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Authentic leadership and employee agility in the context of a digital transformation: the roles of employees' fixed digital mindset and affective commitment to change

Navn: Kine Marie Sandø Kleppe, Benedicte Nortvedt

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Supervisor:
Sut I Wong

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Content

ACKNOWLEDGEMENTS	II
ABSTRACT	III
INTRODUCTION	1
LITERATURE REVIEW AND HYPOTHESES	3
AFFECTIVE COMMITMENT TO CHANGE AND AUTHENTIC LEADERSHIP	3
EMPLOYEES’ FIXED DIGITAL MINDSET	7
EMPLOYEE AGILITY	10
CONCEPTUAL MODEL	12
METHOD	13
SAMPLE AND PROCEDURE	13
MEASURES	13
<i>Authentic leadership</i>	14
<i>Affective commitment to change</i>	14
<i>Employee agility</i>	14
<i>Employees’ fixed digital mindset</i>	15
<i>Control variables</i>	15
RESULTS	15
DESCRIPTIVE STATISTICS	15
PRINCIPAL COMPONENT ANALYSIS	16
REGRESSION ANALYSIS	17
DISCUSSION	19
HYPOTHESIS 1: AFFECTIVE COMMITMENT TO CHANGE AND AUTHENTIC LEADERSHIP	19
HYPOTHESIS 2: EMPLOYEES’ FIXED DIGITAL MINDSET	22
HYPOTHESIS 3: EMPLOYEE AGILITY	24
PRACTICAL IMPLICATIONS	26
LIMITATIONS AND FUTURE RESEARCH	27
CONCLUSION	30
REFERENCES	31
APPENDIX	37

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Abstract

There is growing attention to the importance employees have in supporting change initiatives. However, few models of commitment to change have focused on both antecedents and outcomes. Therefore, the purpose of the present study was to explore whether authentic leadership, via affective commitment to change, may have an influence on employee agility when undergoing a digital transformation. Research has found that there is a relationship between authentic leadership and commitment to change. However, there is limited research on potential boundary conditions of this relationship, and we therefore included employees' fixed digital mindset as a moderator. Through a cross-sectional design, we collected survey data from an organization in the maritime industry undergoing a digital transformation. In total, 225 employees participated. Regression analyses revealed that there were no direct, moderating, or mediating effects. However, results showed a positive relationship between affective commitment to change and employee agility. These findings will be discussed, together with limitations and directions for future research.

Keywords: digital transformation, authentic leadership, commitment to change, agility, digital mindset

Introduction

Today, organizations have to cope with the demands of a world that is under constant change. In order to stay ahead of competitors, many organizations are undergoing digital transformations (Catapult, 2019), which puts pressure on them to change themselves (Kohnke, 2017). As a result, digital transformations can be challenging for businesses and many fail to carry out their transformations successfully (Catapult, 2019). Several researchers have been interested in how employees respond to organizational changes (Choi, 2011), and have found that employees' commitment to change is important for gaining support when undergoing organizational change (Herscovitch & Meyer 2002; Meyer, Srinivas, Lal & Topolnytsky, 2007). Commitment to change can be defined as "a force (mind-set) that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative" (Herscovitch & Meyer, 2002, p. 475). A type of commitment to change that has been shown to lead to behavioral support in forms of exerting an extra effort for the change, is affective commitment to change, where employees want to support the change because they believe it will be beneficial to them (Herscovitch & Meyer, 2002; Meyer et al., 2007). In order to develop affective commitment to change, leaders play a crucial role (e.g. Herold, Fedor, Caldwell & Yi, 2008; Hill, Seo, Kang & Taylor, 2012; Parish, Cadwallader & Busch, 2008). An approach to leadership that has been shown effective in increasing employees' commitment to change is authentic leadership (Bakari, Hunjra, Jaros & Khoso, 2019; Bakari, Hunjra & Niazi, 2017). Authentic leadership is characterized as "a pattern of leader behavior that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development" (Walumbwa, Avolio, Gardner, Wernsing & Peterson, 2008, p. 94). We argue that this is a promising leadership approach to look further into in a change context because these leaders can engage their employees in the change process, for example by being transparent and communicate openly, create a relationship based on mutual trust where employees want to reciprocate the actions of their leader (Avolio, Gardner, Walumbwa, Luthans & May, 2004; Walumbwa et al., 2008), as well as providing their employees with opportunities to take part in decision-making (Walumbwa et al., 2008).

Although authentic leadership has been shown to be associated with commitment to change (Bakari et al., 2019), less is known about potential boundary conditions of this relationship. We will therefore look into how employees' fixed digital mindset can moderate the relationship between authentic leadership and affective commitment to change. During a digital transformation, employees may have different perceptions of their ability to make use of and learn new technology (Solberg, Traavik & Wong, 2020). As such, these employees might show different digital mindsets, which refers to whether individuals will support or withdraw from digital transformation initiatives based on their beliefs about their own availability of personal as well as situational resources in the context of a digital transformation (Solberg et al., 2020). Including employees' fixed digital mindset as a moderator can provide an understanding of how employees with such a mindset might be less open to the opportunities their authentic leaders are imposing during a digital transformation. Furthermore, we propose that affective commitment to change can serve as a mediator for the relationship between authentic leadership and employee agility. In order for a digital transformation to succeed, it is important to ensure that employees are engaged and show a willingness to adapt to continuous changes (Bonic, 2017). Braun, Hayes, DeMuth and Taran (2017) suggest that, contrary to previous organizational change models that focus on change through a series of steps (e.g. Kotter, 1995), today's fast-paced environment requires employees that are able to constantly adapt to changes. We thereby want to focus on employee agility as an outcome variable of affective commitment to change. Employee agility is defined as "the skill to proactively create opportunities or overcome obstacles by rethinking or redefining typical approaches. Agility involves monitoring the current environment to anticipate change and responding in a timely and effective way when changing circumstances require it" (Braun et al., 2017, p. 707).

To address the gaps identified, we will introduce a conceptual model and empirical analysis to understand under which conditions authentic leaders can influence employees' affective commitment to change as well as how employees respond to digital transformations in forms of employee agility. More specifically, we will apply implicit theories of intelligence (Dweck, Chiu & Hong, 1995) to explore how employees might perceive their authentic leaders' behaviors differently depending on their level of fixed digital mindset, hence, show varying levels of affective commitment to change. Furthermore, we draw on research on

workforce agility (e.g. Muduli, 2013) and employee agility (Braun et al., 2017) to develop an understanding of how committed employees will respond to digital transformations.

Our findings can contribute to theories on authentic leadership, commitment to change and employee agility. First, we aim to contribute to the commitment to change literature by including authentic leadership as an antecedent and employee agility as an outcome, as this will provide a more holistic perspective on how commitment to change develops and its potential consequences. Second, we expand the literature on authentic leadership by exploring under which conditions this leadership approach may be effective during a digital transformation. Third, as there is limited research on what contributes to employee agility (Braun et al., 2017; Doeze Jager-van Vliet, Born & van der Molen, 2019), we propose potential additional antecedents to this construct. Finally, from a practical perspective, this research study can help leaders in becoming aware of how they can make their employees support an ongoing digital transformation.

In this research study, we will first assess the relationship between authentic leadership and affective commitment to change. Then, we will look into the moderating role of employees' fixed digital mindset on this relationship. Finally, the focus will be on the mediating role of affective commitment to change in the relationship between authentic leadership and employee agility. We will thereby answer the following research question:

To what extent may employees' fixed digital mindset moderate the positive relationship between authentic leadership and affective commitment to change, which subsequently leads to higher employee agility?

Literature review and hypotheses

Affective commitment to change and authentic leadership

Based on the three-component model of organizational commitment (Meyer & Allen, 1991; Meyer & Herscovitch, 2001), Herscovitch and Meyer (2002) developed a model of commitment to organizational change. In this model, commitment to change is conceptualized as a multidimensional construct including affective, normative and continuance commitment to change. Affective

commitment to change can be seen as “a desire to provide support for the change based on a belief in its inherent benefits”, whereas normative commitment to change is a “sense of obligation to provide support for the change” and continuance commitment to change is “a recognition that there are costs associated with failure to provide support for the change” (Herscovitch & Meyer, 2002, p. 475). These three types of commitment have been shown to lead to different types of behavioral support, such as compliance, cooperation and championing (Herscovitch & Meyer, 2002; Meyer et al., 2007). When employees show compliance, they will take part in the change by showing minimal support and doing so in a hesitant way. Cooperation entails that employees will take part in the change by giving an extra effort and be prepared for potential sacrifices that might take place. Lastly, championing is apparent when employees show extreme enthusiasm towards a change. These employees will do more than what is expected of them, in order to make sure the change will be successful, and they will also promote the change to others. All the three forms of commitment to change are related to compliance with the change, but only normative and affective commitment to change have been shown to be related to cooperation and championing (Herscovitch & Meyer, 2002). However, we will focus on affective commitment to change in our research study because it has been shown to have the highest associations with discretionary behaviors in support for a change (i.e., cooperation and championing of the change; Herscovitch & Meyer, 2002; Meyer et al., 2007). Employees with affective commitment to change will do what is required of them in relation to the change and engage in behaviors that will help to make the change successful, such as promoting to others why the change is valuable (Herscovitch & Meyer, 2002; Morin et al., 2016).

Authentic leadership as a positive form of leadership (Avolio & Gardner, 2005), can be helpful in explaining how to engage employees’ affective commitment to change. Scholarly interest in authentic leadership has increased the past decade, partially due to corporate scandals and a decline of trust in leaders across the world (Avolio & Walumbwa, 2014; Gardner, Cogliser, Davis & Dickens, 2011). Authentic leaders display their true selves, they know their own values and are transparent with their employees. These leaders are seen as someone who tries to empower their employees to make a difference through developing relationships of high quality (Walumbwa et al., 2008). Models of authentic leadership have identified a number of different follower outcomes, such

as organizational commitment, satisfaction with one's leader and job performance (Gardner et al., 2011). As such, authentic leadership can be seen as a promising leadership approach to engage positive follower outcomes. The way authentic leaders act during a change process can help to develop their employees' affective commitment to change. We will describe the specific behaviors of authentic leaders below, but first we need to clarify on which level of the organizational hierarchy we are studying authentic leaders.

Research has investigated how leaders at different levels of the organizational hierarchy can influence employees' commitment to change. For instance, Hill et al. (2012) found that employees show varying levels of affective and normative commitment to change depending on the number of reporting levels between employees and top management. When there was a high hierarchical distance between employees and top management, there was a negative relationship with affective and normative commitment to change. However, there was a positive relationship between transformational leadership of direct managers and affective and normative commitment to change (Hill et al., 2012). This shows that direct managers might have a stronger influence on employees' commitment to change than managers who are more distant to their employees in terms of where they stand in the organizational hierarchy. These managers are arguably closer to their employees physically (Hill et al., 2012), and might thereby interact more frequently with their employees. This can enhance the likelihood for the employees in being influenced by their manager because they meet on a regular basis. Research shows that authentic leaders can influence their employees through communicating openly and being transparent (Walumbwa et al., 2008), which can further lead to that employees gain trust in their leader (Avolio et al., 2004; Gardner, Avolio, Luthans, May & Walumbwa, 2005). Therefore, we theorize that direct managers that illustrate authentic leadership will be able to influence their employees through their communication and transparency, as this can be seen as a way to make employees trust their leader's ability to meet, for instance, their needs and concerns about a change process (Hill et al., 2012). We will, therefore, focus on authentic leadership of direct managers in this research study.

Only a few researchers have looked into follower outcomes of authentic leadership in the context of organizational change. Bakari et al. (2017) found that when employees perceive their immediate manager to show authentic leadership,

these employees show more readiness for organizational change, which can lead to enhanced commitment to change, that further result in behavioral support for the change. This shows that authentic leaders have the potential to influence employees' reactions to a change process, leading to that they will be more committed to the change. Furthermore, Bakari et al. (2019) found that there is a positive relationship between authentic leadership and commitment to change. This relationship can be explained by the behaviors associated with the different dimensions of authentic leadership, namely self-awareness, relational transparency, internalized moral perspective and balanced processing (Walumbwa et al., 2008).

Self-awareness means that the leader shows an understanding of his or her own strengths and weaknesses, which entails that they get to know themselves through being exposed to others and that they know what impact they have on others (Walumbwa et al., 2008). Alavi and Gill (2017) argue that when leaders discuss openly with followers about their strengths and weaknesses in relation to a change process, they can identify the necessary knowledge they need to acquire to implement the change. This may further start a dialogue where leaders and employees can come up with new ways of working together during the change process (Alavi & Gill, 2017), thereby making employees more engaged in the digital transformation.

Relational transparency refers to how the leader presents him or herself to others in an authentic way. This involves communicating openly with followers and that leaders express what they truly think and feel (Walumbwa et al., 2008). When employees are provided with effective communication during the change process, they have been shown to be more willing to support the change (Oreg, Vakola & Armenakis, 2011). If authentic leaders communicate openly with their employees about an ongoing digital transformation, we assume that employees will have a better understanding of the details around the change process and show higher levels of affective commitment to change. Furthermore, it has been suggested that when authentic leaders communicate openly with their employees, they are more likely to build trust with their employees by making them feel engaged and valuable, through for instance providing them with the possibility to express different viewpoints (Avolio et al., 2004). When a relationship between the leader and follower develops based on trust and understanding, employees might start to reciprocate the actions of their leaders (Avolio et al., 2004), which

could potentially enhance the chances of employees committing to the digital transformation because they feel that they can make important contributions.

Internalized moral perspective refers to the self-regulation that helps the leader make decisions based on their internalized values and moral standards. Authentic leaders will thereby be seen as someone who behaves consistently with their views (Walumbwa et al., 2008). We suggest that when authentic leaders act in accordance with their own views and moral standards (Walumbwa et al., 2008) when undergoing a digital transformation, these leaders might see the value of the change and act in accordance with these views in order to manage the change successfully within their organization. Based on the mutual trust established between the leader and employees (Avolio et al., 2004), we assume that employees will act on their leader's positive view of the change, and thereby be more willing to support the change.

Balanced processing means that the leader is objective when evaluating different options before making decisions. These leaders also ask employees for opinions that challenge their own assumptions (Walumbwa et al., 2008). When employees can participate in decision-making during the change process, they are more likely to support the change (Oreg et al., 2011). Relating this to affective commitment to change where employees want to show support for the change because they believe it will be beneficial to them (Herscovitch & Meyer, 2002), we argue that when employees are allowed to take part in decision-making by their authentic leader (Walumbwa et al., 2008), they will see the value of the change and thereby be more likely to show affective commitment to change. We thereby hypothesize the following:

H1: There will be a positive relationship between authentic leadership and affective commitment to change.

Employees' fixed digital mindset

More than 30 years ago, Carol Dweck started to research implicit theories of intelligence, namely, entity and incremental theory. These theories were renamed in 2006 to fixed and growth mindset, to enhance the user-friendliness of the constructs (Dweck & Yeager, 2019). It is important to stress that neither of the two theories is of higher importance than the other but should rather be looked

upon as alternative ways of constructing reality (Dweck et al., 1995). In other words, a person who believes their intelligence is fixed should not be looked upon as inferior compared to people holding a growth mindset. The former individuals believe that they can learn new things, however, they think their intelligence will stay the same. Individuals with a growth mindset may believe that an attribute is malleable and thereby can be changed and developed. As a result, these individuals believe that they, for example, can become more intelligent through their efforts (Dweck et al., 1995). Throughout this research study, individuals that are undergoing digital transformations will be addressed as having either a low or high fixed digital mindset, where a low fixed digital mindset in theory illustrates a growth mindset, and a high fixed digital mindset is equivalent to having a fixed mindset.

In the context of a digital transformation, a person with a high fixed mindset may have a harder time adjusting to new changes and take part in change processes because they believe their personal attributes are fixed and cannot be easily changed (Dweck & Leggett, 1988). As a result, they might not believe in their ability to adapt to changes (Solberg et al., 2020). Furthermore, individuals who hold a high fixed mindset tend to look for situations where they can validate their ability and intelligence, and thereby find ways to avoid looking incompetent. To obtain such validation, individuals will pursue performance goals, where they strive to be viewed as competent by others, such that their self-esteem can rise or be maintained (Dweck & Leggett, 1988). For instance, when undergoing digital transformations, employees holding a high fixed digital mindset has been found to be afraid to look incompetent when using or learning a new system (Solberg et al. 2020). Moreover, individuals with a high fixed mindset tend to withhold from obstacles and challenging situations (Dweck et al., 1995) and are likely to avoid seeking out for help (Yeager & Dweck, 2012). Relating this to a digital transformation, Solberg et al. (2020) suggest that individuals with a high fixed digital mindset are likely to be avoidant of new technologies, feel insecure in their ability to make use of it, as well as reduce their effort in taking part of the change.

Taking the above-mentioned into consideration, one can imply that an employees' mindset plays an important role in how they feel about taking part in a digital transformation (Solberg et al., 2020), which could potentially affect their own willingness to commit to a change. The importance of having committed employees during a digital transformation sheds light on how leaders should keep

in mind how to deal with employees holding opposing digital mindsets. For instance, a study done by Caniëls, Semeijn and Renders (2018) looked into how transformational leadership and mindset could influence engagement at work. They argue that transformational leadership goes well with employees who hold a low fixed mindset as these leaders and employees both focus on the value of personal development and reaching one's full potential. On the other hand, they argue that employees holding a high fixed mindset are likely to not respond well to transformational leaders as they try to challenge them and put them in unfamiliar situations. For an employee holding a high fixed mindset, this can be seen as a stressor, hence, decrease their work engagement (Caniëls et al., 2018).

In relation to our research study, we draw upon the preceding study to explain how employees' level of fixed digital mindset can have a role in an authentic leader's ability to effectively increase their employees' affective commitment to change. We can make these assumptions based on how it has been found that authentic leadership overlaps with several other positive forms for leadership, one of them being transformational leadership (Banks, McCauley, Gardner & Guler., 2016). We thereby theorize that authentic leaders, by involving employees in a digital transformation, are more likely to successfully influence their employees in showing affective commitment to change when the employees hold a low fixed digital mindset. These individuals might see the value of being involved in a digital transformation because they can be challenged by having to learn new technologies and, as a result, increase their competence (Dweck & Leggett, 1988). On the other hand, we propose that authentic leaders will have a harder time influencing their employees' affective commitment to change when their employees hold a high fixed digital mindset. Even though authentic leaders provide employees with opportunities to be involved in the change process, employees holding a high fixed digital mindset might not see the value of these opportunities because they have already made it clear to themselves that challenges and unfamiliar situations associated with the digital transformation are looked upon as threats (Solberg et al., 2020). Additionally, we assume that these employees might not communicate their concerns openly with their leaders because they are afraid of looking incompetent (Dweck & Leggett, 1988). Taking this into consideration, we propose the following hypothesis:

H2: Employees' fixed digital mindset moderates the relationship between authentic leadership and affective commitment to change, such that the relationship between authentic leadership and affective commitment to change is more positively related when employees' fixed digital mindset is lower than when employees' fixed digital mindset is higher.

Employee agility

In order for organizations to capitalize on unexpected and dynamic changes they are dependent on their employees' ability to be agile (Pitafi, Li & Cai, 2018; Sherehiy & Karwowski, 2014). Agility was first introduced in the 1950s within the field of air combat. Soon after, the concept became popular within manufacturing and was later introduced to a broader business context (Muduli, 2013). The focus on agility has mainly been addressed through an operational perspective such as looking for efficient ways of working through factors like speed and flexibility. This has also been the case with workforce agility (Muduli, 2013). Workforce agility refers to how employees are able to react and adapt to change under new conditions promptly and appropriately, by taking advantage of changes that benefit the organization (Alavi, Wahab, Muhamad & Shirani, 2014). The concept of employee agility draws on workforce agility, which is studied at the organizational level of analysis (Braun et al., 2017). However, these conceptualizations have similar characteristics and as follows one may expect the following attributes to characterize it; adaptive, flexible, developmental, speed, collaborative, competent and informative (Muduli, 2013). The literature indicates that information and knowledge flow among employees is crucial to attain workforce agility and is most efficiently developed when under a flexible organizational structure (Alavi et al., 2014; Claver-Cortes, Patrocínio & Pertusa-Ortega., 2007; Hopp & Van Oyen, 2004). As the aforementioned implies, employees' ability to be agile plays an important role in change processes.

We suggest that authentic leaders can facilitate employee agility through building employees' affective commitment to change. For a change process to succeed, one needs employees who are willing to support change initiatives. Commitment to change can be seen as an attitude or behavioral intention to support the change (Choi, 2011). Indeed, as Choi (2011) argues, commitment to change is not a trait that an individual possesses but can rather be looked upon as

a state that needs to be developed during a change process. As discussed above, authentic leaders can develop affective commitment to change in their employees. These leaders demonstrate integrity by communicating openly with their followers and share important information (Avolio et al., 2004). When communication is given in a timely fashion to employees and addresses possible concerns employees might have, affective commitment to change develops (Rogiest, Segers & van Witteloostuijn, 2015). Furthermore, authentic leaders build trust in their employees by showing that they care about them and encourage different opinions (Avolio et al., 2004). When employees can participate in the change process, by stating their opinions, they are more likely to show commitment to change (Oreg et al., 2011). Furthermore, when authentic leaders illustrate behaviors as integrity and honesty, this can result in that employees show trust in their leader and want to cooperate with them. This will further lead to that employees feel they can successfully handle the tasks they are assigned (Avolio et al., 2004). As such, we assume that these employees might feel that they can better handle the tasks associated with the digital transformation and thereby also be more willing to take part in the change. Based on the aforementioned we suggest that employees can develop affective commitment to change under the influence of an authentic leader, because these leaders let employees share their opinions, include them by sharing important information, and build trust that makes employees want to cooperate (Avolio et al., 2004). When employees feel involved in a change process, they are, as a result, more likely to show affective commitment to change (Herscovitch & Meyer, 2002).

When affective commitment to change has developed in employees during a digital transformation, we further argue that these employees are more likely to adapt to changes by showing employee agility. Indeed, research has shown that when employees want to support a change based on the benefits it provides for these employees (affective commitment to change), they will put in an extra effort to cooperate with others in the change process, make personal sacrifices to support the change and promote to others in the organization why the change may be valuable (Herscovitch & Meyer, 2002; Meyer et al., 2007). On the other hand, employees who believe that they will be met with negative consequences if they do not take part in the change process, will be more reluctant to go along with the change and show minimum support (Herscovitch & Meyer, 2002; Meyer et al., 2007). Furthermore, Oreg, Bartunek, Lee and Do (2018) suggest that when

employees see the change as beneficial, are personally involved in the change process and feel that they can cope with the change, these individuals will show support for the change through proactive behaviors. For example, these employees will promote to others why the change may be beneficial and take part in helping to implement the change (Oreg et al., 2018). Comparing these individuals to those who do not see the benefits of the change, are not involved and feel they cannot cope well with the change, the latter employees might be more passive in the change process (Oreg et al., 2018). These studies show that employees who are willing to be committed to the change are more likely to see the benefit of the change process and will do what is required, or even go beyond what is expected of them in order to succeed in the change process (Meyer et al., 2007). We argue that going beyond what is expected can be seen in line with employee agility because it entails being proactive in a changing environment (Braun et al., 2017). We thereby theorize that when authentic leaders have influenced their employees' affective commitment to change, by allowing them to be involved in the digital transformation, these employees will be more likely to pursue employee agility by showing that they are open to work in ways that will make them succeed in new situations. We thereby hypothesize the following:

H3: Affective commitment to change mediates the positive relationship between authentic leadership and employee agility.

Conceptual model

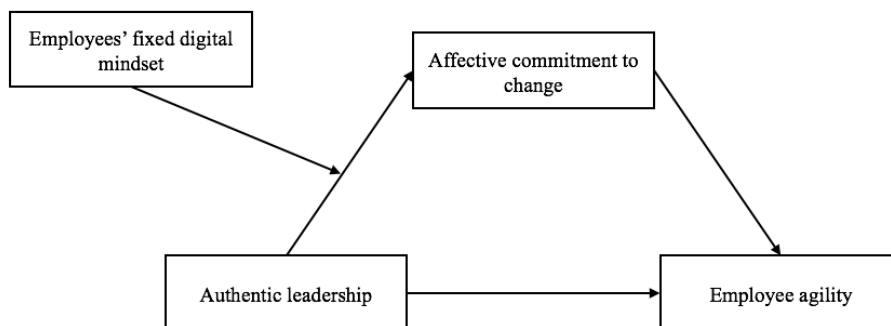


Figure 1. Conceptual model.

Method

Sample and procedure

Cross-sectional data were collected from seven different departments of a global organization in the maritime industry that was undergoing a digital transformation. Initially, we had planned to study the direct effect of managers on their employees. However, due to the request of full anonymity of participants from the organization we cooperated with, it was not possible to match employees with their respective leaders. We therefore chose to solely focus on employees' perspective. An electronic survey was distributed at one point in time to participants by an anonymous link via email by an HR-professional in the organization in March 2020. Information about the research study, how participants' confidentiality would be ensured and the possibility to withdraw their consent at any time, was given to all participants through an informed consent form that was attached to the survey. Participants were given two weeks to respond and received a reminder after one week. Of the 833 participants who were invited to take part in our research study, 294 volunteered to respond, resulting in a response rate of 35.3%. However, several participants did not provide responses to a sufficient amount and of the measures and 23.5% of the 294 participants were therefore excluded from further analyses. This resulted in a final sample of 225 participants.

In terms of demographics, 55.8% were male and 44.2% were female. In regard to age, 15% were between 20-29 years, 38.2% were between 30-39 years, 20.5% were between 40-49 years, 18.6% were between 50-59 years, and 7.7% were 60 years or older. The majority of participants had worked for their current employer less than or equal to two years (26.8%), followed by three to five years (18.2%), or more than 18 years (18.2%), while a minority had worked for their current employer between six to eight years (14.1%), nine to eleven years (10%), 12 to 14 years (10.5%) or 15 to 17 years (2.3%).

Measures

All items in this research study were assessed through a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), unless otherwise noted, and were adopted from previous research. This was done to

ensure reliability and validity of the measures. As responses were collected from employees situated in 29 different countries and the official working language of the participants is English, the survey was distributed in English. The following measures were used to assess the variables addressed in the study:

Authentic leadership

Authentic leadership was measured by the 16 items from the Authentic Leadership Questionnaire (ALQ) developed and validated by Walumbwa et al. (2008). The measure was obtained with permission from copyright owners (Mindgarden.com). The questionnaire is divided into four dimensions, namely, “self-awareness (4 items), relational transparency (5 items), internalized moral perspective (4 items), and balanced processing (3 items)” (Walumbwa et al., 2008, p. 97). These items were combined into one construct. Items were assessed through a five-point Likert-type scale ranging from 1 (not at all) to 5 (frequently, if not always). The following example items measure authentic leadership: “says exactly what he or she means”, “makes decisions based on his/her core beliefs” and “listens carefully to different points of view before coming to conclusions”. The scale had a Cronbach's alpha (α) of .94.

Affective commitment to change

Affective commitment to change was measured by Herscovitch and Meyer's (2002) six items of affective commitment to change taken from the commitment to change scale. Some items include: “I believe in the value of this change” and “I think that management is making a mistake by introducing this change” (reverse scored). The scale had an α of .88.

Employee agility

Employee agility was measured by Braun et al.'s (2017) five items of employee agility. Some items include: “At work, I continuously spend time thinking about how we can do things differently”, “I push others/my team to continuously make changes based on what is happening in the company” and “I continuously work to understand what is going on in other areas to see if I need to make changes in what I'm doing”. The scale had an α of .84.

Employees' fixed digital mindset

Fixed digital mindset was measured with six items constructed by Associate Professor Elizabeth Solberg at BI Norwegian Business School. An example item includes: "A person's level of technological skills is something basic about them, and there isn't much that can be done to change it". The scale had an α of .70. However, as will be seen from the principal component analysis below, the two reverse scored items (i.e. "No matter what kind of person someone is, they can improve even their most fundamental technological skills with effort" and "Everyone has the potential to learn and master new technology that the organization puts into practice") were discarded based on low factor loadings. After these items were removed, the scale had an α of .80.

Control variables

Based on commonly utilized control variables from previous research on employee agility (Alavi et al., 2014; Braun et al., 2017; Cai, Huang, Liu & Wang, 2018; Pitafi et al., 2018; Sherehiy & Karwowski, 2014), the demographic variables of gender, age and organizational tenure were used to rule out alternative explanations to the findings and explore whether these control variables had any effect on the different relationships between the study's independent and dependent variables. Gender was measured as a dichotomous variable where Male accounted for 1 and Female accounted for 2, while the category Other was eliminated due to few respondents. Age was measured by six categories (1 = under 20; 2 = 20-29; 3 = 30-39; 4 = 40-49; 5 = 50-59; 6 = 60 or older). Organizational tenure was measured by seven categories (1 = less than or equal to 2 years; 2 = 3-5 years; 3 = 6-8 years; 4 = 9-11 years; 5 = 12-14 years; 6 = 15-17 years; 7 = more than 18 years).

Results

Descriptive statistics

Means, standard deviations, Cronbach's alpha values and correlations of all variables are displayed in Table 1.

Table 1
Descriptive statistics, scale reliabilities and correlations

Variables	Mean	SD	α	1	2	3	4	5	6	7
1. Fixed digital mindset	2.56	.92	.80							
2. Authentic leadership	3.97	.69	.94	-.04						
3. ACC	4.15	.73	.88	-.14*	.11					
4. Employee agility	3.94	.67	.84	-.04	.14*	.17*				
5. Age	3.66	1.17	NA	-.06	-.01	.13	.03			
6. Gender	.44	.50	NA	.09	-.06	-.05	-.09	-.14*		
7. Tenure	3.39	2.18	NA	.05	.02	.12	.05	.67**	-.04	

Note. * $p < .05$ (2-tailed). ** $p < 0.01$ (2-tailed). ACC = Affective commitment to change.

Principal component analysis

Principal component analysis with direct oblimin rotation was performed to evaluate which items should be retained in the computed scales. Principal component analysis is a technique to reduce a large number of items into a few components (Tabachnick & Fidell, 2014). In oblique rotation, correlation between factors is allowed and this type of rotation was used as it can be presumed that psychological constructs, such as the ones in our model, can be correlated (Field, 2018). The principal component analysis resulted in a six-factor solution. Pallant (2016) recommends that each component contains three or more item loadings. Because there were few items that loaded on component five and six, we ran the principal component analysis again, and this time retained four factors (see Appendix for pattern matrix and structure matrix). When interpreting the factor structure, Stevens (2002, referenced in Field, 2018) recommends to look for factor loadings with absolute values that are greater than .40. For the authentic leadership, affective commitment to change and employee agility scales, items loaded above .40 onto their respective factors. Four of the items in the fixed digital mindset scale also loaded above .40 on their respective factor. However, two of the fixed digital mindset items did not load above .40 on any of the factors. These were two reverse scored items from the fixed digital mindset scale. Thus, these items were discarded from further analysis and the fixed digital mindset scale was computed based on the four remaining items. The remaining factor loadings for all items ranged from .56 to .86, and there were no cross loadings (see pattern matrix in Appendix).

Regression analysis

To test our hypotheses, we used linear regression (Ghauri & Grønhaug, 2010) in SPSS version 26. This allowed us to test the positive relationship between authentic leadership and affective commitment to change, the moderating role of employees' fixed digital mindset on this relationship, and whether affective commitment to change mediates the positive relationship between authentic leadership and employee agility.

Before testing the hypotheses, preliminary analyses were run to check that assumptions of normality, linearity, homoscedasticity and multicollinearity were met (Pallant, 2016). As our model includes an interaction effect, the independent, mediator, moderator and control variables were mean centered to make the beta values interpretable (Field, 2018). However, the categorical variable of gender was recoded into a dichotomous variable where 0 illustrates the male category and 1 the female category. Moreover, an interaction term was created between authentic leadership and employees' fixed digital mindset in order to test if employees' fixed digital mindset moderated the relationship between authentic leadership and affective commitment to change.

Hypothesis 1 proposes that there will be a positive relationship between authentic leadership and affective commitment to change. To test hypothesis 1, we ran a multiple linear regression analysis where authentic leadership was entered as the independent variable and affective commitment to change served as the dependent variable. After controlling for the effects of gender, age and organizational tenure, results showed that there was a non-significant relationship between authentic leadership and affective commitment ($\beta = .11, p > .05$; see Table 2). Thus, hypothesis 1 was not supported.

Hypothesis 2 proposes that employees' fixed digital mindset will moderate the positive relationship between authentic leadership and affective commitment to change. In order to test hypothesis 2, we ran a hierarchical multiple regression where we included authentic leadership as the independent variable and affective commitment to change as the dependent variable. Furthermore, we accounted for our control variables gender, age and organizational tenure in the first step of the analysis. For the second step of the analysis we included employees' fixed digital mindset as the moderator, as well as the interaction term Authentic leadership x Employees' fixed digital mindset. This resulted in a non-significant relationship between authentic leadership and affective commitment to change when

moderated by employees' fixed digital mindset ($\beta = .02, p > .05$; see Table 2). Thus, hypothesis 2 was not supported.

Table 2
Linear model of predictors of affective commitment to change

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Step 1					
Constant	4.17	.07		62.35	.00
Age (centered)	.05	.06	.08	.88	.38
Gender	-.04	.10	-.03	-.42	.67
Tenure (centered)	.02	.03	.06	.68	.50
Authentic leadership (centered)	.12	.07	.11	1.63	.10
Step 2					
Constant	4.17	.07		62.10	.00
Age (centered)	.04	.06	.06	.62	.54
Gender	-.03	.10	-.02	-.33	.74
Tenure (centered)	.03	.03	.08	.92	.36
Authentic leadership (centered)	.11	.07	.10	1.53	.13
Fixed digital mindset (centered)	-.10	.05	-.13	-1.89	.06
Authentic leadership x Fixed digital mindset	.02	.07	.02	.32	.75

Note. $R^2 = .03$ for Step 1; $\Delta R^2 = .02$ for Step 2.

Hypothesis 3 proposes that affective commitment to change will mediate the positive relationship between authentic leadership and employee agility. To test hypothesis 3, we conducted a mediation analysis using the Process Macro extension for SPSS (Hayes, 2013). Simple mediation is said to occur when an independent variable influences a dependent variable via a mediator variable (Preacher & Hayes, 2008). In the Process Macro, authentic leadership was entered as the independent variable, affective commitment to change served as the mediator variable and employee agility was the dependent variable. Our three control variables were included as covariates. Process Macro enabled us to test the entire mediation model simultaneously, along with incorporating bootstrapping techniques in order to estimate the indirect effects of the data. Bootstrapping is considered a resampling strategy for estimation and hypothesis testing (Preacher, Rucker & Hayes, 2007). This is an approach that is preferred over causal steps and Sobel tests (Baron & Kenny, 1986), due to its higher power and stronger control over Type I error rates (MacKinnon, Lockwood, & Williams, 2004). For our analysis all tests were conducted with a 95% confidence interval and 5,000 bootstrap samples. There was a non-significant indirect effect of authentic leadership on employee agility through affective commitment to change ($b = .02, SE = .01, 95\% \text{ BCa CI } [-.01, .05]$; see Figure 2). Thus, hypothesis 3 was not

supported. However, there was a significant relationship between affective commitment to change and employee agility ($b = .15$, $SE = .06$, $p < .05$; see Figure 2).

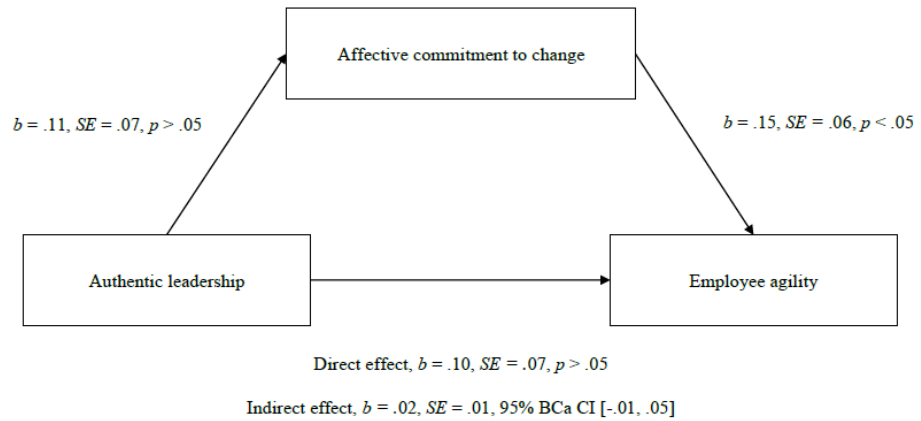


Figure 2. Mediation analysis.

Discussion

The aim of this research study was to explore under which conditions authentic leadership can lead to affective commitment to change, and whether this can promote higher levels of employee agility. The results showed that none of the proposed hypotheses were supported. However, there was a positive significant relationship between affective commitment to change and employee agility. These findings and potential alternative explanations will be discussed below.

Hypothesis 1: Affective commitment to change and authentic leadership

For hypothesis 1, we did not find a positive relationship between authentic leadership and affective commitment to change. This was unexpected because the hypothesized relationship was based on previous findings by Bakari et al. (2019) that found a positive relationship between authentic leadership and commitment to change. In the following, we will give potential reasons for why hypothesis 1 was not supported.

Contrary to Bakari et al. (2019) that measure commitment to change as a higher-order construct (including affective, normative and continuance commitment to change), we only measured the subdimension of affective commitment to change from the multi-dimensional commitment to change scale by Herscovitch and Meyer (2002). Thus, we used a unidimensional approach to measure affective commitment to change (Jaros, 2010). In line with Jaros' (2010) arguments, the effect of an antecedent on commitment to change could potentially be missed when adopting a unidimensional approach because the antecedent could be related to the other dimensions of commitment to change. As such, it could be that authentic leadership is related to normative or continuance commitment to change, subdimensions we did not include in our measurement of commitment to change. Alternatively, authentic leadership might be related to a more "general feeling" of commitment (Jaros, 2010, p. 92) as reflected by the measurement by Bakari et al. (2019), than a desire to support the change (affective commitment to change; Herscovitch & Meyer, 2002).

The timing of when affective commitment to change was measured during the digital transformation could potentially have influenced our results. As mentioned above, Hill et al. (2012) found a relationship between transformational leadership and affective and normative commitment to change. However, when this relationship was tested longitudinally, there was not a relationship between transformational leadership and affective and normative commitment to change at Time 2 (Hill et al., 2012). Hill et al. (2012) explain that transformational leadership could have a stronger effect in the beginning of the change process as these leaders motivate employees to work for a shared vision by following their own self-interests. When employees are exposed to a transformational leader, their commitment to change may raise and then remain stable during the change process (Hill et al., 2012). If we relate this finding to our research study, the digital transformation in the organization we collected data from was not in its early stages. If we had studied the relationship between authentic leadership and affective commitment to change at an earlier stage in the digital transformation, it could perhaps have lead to a different result. This is only speculative, and we will provide more detail to the design of our study in the limitations section below.

Moreover, the employees that were studied could also impact the relationship between authentic leadership and affective commitment to change. As Jaros (2010) notes, although a change initiative is executed for an entire

organization, some employees might be more affected than others. For example, it could be that the change affects some departments more than others. On the other hand, the change might affect all departments equally but employees may perceive the change differently depending on how it affects their job (Jaros, 2010).

Digital transformations can be complex and may involve different initiatives that together make up the change (Kohnke, 2017). Employees may have a “general attitude” regarding the change but may also have different associations with different change initiatives (Choi, 2011, p. 493). As such, it may be that employees generally show support for the change, but when it comes to specific change initiatives, their attitudes may vary depending on what these initiatives entail (Choi, 2011). Therefore, it could be that employees show varying levels of affective commitment to change depending on, for example, the content of the digital transformation initiatives.

There could be potential mediators that affect the relationship between authentic leadership and affective commitment to change. The process through which authentic leaders influence their followers, has been suggested by some researchers to have an indirect effect through a personal and social identification process (e.g. Avolio et al., 2004; Gardner et al., 2005). Personal identification refers to the process where the beliefs employees have about their leader “becomes self-referential or self-defining” (Avolio et al., 2004, p. 806). Through this process, employees model their leaders’ integrity and high moral standards, and thereby view themselves to have similar values and beliefs as their leader (Avolio et al., 2004; Walumbwa et al., 2008). Social identification refers to the process where employees identify with the group they work with, show that they are proud of being part of the group and see their membership in the group as a part of their identity (Walumbwa et al., 2008). Through the social identification process, the leader's values and moral standards become part of the group that the employees identify with. When employees identify with their leader (personal identification) and the related workgroup (social identification), and the leader is transparent, shows integrity and high moral standards, it can lead to that employees followers show trust, optimism, hope and positive emotions (Walumbwa et al., 2008). Alavi and Gill (2017) adopted this approach to the change context and explain that through the personal and social identification process, the psychological capacities of optimism, self-efficacy, resilience and

hope can transfer from authentic leaders to their employees. Alavi and Gill (2017) argue that these psychological capacities can be helpful to develop positive attitudes towards a change, such as employees' commitment to change. This shows that authentic leaders might influence their employees indirectly through the identification process and thereby transfer psychological capacities that can be beneficial for employees in getting more committed to a change process.

Even though there could be a direct relationship between authentic leadership and affective commitment to change, authentic leaders may have a negative influence on their employees by being transparent with their emotions. If an authentic leader has doubts about a change initiative and shows this openly to employees, it can reduce employees' confidence in dealing with the change (Yukl, 2013), which could potentially reduce affective commitment to change in employees. However, Gardner et al. (2005) asserts that although authentic leaders are transparent when they express their emotions, they try to regulate these to reduce exhibits of emotions that can be seen as inappropriate by employees. Thereby, these leaders may carefully evaluate what emotions that they see as appropriate to display to employees in a digital transformation.

Hypothesis 2: Employees' fixed digital mindset

For hypothesis 2, we did not find a moderating role of employees' fixed digital mindset on the positive relationship between authentic leadership and affective commitment to change. A potential explanation for this result may be linked to the scope of the fixed digital mindset measure used in our research study. The measure takes into account two different assumptions about the malleability of personal attributes (Dweck et al., 1995), namely, if one holds a high or low fixed digital mindset. However, the measure does not take into account employees' perceptions of their own skills and competences during a digital transformation. Dweck and Leggett (1988) found that individuals holding a high fixed mindset can perceive their abilities as either high or low. If individuals with a high fixed mindset believe that their abilities are high, they are likely to be mastery-oriented and as a result, seek for challenges. On the other hand, individuals with a high fixed mindset that perceive their abilities as low, will tend to show behavioral patterns of helplessness and avoid situations where they are likely to be challenged. However, individuals that demonstrate a low fixed

mindset will seek challenges regardless whether their abilities are high or low, because they believe that they can learn from any situation no matter what their level of skills and competencies are prior to a new situation (Dweck & Leggett, 1988).

As such, an individual holding a high fixed digital mindset might perceive their digital skills or competencies as a potential determinant for how they feel about, for instance, new digital implementations. Solberg et al. (2020) explain that individuals holding a high fixed digital mindset believe that things will come easily to them when they feel competent or talented at something. This can be seen in line with individuals that perceive their abilities as high, and, as a result, believe that they have the necessary skills and competencies needed for contributing successfully to the digital transformation. The individuals who hold a high fixed digital mindset and perceive their abilities as high, will likely think that they do not have to put in an extra effort to learn something new, due to the belief that they can manage the challenge (Dweck & Leggett, 1988). The above-mentioned show that individuals can hold a high fixed digital mindset and still be positive to new challenges related to a digital transformation, however, this is more likely to be effective when individuals believe they already have the right skills and competencies needed to succeed in the digital transformation. On the other hand, some individuals holding a high fixed digital mindset might not relate to the above-mentioned if they perceive their abilities as low and thereby do not feel that they have the right skills or competencies needed to perform well (Dweck & Leggett, 1988) in the digital transformation. In line with what has been discussed in the literature review, these individuals might then be more likely to expect negative outcomes because they are put out of their comfort zone. This can result in less effort or that they will even step away from the digital transformation because it is seen as challenging to them (Solberg et al., 2020).

As a result, how employees perceive their own skills and competencies can contribute to affect how they will relate to the digital changes taking place during a digital transformation (Solberg et al., 2020). Controlling for the individuals' perception of their digital skills or competencies will thereby be important for authentic leaders, as this can potentially influence their ability to make their employees committed to a digital transformation. Only measuring whether an employee holds a high or low fixed digital mindset might not be sufficient enough to hold grounds to explain a moderating role of fixed digital

mindset on the relationship between authentic leadership and affective commitment to change.

Although we did not find a moderating role of employees' fixed digital mindset, there was a negative marginally significant relationship between employees' fixed digital mindset and affective commitment to change (see Table 2). When comparing individuals holding a high fixed digital mindset to those with a low fixed digital mindset, employees holding the latter mindset might be more willing to commit to a digital transformation. Individuals with a low fixed digital mindset tend to show more proactive behaviors when introduced to new technological tools (Solberg et al., 2020). This can be seen in line with affective commitment to change, in which individuals want to support the change based on their beliefs in its potential benefits (Herscovitch & Meyer, 2002). Employees with a low fixed digital mindset might see the benefits of a digital transformation as it offers an opportunity to learn and develop, which can further lead to increased competence (Dweck & Leggett, 1988). When employees feel that they learn something new from being involved in a digital transformation, we theorize that they will be more likely to show affective commitment to change. On the other hand, as digital transformations require to continuously learn new technologies (Solberg et al., 2020), we theorize that individuals that hold a high fixed digital mindset might not show the same level of support due to that they avoid situations where they have to work in new ways and tend to give up easily when they have to learn new skills (Solberg et al., 2020) and, as a result, might show less affective commitment to change.

Hypothesis 3: Employee Agility

As for hypothesis 3, we did not find a mediating role of affective commitment to change on the positive relationship between authentic leadership and employee agility. However, we did find that affective commitment to change was positively related to employee agility. In the following, we will explain why these results might have occurred by first looking at the relationship between authentic leadership and employee agility, and thereafter the relationship between affective commitment to change and employee agility. Due to the limited research on employee agility, we mainly draw on research on workforce agility and commitment to change when explaining these findings.

Alavi et al. (2014) found that decentralization of decision-making and a flat organizational structure can increase levels of workforce agility. When decision-making is decentralized, employees are given flexibility in what tasks they want to perform and might feel more ownership when being part of a decision-making process. On the other hand, when there is a centralized structure, employees might not be able to contribute in decision-making because directions are set from top-down (Alavi et al., 2014). Additionally, a flat organizational structure can motivate employees to share their ideas, as everyone has the same possibilities to make decisions (Alavi et al., 2014). Although authentic leaders provide employees with opportunities to take part in decision-making and offer their opinions (Avolio et al., 2004; Walumbwa et al., 2008), organizations might need to be more systematic in fostering employee agility, through creating decentralized and flat organizational structures (Alavi et al., 2014) and not solely rely on an authentic leaders' influence.

Another possible explanation for why authentic leaders may not foster employee agility via affective commitment to change, can be drawn from findings that organizations need to have practices in place to foster agility (Muduli, 2017). Sumukadas and Sawhney (2004) found that certain employee involvement practices can enhance workforce agility. Employee involvement practices such as training and skill-based pay, lead to higher levels of workforce agility. For example, employees need to be trained to have the skills required when they have to adapt to new tasks and situations. Moreover, skill-based pay will encourage employees to learn these new skills (Sumukadas & Sawhney, 2004). This highlights the importance of facilitating practices that will help employees thrive in a work environment where agile ways of working are promoted.

The aforementioned practices serve as a foundation for higher-order employee involvement practices, such as power sharing. Power sharing practices are regarded as practices that let employees make important decisions on their own and have been found to have the strongest influence on workforce agility among employee involvement practices (Sumukadas & Sawhney, 2004). An example of a power sharing practice is building self-managed teams, where the work group has the full responsibility to make decisions about their work processes (Sumukadas & Sawhney, 2004). When employees are provided with autonomy and control, they can work on solving problems faster without having to wait for their supervisor or other staff (Sherehiy & Karwowski, 2014). Based

on these findings, we speculate that an authentic leader might have a less direct influence on employee agility, because when the organization facilitates for being agile through organizational practices, employees are given freedom from their leader to make their own decisions and can thereby work in more agile ways.

We did, however, find a positive relationship between affective commitment to change and employee agility. Employee agility is considered a skill “to proactively identify and implement change when needed” (Braun et al., 2017, p. 704). This can be seen in line with previous research that affective commitment to change relates to discretionary behaviors such as putting in an extra effort for the change and promote it to others (Herscovitch & Meyer, 2002; Meyer et al., 2007). Further support for this comes from Oreg et al. (2018) who suggest that when employees are willing to support the change, they will show proactive behaviors. Because employee agility, discretionary behaviors and proactive behaviors all show that one actively takes part in supporting the change, it is reasonable to argue that affective commitment to change could enhance employee agility.

Practical implications

Our findings imply that, during a digital transformation, organizations can benefit from having employees who see the value of supporting the ongoing change as these individuals are more likely to proactively take part in the change. We thereby propose that, during a digital transformation, organizations should deliberately develop affective commitment to change in their employees. For example, Herscovitch and Meyer (2002) suggest that in order to enhance affective commitment to change, one potential solution is for organizations to provide necessary training and resources for employees when undergoing a change.

It is valuable for organizations to be aware of what mindset the employees hold towards a digital transformation and specific initiatives (Solberg et al., 2020). In order to obtain this, we suggest that authentic leaders could identify the level of fixed digital mindset their employees hold prior to the digital transformation, to understand the employees’ beliefs about the malleability of their abilities before entering into new digital transformation initiatives. This may be valuable for an authentic leader because it can provide them with an idea of how to communicate

differently with their employees depending on the digital mindset the individual holds.

Based on our findings, we see that authentic leadership may not have an important role in facilitating for employees to be agile. Organizations could instead focus on organizational practices, such as employee involvement, in order to foster an environment where agility can thrive (Muduli, 2017). This will, among other things, make it possible for employees to be in charge of their own decisions which is related to agility (Sherehiy & Karwowski, 2014).

Limitations and future research

For our research study, our initial plan was to look into how leaders' fixed digital mindset could moderate the relationship between authentic leadership and affective commitment to change. However, during the data collection we encountered an obstacle that affected our conceptual model. The organization we collaborated with wanted to ensure that full anonymity of their employees was kept when participating in our research study. As a result, we were not able to match each single immediate manager with their employees, hence, we could not measure the direct influence a leader would have on their employees. A further consequence of this was the inability to study the moderating role of a leaders' fixed digital mindset. We therefore decided to change our moderator variable to employees' fixed digital mindset.

Since we were not able to conduct a research study on the moderating role of leaders' fixed digital mindset on the relationship between authentic leadership and affective commitment to change, we suggest that this could be a potential area for future research to look into. If an authentic leader shows a fixed digital mindset, we propose that it could influence the employees in thinking similarly. Authentic leaders may have the ability to influence their employees based on their self-awareness and transparency as leaders, which can further foster employees' awareness about their leader's values that they accordingly might start mirroring (Bakari et al., 2019). We therefore suggest that a leader's fixed digital mindset can moderate the relationship between authentic leadership and employees' affective commitment to change. If an authentic leader holds a high fixed digital mindset by showing feelings of insecurity towards new technology and change processes, it can lead to that employees identify with their leaders' insecurity, hence, lessen

their affective commitment to change. On the other hand, if an authentic leader holds a low fixed digital mindset, he or she may show a belief in technological changes, which could result in similar thought patterns for the employees, thereby leading to higher levels of affective commitment to change.

As we were only able to measure how employees perceive their immediate manager's authentic leadership, it can potentially lead to inaccurate conclusions. In relation to self-other rating agreement which in leadership research looks at how similarly a leader rates themselves to, for example, how their employees rate their leader, it has been found that only looking at ratings from one perspective can be viewed as an inaccurate predictor of a leader's actions due to the potential influence of biases (Fleenor, Smither, Atwater, Braddy & Sturm, 2010). Because self-other ratings could not be obtained in our research study, future research should therefore assess both leader and employee ratings of authentic leadership.

Regarding the design of our study, Bryman and Bell (2011) states that cross-sectional designs are only able to assess relationships between variables when data is collected simultaneously. As a result, this can create difficulties in locating a causal relationship between variables. Since our study was executed with a cross-sectional design, we were thereby not able to identify whether our variables had a causal relationship or not, however, we were able to draw inferences about potential causality (Bryman & Bell, 2011). Therefore, we can for example not know with certainty if affective commitment to change causes employee agility or the other way around. Future research could for instance apply a longitudinal design in order to assess the potential causal relationship of affective commitment to change and employee agility, since this will allow the researcher to investigate the time order of the different variables (Bryman & Bell, 2011).

In our research study, participants answered a self-completion questionnaire. When respondents give answers to items for both the predictor and criterion variable, it can lead to common method biases (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). A type of common method bias is social desirability, where individuals, no matter what their feelings are about a topic, try to present themselves favorably (Podsakoff et al., 2003). The respondents could potentially have shown social desirability, for example by rating themselves as more willing to support the digital transformation than what they actually are. However, in line with recommendations by Podsakoff et al. (2003) to reduce common method

biases, participants were given the information that there were no right or wrong answers and were asked to answer honestly. Additionally, as the study was anonymous, this was another measure taken to reduce common method biases (Podsakoff et al., 2003).

The questionnaire was distributed in English to all participants. As participants were situated in 29 different countries, where several of these countries do not use English as their first language, it is possible that items might be interpreted differently by participants. Aguinis, Henle and Ostroff (2001) recommend to translate the questionnaire as well as modify items that can potentially have different meanings in different cultures before it is distributed to participants. Due to limited time and resources, it was not possible to translate the questionnaire into the different languages participants use as their first language. However, as English is the business language of the organization in this research study, we assume that employees have a relatively high proficiency of English, which could make them able to interpret items in similar ways.

We only included one organization in our research study, and findings from our sample can therefore solely be generalized to this population (Bryman & Bell, 2011). However, we included employees who were based in different countries and from several departments of the organization. Therefore, findings could potentially be generalized to other organizations in the maritime industry. Nevertheless, future research should include several organizations from different industries, in order to be able to generalize the findings to other populations.

As we did not find a relationship between authentic leadership and affective commitment to change, future research could look into other potential leadership styles together with authentic leadership that can influence this variable and see whether they have an effect. As Alavi and Gill (2017) suggest, authentic leadership can augment other leadership styles and behaviors. Therefore, in line with Alavi and Gill's (2017) propositions, it could be interesting to see whether authentic leadership and other leadership styles interact in influencing affective commitment to change.

Finally, future research could look into employees' perceptions of their own skills and competencies in combination with their digital mindsets. This can provide a more comprehensive picture of whether employees feel that they have the necessary skills and the possibility to develop these when taking part in a digital transformation. More specifically, as discussed above, these combinations

can perhaps also create a better understanding of how employees view their leaders' influence and whether they will be willing to support the change.

Conclusion

The aim of this research study was to explore under which conditions authentic leaders can influence employees' affective commitment to change and whether this could relate to employee agility under a digital transformation. In doing so we explored the potential mediating role of affective commitment to change in the relationship between authentic leadership and employee agility. Additionally, we tested the relationship between authentic leadership and affective commitment to change and whether employees' fixed digital mindset would have a moderating role in this relationship. The results suggested that there were no direct, mediating or moderating effects present in this study. However, there was a positive relationship between affective commitment to change and employee agility. These findings suggest that authentic leadership might not have an influence on employee agility via affective commitment to change. Nevertheless, employees holding a high fixed digital mindset might be less likely to show affective commitment to change. Our research study also stresses the importance of having employees that show affective commitment to change during a digital transformation and that these individuals are more likely to be agile.

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Appendix

Pattern Matrix from Principal Components Analysis^a

	Component			
	1	2	3	4
AL15	.86	-.01	.00	.06
AL16	.85	-.02	-.04	.06
AL6	.84	.02	-.02	-.03
AL12	.81	-.02	-.04	.03
AL13	.77	-.05	.03	.03
AL3	.77	.05	.04	-.08
AL11	.77	.01	.00	.04
AL2	.74	-.12	-.06	-.06
AL14	.72	-.08	.09	.12
AL9	.71	.03	.06	-.19
AL4	.70	-.06	.09	-.13
AL10	.69	-.04	-.01	.15
AL1	.68	.13	-.16	.01
AL8	.67	.07	.12	-.05
AL7	.58	.07	.00	-.20
AL5	.56	.00	-.01	.13
ACC2	-.04	.82	.21	.23
ACC1	-.01	.80	.24	.22
ACC5rev	-.02	.79	-.17	-.18
ACC3rev	-.05	.78	-.13	-.25
ACC4	.05	.77	.17	.21
ACC6rev	.05	.76	-.12	-.12
EA2	.01	-.02	.83	.10
EA3	-.01	-.04	.81	.01
EA1	-.08	-.02	.80	.07
EA5	.08	-.06	.77	.04
EA4	-.06	-.04	.70	-.18
FM6rev	-.08	-.12	-.29	.04
FM3rev	-.04	-.10	-.28	.11
FM1	-.04	-.08	-.03	.81
FM2	.00	-.03	-.04	.80
FM5	.05	.12	-.04	.75
FM5	.00	-.02	-.02	.70

Notes. Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. Loadings above .40 are in bold.

a. Rotation converged in 7 iterations. AL=Authentic leadership, ACC= Affective commitment to change, EA= Employee agility, FM = Employee fixed digital mindset.

Structure Matrix for Pricipal Component Analysis

	Component			
	1	2	3	4
AL15	.86	.09	.13	.02
AL16	.84	.07	.09	.03
AL6	.84	.12	.11	-.06
AL12	.80	.06	.08	.01
AL3	.79	.16	.17	-.12
AL13	.77	.04	.14	.01
AL11	.77	.09	.12	.01
AL9	.73	.14	.18	-.22
AL14	.72	.01	.19	.10
AL2	.72	-.04	.03	-.07
AL4	.71	.06	.19	-.15
AL8	.70	.18	.23	-.09
AL10	.68	.02	.09	.13
AL1	.67	.18	-.03	-.03
AL7	.59	.17	.10	-.23
AL5	.55	.05	.07	.11
ACC2	.08	.82	.36	.13
ACC1	.11	.81	.38	.12
ACC4	.16	.78	.32	.11
ACC3rev	.03	.78	.01	-.35
ACC5rev	.05	.78	-.03	-.27
ACC6rev	.12	.76	.03	-.21
EA2	.13	.12	.83	.09
EA3	.11	.11	.80	.01
EA1	.04	.11	.78	.06
EA5	.19	.09	.77	.03
EA4	.05	.11	.68	-.19
FM6rev	-.14	-.19	-.33	.07
FM3rev	-.10	-.17	-.31	.13
FM1	-.09	-.19	-.06	.82
FM2	-.04	-.14	-.05	.81
FM5	.03	.03	-.02	.74
FM4	-.03	-.11	-.04	.70

Notes. Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. Loadings above .40 are in bold. AL=Authentic leadership, ACC= Affective commitment to change, EA= Employee agility, FM = Employee fixed digital mindset.