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*Published in:*  
Digital Transformation: A Guide for Managers

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2022

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Nguyen, K., & Broekhuizen, T. (2022). Employee and Team Digital Readiness: How to Get Employees and Teams Ready for Digital Transformation? In *Digital Transformation: A Guide for Managers* (pp. 49-67). Groningen Digital Business Centre (GDBC). <https://www.rug.nl/gdbc/blog/digital-transformation-a-guide-for-managers.pdf>

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# Employee and Team Digital Readiness

## How to Get Employees and Teams Ready for Digital Transformation?



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of this chapter

**Khoi Nguyen, Open University and  
Thijs Broekhuizen, University of Groningen**

While human capital is crucial to digital transformation, little is known about employee digital readiness, and how this may foster digital transformation. This chapter conceptualizes employee digital readiness and postulates its drivers and consequences.

Based on a literature review, we highlight two distinct patterns that promote psychological and behavioral outcomes of digital readiness. The psychological pattern suggests that firms can reduce technological anxiety by providing organizational support that enhance employee's capability. The behavioral pattern shows that in order to improve effective use, firms should enhance collegial support and enhance the appropriateness of digital tools, which will increase the usefulness of digital transformation. Finally, we introduce a team perspective and conceptualize how employee digital readiness affects outcomes by relating the focal member's digital readiness to the team's digital readiness. We hypothesize possible psychological and behavioral outcomes based on whether the focal employee and team have high or low readiness, and suggest remedies in case of (mis)fit situations.



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## The Idea in brief

### The Issue

Digital transformation is not about technology, but about people, and, in particular, based on their ability to use digital technologies.

Employee digital readiness is crucial to successful digital transformation.

Yet, little is known about employee digital readiness.

### The Response

Using the employee-team-fit literature, we develop a psychological and behavioral input-output framework of employee and team digital readiness.

### The Bottom Line

The framework identifies the drivers and consequences of employee digital readiness. Managers can devise appropriate response strategies to foster employee and team digital readiness and shape the success of digital transformation.



## Introduction

### **“Digital transformation is not about technology; it is about people”**

Tabrizi, Lam, Girard, & Irvin (2019)

### **“Digital transformation is about talent, not technology”**

Frankiewicz & Chamorro-Premuzic (2020)

### **“Digital transformation is not only about technology but requires a focus on employee factors, alongside shifts in organizational strategy, structures, and processes”**

Trener, Chng, Wang, Suhaila, Lim, Lu, & Oh (2021)

The statements above emphasize that Digital Transformation (DT) goes beyond technology. Technology provides possibilities for efficiency gains and greater customer value. Particularly, digital innovations enable the transformation of customer experiences, operational processes, and, ultimately, a company’s business model (Westerman et al. 2015). Yet, the enabling part is made possible by employees. When they “lack the right

mindset to change and [when] the current organizational practices are flawed, DT will simply magnify those flaws” (Tabrizi et al. 2019).

Rather than relying on external expertise provided by expensive consultants, who tend to apply one-size-fits-all solutions in the name of “best practices”, Tabrizi and colleagues suggest capitalizing on the organization’s human capital. Current employees have intimate knowledge about the primary processes in their daily operations, and their knowledge can be leveraged to foster creative solutions. To a large extent, employees’ ability to generate creative ideas (by combining business knowledge with technology) and engage in digital transformation initiatives depends on their digital readiness. In other words, employees’ beliefs about technological change are likely to influence their engagement in, or withdrawal from, their company’s digital transformation initiatives, and, which, in turn, determine behavioral outcomes (Solberg et al. 2020).

Relatively little is known about employees’ digital readiness (Gfrerer et al. 2021), its drivers, and consequences. To better understand the concept, we introduce a framework that introduces the drivers of digital readiness, the components of digital readiness, and the positive and negative consequences that result from a higher level of digital readiness. We hypothesize two distinct patterns in how to promote two psychological and behavioral outcomes of digital readiness. We delineate how managers can apply and, for instance, reduce technological anxiety and enhance employee’s capability via the provision of organizational support. Furthermore, we show that managers should pay attention to the digital readiness of the employee’s digital readiness relative to his/her team members to account for matching and unmatching (i.e. different) levels between employees and their teams’ digital readiness.

# Employee digital readiness

We define employee digital readiness as the employee’s willingness and ability to engage in digital transformation. Digital transformation refers to the development of new business models that make use of digital technologies (Verhoef et al. 2021; Wessel et al. 2020). Digital transformation initiatives require a major change effort, as employees need to familiarize with and deploy (complex) digital technologies to reconfigure the business logic of a firm. Hence, digital transformation will have a persistent effect on how employees perform their daily tasks. Research shows that employees resist change because they experience fear and discomfort when they have to adapt to new practices (Oreg 2006; Oreg and Sverdlik 2011; Rafferty and Jimmieson 2017). Information system research augments this by arguing that employees resist technologies because of the perceived incapability and threat to lose control of their work (Bhattacharjee and Hikmet 2007). Hence, fostering this digital readiness, in which individuals are willing to and capable of using such technologies, is key to successful digital transformation.

We consider the concept of employee digital readiness has an attitudinal and behavioral component. The degree to which employees are ready depends on employees perceived use benefits (attitude) and actual use (behavior). First, employees who are convinced of the benefits of digital technologies to their daily work, are more prone to engage in digital transformation through their greater appreciation of the benefits; a term we call digital valence. Commonly identified benefits of using technologies are increased productivity via efficient data access and management, optimization of tedious tasks, enhanced knowledge sharing, and collaboration as well as better understanding of customers’ needs. Second, employees who possess knowledge and skills to use technologies to support their work are more digitally ready through their greater efficacy of using technologies. We coin this term digital efficacy. Thus, we argue that digital valence and digital efficacy constitute employee digital readiness.

In our framework (see Figure 1), we consider that individual input (employee’s socio-demographic traits and personality) and organizational input (organizational strategy, structure and (team) processes) variables to influence digital readiness. Furthermore, we argue that improvements in digital readiness lead to different psychological (job fulfilment, commitment, technostress, and alienation) and behavioral outcomes (productivity enhancements, organizational citizenship behaviors, absenteeism).

Table 1. Definitions, consequences and outcomes of digital readiness

Concept	Definition
<b>Employee digital readiness</b>	An employee’s willingness and ability to engage in digital transformation
- Digital valence	An employee’s belief that digital technology use has intrinsic and extrinsic benefits.
- Digital efficacy	An employee’s ability to use digital technologies to produce desired or intended results.
<b>Drivers of employee digital readiness</b>	
- Individual input	Individual drivers or triggers of digital readiness such as sociodemographics (gender, age, education) and personality.
- Organizational input	Organizational drivers or triggers of digital readiness such as organizational strategy, structures, and (team) processes.
<b>Consequences of employee digital readiness</b>	
- Psychological output	Psychological outcomes of digital readiness such as job fulfilment, commitment, technostress and alienation.
- Behavioral output	Behavioral outcomes of digital readiness, such as effective use of technologies, work performance and productivity enhancements, compliance and organizational citizenship behaviors, as well as counterproductive behaviors like cyber-deviance, online bullying and absenteeism.

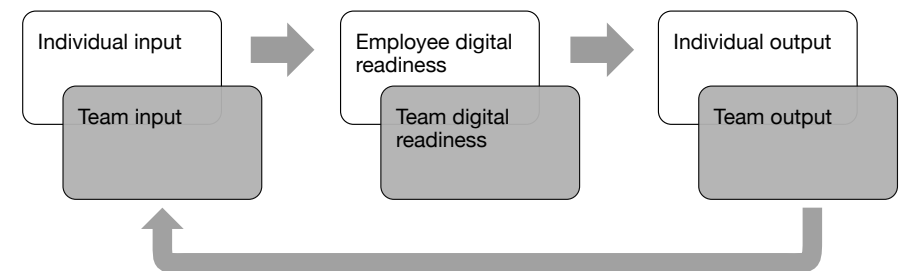


Figure 1: Employee and team digital readiness map

# Drivers of employee digital readiness

## Individual input to digital readiness

We conceptualize employee digital readiness to be composed of an attitudinal (digital valence) and a behavioral component (digital efficacy). Differences in individual input and/or organizational input variables serve as input to the employee's digital readiness. We will first focus on reviewing the individual inputs. Concerning digital valence and digital efficacy, age has been found to predict employees' perception about technology interruptions (Caldwell et al. 2004; Tams et al. 2018). Seniors tend to score lower on digital readiness as they are more sensitive to the interruption of technologies and have fewer mental resources and computer experience compared to younger people (Tams et al. 2018).

Personality traits may determine employees' mental state related to digital readiness. For instance, research examining the big five personality traits shows that neuroticism (i.e., the tendency to experience negative affect such as anger, anxiety and emotional instability) enhances stressful encounters with new technologies and lowers digital valence, while conscientiousness (i.e., the tendency to carry out one's work well and thoroughly) and openness (i.e., the tendency to be eager to learn and experience new things) do otherwise (Caldwell and Liu 2011; Devaraj et al. 2008; Maier et al. 2019; Srivastava et al. 2015). Extraversion (i.e., the tendency to get energized in the company of others), and agreeableness, (i.e., the tendency to easily show trust, altruism, kindness and affection), may lead to higher perceptions of digital usefulness, especially when other colleagues or direct supervisors have the same perception about digital technologies (Devaraj et al. 2008).

Other technologically specific personality dispositions such as personal innovativeness with IT (i.e., willingness of an individual to try out any new information technology), and information technology mindfulness (e.g., the tendency where the user focuses on the present, pays attention to detail, exhibits a willingness to consider other uses, and expresses genuine interest in investigating IT features and failure) are conducive to employee's level of digital readiness (Maier et al. 2019; Walczuch et al. 2007). Other personality traits like resistance to change inhibits digital readiness (Laumer et al. 2016).

## Organizational input to digital readiness

Organizational input factors may foster digital readiness through the creation of a *sense of legitimacy*, such that the digital transformation is based on legitimate reasons (Armenakis et al. 1993; Holt et al. 2010). Employees are more willing to change if they understand and accept the purpose of change. When organizations introduce change,

employees will attribute the causes of such change initiatives. This attribution will determine how they will react. Employees interpret change as internally intended or externally driven (Caldwell 2013; Rafferty and Sanders 2018). Results show that employees perceive change as more legitimate when it is thought of as caused by the external environment. For instance, when retail companies rapidly changed their business models to online in response to the Covid-19 pandemic, employees reacted positively because these companies considered their safety, making them more open to such change<sup>1</sup>. Conversely, when organizational change is attributed as internal motives such as cost-cutting or to develop a new strategic goal, employees perceive the change as less legitimate, and are then more resistant to change. Some companies even experienced contempt when attempting to legitimize a massive lay-off to improve firm performance<sup>2</sup>. Applied to the digital transformation context, when firms communicate the process of digital transformation to be externally driven rather than for the organization's best interest, it will more likely convince employees, and contribute to their digital readiness.

Organizational input may also foster employee digital readiness through increasing *appropriateness* – by addressing that digital transformation is an appropriate response to the organization's issues and context (Armenakis et al. 1993; Holt et al. 2010). Rumors may escalate and undermine appropriateness by overstating the negative aspects of change within the organization (Bordia et al. 2004). For example, employees may infer based on unofficial information sources that digital transformation initiatives will make their work progressively less relevant, and ultimately render their jobs superfluous. In other cases, employees can assume that technologies will complicate their work by devaluing their current knowledge and experience, such that they are forced to practice and acquire new skills. Targeted communication can effectively tackle this issue by, for instance, highlighting the positive aspects of digital transformation to their work (i.e., greater productivity or more control), or the necessity to change in order to remain competitive in the market. Increased efficiency and accuracy are obvious benefits of technologies to their work. Furthermore, technologies may also increase flexibility by allowing employees to work remotely, and actively steer their work-life balance. Managers should also ensure that the organization will support its employees beyond providing knowledge. As an example, reducing performance goals or assigning flexible goals during time of change may alleviate the stress of maintaining work performance and set the stage for employees to embrace digital transformation (Polites and Karahanna

1 <https://home.kpmg/xx/en/home/insights/2020/03/realities-of-retailing-in-covid-19-world.html>

2 <https://fortune.com/2012/02/13/pepsis-ceo-faces-her-biggest-challenge/>

2013; Stoddard and Jarvenpaa 1995). Flexible goals evaluate employees in terms of the processes (e.g., how employees improve their technological skills and apply new technologies to their work) rather than the result (e.g., how employees primarily perform at work). Consequently, employees will have sufficient time to learn and experience new technologies, which eventually contribute to an increase in their efficacy (through learning) and valence (through exposure to digital technologies).

Finally, organizational inputs can increase employee digital readiness by providing sufficient *organizational support*. This support can address the lack of readiness through nurturing the perceived usefulness of technologies (digital valence) or through helping employees build and improve new skills (digital efficacy). For instance, training is a common HR practice to increase employee support for digital transformation (Eby et al. 2000). Research shows that training programs can be more effective when they consider real-world context and relate closely to employees' daily tasks (Polites and Karahanna 2013). Besides providing key knowledge and increase efficacy, this type of training also increases employees' awareness of the possibilities offered by new digital technologies, which may encourage them to apply technologies to daily works to increase efficiency.



## Consequences of employee digital readiness

Compared with the drivers of employee digital readiness, much less is known on its consequences: the output of digital readiness. Scholars assume that readiness leads to positive psychological consequences. For instance, Rafferty and Minbashian (2018) show that employees are not only more compliant to, but also more supportive of (technological) changes. Conversely, unready employees tend to experience more stress as they have to spend much more personal resources to adapt to new changes as well as perceiving insecurity and may result in a lack of psychological safety. Digitally ready employees tend to support the process of digital transformation and function effectively with new technologies. These employees often perceive technologies as more useful and easier to use and to apply to their work (Kwahk and Lee 2008). Thanks to their supportive attitude, employees will be less prone to technostress – stressful conditions created by using new technologies (Ragu-Nathan et al. 2008). Technostress, like any other type of work stress, is positively associated with burnout, psychological strains, turnover, to name a few (Tarafdar et al. 2019). Moreover, digital ready employees tend to demonstrate positive behavioral responses, ranging from effective use of digital technologies, increased performance to peer support, and other extra-role (organizational citizenship) behaviors. When employees are able to improve their digital output via greater digital readiness, this may provide positive attitudinal and behavioral outcomes that feedback as input to an employee's future readiness (see redirected arrow in Figure 1). Because of the considerable benefits of fostering employees' digital readiness, managers should pay attention to improving digital readiness to ensure the success and avoid negative side effects of digital transformation. Particular suggestions are discussed below.

### 1. Team perspective to digital readiness

While ensuring high employee digital readiness is one of the key issues for firms engaging in digital transformation, it is of equal importance to notice the interpersonal aspect of digital readiness. To put it differently, the digital readiness of employees corresponds to and is influenced by the digital readiness of their team and/or their supervisor. From research, we know that a misfit in digital readiness – a situation whereby a particular employee and his or her team or supervisor having diverse levels of digital readiness – can be as detrimental to team productivity, but also harm the employee's performance and wellbeing.

The person-environmental fit theory introduces an interpersonal perspective to digital readiness and suggests that people attempt to fit with the environment because they prefer consistency and control over their life as well as identification and sense of belonging (Kristof-Brown et al. 2005). Interpersonal digital readiness refers to the

compatibility of the digital readiness of a particular employee relative to one's team members. Existing approach assesses team digital readiness by taking a composite (the average) of employee digital readiness to represent the digital readiness stock of all its members.

Putting together employee and team digital readiness, we show four possible conditions of the digital readiness fit/misfit: Fit conditions in which the digital readiness levels of an employee and team/supervisor are similar and highly overlapping (Quadrant A and D), and misfit conditions in which there is a significant difference between the employee and the team/supervisor concerning digital readiness (Quadrant B and C). Each quadrant has potential benefits and/or problems necessitating different strategies for increasing employees' digital readiness. We will explain them below.

Table 1: Possible conditions of employee and team digital readiness

		Team digital readiness	
		High	Low
Employee digital readiness	High	<b>(A) Ready for digital!</b> High fit, high readiness <i>Positive</i> psychological output <i>Positive</i> behavioral output	<b>(B) Digital Alone!</b> Surplus relative to team <i>Negative</i> psychological output <i>Negative</i> behavioral output
	Low	<b>(C) Digital? Count me out!</b> Deficiency relative to team <i>Negative</i> psychological output <i>Positive</i> and <i>negative</i> behavioral output	<b>(D) Digital? Not with us!</b> High fit, low readiness <i>Positive</i> psychological output <i>Negative</i> behavioral output

### Ready for digital! (Quadrant A)

Quadrant A is characterized by high employee and team digital readiness, which is the most positive condition in table 1. High team and supervisor digital readiness means that the focal employee and team members are capable and effectively use technologies. The team climate will be supportive of adopting, experimenting, implementing and using new technologies to effectively and efficiently solve daily work. Thanks to a positive attitude of the supervisor, financial support can also be sufficiently provided to overcome innovation barriers and quickly react to the internalization of new technologies (Gfrerer et al. 2021). Working in such a digitally savvy team, digitally ready employees can put their digital skills to best use. In addition, there will be mutual understanding, better

exchange with peers and supervisors (Marstand et al. 2017; Matta et al. 2015; Shin et al. 2017) as well as higher identification and team commitment. Stressful conditions due to misfit are less likely to occur for focal employees. The psychological output of lower stress and behavioral output of effective use will jointly lead to improved team and individual performance.

### Digital Alone! (Quadrant B)

Quadrant B is a situation where the focal employee has a high digital readiness but that of one's team is low. We term this condition digital readiness surplus. A downside to low team digital readiness, as described above, is the lack of a digitally supportive climate and support from the supervisors and peers. While adding a digitally ready employee to a low team digital readiness makes intuitive sense to foster team digital readiness, such digital savvy employees may themselves experience problems and conflicts because of the dissimilarity with his or her boss and peers. Such discrepancies will reduce the identification with and the commitment to the team, as the person-environment fit theory shows. Furthermore, stress is a potential problem for these employees. They might have to handle digital work in place of their peers and be frequently asked for advice, creating work overload.

Another theoretical viewpoint of attraction-selection-attrition – namely the process whereby similar employees are chosen to a workplace – predicts that turnover is inevitable for these digitally ready employees (Wu and Chi 2020). Furthermore, through disappointment in the employment situation, these employees might engage in counterproductive behaviors – actions intended to have detrimental effects on the organization and its members (Liu et al. 2015). Counterproductive behaviors may include workplace aggression as the employee perceived him or herself better than their peers or the boss. Teams that lack digital readiness might find it hard to detect fraudulent behaviors done by digitally ready employees. Although these examples are extreme, digital readiness surplus is shown in research to be harmful to employee psychological well-being. Employee's effective use of technology is also hindered by the team climate because of distraction and work overload.

### Digital? Count me out! (Quadrant C)

Similar to the other misfit condition (Quadrant B), digital readiness deficiency prevents employees to identify with and be committed to the team. A high level of stress is likely to result, as focal employees have to deal with tech technologies supported and internalized by their supervisors and peers. Focal employees, who are disadvantaged relative to their team members in terms of digital readiness, are more likely to experience insecurity as they fear that they are not highly valued and can be replaced any time with the team.

Further, the complexity and uncertainty that result from new technologies cause a major hindrance at work (Tarafdar et al. 2019).

While ample opportunities exist for the digitally unready employees to improve and thrive through taking advantage of their digitally ready environment and through continued exposure and peer learning, the employee must be motivated and supported to tackle the psychological stress. Attraction-selection-attrition theory suggests that negative consequences occur including burnout, fatigue, absenteeism that may foster employee churn and increase team employee turnover.

### **Digital? Not with us! (Quadrant D)**

Quadrant D describes a condition whereby employee and team digital readiness is low. While low team digital readiness nurtures a culture that does not support the use of technologies, employees in this condition will experience low stress as they are fit within their team (Edwards and Rothbard 1999; Yang et al. 2008). The high fit between team members suggests that team identification and team commitment will be high (Greguras and Diefendorff 2009; Li et al. 2019). On the other hand, because the employee and the team lack the perception of technological usefulness and the skills to use those technologies, effective use of technologies will not be (easily) realized. Such an apathetic team climate will not be beneficial for the firm's attempts to digital transformation.

## Fostering digital readiness at the employee and team level

To foster digital readiness at the employee and team level, we will provide some managerial implications.

- i. Appoint champions:** Relying on the individual input of digital readiness, managers will be able to select the most suitable employees as change agents and leading examples to promote digital transformation. Digitally ready employees may promote and instigate change – especially when they have positive characteristics such as extraversion, innovativeness, and optimism. Choosing the right change agent will foster the other's employee and team digital readiness to achieve the high fit conditions.
- ii. Communication is king:** Communication the purpose of digital transformation to employees reduces the negative attribution process and increases the perceived legitimacy and appropriateness of digital transformation, which in turn foster employee

digital readiness. Research shows that when employees attribute the cause of change as external or as beneficial to themselves (Rafferty and Sanders 2018), they perceive the change as more legitimate and appropriate. Thus, internal communication should be carefully drafted and implemented. For instance, managers should demonstrate the direct benefits of using new technologies to employees' daily tasks, such that they will be convinced that their effort to change is worthwhile and pays off in the near future. Our suggestion does not imply that managers should be overly optimistic and consistently communicate the benefits of digital transformation to employees. In practice, digital technologies are also implemented to remain competitive without producing any direct employee benefits; for instance, by cutting costs via laying off employees or by pursuing new strategic initiatives. Employees may sense when managers are dishonest, which should be avoided to leadership and communication (Cartwright and Holmes 2006).

- iii. Organize change with sufficient organizational support:** Managers can adjust performance goals to facilitate technology adoption and continued use. A strong process-oriented focus will help employees to familiarize themselves with new technological applications. Result-oriented indicators should be relaxed such that employees can have the time available to master the technologies. Further, digital training is another important issue. Managers should ensure that the digital training program is not “too theoretical” and covers practical aspects of the new technologies. In other words, after the training, employees must understand the benefits of technologies to their work and be able to use technologies in their daily work. Finally, promoting peer support by allowing more digitally ready employees to encourage and guide others is an effective strategy to improve the team's digital readiness and create a high fit condition.
- iv. Support digital experts in low readiness teams:** Digitally ready employees should be identified and supported such that they are able to put their skills to good use. Managers should secure sufficient time, for instance by removing some of their daily routine tasks, such that they can spend time to educate, motivate and guide their peers, especially regarding the use of digital technologies. If the employee considers oneself to be overqualified for the team, this attitude might not be healthy for the work environment. They should communicate clearly and act empathically so that they appear friendly and supportive to others. Personality plays a role here. If the employee's personality does not fit to be a guide and a “digital evangelist”, moving his or her to another digitally ready team might be the best possible solution. Another way to improve the influence of digital experts is to expand their internal networks and focus on letting them taking a central role; the more central these experts become, the more impact this will have on the diffusion of knowledge and the attitudes and behaviors of peers.



- v. **Help digital novices to catch up in high digital readiness teams:** Managers should pay close attention to and support employees with a deficiency relative to their team members. Such employees feel that they are falling behind, and may experience incompetence and disdain from their direct colleagues. To reconnect digital novices to high-digital ready teams, managers should take corrective action when such negative signals appear to avoid negative attitudinal and behavioral spirals. To prevent such negative spirals, managers should develop an inclusive environment to motivate and engage them. Team leaders could use different tactics such as training provision, peer support, and peer mentoring to improve the digital readiness of novices.
- vi. **Resolve the high fit, low digital readiness condition:** Managers face a challenging situation when all members have low levels of digital readiness, and increase the input and output variables of it. A strategy to deal with the low fit condition is to introduce tech-savvy team leaders (either newly hired or from other organizational teams), whose power and influence can later be used to promote the team's digital readiness. After fostering the digital climate, firms should recruit digitally ready employees to pioneer and provide support digital transformation. It is important that organizational support is geared towards stimulating the entire team's level of digital readiness. Training programs for such teams are recommended as they may collectively lift the technological abilities and create shared positive attitudes towards the use of digital technologies.

## Conclusion

Companies can foster digital transformation through leveraging the human capital. In this chapter, we stress the importance of employees' digital readiness, *the employee's willingness and ability to engage in digital transformation*. While companies need to navigate in the age of abundant technology, the employees' willingness and ability to use these technologies will determine the organization's ultimate successful transformation. This chapter shows that while implementing technologies might come from a good intention, failure to manage the technological changes cause adverse effects to employees. Instead, managers should consider the digital readiness of individual employees operating in teams, and how to maximize the returns on its human capital.

We summarized the existing findings of the literature and conclude that much more research is needed to investigate the input (drivers) and output (consequences) variables of employee digital readiness. Finally, we introduce a team perspective to consider that individual employees do not operate in a vacuum but can learn from and educate their peers. This multilevel perspective increases our understanding of how employee's individual and team digital readiness determine organizational outcomes. While fostering employee and team digital readiness simultaneously is beneficial, we notice that this might not be feasible. We therefore offer solutions on how to deal with the sub-optimal conditions. We hope that our framework and perspective help managers effectively improve employee and team digital readiness.

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