When Facing the Risks of Jobs Being Digitalized: Employees' Responses to Digital Change in Organizations

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Start: 01.01.2018 09.00
 Finish: 15.01.2018 12.00
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Summary

The current Preliminary Thesis report presents an introduction to our research topic, digitalization in organizations, and briefly states why the study of this phenomenon is of particular importance today. It presents arguments for how digital change in the workplace undoubtedly prompts certain responses from employees that should be managed properly in order to overcome the challenges associated with large-scale organizational changes. Furthermore, relevant key concepts are defined and a brief introduction to the theoretical foundations related to our proposed research question is presented, including resistance to change, the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), zero-zum mindset, and job crafting. The report also provides an overview of the outlined research design and plan for data collection and, lastly, an implementation plan for the thesis is presented.
Introduction

Today the world is facing, not a new, but an increasingly intensifying technological development within digitalization. Robots are more efficient than ever before and in many cases already doing a better job than human beings, claiming neither salary nor vacations (Seehusen, 2017). Computer Science Online (2017) recently reported that jobs in accounting and auditing has a 93.5% chance of being completely automated. Real estate agents were up second, and third came barbers with a 79.5% chance of being automated. In fact, the changes facing the world today are of a whole different scale than before, and happening at a rapid pace. According to a report conducted by Ball State University, the United States experienced the greatest loss of jobs in its history between 2000 and 2010 (Hicks and Devaraj, 2017). Although this may be partially due to the financial crisis in 2007, the country still experienced growth in productivity, suggesting that production workers are becoming redundant (Hicks and Devaraj, 2017).

While organizational theory has focused on managers and how to strategically implement new technology, we find that little research has been devoted to examine the responses these changes may trigger in employees. The Technology Acceptance Model (Davis, 1989) aims to explain how technology is readily adopted, but seemingly it falls short in today’s intensifying and rapidly changing technological development as it fails to include cultural and social aspects, as well as emotions (Bagozzi, 2007). Another limitation of the model, in regards to this study, is its focus on technology as a means to solve certain tasks for the employee, rather than replacing the employee in its entirety. We find that the Theory of Planned Behavior picks up where the TAM falls short and therefore we find it worthwhile to include both models in the this report.

The current study aims to further explore how employees might respond to the organizational transformation that many experience today. These transformations are mainly rooted in digital changes and consequently some employees are more exposed than others. In particular, this study aims to emphasize on employees in positions facing high risk of being digitalized. Building on a case study design with semi-structured interviews we seek to map out employees’ cognitive,
emotional and behavioral responses to digital change. Based on the findings of our qualitative research, similarities and differences between responses will be addressed and analyzed in order to gain a better understanding of the underlying factors affecting these responses as well as the potential consequences.

Knowing about these psychological responses and managing them properly will be important for organizations in the future. Not only is seamless adoption of digitalization imperative for maintaining competitive advantage, but also in order to ensure that survivors of downsizing are content and productive. When these responses have been identified, one can implement management initiatives to encourage people to embrace digitalization rather than fear it. Ideally, when technology is embraced employees will engage in knowledge sharing and strive in the digital process.

**Theoretical foundations**

The following section presents and defines selected key definitions and theories relevant to our research topic.

**Digitize vs. Digitalize**

Most people living in a modern society today are likely to encounter words like digitize and digitalize quite often. One can say that digitalization has become almost a buzzword, especially in the world of business. Many believe that the two words - digitize and digitalize - are one and the same, however they have quite different meanings.

*Digitize* can be defined as “converting analogues physical measurements to digital form.” (Dictionary.com, 2017). The action of scanning a book is in fact digitizing the book. Thus, digitizing is something that has been done for years.

*Digitalization*, on the other hand, is according to the Gartner IT Glossary (2017) “the use of digital technologies to change a business model and provide new revenue and value-producing opportunities.” This evidently involves much more than simply converting analogue to digital. Thus adopting and implementing digital technologies in order to create value in new ways is the essence of digitalization.
Emotional Responses to Organizational Change

Emotion is a concept that has become increasingly more popular to study in organizational research in recent time (Mossholder, Settoon, Armenakis & Harris, 2000). Mossholder et al. (2000) suggests that in an organizational context, one may find answers to how employees feel about and may react to ongoing events in the organization by exploring the emotions that employees’ may harbor or express. The concept is distinguished from mood in that emotions involve affect that is directed at an object or another person, whereas moods are less intensive and usually not particularly focused as well as lacking a contextual stimulus (Mossholder et al., 2000). Emotions may be illustrated in terms of four main facets, namely (1) experimental, (2) affective, (3) physiological, and (4) action readiness, and “are assumed to involve a specific appraisal of an object or event” (Frijda, 1993, cited in Mossholder et al., 2000, p. 223).

Related to organizational changes following digitalization, we argue that employees’ are likely to experience emotional turbulence. In particular, we suggest that employees may experience emotional responses such as worry, anxiety, resentment, cynicism, resignation and perceived threat to future employment (Mossholder et al., 2000) due to increased downsizing.

Resistance to Change

Resistance to change is a popular term frequently used in relation to organizational change to explain “why efforts to introduce large-scale changes in technology, production methods, management practices, or compensation systems fall short of expectations, or fail all together” (Oreg, 2006, p. 73). However, in more recent years the concept has been object to criticism by several works (e.g., Dent & Goldberg, 1999; Merron, 1993; Piderit, 2000) due to the belief that the term misrepresents what is really going on in such a change dynamic (Dent & Goldberg, 1999). Dent and Goldberg (1999) argue that organizational members do not necessarily resist the change itself, but rather the negative consequences that may follow this change, such as the risks of losing one’s job, for example due to increased digitalization.

In order to understand and deal with the obstacles associated with organizational change, it is essential to gain a full understanding of what the resistance really is
about, and thus it has been argued that more research needs to be directed towards employees’ subjective experiences and genuine reasons for objecting to the change (Nord & Jermier, 1994; Oreg, 2006). Piderit (2000) argues that studies on resistance to change have tended to oversimplify the responses to change and, hence, that much is lost in the attempt to understand the phenomenon. More recently, it has been proposed that responses to organizational change are more complex than previously presumed and, that the phenomenon comprise of both cognitive, affective (George & Jones, 2001; Piderit, 2000) and behavioral (Piderit, 2000) components. This multidimensional view allows us to gain a better understanding of the resistance itself, as well as the related antecedents and consequences (Oreg, 2006). The potential sources of resistance can be found both within the individual as well as in the contextual variables surrounding the individual (Lewin, 1951; Oreg, 2006). Further, it is useful to distinguish between reactions to the change process and reactions to the change outcomes (Oreg, 2006). Oreg (2006) suggests three potential factors related to change outcomes: job security, power and prestige, and intrinsic rewards; and three factors related to the change process: social influence, trust in management, and information about the change. He further argues that while people’s cognitive and affective reactions are influenced by both the change process and outcomes, employees’ behavioral responses are mainly influenced by the procedural aspects of the change (Robbins, Summers, & Miller, 2000; Oreg, 2006).

Further, research has shown that employees are prone to experiencing a range of both positive and negative responses as a reaction to large-scale organizational transformations (Mossholder, Settoon, Armenakis, & Harris, 2000). In other words, it is important not to exclude any potential positive reactions to change. We know from research that organizations are dependent on their employees’ support and enthusiasm towards the proposed change in order to adapt successfully (Piderit, 2000). Nevertheless, we find that little research has been devoted to examining subordinates’ reactions in relation to organizational changes following the arrival of digitalization. O’Neill and Lenn (1995) suggested that more attention to middle-level managers’ responses to organizational restructuring “could lead to a fuller appreciation of managers’ experiences during change as well as a better comprehension of the change process overall” (Mossholder,
Similarly, we would like to argue that there is an inherent need to understand the subjective attitudes and reactions employees may experience related to technological transformation and automation in order to better deal with the obstacles associated with such organizational changes.

**Technological Acceptance Model (TAM)**

The Technology Acceptance Model abbreviated TAM, was introduced by Fred D. Davis (1986) in an effort to explain how people accept computer technology in general. The purpose of the model is to trace the impact of external factors on internal factors such as beliefs, attitudes, and intentions (Davis, Bagozzi & Warshaw, 1989).

The TAM explains how attitude toward using (A) the technology is affected by perceived usefulness (U), which is the user’s subjective perception of the extent to which the technology will increase his or her job performance, and perceived ease of use (E), which is the extent to which the user perceives the technology to require minimal effort. If the user has a positive Attitude Toward Using (A) this will increase behavioral intention to use (BI) which in turn leads to actual system use (Davis et al., 1989).

The Tam also explains how perceived usefulness could directly lead to behavioral intention to use (BI), surpassing attitude toward using (A) and consequently disregarding the perceived ease of use. This relationship is proposed by Vroom (1964; cited in Davis et al., 1986, p.986) based on the idea that people behave in a manner thought to increase their performance regardless of personal feelings. This behavior is encouraged through extrinsic rewards, and as such people will attribute the usefulness of the technology to the ability to meet organizational goals. If the technology is found useful to achieve organizational goals, then ease of use (E) and attitude toward using (A) is less important for predicting actual system use. However, Davis et al., (1989) found that when introducing a new system, perceived usefulness (U) and ease of use (E) were both important predictors of intention to use (BI). In contrast, after a 14-week study period,
perceived usefulness (E) predicted intention to use (BI) alone, with ease of use (E) affecting intention to use (BI) only indirectly via perceived usefulness (U).

Further, we acknowledge that the TAM was originally developed in the 80’s for measuring user acceptance of technology systems such as information systems (Davis et al, 1986), and work-processing systems with the purpose of replacing tasks such as writing a letter by hand. As such the model is tailored to predict the behavior of an individual who is introduced to a new system. This time is different; employees are no longer asked to simply accept and understand a new system created to digitize their tasks. This time employees are expected to give up their work responsibilities in full to a technology system that, in time, is likely to outperform their efforts in almost every aspect. This arguably creates a whole new context for evaluating and accepting the new systems. Hence, we argue that digitalization in organizations is likely to provoke different attitudes and intentions among employees than those previously identified in research using the TAM.

Moreover, we recognize the important fact that human behavior often must be seen in combination with social interaction (Bagozzi, 2007). Many decisions are made in collaboration with or influenced by others. The TAM lacks consideration of these social aspects that may be of great importance in explaining responses to digitalization. Nor is the aspect of emotions accounted for by the TAM (Bagozzi, 2008). Something as simple as whether or not one likes the given technology may affect intention to use it. An additional limitation of the TAM is the assumption that people plan their behavior and are rational beings, and that perceived

Figure 2: Technology Acceptance Model (TAM).
(Davis, Bagozzi & Warshaw, 1989, p. 985)
usefulness is a rational estimate, when in fact more resent research has found the TAM to be affected by mood state (Djamasbi, Strong, Dishaw, 2009). People have limited cognitive resources (Simon, 1983, cited in Bazerman & Chugh, 2006) and are not capable of complete rational behavior, and the TAM neglects to take that into consideration.

Although the TAM might not predict behavior toward digitalization as a whole, it may provide some cues along the way. Small steps of technology acceptance may in fact be categorically rejected out of fear that small concessions of acceptance will eventually lead to full digitalization of all job responsibilities. Building on this, we would argue that the TAM’s relevance to digitalization lies within the perceived usefulness. Evidently, digitalization is useful to the organization confirmed by its presence and continuing expansion into new areas. A question to be asked is then whether an employee perceives digitalization as a useful means to increase his or her job performance in order to achieve organizational goals, or if the usefulness of digitalization is in fact attributed to the long-term threat that automation may impose on the employee’s job and the fear of becoming redundant. In other words, the individual mindset of employees might affect how one perceives the technological change.

Nevertheless, we suggest that other models of behavior must be assessed in combination of the TAM in order to fully understand what drives employee responses in relation to increased digitalization. Another model that can pick up the baton is the Theory of Planned Behavior, which we come back to in later sections.

**Zero-Sum / Variable-Sum Mindset**

Zero-, or variable-sum mindsets are introduced in early research on game theory as the tendency for people to either compete or collaborate in situations where resources are either scarce or ample (Neumann & Morgenstern, 1944). These mindsets manifests in human behavior in many situations and contexts. In a situation where organizations are changing the nature of work, and also eliminating positions, it is natural to assume this will impact employee acceptance of new systems. We would make the argument that employees with a zero-sum
mindset will perceive technology not as a supplement or tool to reach goals, but as a system meant to replace them. On the other hand, employees with a variable-sum mindset may recognize digitalization as an opportunity.

**Theory of Planned Behavior (TPB)**

The theory of planned behavior was designed to predict and explain human behavior in specific contexts (Ajzen, 1991). As with the TAM, the Theory of Planned behavior builds around human intention. In the TAM it is the intention to use a system, whereas in the TPB it is the intention to perform a given behavior. The stronger the intention, the likelier the behavior is to occur.

The model explains how the three factors - (1) attitude toward act or behavior (personal evaluation of the favorability of a behavior), (2) subjective norm (perceived social pressure to perform or not), (3) perceived behavioral control (perceived presence or lack of resources and opportunities to perform the behavior) - lead to a behavioral intention. The harder you are willing to try the likelier is the behavior (Ajzen, 1991).

As opposed to the TAM that focuses solely on the implementation of a specific technology into an employee’s routine, the TPB can be used to explain a much wider variety of human behaviors in different contexts (Ajzen, 1991). As such it can be used to somewhat predict the responses employees will have toward increased digitalization in their workplace even though this digitalization does not directly affect the specific employee at that particular time. All people working in an organization undergoing technological changes will experience attitudes and perhaps impose certain behaviors either in a positive uplifting manner or negative opposing manner toward the change. The TPB could predict and serve as a tool for managers to guide employees through those changes, ensuring that productivity remains high in the process.

As digitalization is not likely to directly affect every single person in the organization to an equally intrusive extent, people may assert different responses. Still, people are likely to talk and be affected by the environment around them, and thus we believe the TPB may predict behavior better by taking into account
subjective norms. Also, the level of perceived control may be a good predictor of acceptance in the sense that people may see digitalization as a loss of control and ultimately decrease the likelihood of positive attitudes towards its acceptance.

Knowledge-Hiding

In organizations today, digitalization is taking over much of the routine work. It has thus become important for humans to engage in behaviors that computers are yet unable to do. Organizations cannot coerce employees into sharing knowledge, and it is therefore important to create a climate in which employees willingly share their knowledge. Wang and Noe (2010) created a framework of knowledge sharing research in which environmental factors, individual characteristics, motivational factors such as knowledge ownership and benefits versus costs all play a role. One can argue that organizations facing rapid changes and layoffs due to digitalization create an uncertain climate in the organization where employees fear for their jobs. Such a climate could indeed lead to employees perceiving other colleagues not as teammates but rather as threats, which could further lead to employees engaging in knowledge hiding to protect themselves. In such instances the knowledge hiding activity is not intended to cause harm, but rather a defensive strategy (Connelly, Zweig, Webster & Trougakos, 2012).

Connelly et al. (2012) identified three main ways in which people hide knowledge. Playing dumb - one pretends not to know, evasive hiding - one provides incorrect information or issues a false promise of future assistance, and rationalized hiding - one offers a justification for not providing the requested information/knowledge such as a confidentiality agreement. Especially interesting is the finding that knowledge related to the job was more likely to be hidden through evasive hiding. Common for all instances of knowledge hiding was the level of trust between employees and that the lack there off leads to more hiding. A question to be asked is then, does digitalization create a competitive environment that diminishes trust and subsequently leads to knowledge hiding? If so, organizations may have difficulties utilizing human capital in the very areas humans are supposed to provide more than computers.
Job crafting

Job crafting refers to the active changes made by employees to shape their own job designs as an effort to foster positive outcomes such as job satisfaction, engagement, resilience, and thriving at work (Berg, Dutton & Wrzesniewski, 2008). It involves utilizing opportunities to customize one’s job to better fit with one’s individual motives, strengths and passions (Wrzesniewski & Dutton, 2001; Berg, Dutton & Wrzesniewski, 2008).

Research suggests that there are at least three different forms of job crafting (Berg, Dutton & Wrzesniewski, 2008). First, individuals may alter the boundaries of their jobs by modifying their work tasks. Task-related job crafting includes activities such as taking on additional or fewer tasks, redefining the scope of one’s task, or making changes to how the task is performed (Berg, Dutton & Wrzesniewski, 2008; Solberg & Wong, 2016). Second, relational crafting refers to the changes made to modify the relational boundaries of one’s work (Berg, Dutton & Wrzesniewski, 2008; Berg, Grant, & Johnson, 2010). Individuals may alter the extent or nature of their work in order to interact with other people and gain new work relationships. Third, cognitive crafting involves mentally redefining one’s job by altering how one perceives his or her tasks (Berg, Dutton & Wrzesniewski, 2008; Berg, Wrzesniewski, & Dutton, 2010).

Moreover, research suggests that job crafting takes place in most types of organizations and occupations (Berg, Dutton & Wrzesniewski, 2008). While high autonomy job designs offer the greatest opportunity for job crafting, it appears that even job designs that are more constrained and rigid also allow for some crafting (Berg, Dutton & Wrzesniewski, 2008).

Since job crafting influences the way in which individuals define their work (Parker, 2007), it has the potential to greatly impact their job performance (Berg, Dutton & Wrzesniewski, 2008). This impact may result in more or less effective job performance, ultimately impacting the overall organizational performance (Parks, 2007; Berg, Dutton & Wrzesniewski, 2008). With this in mind, there are several research works demonstrating the link between job crafting and a various number of beneficial work outcomes, including job satisfaction (Parker, 2007),
work engagement (Tims, Bakker & Derks, 2015), greater productivity, better communication and more efficient collaboration (Leana, Appelbaum & Shevchuk, 2009).

**Methodological approach**

The following section addresses the research design and methodology that we intend to apply for our master thesis.

**Case study design**

A case study design involves the intensive and detailed analysis of a specific issue within a bounded situation or system (Bryman & Bell, 2011). This research approach is concerned with the particular nature and complexity of a certain case (Stake, 1996, cited in Bryman and Bell, 2011), such as a single organization, location, event, person or environment.

Robert Yin has proposed one of two main approaches to the case study method (Baxter & Jack, 2008). His approach is based on a constructivist paradigm, meaning that the truth is considered to be relative in that it depends on one’s perspective. More particularly, this paradigm “recognizes the importance of the subjective human creation of meaning but does not reject outright some notion of objectivity” (Crabtree & Miller, 1999, p. 10). By conducting a case study, one enables the researcher and participant to enter into a close collaboration; allowing the participants to tell their story and describe their views of reality (Baxter & Jack, 2008). Further, this may provide the researcher with a better understanding of the participants’ actions (Lather, 1992; Robottom & Hart, 1993; cited in Baxter & Jack, 2008), and get a true picture of the phenomenon, which may help in revealing the deeper essence of a phenomenon. According to Yin, one should consider a case study design when “you want to cover contextual conditions because you believe they are relevant to the phenomenon under study” and when “the boundaries are not clear between the phenomenon and the context” (Baxter & Jack, 2008, p. 545).

Further, Yin argues that the case study research method can be categorized as explanatory, descriptive or exploratory. The exploratory case study is best used to
explore those situations in which the intervention being evaluated has no clear, single set of outcomes (Yin, 2003, cited in Baxter & Jack, 2008, p. 548). Yin further differentiates between single case studies, holistic case studies and multiple-case studies. “A multiple case study enables the researcher to explore differences within and between cases...so that the researcher can predict similar results across cases, or predict contrasting results based on a theory” (Yin, 2003, cited in Baxter & Jack, 2008, p. 548).

The aim of this study is to explore employees’ responses to digital change in organizations, with a particular focus on employees in positions at high risk of being digitalized. We believe that in order to truly understand the full aspects of this phenomenon we cannot consider the case without also including the broader context. Hence we argue that for the purpose of this study, a multiple-case study with an exploratory research design, such as defined by Yin, will be the most appropriate approach.

Data Collection

Based on the nature of this study, we suggest a qualitative approach for the collection of relevant data. A qualitative research approach is typically associated with an inductive strategy of linking data and theory, which seems appropriate for our thesis due to the ambiguity of the phenomenon under study. An inductive strategy entails that theory is generated as an outcome of the research (Bryman & Bell, 2011). Nonetheless, previously developed theories will be used as a background for our investigations, and so our strategy cannot be considered as purely inductive but rather as semi-deductive. We further argue that adopting a qualitative research method is likely to provide our research with descriptive details significant for gaining a complete understanding of our case to a greater extent than by applying a quantitative method (Bryman & Bell, 2011).

Building on this, in order to detect inherent patterns that may shed light on our research question, we seek to analyze the similarities and differences between organizations, or between different units within a single organization. One of the main procedures associated with this type of research is qualitative interviewing. In order to uncover the participants’ views of reality, we deem that conducting
semi-structured interviews will be the most suitable approach. Thus, we will construct an interview guide comprising of a list of questions related to the relevant topics, some of which previously described in the theory section (Bryman & Bell, 2011).

**Implementation Plan as Presented in a Gantt Diagram**

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