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DIGITAL LEADERSHIP UNLEASHED: HARNESSING ORGANIZATIONAL AGILITY FOR TRANSFORMATION SUCCESS

Arslan Arshad[1], Shah Kazim Ali Latif[2], Maimoona Gul Kakakhel[*3], Shakeel Adnan[4]

[1,2,*3,4]*Lecturer Alhamd Islamic University Islamabad*

[1]Khanarslan8523@gmail.com; [2]kazimtrimzy@gmail.com; [*3]Maimoonagul4@gmail.com; [4]Shakeel644@gmail.com

Corresponding Author: *

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ABSTRACT

Digital leadership is critical for firms looking to achieve successful digital transformation in today's fast changing digital landscape. The impact of digital leadership on digital transformation initiatives is examined in this study, with a focus on the mediating function of organizational agility. The study uses a quantitative approach to examine the correlations between digital transformation outcomes, organizational agility, and digital leadership, based on a sample of IT sector firms. According to the research, digital leadership has a big impact on how far an organization is along its digital transformation journey. Additionally, organizational agility is seen as a critical intermediary that helps companies execute digital strategy and quickly adjust to shifting market needs. By presenting empirical evidence of the relationships between digital leadership, agility, and transformation, this study adds to the body of literature by emphasizing the fact that organizational culture and leadership styles are just as important to successful digital transformation as technology adoption. The ramifications for practitioners highlight how important it is for businesses to have an agile culture and develop digital leadership competencies in order to successfully manage the complexity of digital transformation. Through this approach, companies can bolster their edge over rivals and guarantee steady expansion in an ever-digitalizing market. Subsequent study avenues are suggested to delve deeper into the subtleties of these connections in various businesses and cultural settings.

INTRODUCTION

The industrial economy's foundations have shifted in the age of the digital economy due to the impact of digital technologies including social media, big data, cloud computing, artificial intelligence, and the Internet of Things (Yoo et al., 2010). Through digital transformation (DT), both established and emerging industries seek to provide their businesses with long-term competitive advantages (Porfirio et al., 2021. DT refers to the use of cutting-edge digital technology to enable significant corporate expansion for the purpose of improving customer experience, streamlining operational tasks, or creating original business models (Warner and Waeger, 2019). In reality, businesses (like Google, Facebook, and Alibaba) have recognized and taken use of the chances presented by digitalization, which allows businesses to expand quickly. However, other businesses consider the idea to be entirely novel. Data from a 2019 Harvard Business Review survey indicates that 70% of DT projects fell short of the projected outcomes, with losses reaching up to $900 billion (Tabrizi et al., 2019).

Even while recent research highlights the critical role that DL plays in DT, there are still a number of limitations. First, while the concept of digital leadership is put forth in the existing work, a consensus on how to quantify it has not yet been reached. Only the requirements for leaders' attitudes and abilities under the influence of information and communication technologies (ICT) are covered by electronic leadership, or E-leadership, which is strongly related to digital literacy (DL) (Roman et al., 2019. Second, the relationship between DL and DT is not pragmatically examined in current studies.

In the context of the digital economy, some scholars have examined the critical role that leadership plays in the DT of enterprises using methods like review and induction, fsQCA, and case studies (Vial, 2019; Porfirio et al., 2021).Examples of this include the chief digital officer's coordination and communication, which are essential to the DT modus operandi (Vial, 2019); leaders' managerial cognition renewal can spur the development of DT (Li et al., 2018), and so forth. Nevertheless, none of these investigations quantify DT or employ further empirical research techniques to support the association between DL and DT.

The goal of the current study is to compare the analysis with the literature, test digital leadership in the field to see if it possesses the qualities listed in the literature, and provide evidence for a cumulative viewpoint. In this regard, the study is significant since it allows one to quickly determine whether the change mentioned in the literature has actually taken place in a manufacturing company. Despite the fact that prior research (Qi Yao and Hongjuan Tang, 2023) usually found a correlation between digital transformation and digital leadership. Although the outcome is consistent with earlier research in the literature, it differs in that it offers a fresh viewpoint. This study developed a theoretical framework of "DL-OA -DT" based on the viewpoint of organizational identification theory in order to close the aforementioned research gap.

Theory And Hypothesis Development:

Organizational Identification Theory:

Organizational identity theory is the source of organizational identification. It highlights how corporate ideals and individual values align, or how people perceive the relationship between diversity, DL, DSC, and DT inside the organization as oneness or belongingness (Ashforth and Mael, 1989). Furthermore, it refers to the process by which workers voluntarily integrate particular organizational membership traits into their conception of who they are (Riketta, 2005). From the viewpoint of the individual worker, organizational identification blurs the line between an individual's identity and that of the organization by allowing people to become deeply ingrained in it and actively support its mission, vision, values, and objectives. From an organizational standpoint, the company values its employees, which encourages them to exhibit behaviors and attitudes that benefit the entire company as opposed to individuals acting in their own self-interest.

An insightful perspective for comprehending organizational agility's mediation function in the interaction between digital transformation and digital leadership is offered by Organizational Identification Theory (OIT). The extent to which workers identify with the principles, objectives, and character of their company is known as organizational identification. Using this model, OIT may clarify how a strong sense of brand loyalty among employees contributes to their increased agility preparedness, which in turn helps with digital transformation. Regarding the antecedents of organizational identity, academics contend that stronger effects on organizational identification can be achieved through leaders' support and a positive organizational atmosphere. According to He et al. (2017), leaders who express their appreciation and recognition of their workability to their staff members can provide them with the information they require from the company and ultimately enhance their sense of identity within the company by satisfying their "sense of respect" and "sense of status." Employee behavior is also impacted by the group's value orientation, and through social comparison and contagion effects, an individual's efforts within the organization may have an impact on the behavior of their peers (Barrick et al., 2014; Leicht-Deobald et al., 2021).

Digital leadership and digital transformation

There isn't presently agreement among academics on what constitutes deep learning, based on the existing study. In a similar vein, Sawy et al. (2016) defined design thinking (DL) using LEGO as a research object, however they did not specify which features of DL should be portrayed. Because of this, electronic leadership—which has a history very similar to that of digital technology—is taken into consideration in this study. According to Avolio et al. (2014), e-leadership refers to a set of ICT-mediated social impacts wherein leaders modify the beliefs, feelings, behavior, conduct, and attitudes of individuals, groups, and organizations. According to Roman et al. (2019), this process depends on leaders

having the ability to motivate and manage change, build and maintain accountable teams, articulate ICT-related knowledge, establish trust in virtual environments, and communicate clearly and appropriately.

We describe digital leadership (DL) in light of their research as the social impact process in which leaders cause fluctuations in the attitudes, emotions, philosophy, manners, and performance of people, assemblages, and organizations toward digital tactics. The method entails five abilities that leaders ought to possess: digital trust cultivation, digital communication and coordination, digital technology expertise specification, digital team setup and maintenance, and digital motivation and management change. A company's DT is significantly impacted by effective DL. Accordingly, this research claims that DL can encourage the DT's success.

Lastly, a culture of digital trust reinforces the need for DT in addition to technology and teams. In fact, as digital technologies have become more widely used, new types of collaboration have evolved, such as online communities and virtual teams, where team members can be found both inside and outside of the business. Digital leaders may improve their teams' trust and members' sense of belonging by fostering an environment of honesty, justice, and consistency within the organization (Roman et al., 2019). According to Cortellazzo et al. (2019) and Lakshman and Rai (2021), this will encourage the open flow of information both inside and outside the company and inspire the ongoing production of innovative ideas. This is favorable for investigating new business models or refining the organization's operational procedures. Thus, in light of the talks above, this analysis concludes that:

H1: Digital leadership has positive impact on digital transformation

Digital leadership and organizational agility

In an increasingly digital environment, businesses and sectors must deal with a variety of challenges, such as evolving customer behavior, more volatile markets, and new developments in information technology (IT). Because of the changing digital environment, businesses and sectors are putting a lot of effort into becoming adaptable so they can react to changes in digital innovation and transformation (Lee, 2019). Unlike traditional plan-based approaches that need extensive documentation and careful pre-planning, the agile development technique is an iterative development approach that puts the demands of the customer, rapid deployment, and responsiveness to change first. (Hess & Fuchs, 2018) conducted two in-depth case studies, created a quick transformation process for big businesses, and provided managerial guidance.

(Olteanu, 2018) provided a case study on the problem of knowledge management and the transformation process for IT agile adaptation as the organization transforms. Agile is a great management strategy for dealing with problems like sudden changes in the company and unpredictability. Apart from being employed by enterprises outside the software and IT domains, the agile methodology is also gaining traction beyond its present applications, which comprise software development (SD) and IT-associated undertakings. Additionally, we delineate three principles of organizational agility: First, it offers value to clients rather than following project constraints (time, money, and scope). Secondly, lead teams rather than managing tasks. Third, aggressively adjust to changes rather than passively following project plans. As market demands change, digital leaders may quickly develop and adapt products and services. Through the analysis of customer patterns and desires utilizing data (Frankowska & Rzeczycki, 2020). Utilize notions of agility to manage emergencies and quickly adapt to changing conditions. The Fourth Industrial Revolution is well under way, and as we move into the early 2020s, we need to understand where the agile idea introduction fits into the new digital transformation framework.

It is clarified that agile companies have a clear vision and a common goal that are shared by all members of the company. De Smet, Lurie, and St George (2018) state that this "north star" encourages staff members to always consider how they can provide value and pushes them to consider how they may work as a team and as individuals to have a greater impact. Agile companies are committed to serving a wide range of stakeholders, such as partners, investors, staff members, and broader communities. According to De Smet et al. (2018), they are also very value-driven and customer-oriented. Agile firms are better able to react to opportunities and

challenges due to the strong organizational drive created by the shared vision.
H2: Digital leadership has positive impact on organizational agility

Organizational Agility And Digital Transformation

According to INT, an organizational structure's (re)formation is greatly influenced by its institutional context. Scott (1995) asserts that considerations regarding legitimacy as well as cultural and socioeconomic factors may influence judgments. Accordingly, organizational influence can be used to understand DT (Dubey et al., 2018). Instead of internal causes, a firm is more likely to implement DT as a result of external influences like competitors, customers, or governments (Bresciani et al., 2021). Furthermore, an organization may adopt DT due to a variety of pressures, such as normative, coercive, and mimetic. But for DT to work, organizational change is necessary, and inadequate adaptation could lead to bottlenecks (Teichert, 2019). As a result, in order for enterprises to become more agile, their processes, structures, and management must alter.

Agility is the capacity to swiftly and economically adapt to changing demands and external variables without sacrificing the quality of a product or service. Organizations must rearrange their organizational structures in response to shifting surroundings in order to accommodate new procedures and resources (Darvishmotevali et al., 2020).According to Žitkienė and Deksnys (2018), another definition of organizational agility is the capacity to assess and react to unforeseen changes in the external environment effectively and efficiently, utilizing internal resources and reconfiguring them appropriately to obtain a competitive advantage. From the perspective of NIT, agility can be viewed as a notion containing cognitive components. In particular, agile institutions should place a high priority on representing, employing, and expanding knowledgestructures as they work to fulfill value commitments and adapt to changing conditions.

Additionally, the idea was expanded to encompass implementing information and communication technology by Menon and Suresh (2021). Eight potential factors were identified as having the potential to influence organizational agility: (1) environmental sensing capabilities; (2) organizational structure; (3) adoption of ICT; (4) practices related to human resources; (5) organizational learning; (6) leadership; (7) adaptation; and (8) stakeholder engagement. The development of new occupational profles results in increased organizational agility and flexibility in addition to the OA associated with DT (Del Giudice et al., 2018)

H3: Organizational agility has positive impact on digital transformation

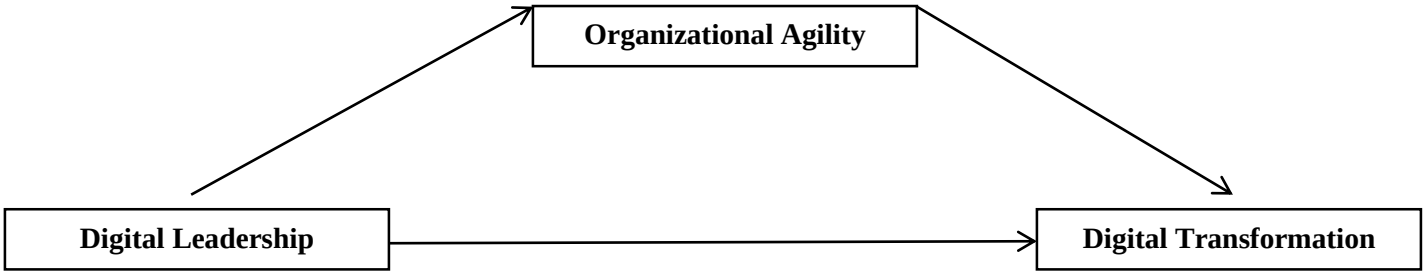
Mediating Role of Organizational Agility:

Organizations are constantly under pressure to innovate and adjust to the quick changes in technology in the fast-paced commercial world of today. The key component of this adaption is digital transformation (DT), which is the deliberate incorporation of digital technologies into all business domains to radically alter how companies function and provide value, to clients (Vial, 2021). El Sawy et al. (2016) define digital leadership as the capacity of leaders to comprehend and use digital technologies to change business models and organizational procedures. These executives successfully manage change, foster an innovative culture, and support digital tool experimentation. According to Warner & Wäger (2019), leaders are in charge of establishing a vision and cultivating an atmosphere that encourages digital innovation, which makes them essential in propelling an organization's digital transformation.

Digital transformation and digital leadership do not directly correlate. According to recent studies, organizational agility mediates the relationship between successful digital transformation and digital leadership (Warner & Wäger, 2019). Transformation programs are more likely to yield favorable results when digital leaders foster organizational adaptability. The organization can effectively implement the vision of the digital leader thanks to agility's role as an enabler. According to empirical research, agile businesses are more capable of experimenting, learning, and scaling innovations—all of which are essential for a digital transformation to be successful (Teece et al., 2016).

H4: Organizational agility mediates the relationship between digital leadership and digital transformation

Figure 1: Research Model



Methodology:
Utilizing a survey-based research methodology, the proposed model was examined. IT-based organizations were chosen for the study. Leading software companies in Islamabad and Rawalpindi were the focus of the data collecting. Remember that despite all of its difficulties, Pakistan's fast-growing IT sector makes a substantial economic contribution. A hundred IT specialists are available for hire. In addition to using the probability sampling technique, a basic random sample technique was also used to evaluate the intended respondents. In order to ensure that each respondent had an equal probability of being selected for the study, HR departments from various IT businesses were consulted (Kirchherr & Charles, 2018). The criteria set out by Um e Sekran (2016) and Krejice and Morgan (1970) were adhered to in order to determine an appropriate sample size. Therefore, 384 was chosen as the study's final sample size. A total of 271 valid answers to the 384 surveys that were initially distributed were returned, yielding an effective response rate of 70%. about the data gathering process, mid-level managers and staff members received briefings about the nature and goals of the study as well as assurances about confidentiality. The majority of the data was gathered independently.

Measures:
The measurements employed in this study were customized; each scale's specifications are provided below.

Digital Leadership:
The digital leadership was measured using a 9-item scale created by (BUY¨ UKBES§E, T., D ¨ ˙IKBAS¸, T., KLE˙IN, M., & UNL ¨ U, S. B, 2022). "My leader has the ability to build and coordinate teams quickly" is the example item. The Likert scale has five points: 1 for severely disagree, 2 for disagree, 3 for neutral, 4 for agree, and 5 for strongly agree.

Digital Transformation:
DT is a measure of an organization's level of digital development.
We ultimately determined four DT assessment items based on the opinions of Warner and Waeger (2019), Aral and Weill (2007), and Galindo-Mart□n et al. (2019), as well as the research foundation of the current scholarship: (1) Using digital technologies like big data, cloud computing, the Internet of things, artificial intelligence, etc., our company has significantly improved its production and operation processes over the last three years; (2) by acquiring or utilizing big data, cloud computing services, emails, electronic software, social platforms, etc., our company has significantly improved the exchange and management of business information over the last three years.

Organizational Agility:
The Organizational Agility scale, which consists of 17 items in the 5-point Likert format and is four-dimensional, was created by Sharifi and Zhang in 1999. Akkaya and Tabak (2018) translated the scale into Turkish.

Results:
The scales were validated using validity and reliability. The Cornbrash's alpha reliability requirements were determined to be adequate for each study variable. Amos 22 software was utilized to assess the convergent validity of the assessment

items through confirmatory factor analysis (CFA). The findings of the measurement model (see table 1) demonstrated that the study's data had excellent fit statistics, including CMIN/DF 2.2. The Tucker Lewis Index (TLI) was equal to 0.88, while the Comparative Fit Index (CFI) was 0.90. The index of relative fit (IFI) is.92. So we took action to test our hypothesis.

Table No: 1 Measurement Model

Models	CMIN/DF	CFI	TLI	IFI
3 Factor Model	**2.2**	**.90**	**.88**	**.92**

Descriptive and demographic statistics

As per the demographic analysis, there were 30.6% female participants and 69.4% male participants in the study. 53.6% of the workforce was between the ages of 20 and 30, 37.0% was between the ages of 31 and 40, and 9.4% was between the ages of 41 and 50. Workers with less than a year's experience made up 23.2%, followed by those with two to five years' experience (43.6%), those with five to ten years' experience (287.7%), and those with ten years or more of experience (4.4%). 1.7% of the workforce held an intermediate degree, 44.8% a bachelor's degree, 43.6% a master's degree, 8.3% an MS/MPHIL degree, and 1.7% held a different degree.

Table No: 2 Mean, SD,Corelation and Reliability Analysis

Variables	Mean	SD	1	2	3
Digital Leadership	**3.7**	**.62**	**(.76)**		
Digital Transformation	**3.6**	**.68**	**.46****	**(.80)**	
Organizational Agility	**4.1**	**.39**	**.23****	**.47****	**(.71)**

The mean, standard deviation, and correlation for every variable are shown in Table 2. The digital leadership has a mean value of 3.7 and a standard deviation of.62. The digital transformation has a standard deviation of.68 and a mean value of 3.6. Agility of the organization with a mean score of 4.1 and SD of.39, respectively. The examination of correlation coefficients reveals a positive association between the variables. For instance, the relationship between digital transformation and leadership is 0.46**, $p < 0.01$, while the relationship between organizational agility and leadership is 0.23**, $p < 0.01$, respectively. Digital transformation and organizational agility have a 0.47**, $p < 0.01$ correlation, respectively. These numbers show that there is a substantial correlation between the variables under study. The variables' reliabilities are also displayed in Table 2. The investigation's construct has an alpha value of fellow. Organizational agility is.71,digital transformation is.80, and digital leadership is.76. These results show that there was no misunderstanding and that respondents understood the scales well.

Statistical Path Analysis:

Table 3 displays the regression analysis's outcome. The outcomes were examined by keeping in view Preacher and Hayes (2013) and Model 4 was used. According to the direct effect result, digital leadership positively affects digital transformation (b=0.41, P<0.01), supporting hypothesis H1. According to H2, digital leadership positively affects organizational agility (b=0.15, P<0.01). Digital transformation is positively impacted by organizational agility (b=0.66, P<0.01), fulfilling H3. The relationship between digital transformation and digital leadership is mediated by organizational agility. The acceptance of the hypothesis is indicated by the β value of.10 and a 0.00 p-value. Consequently, H4 was approved.

Table No: 03

Direct Effect	**B**	**S.E**	**P**	**LLCI**	**ULCI**
DL⟶ DT	.41	.06	0.00	.28	.55
DL⟶OA	.15	.04	0.00	.05	.24
OA⟶DT	.66	.10	0.00	.45	.88
Indirect Effect	**B**	**S.E**		**LLCI**	**ULCI**
DL⟶OA ⟶DT	.10	.05		.02	.23

Discussions:

The crucial significance that digital leadership plays in directing efforts toward digital transformation is reaffirmed by this study. Ahmad and Bakar's (2023) recent study suggests that executives that place a high priority on digital initiatives are more likely to cultivate an innovative and technologically adoptive business culture. These leaders have an advantage in quickly changing marketplaces because they are more suited to apply cutting-edge technologies. Furthermore, Jain et al. (2023) emphasize that the development of the strategic vision and the efficient use of resources are contingent upon digital leadership. Strategic alignment strengthens the direct impact of digital leadership on organizational agility. By ensuring that the organization's strategy is in line with its agility goals, digital leaders enable their companies to quickly adapt to changes in the competitive landscape or new technological trends. According to Kumar and Mehta (2024), leaders that proactively coordinate agility activities with digital transformation objectives have a strong basis for ongoing innovation and flexibility.Digital leaders make ensuring that teams are proactive in anticipating future disruptions and are not only reactive to change by integrating agility into the organization's strategy framework. This proactive strategy is essential for keeping up a competitive advantage in the fast-paced digital world of today.

The direct link between organizational agility and digital transformation was the subject of the third hypothesis (H3). The study attests to the fact that agility is a critical component that facilitates digital transformation. The ability of agile firms to swiftly and effectively adjust to novel technology, procedures, and market demands is crucial for the triumph of digital transformation endeavors. Zhang and Yu (2024) discovered comparable results, suggesting that organizational agility directly enhances an organization's ability to implement digital strategies.

The study also emphasizes how organizational agility, a byproduct of digital leadership, influences digital transformation indirectly (H4). This mediating effect implies that although organizational agility greatly increases the impact of digital leadership, digital leadership still directly influences change. Agility, as defined by Zhu et al. (2023), enables businesses to quickly adjust to technological advancements, guaranteeing that the leadership's digital vision is carried out more successfully.

Practical Implications:

Organizations should make an investment in the development of digital leadership abilities by sponsoring training courses that emphasize utilizing technology, encouraging creativity, and helping leaders adopt a digital perspective. Establishing flexible structures and procedures that promote quick change adaptation can help businesses develop an organizational agility culture and respond more quickly to technological changes and market needs. Businesses must make sure that their digital transformation plans complement the skills of their executives. This alignment can facilitate the development of a cohesive strategy for navigating digital projects and accomplishing goals.

Digital leaders should promote a team-oriented atmosphere that rewards creativity and information exchange. Establishing cross-functional teams and encouraging open lines of communication will help achieve this. Metrics should be established by organizations to evaluate the efficacy of their agility techniques and track how digital leadership affects transformation initiatives. This will guarantee ongoing improvement and aid in strategy adjustment.

Limitations and Future Directions:

The study might not be applicable to all sectors due to the particular organizational contexts or industries sampled. The outcomes may range dramatically depending on the industry or size of the firm. A cross-sectional design may prevent the research from accurately capturing the dynamic and ever-changing character of digital leadership and transformation. More information on these changes may be obtained through longitudinal research.

Future research should take into account other potential mediators or moderators (e.g., corporate culture, employee engagement) as they may also have an impact on the relationship, even though concentrating on digital leadership and agility is important. Deeper insights into the instruments enabling successful transformation may be obtained by looking into the particular technologies (such as artificial intelligence, big data, and cloud computing) that support digital leadership and organizational agility. Employee viewpoints on organizational agility and digital leadership could improve knowledge of the efficacy of agility techniques and leadership philosophies, offering a more comprehensive picture of the transformation process. Future studies should look at how digital leadership and agility are integrated with change management frameworks, and how change management procedures help or hurt efforts at digital transformation.

Conclusion:

This study emphasizes the crucial role that digital leadership and organizational agility play in facilitating effective transformation projects in an era where digital transformation is not only an option but a requirement for organizational survival and competitiveness. The results show that firms' ability to successfully traverse the complexity of the digital landscape is greatly influenced by digital leadership. More significantly, organizational agility shows up as a crucial moderator that makes it easier to execute digital transformation plans successfully. By emphasizing that digital transformation necessitates a fundamental change in organizational attitudes and leadership methods, rather than just the adoption of new technologies, this research adds to the body of knowledge already in existence. The report highlights the significance of producing digital leaders who can stimulate creativity, encourage teamwork, and establish a flexible culture that welcomes change.

Even if the results are insightful for both academics and practitioners, recognizing the study's limitations creates opportunities for more research. Extending the range to encompass heterogeneous industries and cultural settings, along with investigating supplementary intermediaries, would enhance our comprehension of this intricate phenomenon. In the end, companies have to understand that adopting digital leadership and agility is critical for long-term growth and resilience in the face of ongoing digital disruption, in addition to successful transformation. Hence, leaders who want to succeed in the digital era should place a high priority on developing their digital leadership skills and creating an agile corporate culture.

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