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NAVIGATING DIGITAL TRANSFORMATION: THE IMPACT OF EMPLOYEE ENGAGEMENT AND CHANGE READINESS

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ABSTRACT

Purpose: This research focuses on the role of digital leadership in digital transformation of the healthcare sector of Punjab in Pakistan, which is a representative of emerging markets with growing digitalization. It also analyses the mediation effects of employee's engagement and moderation impact of change readiness.

Design/Methodology: This research paper used a deductive research approach and quantitative research method. Descriptive cross-sectional study was carried out with 352 employees from different large hospitals of Punjab, Pakistan, using convenience-sampling technique. Validity and reliability of the collected data was tested with the help of 'SPSS' to check the hypothesized relationship.

Findings: The findings show that digital leadership has a positive impact on both employee's engagement and digital transformation. Furthermore, it is possible to establish that employee engagement is actually the variable that mediates the connection between digital leadership and digital transformation, and change readiness actually plays the role of a moderator in that relation, which is why it is so important for developing digital transformation.

Originality: The present research aims to fill the existing literature gap by analyzes the public health sector organization in Punjab, Pakistan, and uses the UTAUT model to test the role of engagement as mediator. It adds fresh theoretical and empirical perspectives to the understanding of digital leadership as a catalyst for change in contexts of limited resources.

Keywords: Digital Leadership, Digital Transformation, Employee Engagement, Change Readiness, Healthcare Sector.

Paper type: Research Paper

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INTRODUCTION

The population of the Pakistan is growing very fast and still the health and the facilities are not enough (WHO, 2020). Some of these challenges are characterized by the absence of needs such as funding, medical equipment and a well-qualified human resource. In addressing these challenges, there has been the need to develop the health care system by proffering acceptable and practical means of delivering healthcare. Telemedicine and EHR that are a part of the concept of a digital transformation have the following viable solutions. AI and data analysis tools can lead to better health care results, overall procedural efficiency, increased care delivery quality and service availability. However, that transformation is not a technical change, but a question of culture alteration that engages everyone in the organization starting with the manager's right down to lower level employees (Kotter & Cohen, 2012).

As a theoretical framework of this quantitative research, three critical factors are identified as determinants of digital transformation: digital leadership, employee engagement, and organizational change readiness. Digital leadership entails the chairperson and CEO with digital literacy for planning an organization for digital business transformation (Gartner, 2021). Although several prior research have established that the evaluation of digital leadership is essential, the application of how the analysis of it can be achieved in developing countries particularly Pakistan has limited emphasis. (Noorani et al., 2023). This research therefore aims at addressing this research question: How does digital leadership impact / intents to support advancement in Digital era on the engagement of the employees working in Healthcare settings in Pakistan? Organizational performance requires employees' involvement and can be described as a condition in which the employee is willing, motivated, and metabolically activated (Schaufeli & Bakker, 2004). Further, this research also analyses the moderating role of change readiness between digital leadership and favorable digital transformation in Pakistani healthcare organizations and mediated by employee engagement. The implications of this research will be useful to healthcare employees, specially boosting decision and policy makers and managers on how they might profit from digitization in improving the organizational performance for the advantages of the patients.

Of particular interest is the scant knowledge that exists on the facets and application of digital leadership as a source of organizational performance (Magesa et al., 2020). The current research seeks to appreciate how digital

leaders support the change process in the context of the Pakistan healthcare System. Employee engagement is determined to set up the level of effort towards digital transformation effort antecedent. It might be useful to pay extra attention to the fact that the middle managers are appropriating the digital leadership towards work culture at the time of digitalization (Li et al., 2024). Similarly, communication technology including social media also enhance the involvement of employees in corollary in the Pakistani context (Rasheed et al., 2021).

Nevertheless, most of the related literature goes narrowly to the developed countries of the world while today their counterparts in the developing countries are also paying much attention to the digital transformations (Noorani et al., 2023). Meager attention has been given to these prospective and challenges regarding the developing states like Pakistan and more particularly in terms of health care (Shah et al., 2024). This research addresses these gaps by positing change readiness into the conceptual model, and by offering suggestions for the effective enactment of digital transformation for policymakers and managers of organizations.

This research has much to contribute to current literature and aims to do so here by presenting scores on digital leadership, employee engagement, and organizational change readiness from a proposed theoretical framework for the Pakistani healthcare sector. Drawing from Hanelt et al., (2020) and Armenakis & Harris (2009), considering other views from the UTAUT in theoretical and practical suggestions sub-sections. The result therefore highlights the need to adopt leadership in this digital age as a necessity to organizational performance as posited by Avolio & Gardner (2005) Among the study's contributions therefore is the confirmation of engagement as a determinant of performance echoing the work established. (Saks, 2006). Objectives of this research are: (1) To examine the influence of digital leadership on digital transformation in healthcare organizations. (2) To investigate the role of Digital leadership on employees engagement within Pakistani health care sector. (3) To evaluate the impact of employee engagement on digital transformation initiatives in the Pakistani healthcare sector. (4) To assess the mediating role of employee engagement between digital leadership and digital transformation. (5) To investigate the moderating role of change readiness in the relationship between employee engagement and digital transformation outcomes.

Literature Review and Hypothesis Development

Digital Leadership and Digital Transformation

It is acknowledged that the direction of change in the modern healthcare setting requires strong leadership, which can allow an organization to meet the challenges arising from integration of technology into practice. Healthcare executives must envision and manage digital change that is not only a matter of technology but also of culture in their organizations (Schneider & Kokshagina, 2021). Digital leadership as a concept has then come into play in managing these challenges. Wright, Irwin, and DeNisi (2020) define digital leadership as the capacity organization displaying the necessary leadership and expertise to plan, coordinate and implement an all-encompassing digital agenda equipped for the modern day technological environment. This form of leadership involves scanning for new technologies, creating innovation and building a workforce compatible with the digital age (Cortellazzo et al., 2019). Currently, digital leadership solves a crucial problem associated with the optimization of decision-making and the improvement of organizational efficiency. Appropriate implementation of digital technology allows healthcare executives to improve the biomedical delivery system, the execution of organizational processes, and consequently, patients' outcomes (Cortellazzo et al., 2019). Digital leadership is only possible when leaders are digitally competent and aware of opportunities and threats given by technologies, and most importantly, they guarantee that technology implementation in their organizations is appropriate (Hensellek, 2020). However, more importantly, digital leadership is more than just 'going technologies' but embracing change with an organizational culture focus on diCesaris2019 for cultivating and retaining competitive advantages in digital environments. A digitally perceptive leader ensures that technology is accepted, and employees are made to change to the new technology hence making the organization is ready for change (Hensellek, 2020).

As Khoumbati et al. (2018) noted when discussing Pakistan, digital health can be seen as something essential for the solution of healthcare issues in the country due to its relative scarcity and undersupply of healthcare services. However, according to this study, there are concerns on low digital literacy among some employees, inadequate digital equipment, and low internet connectivity which are all key barriers to adoption of digital technologies in healthcare. Due to these challenges, there is a strong need for viable and assertive digital leadership (Ittefaq & Iqbal, 2018). About the role of digital leaders Cortellazzo et al, (2019) established that, digital leaders in healthcare organizations are central to deploying information technology (IT) purposefully for enhancing the quality of healthcare delivery, the outcomes

of healthcare and the administrative functions. Further, it is impossible to overemphasize the importance of communication in the overall topics of the digital leadership. In order to properly manage stake holders so that, those stakeholders can embrace and support the changes that are needed to make the process of digital transformation to be successful (Dabbish & Kitson, 2019), offering clear guidance, ownership of a common vision and managing issues with effective policies as well as interventions are essential.

According to the UTAUT theory developed by Venkatesh et al. (2003), digital leadership is important for ensuring of successful digitalization. It implies that digital leaders must provide direction, focus and the possible ways of addressing hurdles linked to change resistance, technological adoptability, and workforce transition. The theory also extends to state that, in the digital organization, the goals must be integrated with digital Initiatives and that these strategies must be conveyed harmoniously in the organization. Due to this leadership approach it becomes easy to find ways of adopting change and hence easy to implement and adopt digital activities.

Therefore, t becomes important for the healthcare sector of Pakistan that digital leadership is an essential reality for the digital change. Managers who already have the appropriate digital competencies as well as communicative skills will be in a better position to ingress barriers, enable change, and support organizational cultures that welcome technology. Therefore, we hypothesize:

Hypothesis 1: Digital leadership has significant positive effect on digital transformation.

Digital Leadership and Employees' Engagement

Surveys have defined employee engagement as a level of identification with the organization as well as the duty of investing resources willingly through positive approach and attitude towards organization and its work (Kahn, 1990). It paints a picture of a state where the employees are dedicate and fully directed to their tasks as well as are in line with the organizational goals and values (Saks, 2006). It means that employees are motivated and are committed to their duties, are loyal and are contented with the nature and outcome of their work to the extent of comparing it to others (Harter et al., Available online). This is a complex idea that applies to the personal as well as the post level or organization (Kahn, 1990; Saks, 2006).

Research on the integration of digital leadership in promoting employee engagement has recently received growing interest. Research studies carried out analyze digital leadership at the workplace suggesting a direct impact on the levels of engagement as well as commitment of the employee. Drawing from the experience of the Chinese health industry, Zheng et al. (2022)

established that digital leadership enhances the creative and innovative performance of healthcare employees, thus the need to stress on leadership. As defined by Wright, Irwin, and DeNisi (2020), digital leadership is leadership competency for the creation of digital strategies and organizational evolution into digital organizations with the focus on digital advancements, knowledge management and engagement.

In this case, technology and innovation have been embraced in leadership practices, thus found to cultivate the sense of ownership and corporate responsibility among the employees resulting in engagement (Cortellazzo et al., 2019; Schneider & Kokshagina, 2021). Digital enablers foster conditions that allow employees to use new digital means; increase uptake of organizational initiatives. The opportunity to link new technologies with leadership actions promotes employees' active participation in organizational digital initiatives (Hanelt et al., 2020; Kremer et al., 2019). For instance, managers who adopt digital technology in their workplace are confident in the ability of their employees to work harder and better.

The new environment is therefore digital hence demanding leaders to apply their digital leadership in engaging the workers better. Digital leadership also fosters technological use in organizations besides guaranteeing that the employees are inspired and in unison with the organizational direction, hence high productivity (Schneider & Kokshagina, 2021). Therefore, this study seeks to address the need to improve employee engagement for leaders who practice digital leadership in the digital age.

Hypothesis 2: Digital leadership has significant positive effect on employees' engagement.

Employees' Engagement and Digital Transformation

Employee engagement can be described as the extent to which organizational members cognitively and emotionally endorse their organization and its goals, together with their willingness to commit effort toward the realization of these goals (Kahn, 1990). This concept is evident in the fact employers experience a high level of commitment with regards to their tasks, and a high degree of endorsement for organizational goals and values (Saks, 2006). Engaged employees show not only care and dedicated approach to their professional duties but also organizational commitment, job performance, and job satisfaction compared to other employees (Harter et al., 2002). This comprehensive notion affects personal and organizational productivity (Kahn, 1990; Saks, 2006).

Digital leadership has emerged in the recent past as an important strategy used to improve employees' engagement. The literature review reveals that digital leadership affects engagement and commitment at the workplace in

various ways. For instance, Zheng, Jia, Zhang, and Wu (2022) also carried out a study in the Chinese context to establish the evidence of the role of digital leadership in enhancing creativity as well as engagement of healthcare employees, stressing on the leadership function on the labor force engagement. According to Wright, Irwin, and DeNisi (2020), digital leadership refers to the ability of the person that put into practice digital initiatives to transform organizations. In turn it fosters creativity, best practice dissemination, and people's buy-in.

In other words, technology and innovation in leadership practices provide trust and ownership to enhance the engagement level among the employees (Cortellazzo et al., 2019; Schneider & Kokshagina, 2021). Digital managers cultivate organizational climates that allow employees to engage new digital tools hence active participation in management activities. The assimilation of technology to leadership concepts increases incentive for employees to participate actively in the organizational use of digital technologies (Hanelt et al., 2020; Kremer et al., 2019). Employees are inspired to be more engaged when their managers use digital technology in a way that shows that they trust subordinates in one way or the other.

With constant development of digital environments, it is becoming more and more pertinent for leaders to develop their digital leadership knowledge to be effective in their communication with employees. Besides its promotion, the effective implementation of innovative technologies into an organization is essential. Digital leadership targets employee engagement and aligns the employees with organizational objectives to enhance performance results. (Schneider & Kokshagina, 2021). Hence there is a need for leaders to move towards the central agenda of strengthening employees' engagement within the digital age with the help of leadership technology.

Hypothesis 3: Employees' engagement has significant positive effect on digital transformation

Employees' Engagement as a Mediator

This paper explores the finding from research that digital leadership and engaged employees are critical to enabling digital transformation especially within healthcare organizations. Such an approach identified employee engagement as a vital mediating factor because an engaged employee will ensure the effective support and implementation of digital initiatives that are fundamental to digital transformation strategies (Sagbas et al., 2023). This is mainly the case in the area of competence and learning about the various technologies that are available and when they should be used (Dabbish et al., 2019). This means that there is need for an organizational culture that fosters learning, innovation and collaboration (Wirtz et al., 2019). Following the same

idea, Abbu et al. (2022) reveals how the human aspect holds value in digital leadership, especially in the countries in development, like Pakistan, to engage the employees and ensure that they contribute significantly to consumers' satisfactions and organizational performance through enhancing the quality of healthcare services delivered. According to Saks (2022) there is agreement that increasing employee involvement is crucial to organizational effectiveness and success, therefore an element that should be of paramount importance for healthcare concerned countries such as Pakistan (Khan et al., 2016).

Digital leadership is not just about knowing and understanding tools, and technologies, but also about defining how technology is utilized to drive performance (Cortellazzo et al., 2019). Leveraging innovation enables DL to improve employee's digital literacy, to which leads to engagement (Hanelt et al., 2020; Dabbish & Kitson, 2019). It also establishes trust and motivation as indicated by Niehoff and Monge (1993) Wirtz et al. (2019) and Kremer et al (2019) to enacting initiative and communication effectiveness.

According to the UTAUT model, engagement acts as a mediator through which the digital leadership affects digital transformation with better technology acceptance and usage. Employees who are involved in the work process are most likely to appreciate the use of technology and therefore the effect of digital leadership most likely to enhance the achievement of goals and objectives in digital transformation. Based on these insights, the following hypothesis is proposed:

Hypothesis 4: Employees engagement acts as a mediator between digital leadership and digital transformation.

Change Readiness as a Moderator

The term change readiness is defined as the psychological state and organizational capacity to consider, accept or be ready to implement change at an individual and or organizational level. It involves psychological, behavioral, and organizational viewpoints (Weick & Quinn, 1999). Change-readiness involves adaptability, initiative in seeking information in knowledge, and seeking solution. On the other hand, organizational readiness includes leadership support, communication and development of learning organization culture. Employment of a skilled and IT savvy workforce with attitudes and behavior that would embrace new technologies and approach to work is critical when dealing with digital transformation.

Extending the concepts outlined by Saks (2006) it is possible to declare that the level of employee engagement is the significant driver of organizational outcomes. This aspect is important since it helps to evaluate the degree of organization's preparedness to work on new initiatives. According to

Armenakis and Harris (2009), organizational readiness is an important factor in the championing for change implementation. If the workforce is not ready for change and to adopt the new technology, there tends to be a resistance that slows down the process of change (Gupta & Talele, 2020). Miguel (2006) argues that the experiential factors that include personality, prior experience and technological competence determine readiness for change. According to Kotter (1996), the leadership behavior, communication methods and resources determine organization readiness. This means that a strong change management culture where the key components of communication, engagement and knowledge management are in place produces employee who are ready to manage change.

Such as change readiness of the moderator, it determines the impact of the employee engagement on the development of digital solutions. Logically, an organization with an organization-ready workforce is one that is innovative, willing to take risks, and collaborative—an essential prerequisite to digital transformation (Edmondson, 1999). Mental attitude of the employees for the work they do determines whether they are willing to support or advocate for change in the processes and tools used (Gupta & Talele, 2020).

It is especially important for the healthcare industry because it introduces more compliance demands and a necessity to embrace IT. Previous literature suggest that knowledge of change readiness at individual level may improve continuous professional development activities for health care workers in large organizations (Yusif et al., 2020). This supports the proposition of Chang Readiness as a moderator in the UTAUT model that ascents the readiness in increasing the employees' engagement for further transformation into digital workforce (Venkatesh et al., 2003). Based on these insights, the following hypothesis is proposed:

Hypothesis 5: Change readiness moderates the relationship between employee's engagement and digital transformation in such a way that when change readiness is high, the relationship is strengthened

Figure 1: Conceptual Framework

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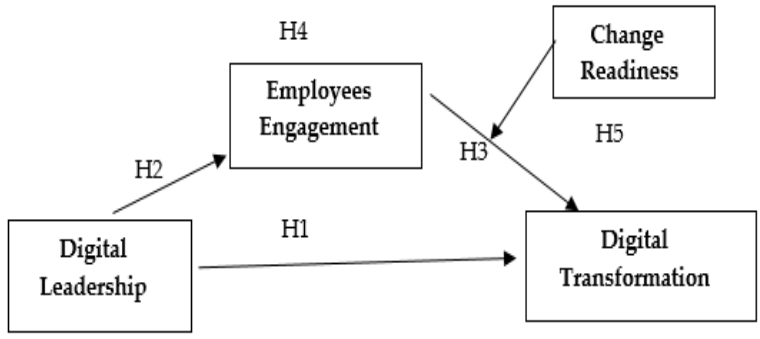


METHODS

Measure and Instrument Development

This study plans to explore the systemic relationship between digital leadership, digital transformation, employee engagement, and change-ready in the backdrop of Pakistan's healthcare sector. The kind of research adopted in the study is quantitative research and data is collected through questionnaires through a field survey. The objective of the current empirical analysis is to establish the role of change readiness as a moderator and that of employee engagement as a mediator within the digital leadership and digital transformation context. These aspects form the grounds for this research because they focus on regional peculiarities of the digital transformation process in view of the healthcare sector.

In data collection, a survey questionnaire that contained questions formulated on a 5-point Likert scale was adopted. This study's instruments were derived from the existing validated scales focusing on reliability and validity. To measure digital leadership practices, self-developed scale of Buyukbese et al., (2022) was used. This self-developed scale is the measurement of digital transformation by Ukko et al. (2019). Self-directed questionnaires were employed to measure employee engagement spins with the UWES scale of Ugwu (2013). Consequently, a scale developed by Jo and Hong (2023) was used to assess change readiness.

Sample and Data Collection

This paper adopted field survey as the investigation method, as it is deemed most relevant because the healthcare sector is mainly organized dynamically, and targets achievements faster than in other industries. Among employee groups, only lower

and middle level employees in Punjab were surveyed because they offer varied insights into the study subject matter. The study adopts the cross-sectional research design, which is helpful for acquiring the cross-sectional picture of the determinants at a given point in time. Nevertheless, it is important to point out that the cross-sectional research design does not support identification of the changes of the variables in time. The advantage of this design is that it provides a reasonable measure of efficiency and the level of detail that is required within a relatively short time span of 3-4 weeks.

Due to the time limitation and limitations of data collection convenience sampling was employed. Thus, Google Forms were used to survey 352 participants to ensure the research reached different locations within the region without compromising data credibility. The method was useful as it avoids the problems of contacting the participants over a vast territory.

Data Analysis

The quantitative data were analyzed by using the software Statistical Package for Social Sciences (SPSS). Both cross-sectional and longitudinal regression, cross-lagged correlations, and mediated/moderated models were used to analyze the interconnections between the variables of interest. The mediation and moderation effects were computed based on Preacher and Hayes (2004). It has allowed for an understanding of the variables under study while appreciating the interdependencies between the variables; by mediating the relationship between digital leadership and digital transformation through employee engagement and moderating the relationship between change readiness and digital transformation through employee engagement.

Other possible sources of bias have been controlled through analyses of variance to increase the reliability of the study. The demographic data of participants were also collected, and the data was incorporated into analysis to enhance the reliability of the coefficients of regression equations, which otherwise, would affect the model of the study minimally.

DATA ANALYSIS AND RESULTS

Sample Characteristics

The gender distribution in the sample has revealed that 39.2% of the participants are female while 60.8 % are male proposing a general male dominance in health care sector in our sample. Specifically, the majority of respondents (54.26%) stated they have a high school degree; the second largest group were respondents with a master's degree (34.66%). A very limited number of participants (3.41%) have done Ph.D. level education, and 7.67% education at intermediate level or upper. This shows the kind of education received by the healthcare professionals who were interviewed to answer the questionnaire developed for the study. From the age distribution, or respondents, 64.49% fall within the 26 to 40 years age bracket indicating most of the target population is the workforce in the young and middle aged. Young people between 18 to 25 years represent 11.08% of the sample while those between 41 to 60

represent 24.43%. The average retirement age in Pakistan is 60 and there was infrastructural bias as no respondent selected was older than that. The largest group who corresponded is those with 6-10 years of work experience, 44% of which means that the majority of respondents are likely in their middle career stage. For years of experience, 20.5% of participants have 11-20 years while 18.5% have 0- 5 years. Even fewer people have more than 30 years of experience (4%); or 21-30 (13.1%) experience of the job. Demographic profiling is important for several reasons; first, it gives the researcher an overview of the demographic characteristics of the respondents. This information is vital insofar as it helps the researcher to assess the suitability of the study's findings and the possible impact of these demographic variables on the conclusions drawn in the research.

Control Variables

The analysis shows gender influences digital transformation differently ($F = 15.802$, $p < 0.001$) but not employee engagement ($F = 0.859$, $p = 0.355$). Education, age, and experience did not show significant effects on either employee engagement or digital transformation, as evidenced by the p-values for each being greater than 0.05 (education: , $p = 0.253$, while there is a very weak negative correlation between age and innovation ($r < .31$, $p = 0.567$), experience and innovation ($r < .31$, $p = 0.223$) and job satisfaction ($r < .1$, $p = 0.132$). This means that gender is the only demographic factor that has impacts on both the digital transformation of healthcare organizations and the two consequences, while education, age, and experience do not have any impacts on either the two outcomes in the healthcare sector.

Table I: One-Way ANOVA

	Employees Engagement		Digital Transformation	
	F Value	P Value	F Value	P Value
Gender	.859	.355ns	15.802	<.001***
Education	1.366	.253ns	1.937	.123ns
Age	.568	.567ns	.241	.786ns
Experience	1.431	.223ns	1.186	.316ns

N = 352 * p<.05, ** p<.01, *** p<.001, ns = non-significant

Reliability Analysis

Table II shows the internal consistency reliability of the scales according to Cronbach's alpha. Cronbach's alpha was used to determine the internal consistency of the scales; the closer the value is to one, the higher the reliability. Cronbach's alpha for the Digital Leadership scale was very satisfactory; that is why the chosen items reflect digital leadership behaviors with high reliability, 0.924. The reliability analysis also showed the high internal consistency of the three scales which were used in this

research: The Digital Transformation scale achieved a value of 0.868; and The Employee Engagement scale achieved a value of 0.908. The Change Readiness scale also had a high degree of internal consistency with Cronbach's alpha coefficient of .942. The cortical of these two studies were high; their Cronbach's alpha values implied that the scales accurately measured the constructs being targeted.

Table II: Reliabilities of the Scales

Variables	Cronbach's Alpha
Digital Leadership	.924
Digital Transformation	.868
Employees Engagement	.908
Change Readiness	.940

N = 352

Correlation Analysis

Table III shows the correlation matrix among the four variables: They included Digital Leadership, Digital Transformation, Employees Engagement and Change Readiness. Every variable has a positive significant relationship with every other variable. Employee Engagement has a positive correlation of 0.494 with Digital Transformation, and both indices have positive concurrent validity with Change Readiness, ($r = 0.570$), with $p < 0.01$. Both the Digital Leadership and Change Readiness questions are also related (Pearsons $r = 0.386$, $p < 0.01$). Further, the computed results revealed a strong and positive relationship between Digital Transformation and Employee Engagement, $r = 0.494$, $p < 0.01$ as well as between Digital Transformation and Change Readiness, $r = 0.524$, $p < 0.01$. The following relationships between the variables have been established in these studies; digital leadership, employee engagement, digital transformation, and readiness as related to the organizational setup.

Table III: Correlation Table

Variables	1	2	3	4
Digital Leadership	1			
Digital Transformation	.571**	1		
Employees Engagement	.414**	.494**	1	

Change Readiness	.386**	.524**	.570**	1

N=352, **p<0.01

Regression Analysis

The regression analysis was conducted to test the relationships between digital leadership, employee engagement, and digital transformation, with gender as a control variable. The results are summarized in the following table.

Table IV: Regression Analysis

Predictor Variables	Outcome Variables	B	R^2	ΔR^2	Significance
Step 1: Control Variable					
Gender	DT	.007	.459	-	-
Step 2: Predictor Variables					
DL	EE	.400***	.171	.169***	p < .001
DL	DT	.371***	.459	.416***	p < .001
EE	DT	.189***	-	-	p < .001

N=352, * p<.05, ** p<.01, *** p<.001

The analysis in Step 1 also presents gender as a conditioning variable for the process of digital transformation. Hypothesis 1. Gender has a small statistically non-significant effect on the dependent variable, B = 0.007, F (1, 184) = 0.355 suggesting that gender does not have a significant effect on digital transformation thus should not be used to control the analysis. Based on the model in Step 2, digital leadership is considered as a control variable of both factors of employee engagement and factors of digital transformation. The findings show that digital leadership increases engagement levels by B = 0.400, p < .001, with 16.9% of the variance in engagement accounted for by the model. This is why leadership in the digital space is key to raising engagement among employees in the health sector. In the same way, the digital leadership has positive effect on the digital transformation (B = 0.371, t= 10.508, p < .001), accounting for 41.6% of the variations in the transformation outcome. This can therefore concludes that leadership in the digital environment is a major source of change in organizations. Moreover, the analysis of the structural model also shows a strong positive relationship between engagement and digital transformation (B = 0.189, p < .001) proving the mediating value of the engagement indicator in a transformation process.

Comparing results of this analysis offers more robust support for the positive effect of digital leadership and employee engagement on digital transformation while

refining the specification by noting that we should control gender only where it can impact Digital Transformation, and that is only when DT is statistically significant.

Mediation Analysis

Table V shows the mediation analysis proving that digital leadership has a direct positive effect on digital transformation (B = 0.4263, $p < 0.0001$) and has an indirect positive effect through Employees Engagement. The indirect positive effect with the 95% CI between 0.0658 and 0.1948 endorsing the partial mediating role of EE in the DL to DT association. This has an implication that though DL is a 'push' factor which directly fuels DT, its effect is boosted by the involvement of the employees. These findings provide support for the mediating hypothesis demonstrating how key driver of employee engagement feeds into the digital transformation process. Thus, the data support our research hypothesis H1, H2, H3, and H4.

Table V: Mediation Regression Analysis

Predictor	B	SE	T	P	LLCI	ULCI
DL → DT	.4263	.0437	9.7613	.0000	-	-
DL → EE	.3976	.0468	8.5038	.0000	-	-
EE → DT	.3113	.0455	6.8562	.0000	-	-
Bootstrap Results for Indirect Effect	.1239	-	-	-	.0658	.1948

DL=Digital Leadership; EE=Employees' Engagement; DT=Digital Transformation

Moderation Regression Analysis

Table VI: Moderated Regression Analysis

Predictor	**Digital Transformation**		
	B	R 2	Δ R 2
Step 1			
Control Variable		.208	
Gender			
Step 2			
Employee' Engagement	.189***	.678	.485***
Change Readiness	.209***		

Step 3			
EE*CR	.119**	.689	.015**

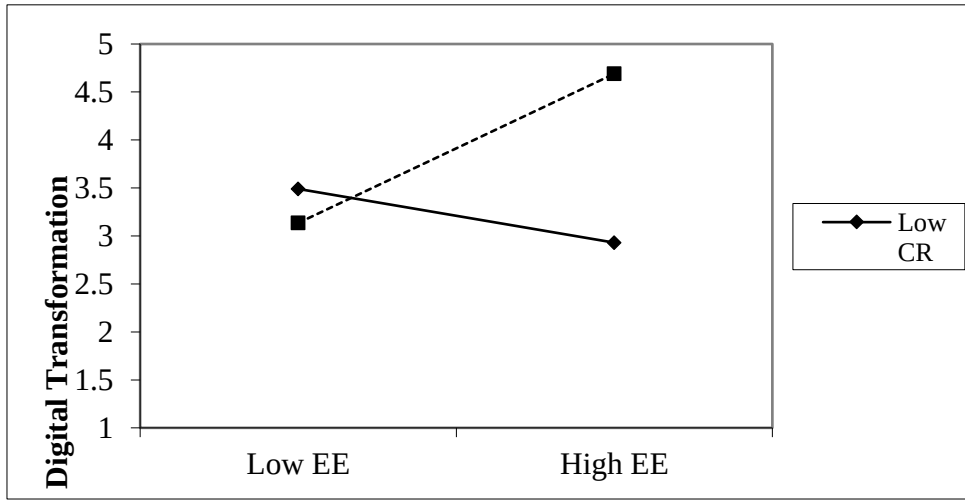
N = 352 * p<.05, ** p<.01, *** p<.001, ns – not significant

Table VI presents the moderated regression analysis result of the study. When performing Step 1 we included gender as a control variable. The results of change readiness and employee engagement were described in Step 2 and both displayed strong significant positive relationships with digital transformation (B = .209, t = 7.222, p < .001 for CR; B = .189, t = 6.611, p = .001 for EE). Lastly, the results showed that change readiness in Step 3 (EE*CR) had a significant effect on the digital transformation (B =.119, p <.01), indicating that the relationship between employee engagement and the levels of the digital transformation is significantly moderated by change readiness. This was supported by the significant change in R-squared by the interaction term $\Delta R2= 0.015$ $p < 0.01$. Therefore, the interaction terms depicting the statistical significance of the hypothesis support hypothesis (H5) on the relationship between change readiness, engagement, and digital transformation. For moderation analysis modulation analysis was performed by using PROCESS v4.2 by Andrew F Hayes (2017) which also yielded reasonable moderating effect of change readiness in the relationship of employees' engagement and digital transformation. (B = .1735, p < .001).

Figure II shows that change readiness has a moderating effect on the dependent variable which is digital transformation and on the independent variable which is the level of employee engagement. The data presented in the graph indicates that when change readiness is high (solid line) then engagement and digital transformation are strongly correlated. This gives the notion that more engaged employees tend to be more prepared to support efforts along the digital transformation initiative.

It is quantified by examining the difference in the slope of the dashed line which represents a low CR and the gradient of the higher solid line. This means that, digital transformation has increased even more to the degree of engaged employees at a high level of change readiness. Here, the point where the solid line (high CR) crosses the y- axis is higher in comparison to where it is for the dashed line (low CR). This means that the organizations with high change readiness have embraced high digital transformation than those with the low EE and digital transformation as shown below.

Figure II: Moderation Graph



DISCUSSION

Thus, the present study makes a strong contribution to understanding the state of digital leadership, extent of digital transformation activation, and levels of employee engagement and change readiness in the healthcare organizations operating in Pakistan. Thus, the research and findings will contribute to clarifying the gap between theory and practice in the framework of applying digital technologies in developing countries by presenting recommendations for further research and practice.

The findings give zest to the study hypotheses, affirming that digital leadership, in extension of the prior literature, has a direct relation with digital transformation (Avolio et al., 2014; Li et al., 2020). This result points to the need for digital leaders who are strategic catalysts of technology adoption and organizational innovation. The manager who possesses strategic thinking coupled with theoretical knowledge and change management capabilities is so beneficial especially in today's complex digital environment since he or she acts as the driver to ensure that digital projects are in line with the goals of an organization and can overcome major challenges like lack of resources or employees' resistance to change. Current research suggests that healthcare organizations ought to consider the promotion of initiatives that will strengthen digital competencies of leaders to improve on the digital transformations enacted.

The direct relationship between digital leadership and employee engagement establishes the effectiveness of leaders in establishing trust, a vision for change, and common goals encompassing the company's workforce. Committed employees are willing to work towards the accomplishment of organizational objectives, come up with new ideas and embrace technological change (Wang et al., 2018). The present investigation's mediation appraisal establishes that employee engagement fully mediates the association between digital leadership and digital change; the implication is that leaders alone cannot effect change without the participation of

employees. Companies must follow some guidelines like feedback, setting goals and hopes, and creating incentives to foster employees and actualize their change potential.

The moderating role of change readiness is an added variable to the outcome presented above. As the biggest part of the organizations still struggle with change readiness, the necessity of developing a culture of change and positive attitude towards digital change becomes more apparent (Cunha et al., 2015). Readiness for change enhances the positive relationship of employees towards digital transformation and reveals that the highest level of employee engagement is not sufficient to succeed in an environment where change readiness is lacking. For this reason, healthcare organizations must employ strategic change management models, offer change competence development programs, as well as actively engage in communication to dismantle the barriers against change.

These dynamics are included in this research to contribute to the digital transformation literature especially in the context of the Pakistani healthcare industry that has specific challenges including resource scarcities, legal conditions, and employee competency deficits. In handling the aforementioned challenges, this study offers implications for the practice that can inform digital leadership, engagement, and change readiness among practitioners, policymakers, and HR professionals.

Conclusion and Implications

This research examined the dual relationship of nuances of digital leadership and employee engagement, change readiness and digital transformation in the Pakistani healthcare industry. Research highlights call for digital leaders to take up the mantle of leading and guiding digital change initiatives based on technical knowledge, vision, and change management skills. It was discovered that motivational, innovative and commitment-orientated digital leaders actively engage employees towards organizational goals. The role of change readiness is indicated to moderate the effect of employee engagement regarding digital transformation throughout the research. Hospitals with higher levels of change readiness are in a better place to manage resistance to change hence effectively implement digital initiatives than those hospitals with lower levels of change readiness in developing country context as evident in the current research.

Implications for practice stress the importance of growing leadership capacity and training in digital/strategic skills and ways to increase engagement via feedback, reward, and learning programs. Change readiness within a building context is essential, and this needs a well-coordinated and generally comprehensive framework that include; readiness assessments, training programs and communications preparedness to ensure that building change organization is fundamentally ready for change. Governments should complement such initiatives by adopting friendly

policies, capacity enhancement and resolving sectorial deficits comprising of policies, regulations or skills development for the workforce.

The present research also has implications for theory, particularly for expanding the tenets of the Unified Theory of Acceptance and Use of Technology (UTAUT) to incorporate organizational factors such as digital leadership and employee engagement that is crucial for the successful digital transformation. Also, several issues including resistance to change may be rectified by suggesting cross functionality of teams to promote innovation accompanied by concurrent decision-making. By effectively linking theoretical constructs developed to advance knowledge and practical concerns highlighted by organizations grappling with the challenges of digitalization, the research provides relevant and coherent strategies and frameworks that organization leadership can thus use to direct future inquiries and strategizing endeavors.

Limitations and Future Research

The study has a small sample, and it is specific to the Pakistani health care employees which hamper the generalization of results. The cross-sectional type only records fixed associations between variables, and self-report has the potential of biasing the results. Furthermore, the measurement scales employed herein may not capture cultural factors peculiar to the Pakistan setting. The results cannot be generalized to other sectors as well as other parts of the world because of contextual variations. Future research should also focus on using quantitative data and cross-sectional research, longitudinal research and culturally sensitive and 7Incorporate variables like technological culture and technological self-efficacy as well as victim-offender characteristics. Studying these is can expand the knowledge in digital transformation and employees' involvement in different settings.

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