI. To measure performance expectancy, the respondents were asked to rate statements like, "I would find the system useful in my job." Effort expectancy was measured using statements as: "I believe learning to use the system is easy for me." To measure social influence statements such as, "In general, I believe the organization will support the use of the system" was used. A 7-point Likert scale was applied to measure these variables (1 = strongly disagree and 7 = strongly agree). In this study, Cronbach's alpha was found to be .90 for performance expectancy, .93 for effort expectancy, and .77 for social influence. BI was also measured using a 7-point Likert scale. However, because the use of the new system was mandatory, the items were adopted from Wu, Wang, and Lin (2007), who used the scale in the professional, non-volitional use. The scale originates from the original TAM scales (Davis, Bagozzi & Warshaw, 1989; Davis 1989). The respondents were asked to explain their intentions and plan to use the system by rating statements such as "Whenever possible, I would intend to use the system in my daily job." In the current study, Cronbach's alpha was found to be .89 for BI.

As mentioned above, we have both used a 5-point- and a 7-point Likert Scale in our questionnaire. To maintain the reliability and validity of the published scales, we decided to keep the original measurement scales. However, it can be argued that having two different Likert scales in one questionnaire may confuse the respondents or lead to respondent fatigue. To avoid any misleading information and to obtain the reliability of the results, the Likert scales were stated under each

section of the questionnaire. All the items in the questionnaire were divided into different sections related to the topic. In other words, the respondents were informed that the survey consisted of different scales. We would argue that by obtaining the original scales of the different constructs, our results can be compared with the results from other studies using the original Likert scales. Moreover, prior studies have included more than one Likert scale, without addressing any related implications or limitations (e.g., Kurkinen, 2014; Yu, 2012). However, it is important to consider and be aware of the implications that may interfere while completing the data analysis.

5.0 Analysis

The analysis was conducted in several stages in SPSS. Firstly, the entire sample (N= 87) was analyzed using an exploratory principal component analysis with varimax rotation, in order to examine discriminant and convergent validity and to determine item retention (e.g., Lai & Kapstad, 2009; Kuvaas, Buch & Dysvik, 2013). Items that loaded greater or equal to .50 on the target factor were retained for further analysis (Nunnally & Bernstein, 1994; Lai & Kapstad, 2009; Kuvaas et al., 2013). In order to avoid confounded measures of the related constructs, items with cross-loadings greater than .35 were eliminated from the analysis (Kiffin-Petersen & Cordery, 2003; Lai & Kapstad, 2009; Kuvaas et al., 2013). Next, reliability was tested estimating the Cronbach's alpha values, with .70 as a threshold (Nunnaly, 1978).

Further hypotheses 1, 2, and 3, measuring the direct effect between effort expectancy, social influence, performance expectancy, and BI, was tested using linear regression modeling in SPSS version 26.0. Process macro for SPSS (version 3.5; Model 4) developed by Andrew Hayes (2014), was applied to measure hypotheses 4, 5, and 6. These hypotheses measured the mediating effect of effort expectancy, social influence, and performance expectancy, on the relationship between digital mindsets and BI. A mediation processes that only involve one mediating variable is referred to as simple mediation (Figure 3). The analysis determines the influence of the independent variable on the dependent variable, through the mediation variable. Mediation occurs when X affects Y indirectly through one mediator (Preacher & Hayes, 2008). Process is a tool used to test the

mediation of a model, several times through bootstrapping (Preacher & Hayes, 2008). Various researchers advocate using bootstrapping over Sobel tests due to higher power and more control over the Type I error rate (MacKinnon, Lockwood & Williams, 2004). The type I error concerns concluding for a relationship when there, in fact, is none (Preacher & Hayes, 2008; MacKinnon, Lockwood, Hoffman, West & Sheets, 2002; MacKinnon et al., 2004). Additionally, the Sobel test is only recommended in studies with large samples, while bootstrapping works well with a smaller sample size (Preacher & Hayes, 2008). Bootstrapping provides a powerful method of obtaining confidence limits for specific indirect effects under most conditions (Preacher & Hayes, 2008). Further, bootstrapping reports the degree of mediation, and is interpreted by determining whether the confidence intervals include zero or not (Hayes, 2014). It provides a powerful method of obtaining confidence limits for specific indirect effects under most conditions (Preacher & Hayes, 2008). This study employed bootstrapping, and all tests were performed with 5,000 resampling's and a 95% confidence interval for the indirect effect. If the confidence interval does not include zero, it can be argued that mediation may be present (Preacher & Hayes, 2008).

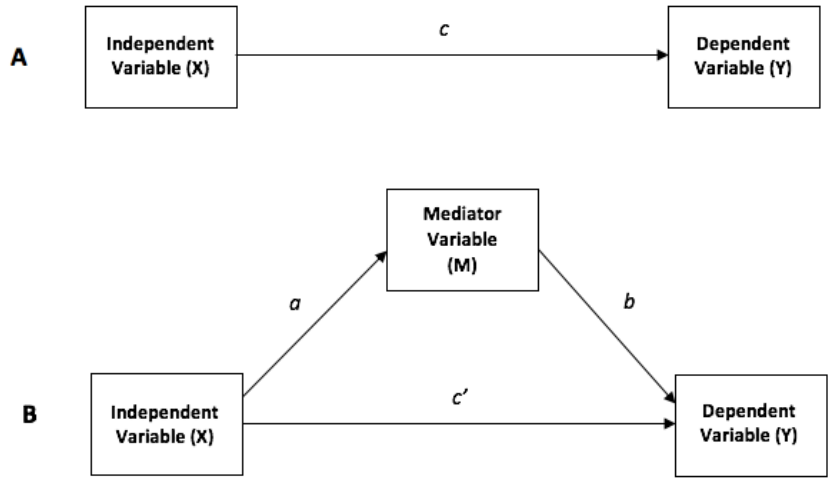

Figure 3: Illustration based on Preacher and Hayes (2008, p.880) simple mediation model. (A) Illustrates the direct effect where X effects Y. (B) Illustrates a mediation design where X is hypothesized to exert an indirect effect on Y through M.

6.0 Results

6.1 Principal component analysis

The principal component analysis revealed that some of the items did not meet our criteria. As mentioned, only items that loaded equal or greater to .50 and did not produce cross-loadings of .35 or greater were retained (e.g., Lai & Kapstad, 2009; Kuvaas et al., 2013). As we experienced cross-loadings with some of the fixed digital mindset items and social influence items, these were eliminated from the variable calculation. The fixed digital mindset item 3 had a cross-loading of .46, while item 5 did not load onto its respective factor. Further, item 3 under social influence had a cross-loading of -.45, while item 4 had a cross-loading of .43. Besides, they did not load onto their respective factors. The results (see Appendix: F) showed that all the remaining items only loaded onto their respective factors, ranging from .60 to .90.

6.2 Descriptive Statistics

Means, standard deviation, correlations and Cronbach alpha coefficients for all variables are presented in Table 1. All items fulfilled the Cronbach's alpha criteria to be higher than .70 (Nunnaly, 1978). This indicates that all had acceptable reliability estimates with coefficient alphas ranging from .77 to .93. Pearson correlation between variables reported a non-significant correlation between fixed digital mindset and BI (r = -.11, *n.s.*). Additionally, fixed digital mindset did not have a significant correlation with effort expectancy (r=.17, *n.s.)* or social influence (r=.02, *n.s.)*. Zero-sum digital mindset showed a non-significant correlation between both performance expectancy (r =-.02, *n.s.*) and BI (r =-.19, *n.s.*). However, BI showed a significant correlation between both performance expectancy (r =.59, p <.01), effort expectancy (r =.54, p <.01) and social influence (r =.44, p <.01). These results indicate that performance expectancy, effort expectancy, and social influence explain more of the variability in BI than fixed digital mindset, or zero-sum digital mindset**.** Even so, this only gives us an indication of the relationship between the variables, so it is necessary to perform a regression analysis to test the proposed hypotheses. Before performing the

regression- and process analysis, we centered the independent variables to reduce structural multicollinearity (Kraemer & Blasey, 2004).

Table 1

Descriptive Statistics, Correlations, and Reliability Estimates

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1	Gender	.58	.50	-									
2	Age	2.95	1.00	-.04	-								
3	Seniority	1.90	1.07	.05	.63**	-							
4	Region	4.44	1.86	-.04	-.38**	-.13	-						
5	Fixed Mindset	2.74	.97	-.08	.09	.18	.09	(.78)					
6	Zero-sum Mindset	2.28	.81	.10	-.19	.01	.16	.36**	(.81)				
7	Performance Expectancy	6.15	.92	-.01	-.23*	-.06	.34**	.08	-.02	(.90)			
8	Effort Expectancy	6.07	.82	.03	-.00	.14	.32**	.17	-.05	.63**	(.93)		
9	Social Influence	5.75	1.01	-.02	-.05	.07	.09	.02	-.07	.39**	.39**	(.77)	
10	Intentions	6.40	.64	.01	-.05	-.06	.22*	-.11	-.19	.59**	.54**	.44**	(.89)

Note. N = 86. Cronbach's Alpha indicating scale reliabilities are in parentheses. Gender: Male = 0 ; Female = 1; Age: 18-24 = 1; 25-34 = 2; 35-44 = 3; 45-54 = 4; 55-64 = 5; 65 or above = 6; Seniority: 1 = Less than 5 years; 2 = 5-9 years; 3 = 10-15 years; 4 = 16 years or more; Region: 1 = Scandinavia; 2 = West Europe; 3 = East Europe and Central Asia; 4 = North East Asia; 5 = South East Asia and Pacific; 6 = Middle East, India & Africa, Americas.

*p < .05 **p < .01 ***p <.001

6.3 Hypothesis testing

Table 2 represents the results of the simple linear regression analysis, with the corresponding unstandardized regression coefficients, standard error and significance levels. The results indicated that there was a positive significant relationship between performance expectancy and BI (B=.24, SE=.08, p<.01), and H1 was supported. Likewise, the results showed a positive significant relationship between effort expectancy and BI (B=.18, SE=.09, p<.05), and H2 was supported. There was also found a positive significant relationship between social influence and BI (B=.15, SE=.05, p<.05), which supported H3. Specifically, the results from the regression analysis suggested that effort expectancy, performance expectancy and social influence were significantly associated with behavioral intentions.

Table 2

Results from the Regression Analysis of the three Determinants and BI

Variable	Unstandardized Coefficient Beta	Coefficient Std. Error	T-value
(Constant)	6.42	.05	120.08***
Social	.15	.05	2.57*
Performance	.24	.08	3.05**
Effort	.18	.09	2.04*
Age	.12	.07	1.63
Seniority	-.12	.06	-1.90
Region	.01	.03	.50
Gender	.03	.10	.34
R-squared	.46		
Adjusted R-squared	.41		

Note: N = 86. Unstandardized regression coefficients are reported.

*p < .05 **p < .01 ***p <.001

The results from the PROCESS macro analysis is presented in Table 3 and indicates that the mediation model offered a poor fit to the data. No evidence for the mediation of the three determinants on the relationship between digital mindset and BI was found. A further examination of the results from the PROCESS macro analysis is explained below.

Table 3

Influence of digital mindsets on behavioral intentions through the three determinants

								95% CI	
Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Influence of IV on M (a)	Influence of M on DV (b)	Total influence (c)	Direct influence (c´)	Point estimate/Indirect influence (ab)	SE	Lower	Upper
1. Fixed digital mindset	EE	BI	.09	.45***	*-.09*	*-.13**	*.04*	*.0435*	*-.0420*	*.1320*
2. Fixed digital mindset	SI	BI	.01	.29***	-.09	-.09	.01	.0447	-.0961	.0828
3. Zero-sum digital mindset	PE	BI	-.13	.40***	-.19	-.13	.05	.0557	-.1850	.0331

Note: N = 86. 5000 bootstrap samples; EE = Effort Expectancy; PE = Performance Expectancy; SI = Social Influence, BI = Behavioral Intentions.

p>05; *p<.05; **p<.01; ***p<.001.

The results for H4, which states that effort expectancy mediates the negative relationship between fixed digital mindset and BI, is presented in figure 4. The

findings indicated that the a'path leading from fixed digital mindset to effort expectancy was positive and non-significant (B=.09, SE=.08, *n.s.*). Further, the b'path leading from effort expectancy to BI was found to be positive and significant (B=.45, SE=.07, p<.001). The indirect effect of fixed digital mindset on BI was positive, but not significant, as indicated by a confidence interval that included zero (B=.04, SE=.04, 95% CI [-.0420, .1320]). Our findings, therefore, indicated that the posited indirect effect between fixed digital mindset, BI, and effort expectancy, was not significant. H4 was thus not supported.

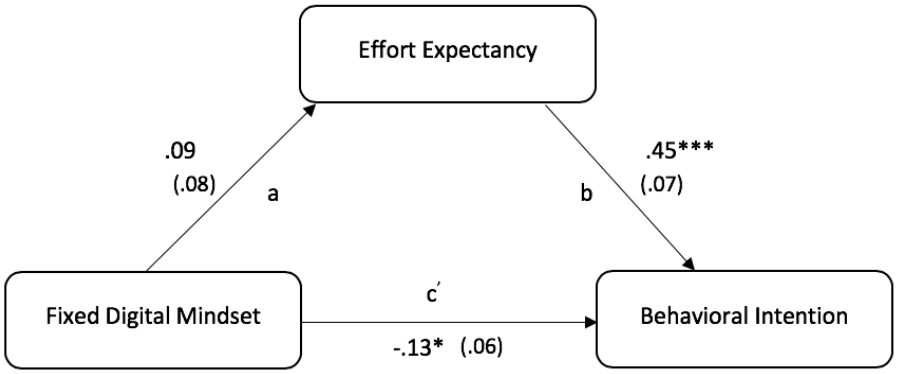

Figure 4: Standardized coefficients and standard errors (in parentheses) for the indirect effects of fixed digital mindset on employees' behavioral intentions through effort expectancy (n =87). p>05; *p<.05; **p<.01; ***p<.001.

The results for H5, which states that social influence mediates the negative relationship between fixed digital mindset and BI, is presented in figure 5. The findings indicated that the a'path leading from fixed digital mindset to social influence was positive and non-significant (B=.01, SE=.11, *n.s.*). Moreover, the b'path leading from social influence to BI was positive and significant (B=.29, SE=.06, p<.001). The indirect effect of fixed digital mindset on BI was positive, but not significant, as indicated by a confidence interval that included zero (B=.01, SE=.04, 95 % CI [-.0961, .0828]). Our findings, therefore, indicated that the positive indirect effect between fixed digital mindset, BI, and social influence was not significant. H5 was not supported.

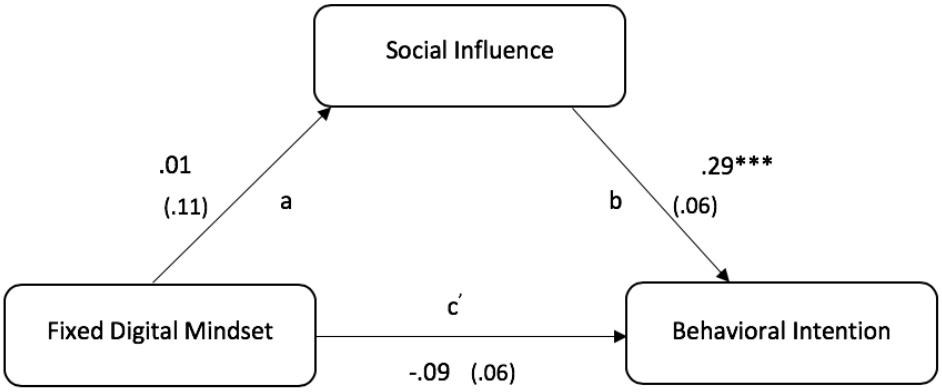

Figure 5: Standardized coefficients and standard errors (in parentheses) for the indirect effects of fixed digital mindset on employees' behavioral intentions through social influence (n =87). p>05; *p<.05; **p<.01; ***p<.001.

The results for H6, which states that performance expectancy mediates the negative relationship between zero-sum digital mindset and BI, is presented in figure 6. The findings indicated that the a'path leading from zero-sum digital mindset to performance expectancy was negative but not significant (B= -0.13, SE=.12, *n.s.*). The b'path leading from performance expectancy to BI was positive and significant (B=.40, SE=.06, p<.001). The indirect effect of zero-sum digital mindset on BI was negative, but not significant, as indicated by a confidence interval that included zero (B= -.05, SE=.06, 95 % CI [-.1850, .0331]). Our findings, therefore, indicated that the posited indirect effect between zero-sum digital mindset, BI, and performance expectancy was not significant. H6 was not supported.

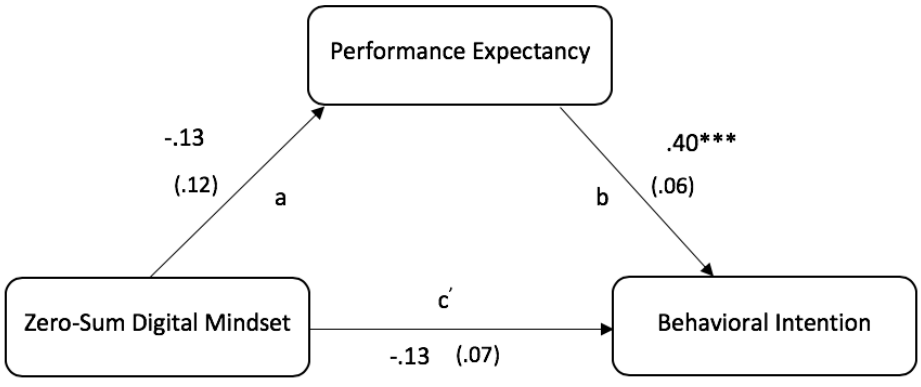

Figure 6: Standardized coefficients and standard errors (in parentheses) for the indirect effects of zero-sum digital mindset on employees' behavioral intentions through performance expectancy (n =87). p>05; *p<.05; **p<.01; ***p<.001.

7.0 Discussion

7.1 Theoretical contributions

The primary objective of this study was to examine the link between digital mindsets and technology acceptance, to better understand how new technology can be accepted by employees and implemented in an organization. We extended the UTAUT model by Venkatesh et al., (2003), and investigated the predictive mediating influence of performance expectancy, effort expectancy, and social influence on the relationship between digital mindsets and BI. The final purpose was to confirm the positive relationship between the three determinants and BI, as predicted by Venkatesh et al., (2003). Performance expectancy, effort expectancy, and social influence were found to be positively related to BI. However, this study found no support for the mediation analysis, indicating that the three determinants do not mediate the relationship between digital mindsets and BI. Despite the lack of evidence to support our mediation hypotheses, this study serves important theoretical contributions.

Firstly, by confirming the relationship between the three determinants and BI, this study provides evidence for the basic validity of the UTAUT model and reinforces the findings of the study conducted by Venkatesh et al. (2003) as discussed earlier. Additionally, this study contributes to the understanding of the utility of UTAUT in the context of HR professionals, and a new digital HRM system. The support for the first hypothesis indicated that when employees experienced a higher level of perceived usefulness of the technology, their intention to use it also increased. This is in line with previous research which argues that individuals tend to use or not use a new digital system to the extent they believe it will help them perform better in their job (Davis, 1989; Venkatesh et al., 2003). Performance expectancy was found to be the strongest predictor of intention, which is consistent with previous tests of the UTAUT model (Davis et al., 1992; Taylor & Todd, 1995a; Compeau & Higgins 1995; Venkatesh & Davis, 2000; Thompson et al., 1991).

As stated by Davis (1989), the prominence of perceived usefulness makes sense conceptually. Employees are often willing to deal with difficulties related to using a system that provides the critically needed functionality. Even though the difficulty of use can discourage employees, ease of use cannot compensate for a

system that does not perform a useful function (Davis, 1989). Therefore, employees are primarily driven to adopt new technology due to the functions it performs for them, and secondarily how easy it is to get the system to perform those functions (Davis, 1989). In line with this statement, ease of use was also found to be a strong predictor of intention, which imply that employees more easily adopt or accept user-friendly technologies.

Additionally, the relationship between social influence and BI was found to be significant. This is in line with Venkatesh et al. (2003), and previous acceptance studies who showed how social influence had a significant influence on BI (e.g. Chang et al., 2007; Venkatesh & Davis, 2000; Karahanna et al., 1999). This indicates that whether the employees perceive that important others believe they should use the new system, will influence their intention to use it. This relationship can be explained by the fact that new technology creates uncertainty for many individuals (Rogers, 1995), which further increases the need for communication (Katz & Tushman, 1979). What these referents share about their experience with the new technology, are therefore likely to influence others intention to use it. Accordingly, our study contributes to research by providing additional support to the existing technology adoption literature.

This study also attempted to identify and test additional constructs that may explain technology adoption, and to fill the research gap by adding digital mindsets to the UTAUT model. However, the mediation hypothesis was not supported, as we could not find any statistical evidence for a mediating effect of the three determinants on the relationship between digital mindsets and BI. Since prior research emphasizes the extent to which digital mindset influences individuals when faced with challenges and new tasks (Dweck & Leggett, 1988; Dweck, 2006, 2012; Zingoni & Corey, 2007), these findings are somewhat surprising. Several aspects will in the following try to explain the reasons for this.

Individuals' mindset can determine the probability of displaying a particular behavior or adopting a particular goal (Dweck & Legget, 1988). Thus, when organizations are changing the nature of work, it is natural to assume that their digital mindset will impact the acceptance and use of the new system (e.g., Solberg et al., 2020). However, situational factors could change the probability that a predisposing tendency will occur (Dweck & Legget, 1988). Humans make rational choices and make use of the information which is available to make their choices

(Fishbein & Ajzen, 1975). In the context of this study, system use is mandatory, and the employees are not free to choose whether or not to cooperate. Therefore, some of the respondents may have a fixed- or zero-sum digital mindset and be resistant toward the initiative because they are afraid it will threaten their current status and competence. However, they likely intend to use the new technology, because it is required by their organization and superiors. According to Fishbein and Ajzen (1975), behavioral intention can be indicated by the subjective probability of a person to perform that behavior. When system use is mandatory, there is a high probability for individuals to perform that behavior, as it is expected of them.

Further, fixed- or growth digital mindset is related to perceived ability and competence, where individuals with fixed beliefs tend to avoid challenging situations to not risk being seen as incompetent (Yeager & Dweck, 2012). The company studied in this current research, was still in the early planning phase of their new system. This implies that when the data was collected, the employees had little experience with the new digital system. The company had not started the training program yet, and the employees were only informed about the initiative. Consequently, it can be argued that the respondents had too little hands- on experience with the new digital system to decide whether they had the abilities required to perform well.

Lastly, due to the fact that digital mindsets can change over time (Dweck, 2012), and individuals can hold different digital mindsets in different situations (Dweck & Leggett, 1988), it can be difficult to determine which digital mindset an individual hold. Since individuals can have a predominant growth digital mindset in one area but can still be triggered into a fixed digital mindset trait in other situations, people can hold a mixture of both digital mindsets (Dweck, 2015). Likewise, a false digital mindset can also mislead the interpretation of a person's digital mindset, since the individuals may believe or say they have a growth digital mindset, when they in fact do not (Dweck, 2015). Therefore, it might be difficult to determine whether different digital mindsets influence intention to use new technology. Even though we did not find support for our mediation hypotheses, this study hopefully brought forward important questions regarding technology adoption, that will spur future research on this area.

7.2 Practical implications

Despite the limitations of this study, which will be discussed later, our findings provide organizations, leaders, and their employees with valuable insights when organizations are implementing new technology in the workplace. In line with previous research (Chang et al., 2007; Venkatesh & Davis, 2000; Karahanna et al., 1999; Venkatesh et al., 2003), our findings indicate that performance expectancy, social influence, and effort expectancy influence employee's behavioral intention to use new technology. This implies that organizations should put considerable effort into employees' digital experience. These efforts should include a greater amount of resources in the line of proper information, support and encouragement.

One major finding in our study was the importance of perceived usefulness. Based on these findings, organizations should enlighten the employees about the usefulness of new technology in their job, and what opportunities this brings. This might in turn allow the employees to trust that the digital system will ensure their best interests and provide them with tools to perform better. Most employees want to do well in their job, and in work contexts, performance is often evaluated based on whether one achieves a specific goal or meets specific expectations. Therefore, a new digital system is more likely to be used and perceived favorable, if it helps employees reach these goals and expectations, and thereby perform better in their job. Further, perceived ease of use was found to be a strong predictor of intention. To prevent the employees from having any unnecessary insecurities about their technical abilities, it is important to provide them with proper information about how the tools work. The predictive character of effort expectancy and performance expectancy on the adoption of new technology, therefore, suggest that work-related benefits of new digital systems must be noticeable and substantial, and they should be perceived as relatively easy to use.

Also, our findings imply that whether we perceive that important referents believe that we should use the digital system, influences whether we intend to use it. When we are insecure or uncertain, we tend to increase communication (Katz & Tushman, 1979). The interactions with the social network may thus influence the decision to adopt or not adopt a new digital system. Therefore, to facilitate the implementation process, organizations should identify individuals with strong personal influence, and work with them to become advocates for technology use. In this way, organizations are fostering an environment where use of technology is

desirable. Overall, an awareness of the effects of performance expectancy, effort expectancy, and social influence on technology adoption, can help accelerate and develop the process of the implementation, as well as support adoption plans. This is relevant and valuable information for many organizations that wish to digitize their existing practices. Lastly, the prominence of usefulness over ease of use and social influence has important implications for designers. Perceived usefulness has a strong influence on user acceptance and should not be underestimated by those who attempt to successfully design or implement new digital systems (Davis, 1989).

7.3 Limitations and directions for future research

Although this study provides a better understanding of employees' technology acceptance and how new technology can be accepted and introduced in the workplace, there are several potential limitations that the reader should consider when evaluating the results. The first potential limitation is that the use of the HRM-system was mandatory. Like already mentioned, this could have affected the employee's responses regarding their intention to use the system, and thus the relationship between the different mindsets and behavioral intentions. Additionally, the company studied in the current research had not implemented the new digital system yet and was still in the planning phase. At the time the survey was collected, the employees had little experience with the system, and their answers were only based on the information they had received and their interpretations about the new system. Consequently, when the employees start using the system their mindsets may differ or change (Dweck 2012; 2015; Dweck & Leggett, 1988). For example, if the employees believe in the new system and are looking forward to the use of the new system, this may indicate more of a growth digital mindset. However, if the employees after using the system find it difficult, challenging, and not as expected, they might lean towards more of a fixed digital mindset. Hence, it can be argued that the respondents had too little experience with the new system to decide whether they have the intelligence and abilities required to perform well. Therefore, it can be difficult to establish a relationship where X influences Y through M. It might be that the direction of these relationships varies over time, and that they all influence each other in some way. Another possible limitation of this study is that

the individual digital mindset can be difficult to determine. People may have a mixed digital mindset or a false digital mindset which could make it difficult to establish a clear relationship between mindsets and intention to use new technology. Like already mentioned, the relationship might be more complicated than assessed in this study.

Further, there are some potential limitations related to our methodology. The first potential limitation involves the utilization of two different Likert scales. It can be argued that when using two different Likert scales (5 and 7), it can affect the individual's responses and potentially cause some challenges with the analysis of the data collected. The second potential limitation is due to the cross-sectional nature of the survey design. This study only relies on measures at a single point in time, which can decrease the validity, compared to collecting data at two different points in time. This is especially relevant for the topic we are investigating regarding employee's intention to use new technology when the system is mandatory. If the survey was sent out after the employees had some more experience with the new system, the employees' beliefs may have been different, compared to the first survey. Therefore, a longitudinal study could have been more beneficial in order to increase the validity of the data collected. Due to some delays and limited time, this was not possible for our study. Another potential limitation is related to our sample size (N=87), as it raises questions regarding the generalizability of our findings.

Because our findings did not support the proposition that different mindsets influence technology acceptance, we suggest that future research further explore this possibility. Different mindsets can be triggered, and research should investigate what triggers which mindset, and how that can influence employee's technology acceptance. Additionally, our study utilized standard measures of intentions, but to revalidate or extend this study, future research should investigate alternative measures of intentions and behavior. Moreover, as mentioned under limitations it would be desirable for future research to compare the results from surveys collected with some time apart. We believe it would be interesting to measure one time in the early planning phase and one time after implementation of the new digital system. We would also argue that a larger sample size is needed to be able to generalize the findings.

8.0 Conclusion

Consistent with our research question, the purpose of this study was to examine why and how employees engage with new technology or withdraw from the process. To answer the research question, and to better understand other factors that may influence employees' technology acceptance, this study extended the UTAUT model by adding digital mindsets. The results show that employees' intentions to use new technology is influenced by perceived usefulness (H1), perceived ease of use (H2), and the perception that important others believed that he/she should use the new digital system (H3). Out of the three determinants, performance expectancy was the strongest predictor of intentions. The mediation model showed no support for the mediating effect of the three determinants on the relationship between digital mindset and behavioral intention to use new technology (H4, H5, and H6). This study confirms the validity of the UTAUT model in the field of IT acceptance. It provides valuable and relevant information for organizations that aim to digitize their existing practices. An awareness of the factors that influence technology acceptance can support adoption plans and help develop and accelerate the process of implementation.

References

Acharya, V., Junare, S. O., & Gadhavi, D. D. (2019). E-Payment: Buzz Word or Reality. *International Journal of Recent Technology and Engineering, 8,* 397-404.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*, Englewood Cliffs, New Jersey: Prentice Hall.

Arntz, M., Gregory, T., & Zierahn, U. (2016). The risk of automation for jobs in OECD countries: A Comparative Analysis. *OECD Social, Employment and Migration Working Paper*, No.189, OECD Publishing, Paris

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American psychologist,* 37(2), 122.

Bandura, A. (1986). Social Foundation of Thought and Action: A Social Cognitive Theory. *Englewood Cliffs,* NJ.

Bell, E., Bryman, A., & Harley, B. (2019). *Business Research Methods* (5th ed.). New York: Oxford University Press.

Berkanovic, E. (1980). The effect of inadequate language translation on Hispanics' responses to health surveys. *American Journal of Public Health, 70*(12), 1273-1276

Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit Theories of Intelligence Predict Achievement Across and Adolescent Transition: A Longitudinal Study and an Intervention. *Child Development, 78*(1), 246 263.

Bonnet, D., & Nandan, P. (2011). Transform to the power of digital: Digital transformation as a driver of corporate performance. *report, Capgemini Consulting*.

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & Company.

Catherine, N., Geofrey, K. M., Moya, M. B., & Aballo, G. (2018). Effort Expectancy, Performance Expectancy, Social Influence and Facilitating Conditions as Predictors of Behavioural Intentions to use ATMs with Fingerprint Authentication in Ugandan Banks. *Global Journal of*

Computer Science and Technology.

Chang, I. C., Hwang, H. G., Hung, W. F., & Li, Y. C. (2007). Physicians' acceptance of pharmacokinetics-based clinical decision support systems. *Expert systems with applications*, *33*(2), 296-303.

Compeau, D., & Higgins, C. (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly, 19*(2), 189-211.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, *35*(8), 982-1003.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. *Journal of applied social psychology*, *22*(14), 1111-1132.

Dutta, P., & Borah, A. S. (2018). A Study on Role of Moderating Variables in Influencing Employees' Acceptance of Information Technology. *Vision*, *22*(4), 387-394.

Dwivedi, Y., Rana, K., Jeyaraj, N., Clement, P., & Williams, A. (2019). Re examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers, 21*(3), 719-734.

Dweck, C. S. (1986). Motivational Processes Affecting Learning. *American Psychologist, 41*(10), 1040-1048.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development.* Philadelphia: Psychology Press.

Dweck, C. S. (2006). *Mindset: the new psychology of success*. New York, NY: Ballantine Books.

Dweck, C. S. (2012). Mindsets and Human Nature: Promoting Change in the Middle East, the Schoolyard, the Racial Divide, and Willpower. *American Psychologist, 67*(8), 614-622.

Dweck, C. S. (2015). Carol Dweck revisits the growth mindset. *Education Week, 35*(5), 20-24

Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit Theories and Their Role in Judgements and Reactions: A World From Two Perspectives.

Psychological Inquiry, *6*(4), 267-285.

Dweck, C., & Leggett, E. (1988). A Social–Cognitive Approach to Motivation and Personality. *Psychological Review, 95*(2), 256-273.

Fishbein M., & Ajzen I. (1975) *Belief, Attitude, Intention and Behavior: A Introduction of Theory and Research.* Reading, MA, USA: Addison Wesley.

Ford, M. (2015). *Rise of the robots: Technology and the threat of a jobless future.* New York, NY: Basic Books.

Gimpel, H., Huber, R., Röglinger, M., Hosseini, S., Probst, L., & Faisst, U. (2018). Structuring Digital Transformation: A Framework of Action Fields and its Application at ZEISS. *JITTA: Journal of Information Technology Theory and Application, 19*(1), 31-53.

Gimpel, H., & Röglinger, M. (2015). Digital transformation: changes and chances—insights based on an empirical study. *Project Group Business and Information Systems Engineering (BISE) of the Fraunhofer Institute for Applied Information Technology FIT*

Gupta, B., Dasgupta, S., & Gupta, A. (2008). "Adoption of ICT in a Government Organization in a Developing Country: An Empirical Study," Journal of Strategic Information Systems (17:2), pp. 140-154.

Harrison, D. A., Mykytyn Jr, P. P., & Riemenschneider, C. K. (1997). Executive decisions about adoption of information technology in small business: Theory and empirical tests. *Information systems research*, *8*(2), 171-195.

Hayes, A. (2014). *Introduction to Mediation, Moderation and Conditional Process Analysis, Second Edition: A Regression-Based Approach.* (Methodology in the Social Sciences Ser).

Heslin, P., Latham, G. P. & Vandewalle, D. (2005). The Effect of Implicit Person Theory on Performance Appraisals. *Journal of Applied Psychology, 90*(5), 842-856.

Heslin, P., & Vandewalle, D. (2008). Managers' Implicit Assumptions About Personnel. *Current Directions in Psychological Science, 17*(3), 219-223.

Heslin, P. A., Vandewalle, D. O. N., & Latham, G. P. (2006). Keen to help? Managers' implicit person theories and their subsequent employee coaching. *Personnel psychology 59*(4). 871-902.

Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the

technology acceptance model using physician acceptance of telemedicine technology. *Journal of management information systems*, *16*(2), 91-112.

Kahneman, D., & Egan, P. (2011). *Thinking, fast and slow.* (Vol 1). New York: Farrar, Straus and Giroux.

Kane, G., Palmer, D., Nguyen-Phillips, A., Kiron, D., & Buckley, N. (2017). Achieving Digital Maturity. *MIT Sloan Management Review, 59*(1), N/a-0.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.

Katz, R., & Tushman, M. (1979). Communication patterns, project performance, and task characteristics: An empirical evaluation and integration in an R&D setting. *Organizational behavior and human performance*, *23*(2), 139-162.

Keating, L., & Heslin, P. (2015). The potential role of mindsets in unleashing employee engagement. *Human Resource Management Review, 25*(4), 329 341.

Kiffin-Petersen, S., & Cordery, J. L. (2003). Trust, Individualism and Job Characteristics as Predictors of Employee Preference for Teamwork. *International Journal Human Resource Managemen*t, 14 (1), 93-116.

Kohnke, O. (2017). It's not just about technology: the people side of digitization. In *Shaping the digital enterprise* (pp. 69-91). Springer, Cham.

Kraemer, H., & Blasey, C. (2004). Centring in regression analyses: A strategy to prevent errors in statistical inference. *International Journal of Methods in Psychiatric Research, 13*(3), 141-151.

Kurkinen, E. (2014). Effect of enjoyment on attitude and on behavioral intention to use mobile applications when technology use is mandatory. *University of Jyvaskyla.*

Kuvaas, B., Buch, R., & Dysvik, A. (2013). Happy together, or not? Balanced perceived investment in standard and nonstandard employees. *The international Journal of Human Resource Management, 24*(1), 94-109

Lai, L., & Kapstad, J. (2009). Perceived competence mobilization: An explorative study of predictors and impact on turnover intentions. *The International Journal of Human Resource Management, 20*(9), 1985-1998.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V.

(2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological methods, 7*(1), 83.

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence Limits for the Indirect Effect: Distribution of the Product and Resampling Methods. *Multivariate Behavioral Research, 39*(1), 99-128.

McAfee, A., & Welch, M. (2013). Being digital: engaging the organization to accelerate digital transformation. *Digit Transform Rev (4)*:37–47

Min, Q., Ji, S., & Qu, G. (2008). Mobile commerce user acceptance study in China: a revised UTAUT model. *Tsinghua Science and Technology*, *13*(3), 257-264.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, *2*(3), 192-222.

Neufeld, D. J., Dong, L., & Higgins, C. (2007). "Charismatic Leadership and User Acceptance of Information Technology," *European Journal of Information Systems 16*(4), 494-510

Nunnally, J.O. (1978) *Psychometric theory.* New York: McGraw-Hill.

Nunnally. J.C., & Bernstein, I.H. (2007). *Psychometric Theory* (3rd ed). New York: McGraw-Hill.

Pfeffer, J. (1982). *Organizations and organization theory* (pp. 237-251). Boston: Pitman.

Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organizational change. *Academy of management review*, *25*(4), 783-794.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior research methods, 40*(3), 879-891.

Radner, R., & Rothschild, M. (1975). On the allocation of effort. *Journal of Economic Theory, 10*(3), 358-376.

Robey, D. (1979). User attitudes and management information system use. *Academy of Management Journal*, *22*(3), 527-538.

Rogers, E. (1995). *Diffusion of Innovations*, Free Press, New York.

Rotman, D. (2013). How Technology Is Destroying Jobs. *MIT Technology Review, 116*(4), 27–35.

Schein, E. H. (1980). Organizational psychology. Englewood. *Cliffs, New Jersey*.

Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendation for modifications and future research. *Journal of consumer research, 15*(3), 325-243.

Sirola, N., & Pitesa, M. (2017). Economic Downturns Undermine Workplace Helping by Promoting a Zero-Sum Construal of Success. *Academy of Management Journal, 60*(4), 1339-1359.

Solberg, E., Traavik, L. E. M., & Wong, S. (2018, 1. June). *Hvordan vi tenker kan avgjøre om vi lykkes*. [Blog Post]. Retrieved from: https://kapital.no/blogg/riktig-tankesett-digital-endring

Solberg, E., Traavik, L. E., & Wong, S. (2020). Digital Mindsets: Recognizing and Leveraging Individual Beliefs for Digital Transformation. *California Management Review*, 812562093183.

Taylor, S., & Todd, P. (1995a). Assessing IT usage: The role of prior experience. *MIS quarterly*, 561-570.

Taylor, S., & Todd, P. A. (1995b). Understanding information technology usage: A test of competing models. *Information systems research*, *6*(2), 144-176.

Thomas, T., Singh, L., & Gaffar, K. (2013). The utility of the UTAUT model in explaining mobile learning adoption in higher education in Guyana. *International Journal of Education and Development using ICT*, *9*(3).

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: toward a conceptual model of utilization. *MIS quarterly*, 125-143.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information systems research*, *11*(4), 342-365.

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, *39*(2), 273-315.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178.

Von Neumann, J., Morgenstern, O., & Kuhn, H. W. (2007). *Theory of games and economic behavior (commemorative edition)*. Princeton university press.

Wade, M., & Marchant, D. (2014). Are you prepared for your digital? transformation? *Understanding the power of technology AMPS in organizational change. Tomorrow's challenges.* IMD Lausanne, Switzerland.

Waehama, W., McGrath, M., Korthaus, A., & Fong, M. (2014). ICT adoption and the UTAUT model. In *Proceeding of the International Conference on Educational Technology with Information Technology*, Vol. 17, pp. 24-30

Wong, S. I., Solberg, S., & Traavik, L. M. (Working Paper). *Feeling helpless working in distributed teams: The role of fixed- and zero-sum mindset on technological abilities*.

Wu, J. H., Wang, S. C., & Lin, L. M. (2007). Mobile computing acceptance factors in the healthcare industry: A structural equation model. *International journal of medical informatics*, *76*(1), 66-77.

Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational psychologist*, *47*(4), 302-314.

Yu, C. (2012). Factors affecting individuals to adopt mobile banking: empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research, 13*(2), 104.

Zingoni, M., & Corey, C. (2017). How Mindset Matters. *Journal of Personnel Psychology,16*(1), 36-45.

Appendix

Appendix A: Comparison of the eight models

Comparison of the eight models (Based on Venkatesh et al., 2003)	
Theory	**Core constructs**
Theory of Reasoned Action (TRA) TRA is one of the most influential and fundamental theories of human behavior (Venkatesh et al., 2003). However, the theory has also been applied to individual acceptance of technology, where the results were consistent with studies on other behaviors (Davis et al., 1989).	Attitude Toward Behavior
	Subjective Norm
Technology Acceptance Model (TAM) TAM is designed to predict information technology acceptance and usage in the workplace. The model has been widely applied to a variety of users and technology (Venkatesh et al., 2003).	Perceived Usefulness
	Perceived Ease of Use
	Subjective Norm
Motivational Model (MM) MM has been widely applied as an explanation for behavior. Motivational theory was applied within the information system domain, to understand technology adoption and usage (Davis et al., 1992).	Extrinsic Motivation
	Intrinsic Motivation
Theory of Planned Behavior (TPB) TPB extended TRA and added the construct Perceived Behavioral Control. It is perceived as an additional determinant of intention and behavior. It has been applied to the understanding of individual usage and acceptance of new technology (Harrison, Mykytyn & Riemenschneider, 1997).	Attitude toward behavior
	Subjective Norm
	Perceived Behavioral Control
Combined TAM and TPB (C-TAM-TPM)	Attitude Toward Behavior
	Subjective Norm

C-TAM-TPB combines perceived usefulness from TAM with predictors of TPB, which provides a hybrid model (Taylor & Todd, 1995a).	Perceived Behavioral Control
	Perceived Usefulness
Model of PC Utilization (MPCU) MPCU predicts individual acceptance and use of information technologies (Venkatesh et al., 2003). It predicts usage behavior, rather than intention (Thompson, Higgins & Howell, 1991).	Job-fit
	Complexity
	Long-term Consequences
	Affect Towards Use
	Social Factors
	Facilitating Conditions
Innovation Diffusion Theory (IDT) IDT has been used to study a variation of innovations and is grounded in sociology (Rogers, 1995).	Relative advantage
	Ease of Use
	Image
	Visibility
	Compatibility
	Results Demonstrability
	Voluntariness of Use
Social Cognitive Theory (SCT) SCT is one of the most influential theories of human behavior (Bandura, 1986). It originally studied computer use, but the nature of the model allows it to extend to acceptance and use of technology in general (Compeau & Higgins, 1995).	Outcome Expectations-Performance
	Outcome Expectations-Personal
	Self-efficacy
	Affect
	Anxiety

Appendix B: Information Letter

"A survey in collaboration with company X"

This is an inquiry about participating in a survey about technology acceptance. The survey will be part of a collaboration with company x, to give feedback on how to best organize training and support for Human Resources in local units, when implementing the New HRMS. Your answers will be important to recognize the needs and acceptance of employees in the beginning stage of implementing new technology. This is crucial to ensure positive employee experiences, and your responses will therefore be valuable for company x when assessing progress and determining future direction.

Purpose of the project:
This project is part of a Master degree in Organizational Psychology and Leadership. The purpose is to gain a better understanding of why some individuals are more accepting towards new technology, and how organizations successfully can introduce new technology in the workplace.

What does participation involve for you:

- Answer an electronic survey on your phone or computer
- Timeframe: 5-10 minutes
- All participants will be kept anonymous
- The survey involves questions about how you perceive the new HRMS solution
- All participants will receive a document with the purpose of the project and your rights - see attachment

Best regards,

Tiril Tangen and Camilla Ahlbom

Your rights

Dear recipient of this survey,

Attached you can read about your rights when participating in this survey that is prepared by two master's students at BI Norwegian Business School in Oslo.

Participation is voluntary
Participation in the project is voluntary. If you choose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you choose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data:
We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act).

- The students responsible for this master thesis, Tiril Tangen and Camilla Ahlbom, and their supervisor Sut I Wong will be responsible for the project and have access to the data collected from the survey.

What will happen to your personal data at the end of the research project?
The project is scheduled to end 01.07.2020. All personal data will be deleted after the end of the project.

Your rights
So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?
We will process your personal data based on your consent.

Based on an agreement with *BI Norwegian Business School*, NSD – The Norwegian Centre for Research Data AS has assessed that the processing of personal data in this project is in accordance with data protection legislation.

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:

- BI Norwegian Business School via Tiril Tangen (student), Camilla Ahlbom (student) and Sut I Wong (supervisor).
- Our Data Protection Officer: Vibeke Nesbakken (vibeke.nesbakken@bi.no)
- NSD – The Norwegian Centre for Research Data AS, by email: (personverntjenester@nsd.no) or by telephone: +47 55 58 21 17.

Appendix C: Demographic Variables

Description of the study population based on control variables

	Control Variable	*Number*	*Percent*
Gender	Male	36	41,86%
	Female	50	58,14%
Age	18-24	2	2,33%
	25-34	29	33,72%
	35-44	35	40,70%
	45-54	12	13,95%
	55-64	7	8,14%
	65 or above	1	1,16%
Years worked in the organization	Less than 5 years	43	50%
	5-9 years	20	23,26%
	10-15 years	12	13,95%
	16 years or more	11	12,79%
Region	Scandinavia	12	13,95%
	West Europe	8	9,30%
	East Europe and Central Asia	5	5,81%
	North East Asia	2	2,33%
	South East Asia and Pacific	23	26,74%
	Middle East, India & Africa, Americas	36	41,86%

Appendix D: Mindset Measures

Measure of fixed/growth mindset

5-point scale from "*strongly disagree*" to "*strongly agree*"

1. A person's level of technological savviness is something basic about them, and there isn't much that can be done to change it.
2. Whether or not a person will be quick and skilled at using new technology is deeply ingrained in the kind of person they are. It cannot be changed very much.
3. Not much can be done to change how well a person will keep pace with technological change. Everyone is a certain kind of person, and some will fare better with technological changes than others.
4. Though people can sometimes learn new things, you can't really change people's basic talent for adapting to new technology.

Measure of zero/expandable-sum mindset

5-point scale from "*strongly disagree*" to "*strongly agree"*

1. When technological changes are introduced in organizations, employees often lose out.
2. New technologies reduce the opportunities for current employees to succeed in their current jobs.
3. The more jobs that technology takes over in an organization, the fewer good jobs there are for employees.
4. Resources used for technological changes take away resources from existing employees.
5. For every new technology, there are people losing their jobs.
6. Employees will have less influence in organizations the more technology takes over.

Appendix E: UTAUT Measures

Measure of performance expectancy adapted from Venkatesh et al. (2003).

7-point scale from "*strongly disagree*" to "*strongly agree"*

1. I would find the system useful in my job
2. Using the system enables me to accomplish tasks more quickly
3. Using the system increases my productivity
4. If I use the system, I will be more likely to advance in my career

Measure of effort expectancy adapted from Venkatesh et al. (2003).

7-point scale from "*strongly disagree*" to "*strongly agree"*

1. My interaction with the system would be clear and understandable
2. It would be easy for me to become skillful at using the system
3. I believe I would find the system easy to use
4. I believe learning to use the system is easy for me

Measure of social influence adapted from Venkatesh et al. (2003).

7-point scale from "*strongly disagree*" to "*strongly agree"*

1. People who influence my behavior think that I should use the system
2. People who are important to me think that I should use the system
3. I believe the senior management of this business will be helpful in the use of the system
4. In general, I believe the organization will support the use of the system

Measure of behavioral intentions adapted from Wu, Wang and Lin (2007).

7-point scale from "*strongly disagree*" to "*strongly agree"*

1. I would intent to use the system in my daily work as often as needed
2. Whenever possible, I would intent to use the system in my daily job
3. I would estimate that my chance of using the system in my daily job are frequent

Appendix F - Principal Component Analysis

Items	Effort Expectancy	Performance Expectancy	Zero-sum Mindset	Behavioral Intentions	Fixed Mindset	Social Influence
EE2	.872					
EE4	.857					
EE3	.810					
EE1	.785					
PE3		.886				
PE2		.881				
PE1		.841				
PE4		.600				
ZeroMindset2			.803			
ZeroMindset3			796			
ZeroMindset5			.729			
ZeroMindset1			.696			
ZeroMindset4			.647			
BI3				.819		
BI1				.779		
BI2				.770		
FixedMindset2					.878	
FixedMindset4					.816	
FixedMindset1					.692	
SI2						.901
SI1						.867

Note. N = 86. EE = Effort Expectancy; PE = Performance Expectancy; BI = Behavioral Intentions; SI = Social Influence.
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.