

**THE MEDIATING ROLE OF KNOWLEDGE SHARING
BETWEEN INNOVATION WORK BEHAVIOR AND
DIGITAL TRANSFORMATION LEADERSHIP**

Abdul Rehman Khalid, Mubashar Ali and Shahzad Ali

Superior University, Lahore, Pakistan

Email: arkhalid1997@gmail.com

pme@superior.edu.pk

ABSTRACT

Using new institutional theory to test a model of how digital transformational leadership (DTL), organizational agility (OA), and digital strategy (DS) affect innovative work behavior (IWB). As is the case with organizational agility, digital transformational leadership has a favorable impact on creative work behavior as well as organizational agility. An further conclusion from our research is that the organizational flexibility to moderate the relationship between digital transformational leadership and creative work behavior is important. Our results have contributed to a deeper understanding of the consequences that transformational leadership, digital strategy, and OA have on creative work behavior. The outcomes of our research provide essential answers to issues about the ways in which manufacturing organizational leadership styles and fostering organizational agility and digital strategy might promote creative work behavior.

KEYWORD

Digital transformational Leadership, Organizational Agility, Digital Strategy, Innovation Work behavior.

1. INTRODUCTION

The ability of an organization's workers to be innovative in their line of work is one of the most important factors that goes into determining its level of market advantage. In a similar vein, IWB between employees have emerged as a very important and essential requirement for manufacturing companies. At any manufacturing organizational level, the phrase "innovative work behavior" refers to initiatives for employee growth, advancement, and the adoption of practical innovations. New ideas, technologies, and methods are developed, tested, and implemented in certain work areas as part of IWB. The expectations of employees and all stakeholders, the rapidly shifting product market, and the growing level of global competition all necessitate the development of novel solutions by manufacturing organizations.

To improve manufacturing organizations and the nation as a whole, this challenge necessitates employers of manufacturers adopting novel strategies. Organizational success is widely regarded as a result of innovation, particularly in manufacturing companies that are actively learning about innovation and similar fields. Taking advantage of the innovative capabilities of employees with sustainable land and long-term effectiveness is

one of the best ways to become an innovative manufacturing organization. Employees can better contribute to the success of the organization by using their innovative abilities to generate, promote, and implement new ideas. Innovative work behavior also includes improving work procedures and products and services. As a result, it is critical for companies to determine the factors that influence individual innovative work behavior.

Employers must collaborate and learn to develop novel solutions because of the complexity of the issues (Novitasari, Asbari, Amri, & Hutagalung, 2021; Suroso, Riyanto, Novitasari, Sasono, & Asbari, 2021). Findings from meta-analyses reveal a wide range in the link between transformational leadership and creative work practices, Despite the idea that IWB among followers is believed to be favorably correlated with TL (Asbari, Purwanto, et al., 2020; Fikri, Asbari, Hutagalung, Amri, & Novitasari, 2021). The researcher questions the impact of digital transformational leadership variables on learning digital strategy and organizational agility on IWB in light of these inconclusive findings.

The bulk of study conducted in the topic of creativity looks at how leadership in organizational management might impact employee creativity rather than inventive work behavior. This is because leadership is one of the most important aspects of organizational management. As a consequence of this, workers are given the opportunity to take part in the conceptualization and actualization of fresh ideas (Asbari, Hyun, et al., 2020; Fikri et al., 2021). As a result, it is hoped that this study will serve as a foundation for future leadership and manufacturing organization research in Pakistan due to the lack of research on the connection between DTL and IWB that takes into account personal, organizational, and workplace factors.

When the businesses transform conventional to digital technology without having a digital strategies, they fail. (Bresciani, Ferraris, Romano, & Santoro, 2021; Stefanova & Kabakchieva, 2019). Leaders must make sure that their firms adopt digital attitudes and the agility needed to react to changes caused by digital technology (Götz, 2019). The aim of this study is to explore the interactions and contributions of a number of internal elements that may have an impact on the public sector's adoption of digital transformation. As a result, this study aims to: (1) investigate the connection among DTL and OA, including how this connection affects innovative work behavior; and (2) determine the role of digital strategy as a mediator relationship between IWB and DTL. We utilized institutionalism (INT: (Greenwood & Hinings, 1996; Greenwood, Oliver, Lawrence, & Meyer, 2017) and a brand-new model of institutions (NIT: (Dacin et al., 2008) in order to investigate and discover the responses to these two research questions.

As a result, in this field we make several significant contributions in theory and practice. First, Adaptation and acceptance of formal organizational structures, such as written rules, established processes, and new organizational forms, are frequently explained using INT (Suddaby, Elsbach, Greenwood, Meyer, & Zilber, 2010). In the literature, however, INT has not been used to investigate organizational agility. (Dubey, Altay, et al., 2018) suggested expanding INT in future studies to learn more about how OA influences IWB. The goal of this research has been focused on utilization of INT and concentrating on NIT to analyze this occurrence. Moreover, this research seals the gaps in our sympathetic of the ways in which IWB is influenced by organizational agility, leadership, and strategy. This is especially important given the fact that numerous public and private sector organizations are emphasizing the necessity of deploying innovative work in order to survive COVID-

19 and its aftermath (Porfírio, Carrilho, Felício, & Jardim, 2021). An organization's chances of succeeding with creative work are increased by putting more emphasis on internal capabilities, leadership, connections, and alignment with business plan (Porfírio et al., 2021). Finally, our study contributes to the corpus of knowledge already available on DTL and OA in public sector companies. However, the impact of innovative work behavior on the supply chain knowledge domain of public sector organizations has recently been the subject of research (Frössling & Ek, 2020; Nekrasov & Sinitsyna, 2019; Seepma, de Blok, & Van Donk, 2021) or/and conceptual and qualitative research (Durão, Ferreira, Pereira, & Moreira, 2019; Guarnieri & Gomes, 2019). Therefore, the purpose of this study is to fill this void by examining a variety of internal factors that influence the manufacturing organization's implementation of IWB.

2. LITERATURE REVIEW

The primary theory which consolidates the theoretical framework of the study is: the NIT model. Numerous aspects of digital transformation have been investigated using NIT in the digital transformation literature (Dubey, Gunasekaran, et al., 2018; Verhoef et al., 2021). According to best of our knowledge the application of this theoretical modal to internal aspects of IWB implementation, e.g., DTL, OA, and DS.

2.1 New Institutional Theory and Institutional Theory

In current research on organizations, INT is a popular point of view. This research highlights the importance of shared expectations and cultural understandings by the use of hypothetical and empirical research (David & Bitektine, 2009). NIT also discusses how businesses relate with their surroundings to adapt to competition and obstacles. Policies, procedures, and job descriptions are viewed as the results of widespread perceptions and understandings of what constitutes proper group conduct (Meyer & Rowan, 1977; Parsons, 1956). Organizations are shaped by three fundamental forces, according to NIT. The first is coercive pressure, which can come from powerful people's demands, organizations that control resources, or government-sponsored agencies. The second force is the imitative pressures arise when decision-makers rely on the actions of other organizations as a guide for their own. Normative pressure is the third type of pressure. This type of pressure is caused by social expectations that professionals and other actors are expected to follow certain practices and rules (Meyer & Rowan, 1977).

NIT has frequently been used to investigate external influences on organizations' practices and cultures in order to comprehend organizational change related to the implementation of advanced technology (Adebanjo, Teh, & Ahmed, 2018; Dubey, Gunasekaran, Childe, Blome, & Papadopoulos, 2019). Using two approaches, NIT has attempted to explain innovation and change by focusing on the sociocultural aspects of organizing (1) Examining how stasis and change are related, noticing both steadiness and similarities within organizations as well as change and heterogeneity among them (Greenwood et al., 2017); and (2) in terms of actions, structure, planning and activities at several levels (W. R. Scott, 2013). This study is focused on leadership, strategy, IWB, and OA. to determine that how the digital transformation can induce a change in an industrial as a complex.

2.2 Digital Transformational Leadership (DTL) and Innovative Work Behavior (IWB)

According to the National Institute of Technology (NIT), digital transformation refers to a shift in an organization's institutional arrangements that are made possible by digital technology and are implemented across a variety of areas and organizations. For digital transformation to be successful, the administration's belief system must establish legitimacy (Hinings, Gegenhuber, & Greenwood, 2018). Leadership is viewed as an essential component of the values and beliefs of an organization by NIT (Biggart & Hamilton, 1987). The leadership must also modification and adjust as organizations evolve over time (Bresciani, Ferraris, Huarng, & Malhotra, 2021; Chierici, Tortora, Del Giudice, & Quacquarelli, 2020). Leaders who establish stages for this and motivate participants to take action are essential (Sainger, 2018).

There are three habits, which can be used by leaders for a successful business in the digital age: (1) keeping up with emerging technology trends; (2) determining the digital transformation's direction and investment strategy; and, thirdly, precisely and quickly leading the team through change (Swift & Lange, 2018). Digital leaders, also referred to as "digital leaders," are able to establish collaborative, networked organizations and acquire digital competencies (Bresciani, Ferraris, Huarng, et al., 2021; Frankowska & Rzczycki, 2020). TL has been emphasized notably in the literature on leadership in a digital context related to digital transformation. Consequently, it is thought that digital technology and transformative leadership are coupled to generate digital leadership (De Waal¹, van Outvorst, & Ravesteyn¹, 2016).

Organizational innovation is positively influenced by transformational leaders (Asbari, Purwanto, et al., 2020; Asbari, Santoso, & Purwanto, 2019; Tiara, Stefanny, Sukriyah, Novitasari, & Asbari, 2021). This transformational leader inspires employees to pursue the organization's vision by harnessing their innovative potential. The leader's intellectual stimulation, emotional appeal, and inspiration have the desired effect, making the innovation objective seem vivid, engaging, and even genuine (Bass & Stogdill, 1990). Through their visionary efforts, functional competency, individual mentoring, supportive culture, and intellectual stimulation abilities, transformational leaders have the ability to encourage personnel to participate in distinctive work behaviors (Fikri et al., 2021; Nadeak, Widodo, Asbari, Novitasari, & Purwanto, 2021). Such executives often inspire staff to engage in creative work behavior by offering a technologically enabling workplace (Asbari, Purba, Hariandja, & Sudibjo, 2021; Fikri et al., 2021). Transformational leaders use inspiration, motivation, and individual consideration to create a supportive workplace (Masood & Afsar, 2017). Employees are more likely to participate in coming up with and putting new ideas into action when they are in such a supportive environment. In addition, this environment offers assistance and feedback for locating novel and effective solutions (Haq, Asbari, Novitasari, & Abadiyah, 2022; Jumiran et al., 2020; Tiara et al., 2021). Consequently, we propose a hypothesis based on the preceding discussion and INT views of organizational change and leadership:

H1: *Progressive's influence of DTL on innovative work behavior.*

2.3 DTL, Innovative Work Behavior and Organizational Agility

Institutional settings are essential for (re)forming organizational structures and behaviors, according to INT. According to the NIT, judgments are impacted by social, cultural, and legitimate issues in addition to rational efficiency goals (W. R. Scott, 1995). Institutional pressure can be seen in the context of digital transformation (DT) (Dubey, Gunasekaran, et al., 2018; Gupta, Modgil, Gunasekaran, & Bag, 2020; Liu, Ke, Wei, Gu, & Chen, 2010). Organizational change is observed as a requirement and if it is not appropriately adapted can constitute a block for digital transformation (Teichert, 2019). Traditional management, structure, and processes within an organization must be transformed into more adaptable management and processes.

The ability of a system to adapt to quickly changing needs and other external stimuli without sacrificing the quality of its outputs and services is known as agility (Ganguly, Nilchiani, & Farr, 2009). By utilizing new techniques and resources, it enables organizations to replace existing processes with new ones and aids in reorganizing organizational structures in response to changing circumstances (Darvishmotevali, Altinay, & Köseoglu, 2020; Troise, Corvello, Ghobadian, & O'Regan, 2022). The ability of an organization to notice and adapt to unexpected external adjustments quickly and efficiently by rearranging internal resources and achieving a competitive advantage is known as OA (Žitkienė & Deksnys, 2018). An explanation for agility from an NIT viewpoint may be found by highlighting the idea of cognitive components (DiMaggio, 1991). In order to fulfill value obligations and increase ability to adapt in dynamic contexts, agile institutions should pay particular attention to the representation, utilization, and extension of the content and structure of knowledge systems (Walsh, 1995).

According to the NIT, for an organization to progress toward an institutionally distinctive change, a high level of organizational capacity, encompassing various capabilities and resources inside the organization, is required. In this sense, leadership and mobilization are similar (Greenwood & Hinings, 1996). Additionally, according to NIT, To strengthen and defend their legitimacy while implementing changes, businesses should embrace organizational practices and seek out leaders with "desirable" traits and behaviors (Meyer & Rowan, 1977; W. R. Scott, 1995). Firms can become adaptable and quick to change with the right leadership and human qualities by making the necessary organizational structure changes. As a result, it is not difficult to infer that an organization's agility may be influenced by its leadership style. Organizational agility can be improved by leaders' ability to adapt to changing business conditions and their willingness to reverse bad strategic decisions (Ahammad, Glaister, & Gomes, 2020). An organization's promise to increasing OA is largely enforced by its leadership (Raeisi & Amirnejad, 2017). These leaders are associated with TL in the literature; for instance, TL have an impact on the beliefs, values, and emotions of their followers (Bass & Avolio, 1993). These leaders may boost OA by their capacity to build suitable connections with subordinates, inspire them to see above their own wants, and perform well in challenging and dangerous circumstances. Transformational leaders educate themselves and their team members about how to respond to difficulties and possible occasions (Burke & Collins, 2001; Veisesh & Eghbali, 2014). In addition, demonstrated that service recovery performance and agility in public sector organizations are supported by transformational leadership (Lin, 2011). Innovative work behavior benefit their organization and other team members (Penner, Dovidio,

Piliavin, & Schroeder, 2005). The degree to which employees collaborate and rely on one another to complete tasks effectively is referred to as innovative work behaviors (Campion, Papper, & Medsker, 1996; Kiggundu, 1981). Particularly, employees frequently perform urgent tasks outside of their individual roles when they respond quickly to significant changes in the environment (Tan, Tan, Wang, & Sedera, 2017). This naturally increases their innovative work behaviors. As a result, the resulting hypothesis:

H2: Organizational agility is positively impacted by digital transformational leadership.

H3: Organizational agility positively influences innovative work behavior.

Agile organizations ought to spread their agility across the workforce, the organization, and the system (Arena, 2018). There are four fundamental skills needed for organizational agility: responsiveness; flexibility; speed; as well as proficiency (Akkaya & Tabak, 2020). This indicates that all employees must alter their actions through the implementation of adequate information systems, prompt and precise instructions, and top leadership support (Larjovuori, Bordi, Mäkinemi, & Heikkilä-Tammi, 2016). Organizational agility factors including culture, leadership, and organizational change are positively connected with organizational presentation (Dalvi, Shekarchizadeh, & Baghsorkhi, 2013). By creating a cultural framework that supports its mission statement and guides employee behavior toward obtaining the necessary skills, DTL may have an impact on OA and IWB (Babnik, Breznik, Dermol, & Širca, 2014). As a result, We suggest that organizational agility can mediate interactions between IWB and DTL:

H6: The link between digital transformational leadership and creative work behavior is mediated by organizational agility.

2.4 Digital Strategy, Digital Transformation Leadership and Innovative Work Behavior

The concept of deinstitutionalization was researched within the wider framework of institutional transformation (Tina Dacin, Goodstein, & Richard Scott, 2002). Due to new ideas and customs, traditional beliefs and practices have diminished or vanished. It demonstrates how crucial it is to have an effective strategy for managing this shift (Tina Dacin et al., 2002). (Suddaby, Seidl, & Lê, 2013) In the context of NIT, strategy is said to be composed of three related elements: (1) Actors draw their tactics from practices, which are recognized patterns of behavior; (2) praxis, which describes actions that are affected and guided by emerging real-world tactics; (3) Actors known as practitioners carry out and participate in strategy work based on their education and experience. On the other hand, DT is not a standard plan or programmed that can be started and completed in a set period of time. Instead, it must be seen as an ongoing, fluid process (Lipsmeier, Kühn, Joppen, & Dumitrescu, 2020). To support analysis and produce valuable output in a feedback loop, data must be continuously gathered, cleaned up, securely stored, and displayed in the digital world. The retrieved information should next be treated to grow the business and its personnel (Correani, De Massis, Frattini, Petruzzelli, & Natalicchio, 2020). To achieve digital transformation, the company must completely restructure its operations, strategy, leadership, capacity for innovation, and business models (Correani et al., 2020; Schwertner, 2017).

Despite the fact that creative work proposals many chances for today's organizations, many scholars and practitioners find it difficult to understand. This is mostly due to the fact that it differs from the well-known concept of organizational change supported by IT (Wessel, Baiyere, Ologeanu-Taddei, Cha, & Blegind-Jensen, 2021). This is because creative work processes are complicated and need for the use of technology, a clear vision, and a comprehensive digital strategy. To put it another way, innovative work necessitates precise organizational restructuring and has repercussions for the performance metrics used to adjust employees (Verhoef et al., 2021). The most important factor in innovation success has been the creation of a digital strategy that incorporates corporate and business strategies (Porfirio et al., 2021). In our opinion, the chief digital officer (CDO) position must be created in order to operationalize DS and guarantee that it is consistent with the company's mission and assignment (Henriette, Feki, & Boughzala, 2016). If innovative work cannot be effectively implemented, employees and senior managers will not benefit. Digital strategies can drive innovation and enhance the decision-making processes of top executives for businesses that place a strong emphasis on their development (Mikalef, Boura, Lekakos, & Krogstie, 2019). As a result, the following hypothesis:

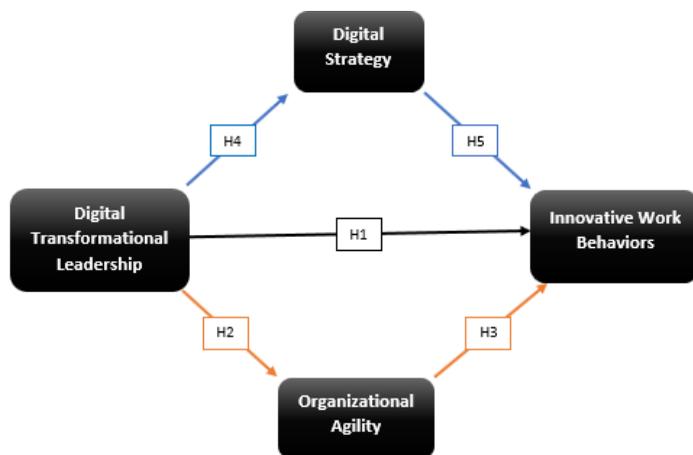
H4: Positive effects of digital transformative leadership on digital strategy.

H5: Digital strategy positively influences innovative work behavior.

Without a strategy and the ability to adjust it as needed, managers' roles are limited (Teece, Peteraf, & Leih, 2016). As a result, agility and strategy effort together. To successfully implement an agile digital strategy in this setting, leaders must cultivate sufficient organizational agility (Shams, Vrontis, Belyaeva, Ferraris, & Czinkota, 2021). A digital strategy must support the organization's growth and be based on the limitless potential of inventive work in order to compete in the market of today (Schwertner, 2017; Vial, 2021).

H7: The link between digital transformational leadership and innovative work behavior is mediated by digital strategy.

Framework:



4. METHODOLOGY

DTL, organizational agility, digital strategy, and IWB were the main topics of this quantitative research of manufacturing industrial enterprises. In this study the primary objective was to improve the literature in business management therefore, questionnaires were used to collect the data and applied statistics.

4.1 Data Collection

Manufacturing companies in Pakistan make up the population of the current study. Pakistan was our choice because it has of the manufacturing organizations. All applicants were given the option to withdraw at any time, and confidentiality was guaranteed. After receiving approval from management, 500 electronic questionnaires were distributed to the official WhatsApp group of manufacturing companies' employees. These organizations were preferred because they were already operational and providing services to the public using digital technologies.

Five-point Likert scale was used to determine the score of different items, where "Strongly disagree" and "Strongly agree" were the possible responses. To evaluate DTL, six indicators from earlier scales were adjusted to meet the IWB context (Chen & Chang, 2013). Six items were adapted from in order to measure OA (Cegarra-Navarro, Soto-Acosta, & Wensley, 2016). DS was determined by modification of four of the original statements (Porfírio et al., 2021). To gauge the IWB, six indicators were modified (S. G. Scott & Bruce, 1994). A question was added to the demographic inquiries to see if respondents knew about a shared DS within their workplaces. Later on, in the study's analysis and discussion phase, this could be useful. Everything utilized in the study, including scales and equipment. We used the same method as in past studies to gather data from the desired sample (Butts, Becker, & Boswell, 2015; Irfan, Wang, & Akhtar, 2019). After four weeks, the questionnaires from the target sample were received, and 391 fully filled and validated replies were sent back. As a result, the current study's total sample size was 391. The manufacturing organizations' response rate of 78.2% is more than sufficient.

4.2 Data Analysis

Partial least squares structural equation modelling (PLS-SEM) tool was in SmartPLS 3, which can evaluate the relationship between the variables, conceptual model and multigroup analysis (MGA) simultaneously. The data was collected, examined, and presented. As compared to other techniques PLS-SEM can handle model complexity in a simpler way therefore, SEM is a justified tool. In this study, rigorous reasoning was employed to assess ideas that had a strong theoretical basis (C. M. Ringle, Sarstedt, & Straub, 2012). Additionally, small and medium size samples can be reliably tested by PLS-SEM and can produce trustworthy outcomes (Chin, 1998).

5. FINDINGS

The current study used Smart PLS 3 to test the proposed hypothesis using PLS-SEM because it is widely used and thought to be a cutting-edge assessment method in all manufacturing sectors, particularly software (Ali, Rasoolimanesh, Sarstedt, Ringle, & Ryu,

2018). The objective of this empirical investigation was to predict and explain the analyzed latent variables using current theory. PLS-SEM has been transformed as a powerful method when the subject matter to be tested for the use of structural modelling is elucidation and the estimate of constructs (Hair Jr, Hult, Ringle, & Sarstedt, 2016). In addition, it is presumed to be a adaptable method for model evaluation (C. Ringle, Wende, & Will, 2005; C. M. Ringle, Wende, Will, & Pls, 2005). The subsequent reason for using PLS-SEM is that it requires less data normality and a smaller sample size than Amos (Hair Jr et al., 2016). this study used PLS-SEM to avoid issues with data normality and sample size. Additionally, the PLS method, bootstrapping approach, path coefficients, and significant level corresponding to them are used to assess the hypotheses' construct validity and internal consistency reliability (Ali et al., 2018). The measurement model was first calculated, and then estimates were found by assessing the structural model.

5.1 Measurement Model Assessment

Loadings, an average variance extract, and competitive reliability were used to assess convergent validity and the measurement model. With the exception of a few values, factor loadings exceeded the recommended value of 0.70, as shown in Table 1 and Figure 1. In a similar vein, the recommended value of 0.70 was also exceeded by all composite reliability (CR) values.

Table 1
Convergent Validity

Constructs	Items	Loading	Alpha	C.R	AVE
Digital Strategy (DS)	DS 1	0.82	0.85	0.897	0.686
	DS 2	0.861			
	DS 3	0.772			
	DS 4	0.856			
Digital Transformational Leadership (DTL)	DTL 1	0.884	0.926	0.942	0.73
	DTL 2	0.837			
	DTL 3	0.859			
	DTL 4	0.892			
	DTL 5	0.787			
	DTL 6	0.863			
Innovative Work Behaviors (IWB)	IWB 1	0.798	0.847	0.885	0.564
	IWB 2	0.785			
	IWB 3	0.801			
	IWB 4	0.68			
	IWB 5	0.731			
	IWB 6	0.7			
Organizational Agility (OA)	OA 1	0.835	0.872	0.901	0.607
	OA 2	0.867			
	OA 3	0.789			
	OA 4	0.668			
	OA 5	0.616			
	OA 6	0.864			

All of the under-study constructs' average variance extract (AVE) values were higher than the recommended 0.50 (Hair Jr et al., 2016). Items with factor loadings below 0.50 were eliminated. In a similar vein, the results of the Heterotrait-Monotrait Ratio (HTMT) confirmed the measurement's discriminant validity. As shown in Table 2, all values fall below the confirmed cut-off value of 0.90, as stated by indicating that the measurement's discriminant validity is confirmed when values fall below 0.90 (Hauer et al., 2011). In general, discriminant validity did not pose a threat to the existing research, as demonstrated by both results.

After determining that the measurement model was valid and reliable, structural modeling was used to estimate hypotheses in the context of manufacturing companies. Standard errors, t-values, and path coefficients are calculated to determine whether the model and relationships with the collected data are significant. Path coefficient values indicated whether or not hypotheses were supported. In Smart PLS 3, the bootstrapping procedure was calculated to estimate the effects of mediation and the main effect (C. M. Ringle et al., 2005).

HTMT

	DS	DTL	IWB	OA
Digital Strategy (DS)				
Digital Transformational Leadership (DTL)	0.67			
Innovative Work Behaviors (IWB)	0.715	0.656		
Organizational Agility (OA)	0.745	0.591	0.789	

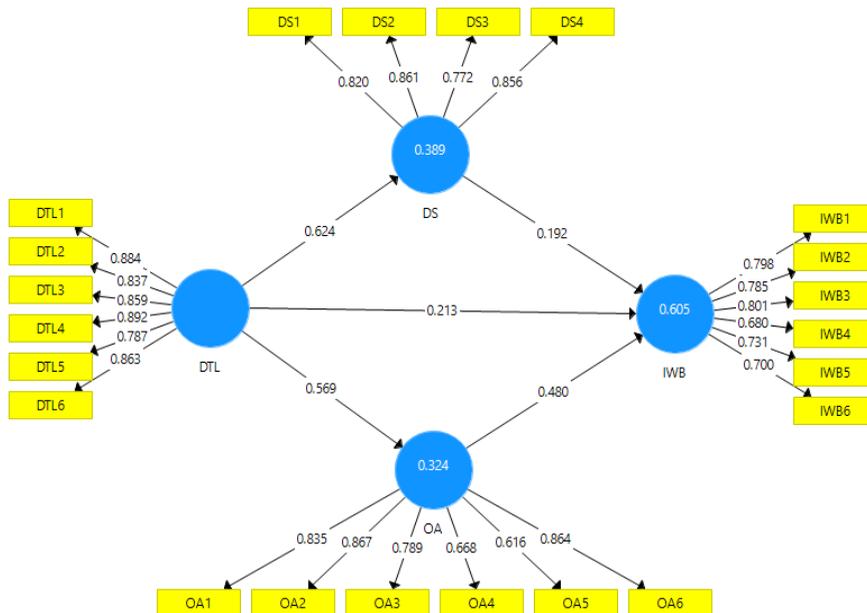


Figure 1: Measurement Model Assessment

Digital transformational leadership is positively and significantly associated with innovative work behavior climate ($\beta = 0.213$, $t = 3.631$, $LL = 0.094$, $UL = 0.325$), as shown in Table 3 and Figure 2, indicating that H1 is supported. Organizational agility climate is significantly and positively associated with digital transformational leadership ($\beta = 0.569$, $t = 6.364$, $LL = 0.392$, $UL = 0.744$), supporting H2. H3 is also supported by the findings, which revealed a statistically significant positive relationship between innovative work behavior climate and organizational agility ($\beta = 0.48$, $t = 7.047$, $LL = 0.339$, $UL = 0.607$). H4 is supported by the significant and positive correlation between digital transformational leadership and digital strategy climate ($\beta = 0.624$, $t = 8.598$, $LL = 0.48$, $UL = 0.765$). In addition, H5 is supported by the fact that innovative work behavior is significantly correlated with digital strategy climate ($\beta = 0.192$, $t = 2.697$, $LL = 0.062$, $UL = 0.342$).

According to Table 3 and Figure 2, the mediation effect of organizational agility on the DTL–IWB relationship climate is supported by H6 ($\beta = 0.274$, $t = 5.338$, $LL = 0.169$, $UL = 0.371$). Last but not least, H7 is supported by the mediation effect of digital strategy on the DTL-IWB relationship climate ($\beta = 0.119$, $t = 2.62$, $LL = 0.037$, $UL = 0.216$).

Table 3
Path Analysis

Bootstrapping								
	Relationship	Beta	S.D	T Values	P Values	L.L	U.L	Decision
H1	DTL -> IWB	0.213	0.059	3.631	0	0.094	0.325	Supported
H2	DTL -> OA	0.569	0.089	6.364	0	0.392	0.744	Supported
H3	OA -> IWB	0.48	0.068	7.047	0	0.339	0.607	Supported
H4	DTL -> DS	0.624	0.073	8.598	0	0.48	0.765	Supported
H5	DS -> IWB	0.192	0.071	2.697	0.007	0.062	0.342	Supported
Mediation Effects								
H6	DTL -> OA -> IWB	0.274	0.051	5.338	0	0.169	0.371	Supported
H7	DTL -> DS -> IWB	0.119	0.046	2.62	0.009	0.037	0.216	Supported

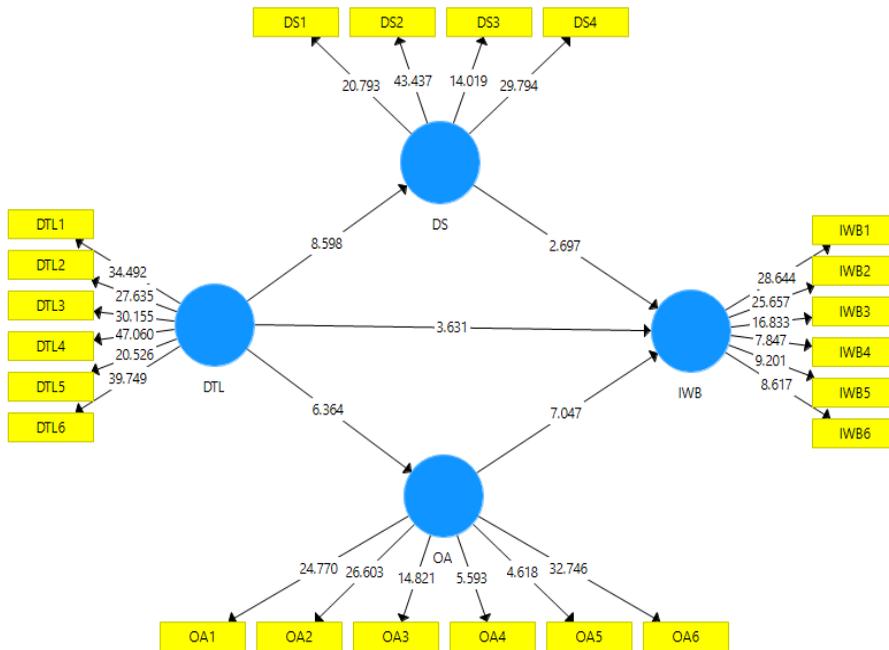


Figure 2: Structural Model Assessment

6. DISCUSSION

We had proposed, based on the existing literature, that IWB is significantly influenced positively by digital transformational leadership (i.e., H1). Supporting H1, the findings demonstrate that IWB is positively influenced by DTL. In this study, literature analysis and NIT showed that organizational challenges are managed in a better way by the transformational leader particularly in a creative and technological context (De Waal¹ et al., 2016). In order to stay updated and compete in the market, businesses should be run by the leaders who have ability of transformational leadership which is a necessary trait for digitalization and adaptation of innovative operations (Porfirio et al., 2021).

Similar kind of support was given to H2, which proposed that digital transformation leadership is significantly influenced by OA. According to the literature OA capability can, as expected, help shape the change they want to implement (Li, Wu, Cao, & Wang, 2021). For enterprises to be nimble and carry out NIT-conceptualized digital transformation efforts (Darvishmotevali et al., 2020; Teichert, 2019). To be agile and adopt NIT's concepts for digital transformation, they must concentrate on strengthening organizational learning and promoting appropriate knowledge management techniques (DiMaggio, 1991; Walsh, 1995). In order for enterprises to be more adaptable in a digital world, they also need to implement agile ICT systems and HR practices (Menon & Suresh, 2020).

Instead of focusing on software development's fundamental work mechanism the majority of previous studies (Hoda, Salleh, Grundy, & Tee, 2017; Hron & Obwegeser, 2022). have focused on software development's effectiveness of organizational agility practices. As a result, the Agility ideas and structures have not yet been structured and

widely used in academia (Patel & Sambasivan, 2021). As a result, in order to comprehend the Agile work mechanism, a research model with constructs and verifications was established using the core values of the Agile Manifesto which serve as the reference point for Agile (Park & Cho, 2022). Agility, focus on the needs of the client, being helpful, and information sharing are some of these principles. This study demonstrated that members' innovativeness is enhanced by agility by improving their levels of cooperative behavior at work and digital information exchange (H3).

H6. argued that the link between digital transformational leadership and innovative work behavior is mediated by organizational agility, and H6. proposed that the interaction between the two is beneficial. The data study validated the relationship among OA and DTL (H2). Previous studies have shown that through developing connections with subordinates, transformational leaders may motivate staff to innovate and take measured risks when faced with obstacles and possibilities. These results agreed with those of these prior investigations (Veisheh & Eghbali, 2014). As a result, in order for businesses to achieve success in digital transformation they need to look for leaders who possess IWB traits and can see issues from a variety of perspectives that could affect OA. In addition, H6 was supported empirically and related to the previous hypothesis (H2). Agility can be managed by connecting employ behavior with the organizational mission statement. In this way transformational leaders may have an impact on OA and IWB (Babnik et al., 2014).

The mediation effect of digital strategy was examined in the final set of hypotheses. It was hypothesized that digital strategy acted as a mediator between innovative work behavior and digital transformational leadership. Both hypotheses were confirmed. Based on a lot of recent research indicating that DS can drive innovative work behavior by improving decision-making processes it was not anticipated that the digital strategy would mediate the relationship between DTL and IWB (Mikalef et al., 2019). In this project digital technology business strategy alignment scale was observed in detail to measure the innovative work behavior (Li et al., 2021).

6.1 Theoretical Implications

In the context of IWB, the current study contributes three new findings to the field of organizational and behavioral culture research. The study first responds to the call for using INT to examine how organizations are impacted by agility in the era of digital transformation (Dubey, Gunasekaran, et al., 2018). We experimentally looked into the relationship between organizational agility and digital transformation, as well as how it might serve as a mediator between DTL and IWB. As a result, The lack of INT research on the detrimental effects of OA on IWB, which have been vastly offset by the use of theories like RBV and the dynamic capacity framework, is made worse by the current study (Elia, Giuffrida, Mariani, & Bresciani, 2021). The majority of the prior research on leadership in digital transformation and OA has been investigative in nature or on just capabilities and resources (Al Humdan, Shi, Behnia, & Najmaei, 2020; Centobelli, Cerchione, & Ertz, 2020), like organizational behavior (Felipe, Roldán, & Leal-Rodríguez, 2017; Li et al., 2021), IT resources (Irfan et al., 2019), flexibility (Ghasemaghaei, Hassanein, & Turel, 2017), creative thinking, and innovative behavior (Mihardjo & Rukmana, 2019; Ravichandran, 2018). Our research suggests that the NIT viewpoint may

be useful in examining OA and IWB as a complicated and interconnected organizational problem in manufacturing firms, highlighting the importance of leadership and strategy.

Second, by examining the role of leadership in the connection between organizational agility and innovative work behavior, this paper adds to the body of knowledge. The leadership role in organizational agility is a common topic in the literature currently available (Akkaya & Tabak, 2020; Dalvi et al., 2013). However, The body of knowledge regarding how leadership affects digital transformation is still in its infancy (Ardi et al., 2020; Porfirio et al., 2021). The idea that digital leadership may support OA and IWB hasn't gotten much research up to this point. Our study's conception of digital transformational leadership and its conclusions may be used as a starting point for future research into our model, which can then be expanded to offer more information about knowledge management and behavior in technology-based workspaces.

The study adds to the limited body of knowledge and offers new insights into the role of strategy in promoting IWB, which is necessary to comprehend digital strategy as a mediator between DTL and DS. The majority of recent research on the role of strategy in digital transformation is conceptual and systematic reviews (AlNuaimi, Singh, Ren, Budhwar, & Vorobyev, 2022; Hanelt, Bohnsack, Marz, & Antunes Marante, 2021). This is reflected in calls for scholars to address this vacuum using empirical research and other theoretical backgrounds (Hanelt et al., 2021). We gave fresh insights using NIT as a theoretical framework in answer to this request. We emphasized that no matter how skilled an organization's executives are or how agile a business is, strategy alone cannot bring about digital transformation. Aligning the business model is one of the additional contributing variables needed for successful digital strategy (Correani et al., 2020) and the evolution of the organization's strategy (Lipsmeier et al., 2020). Future studies could find it useful to add these components to our conceptual framework by using the study's findings.

6.2 Practical Implications

Despite the fact that this study was carried out in Pakistan, its results and repercussions can be applied in manufacturing and other organizations. For use in practice, our research provides two significant insights. First, the findings support the idea that digital transformation is a fundamental institutional shift that upends organizational culture by necessitating the development of new IT infrastructure and digital skill sets across employees and the entire organization. The new technology's acceptance is impacted by all of this, which delays the development of the digital strategy. Therefore, the adoption of technology by an organization should not be prioritized by leadership without taking into account how to recruit managers with the necessary leadership qualities and skills to ensure the success of such a change. As a result, our research suggests that transformational leadership traits like building trust, fostering teamwork, self-sacrifice, and leading by instance in addition to digital knowledge may best suit organizational shifts toward DT. This study can also assist human resources and training sections in making decisions on career and recruiting planning for projects involving digital transformation.

Second, procedures should be developed to encourage organizational agility and encourage innovative work behavior. Unfortunately, In manufacturing organizations, which are today some of the largest and most complex, public sector executives are under

pressure to accomplish more with less resources (Rieckhoff & Maxwell, 2017). Many organizational practices place a heavy emphasis on adhering to rules and guidelines, which discourages employees from being flexible and creative (Banihashemi, Heidarnia, & Allahyari, 2019; Sanatigar, Peikani, & Gholamzadeh, 2017). However, our research suggests that manufacturing organizations should adopt the concept of agility and learn from the private sector how to streamline processes and reduce bureaucracy in order to help develop the additional agility needed for the success of digital transformation.

7. LIMITATIONS AND FUTURE RESEARCH

Although this paper has produced a number of positive results, it must be acknowledged that it has some limitations. First, only a small number of Pakistani manufacturing organizations were included in this study. A larger sample, exclusive to many Pakistani manufacturing organizations, can be accessed for future research. Second, there are some limitations to this paper that could have an impact on digital strategy. Investigating digital culture and other recently discussed factors that aren't covered in this paper (Abhari, Ostroff, Barcellos, & Williams, 2021; Weritz, Braojos, & Matute, 2020), and management of knowledge (Zoppelletto, Orlandi, Zardini, & Rossignoli, 2020). The fact that only one nation provided the data for this study is the third limitation. This study could be developed in subsequent research by taking into account additional cultural factors and collecting data from nations with various maturity levels in the implementation of digital transformation. Finally, in response to the COVID-19 outbreak and the Pakistani manufacturing company's rapid implementation of digital transformation technologies prior to EXPO 2020, A cross-sectional study approach was employed. Most likely, the potential of digital transformation leadership had not been completely utilized by the responders. It would be good to do a case study or longitudinal research to evaluate the leadership implementation of digital transformation's maturity, as well as to document its stability and the lessons learned across time or locations.

REFERENCES

1. Abhari, K., Ostroff, C., Barcellos, B. and Williams, D. (2021). *Co-Governance in digital transformation Initiatives: The roles of digital culture and employee experience*. Paper presented at the Proceedings of the 54th Hawaii International Conference on System Sciences.
2. Adebajo, D., Teh, P.L. and Ahmed, P.K. (2018). The impact of supply chain relationships and integration on innovative capabilities and manufacturing performance: the perspective of rapidly developing countries. *International journal of production research*, 56(4), 1708-1721.
3. Ahammad, M.F., Glaister, K.W. and Gomes, E. (2020). Strategic agility and human resource management. *Human Resource Management Review*, 30(1), 100700.
4. Akkaya, B. and Tabak, A. (2020). The link between organizational agility and leadership: A research in science parks. *Academy of Strategic Management Journal*, 19(1), 1-17.
5. Al Humdan, E., Shi, Y., Behnia, M. and Najmaei, A. (2020). Supply chain agility: a systematic review of definitions, enablers and performance implications. *International Journal of Physical Distribution & Logistics Management*, 50(2), 287-312.

6. Ali, F., Rasoolimanesh, S.M., Sarstedt, M., Ringle, C.M. and Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management*, 30(1), 514-538.
7. AlNuaimi, B.K., Singh, S.K., Ren, S., Budhwar, P. and Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, 145, 636-648.
8. Ardi, A., Djati, S., Bernarto, I., Sudibjo, N., Yulianeu, A., Nanda, H. and Nanda, K. (2020). The relationship between digital transformational leadership styles and knowledge-based empowering interaction for increasing organisational innovativeness. *International Journal of Innovation, Creativity and Change*, 11(3), 259-277.
9. Arena, M.J. (2018). *Adaptive space: How GM and other companies are positively disrupting themselves and transforming into agile organizations*: McGraw-Hill Education.
10. Asbari, M., Hyun, C.C., Wijayanti, L.M., Imelda, D., Yanthy, E., Purwanto, A., Kusumaningsih, S.W. and Putra, F. (2020). Diskursus Soft Skills dan Hard Skills: Apa yang Membangun Inovasi Guru Sekolah. Available at <https://www.researchgate.net/publication/339297714>
11. Asbari, M., Purba, J.T., Hariandja, E.S. and Sudibjo, N. (2021). Membangun Kesiapan Berubah dan Kinerja Karyawan: Kepemimpinan Transformasional versus Transaksional. *Jurnal Ilmiah Manajemen Dan Bisnis*, 22(1), 54-71.
12. Asbari, M., Purwanto, A., Ong, F., Mustikasiwi, A., Maesaroh, S., Mustofa, M., Hutagalung, D. and Andriyani, Y. (2020). Impact of hard skills, soft skills and organizational culture: lecturer innovation competencies as mediating. *EduPsyCouns: Journal of Education, Psychology and Counseling*, 2(1), 101-121.
13. Asbari, M., Santoso, P.B. and Purwanto, A. (2019). Pengaruh kepemimpinan dan budaya organisasi terhadap perilaku kerja inovatif pada industri 4.0. *JIM UPB (Jurnal Ilmiah Manajemen Universitas Putera Batam)*, 8(1), 7-15.
14. Babnik, K., Breznik, K., Dermol, V. and Trunk Širca, N. (2014). The mission statement: organisational culture perspective. *Industrial management & data systems*, 114(4), 612-627.
15. Banihashemi, S.A., Heidarnia, Z. and Allahyari, V. (2019). Ranking Effective Factors on Organizational Agility in Public Sector Using AT Kearney model and TOPSIS Method (Case Study: Hospitals in Birjand). *Journal of healthcare management*, 9(4), 41-51.
16. Bass, B.M. and Avolio, B.J. (1993). Transformational leadership and organizational culture. *Public administration quarterly*, 17(1), 112-121.
17. Bass, B.M. and Stogdill, R.M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications*: Simon and Schuster.
18. Biggart, N.W. and Hamilton, G.G. (1987). An institutional theory of leadership. *The Journal of applied behavioral science*, 23(4), 429-441.
19. Bresciani, S., Ferraris, A., Huarng, K. and Malhotra, A. (2021). Digital transformation as a springboard for product, process and business model innovation. *Journal of Business Research*, 128, 204-210.

20. Bresciani, S., Ferraris, A., Romano, M. and Santoro, G. (2021). *Digital transformation management for agile organizations: A compass to sail the digital world*: Emerald Group Publishing.
21. Burke, S. and Collins, K.M. (2001). Gender differences in leadership styles and management skills. *Women in management review*, 16(5), 244-257.
22. Butts, M.M., Becker, W.J. and Boswell, W.R. (2015). Hot buttons and time sinks: The effects of electronic communication during nonwork time on emotions and work-nonwork conflict. *Academy of management journal*, 58(3), 763-788.
23. Campion, M.A., Papper, E.M. and Medsker, G.J. (1996). Relations between work team characteristics and effectiveness: A replication and extension. *Personnel psychology*, 49(2), 429-452.
24. Cegarra-Navarro, J.G., Soto-Acosta, P. and Wensley, A.K. (2016). Structured knowledge processes and firm performance: The role of organizational agility. *Journal of Business Research*, 69(5), 1544-1549.
25. Centobelli, P., Cerchione, R. and Ertz, M. (2020). Agile supply chain management: where did it come from and where will it go in the era of digital transformation? *Industrial Marketing Management*, 90, 324-345.
26. Chen, Y.S. and Chang, C.H. (2013). The determinants of green product development performance: Green dynamic capabilities, green transformational leadership, and green creativity. *Journal of business ethics*, 116(1), 107-119.
27. Chierici, R., Tortora, D., Del Giudice, M. and Quacquarelli, B. (2020). Strengthening digital collaboration to enhance social innovation capital: an analysis of Italian small innovative enterprises. *Journal of Intellectual Capital*, 22(3), 610-632.
28. Chin, W.W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, 295(2), 295-336.
29. Correani, A., De Massis, A., Frattini, F., Petruzzelli, A.M. and Natalicchio, A. (2020). Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review*, 62(4), 37-56.
30. Dacin, M.T., Dacin, P.A., Greenwood, R., Oliver, C., Sahlin, K. and Suddaby, R. (2008). Traditions as institutionalized practice: Implications for deinstitutionalization. *The Sage handbook of organizational institutionalism*, 327-352.
31. Dalvi, M.R., Shekarchizadeh, A.R. and Bagsorkhi, G.R. (2013). Investigating of organizational agility components (culture, Leadership, organizational change and customer services) on the organizational performance based on the satellite model (Snowa Company as a Case Study). *Gypast Journal*, 3(4), 15-29.
32. Darvishmotevali, M., Altinay, L. and Köseoglu, M.A. (2020). The link between environmental uncertainty, organizational agility, and organizational creativity in the hotel industry. *International journal of hospitality management*, 87, 102499.
33. David, R.J. and Bitektine, A.B. (2009). The deinstitutionalization of institutional theory? Exploring divergent agendas in institutional research. *The SAGE handbook of organizational research methods*, 160-175.
34. De Waal, B., van Outvorst, F. and Ravesteyn, P. (2016). *Digital leadership: The objective-subjective dichotomy of technology revisited*. Paper presented at the 12th European Conference on Management, Leadership and Governance ECMLG 2016.
35. Dimaggio, P. (1991). *Constructing an organizational field as a professional project: The case of U.S. art museums*. The New Institutionalism (supra).

36. Dubey, R., Altay, N., Gunasekaran, A., Blome, C., Papadopoulos, T. and Childe, S.J. (2018). Supply chain agility, adaptability and alignment: empirical evidence from the Indian auto components industry. *International Journal of Operations & Production Management*, 38(1), 129-148.
37. Dubey, R., Gunasekaran, A., Childe, S.J., Blome, C. and Papadopoulos, T. (2019). Big data and predictive analytics and manufacturing performance: integrating institutional theory, resource-based view and big data culture. *British Journal of Management*, 30(2), 341-361.
38. Dubey, R., Gunasekaran, A., Childe, S.J., Papadopoulos, T., Hazen, B.T. and Roubaud, D. (2018). Examining top management commitment to TQM diffusion using institutional and upper echelon theories. *International Journal of Production Research*, 56(8), 2988-3006.
39. Durão, N., Ferreira, M.J., Pereira, C.S. and Moreira, F. (2019). Current and future state of Portuguese organizations towards digital transformation. *Procedia Computer Science*, 164, 25-32.
40. Elia, S., Giuffrida, M., Mariani, M.M. and Bresciani, S. (2021). Resources and digital export: An RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research*, 132, 158-169.
41. Felipe, C.M., Roldán, J.L. and Leal-Rodríguez, A.L. (2017). Impact of organizational culture values on organizational agility. *Sustainability*, 9(12), 2354.
42. Fikri, M.A.A., Asbari, M., Hutagalung, D., Amri, L.H.A. and Novitasari, D. (2021). Quo Vadis Motivasi Intrinsik Pegawai: Peran Strategis Kepemimpinan Transformasional dan Kepuasan Kerja. *Edukatif: Jurnal Ilmu Pendidikan*, 3(6), 4025-4040.
43. Frankowska, M. and Rzczycki, A. (2020). *Reshaping Supply Chain Collaboration-The Role of Digital Leadership in a Networked Organization*. Paper presented at the Working Conference on Virtual Enterprises.
44. Frössling, C. and Ek, L. (2020). *Relating Integrative Capabilities and Institutional Logics to Digital Transformation A case-study of a public sector organization* (Master's thesis). Institutionen för tillämpad informationsteknologi
45. Ganguly, A., Nilchiani, R. and Farr, J.V. (2009). Evaluating agility in corporate enterprises. *International journal of production economics*, 118(2), 410-423.
46. Ghasemaghahi, M., Hassanein, K. and Turel, O. (2017). Increasing firm agility through the use of data analytics: The role of fit. *Decision Support Systems*, 101, 95-105.
47. Götz, M. (2019). The industry 4.0 induced agility and new skills in clusters. *Фopcaïm*, 13(2 (eng)), 72-83.
48. Greenwood, R. and Hinings, C.R. (1996). Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of management review*, 21(4), 1022-1054.
49. Greenwood, R., Oliver, C., Lawrence, T.B. and Meyer, R.E. (2017). *The Sage handbook of organizational institutionalism*: Sage.
50. Guarnieri, P. and Gomes, R.C. (2019). Can public procurement be strategic? A future agenda proposition. *Journal of Public Procurement*, 19(4), 295-321.

51. Gupta, S., Modgil, S., Gunasekaran, A. and Bag, S. (2020). Dynamic capabilities and institutional theories for Industry 4.0 and digital supply chain. *In Supply Chain Forum: An International Journal* 21(3), 139-157.
52. Hair Jr, J.F., Hult, G.T.M., Ringle, C. and Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage publications.
53. Hanelt, A., Bohnsack, R., Marz, D. and Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), 1159-1197.
54. Haq, S., Asbari, M., Novitasari, D. and Abadiyah, S. (2022). The Homeschooling Head Performance: How The Role of Transformational Leadership, Motivation, and Self-Efficacy? *International Journal of Social and Management Studies*, 3(1), 167-179.
55. Hauer, K.A., Kempen, G.I., Schwenk, M., Yardley, L., Beyer, N., Todd, C., Oster, P. and Zijlstra, G.R. (2011). Validity and sensitivity to change of the falls efficacy scales international to assess fear of falling in older adults with and without cognitive impairment. *Gerontology*, 57(5), pp.462-472.
56. Henriette, E., Feki, M. and Boughzala, I. (2016). *Digital Transformation Challenges*. Paper presented at the MCIS.
57. Hinings, B., Gegenhuber, T. and Greenwood, R. (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, 28(1), 52-61.
58. Hoda, R., Salleh, N., Grundy, J. and Tee, H.M. (2017). Systematic literature reviews in agile software development: A tertiary study. *Information and software technology*, 85, 60-70.
59. Hron, M. and Obwegeser, N. (2022). Why and how is Scrum being adapted in practice: A systematic review. *Journal of Systems and Software*, 183, 111110.
60. Irfan, M., Wang, M. and Akhtar, N. (2019). Impact of IT capabilities on supply chain capabilities and organizational agility: a dynamic capability view. *Operations Management Research*, 12(3), 113-128.
61. Jumiran, J., Novitasari, D., Nugroho, Y.A., Sutardi, D., Sasono, I. and Asbari, M. (2020). Pengaruh Dimensi Kepemimpinan Transformasional terhadap Kepuasan Kerja dan Komitmen Organisasional: Studi Kasus pada Dosen Perguruan Tinggi Swasta. *EduPsyCouns: Journal of Education, Psychology and Counseling*, 2(1), 600-621.
62. Kiggundu, M.N. (1981). Task interdependence and the theory of job design. *Academy of management Review*, 6(3), 499-508.
63. Larjovuori, R.L., Bordi, L., Mäkineniemi, J.P. and Heikkilä-Tammi, K. (2016). *The role of leadership and employee well-being in organizational digitalization*. 26th Annual RESER Conference, University of Naples Federico I,
64. Li, H., Wu, Y., Cao, D. and Wang, Y. (2021). Organizational mindfulness towards digital transformation as a prerequisite of information processing capability to achieve market agility. *Journal of Business Research*, 122, 700-712.
65. Lin, W.B. (2011). Factors affecting the effects of service recovery from an integrated point of view. *Total Quality Management*, 22(4), 443-459.
66. Lipsmeier, A., Kühn, A., Joppen, R. and Dumitrescu, R. (2020). Process for the development of a digital strategy. *Procedia CIRP*, 88, 173-178.

67. Liu, H., Ke, W., Wei, K.K., Gu, J. and Chen, H. (2010). The role of institutional pressures and organizational culture in the firm's intention to adopt internet-enabled supply chain management systems. *Journal of Operations Management*, 28(5), 372-384.
68. Masood, M. and Afsar, B. (2017). Transformational leadership and innovative work behavior among nursing staff. *Nursing inquiry*, 24(4), e12188.
69. Menon, S. and Suresh, M. (2020). Factors influencing organizational agility in higher education. *Benchmarking: An International Journal*, 28(1), 307-332.
70. Meyer, J.W. and Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology*, 83(2), 340-363.
71. Mihardjo, L.W., Sasmoko, and Rukmana, R.A. (2019). Customer experience and organizational agility driven business model innovation to shape sustainable development. *Polish Journal of Management Studies*, 20(1), 293-304.
72. Mikalef, P., Boura, M., Lekakos, G. and Krogstie, J. (2019). Big data analytics capabilities and innovation: the mediating role of dynamic capabilities and moderating effect of the environment. *British Journal of Management*, 30(2), 272-298.
73. Nadeak, M., Widodo, A., Asbari, M., Novitasari, D. and Purwanto, A. (2021). Understanding the Links between Coaching, OCB, and Individual Performance among MSME Employees. *International Journal of Social and Management Studies*, 2(4), 65-80.
74. Nekrasov, A. and Sinitsyna, A. (2019). *Complex digital model of transport logistic system transformation*. Paper presented at the International Conference on Reliability and Statistics in Transportation and Communication.
75. Novitasari, D., Asbari, M., Amri, L.H.A. and Hutagalung, D. (2021). Mengelola Komitmen Dosen: Analisis Peran Modal Psikologis dan Leaders Coaching. *Value: Jurnal Manajemen Dan Akuntansi*, 16(1), 198-213.
76. Park, S. and Cho, K. (2022). Agility and Innovativeness: The Serial Mediating Role of Helping Behavior and Knowledge Sharing and Moderating Role of Customer Orientation. *Behavioral Sciences*, 12(8), 274.
77. Parsons, T. (1956). Suggestions for a Sociological Approach to the Theory of Organizations-I. *Administrative science quarterly*, 63-85.
78. Patel, B.S. and Sambasivan, M. (2022). A systematic review of the literature on supply chain agility. *Management Research Review*, 45(2), 236-260.
79. Penner, L.A., Dovidio, J.F., Piliavin, J.A. and Schroeder, D.A. (2005). Prosocial behavior: Multilevel perspectives. *Annu. Rev. Psychol.*, 56, 365-392.
80. Porfírio, J.A., Carrilho, T., Felício, J.A. and Jardim, J. (2021). Leadership characteristics and digital transformation. *Journal of Business Research*, 124, 610-619.
81. Raeisi, N. and Amirnejad, Q. (2017). Investigating the Effect of Organizational Leadership on Organizational Agility: Mediating Role of Organizational Commitment. *International Journal of Economic Perspectives*, 11(1), 1154-1168.
82. Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *The Journal of Strategic Information Systems*, 27(1), 22-42.
83. Rieckhoff, K. and Maxwell, J. (2017). *Organizational agility in the public sector: How to be agile beyond times of crisis*. McKinsey & Company.

84. Ringle, C., Wende, S. and Will, A. (2005). Smart-PLS Version 2.0 M3. *University of Hamburg*.
85. Ringle, C.M., Sarstedt, M. and Straub, D.W. (2012). Editor's comments: a critical look at the use of PLS-SEM in "MIS Quarterly". *MIS quarterly*, 36(1), 3-14.
86. Ringle, C.M., Wende, S. and Will, A. (2005). Smart pls 2.0 m3, university of hamburg. eds.): *Book Smart Pls*, 2, M3.
87. Sainger, G. (2018). Leadership in digital age: A study on the role of leader in this era of digital transformation. *International Journal on Leadership*, 6(1), 1-6.
88. Sanatigar, H., Hadi Peikani, M. and Gholamzadeh, D. (2017). Identifying organizational agility and leadership dimensions using Delphi technique and factor analysis: an investigation among public sector pension funds (PSPFs) in Iran. *International Journal of Public Leadership*, 13(4), 276-294.
89. Schwertner, K. (2017). Digital transformation of business. *Trakia Journal of Sciences*, 15(1), 388-393.
90. Scott, S.G. and Bruce, R.A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of management journal*, 37(3), 580-607.
91. Scott, W.R. (1995). *Institutions and organizations* (Vol. 2): Sage Thousand Oaks, CA.
92. Scott, W.R. (2013). *Institutions and organizations: Ideas, interests, and identities*: Sage publications.
93. Seepma, A.P., de Blok, C. and Van Donk, D.P. (2021). Designing digital public service supply chains: four country-based cases in criminal justice. *Supply Chain Management: An International Journal*, 26(3), 418-446.
94. Shams, R., Vrontis, D., Belyaeva, Z., Ferraris, A. and Czinkota, M.R. (2021). Strategic agility in international business: A conceptual framework for "agile" multinationals. *Journal of International Management*, 27(1), 100737.
95. Stefanova, K. and Kabakchieva, D. (2019). Challenges and perspectives of digital transformation. In *Conferences of the Department of Informatics. Science and Economics Varna* (pp. 13-23).
96. Suddaby, R., Elsbach, K.D., Greenwood, R., Meyer, J.W. and Zilber, T.B. (2010). Organizations and their institutional environments-Bringing meaning, values, and culture back in: Introduction to the special research forum. *Academy of Management Journal*, 53(6), 1234-1240.
97. Suddaby, R., Seidl, D. and Lê, J.K. (2013). *Strategy-as-practice meets neo-institutional theory*. In (Vol. 11, pp. 329-344): Sage Publications Sage UK: London, England.
98. Suroso, S., Riyanto, R., Novitasari, D., Sasono, I. and Asbari, M. (2021). Esensi Modal Psikologis Dosen: Rahasia Kreativitas dan Inovasi di Era Education 4.0. *Edumaspul: Jurnal Pendidikan*, 5(1), 437-450.
99. Swift, M. and Lange, D. (2018). Digital leadership in Asia-Pacific. *Korn Ferry*.
100. Tan, F.T.C., Tan, B., Wang, W. and Sedera, D. (2017). IT-enabled operational agility: An interdependencies perspective. *Information & Management*, 54(3), 292-303.
101. Teece, D., Peteraf, M. and Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), 13-35.

102. Teichert, R. (2019). Digital transformation maturity: A systematic review of literature. *Acta universitatis agriculturae et silviculturae mendelianae brunensis*, 67(149), 1673-1687.
103. Tiara, B., Stefanny, V., Sukriyah, S., Novitasari, D. and Asbari, M. (2021). Inovasi di Era Informasi: Analisis Kepemimpinan Transformasional dan Iklim Etis di Industri Manufaktur. *Edukatif: Jurnal Ilmu Pendidikan*, 3(6), 4659-4670.
104. Tina Dacin, M., Goodstein, J. and Richard Scott, W. (2002). Institutional theory and institutional change: Introduction to the special research forum. *Academy of management journal*, 45(1), 45-56.
105. Troise, C., Corvello, V., Ghobadian, A. and O'Regan, N. (2022). How can SMEs successfully navigate VUCA environment: The role of agility in the digital transformation era. *Technological Forecasting and Social Change*, 174, 121227.
106. Veisheh, S. and Eghbali, N. (2014). A study on ranking the effects of transformational leadership style on organizational agility and mediating role of organizational creativity. *Management Science Letters*, 4(9), 2121-2128.
107. Verhoef, P.C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J.Q., Fabian, N. and Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889-901.
108. Vial, G. (2021). Understanding digital transformation: A review and a research agenda. *Managing Digital Transformation*, 13-66.
109. Walsh, J.P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization science*, 6(3), 280-321.
110. Weritz, P., Braojos, J. and Matute, J. (2020). Exploring the antecedents of digital transformation: Dynamic capabilities and digital culture aspects to achieve digital maturity. *AMCIS 2020 Proceedings*, 22, 1-10. https://aisel.aisnet.org/amcis2020/org_transformation_is/org_transformation_is/22
111. Wessel, L., Baiyere, A., Ologeanu-Taddei, R., Cha, J. and Blegind-Jensen, T. (2021). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for Information Systems*, 22(1), 102-129.
112. Žitkienė, R. and Deksnys, M. (2018). Organizational agility conceptual model. *Montenegrin Journal of Economics*, 14(2), 115-129.
113. Zoppelletto, A., Orlandi, L.B., Zardini, A. and Rossignoli, C. (2020). Assessing the role of knowledge management to enhance or prevent digital transformation in SMEs: Critical knowledge factors required. *IEEE International Conference on Technology Management, Operations and Decisions (ICTMOD)*.