

EXPLORING THE INFLUENCE OF WORKFORCE IN DIGITAL TRANSFORMATION AND ITS EFFECTS ON EMPLOYEE ENGAGEMENT IN BUSINESS OPERATIONS

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Abstract *The pervasive influence of technology and its widespread integration into business operations compels management to prioritize highly motivated and engaged employees to achieve operational efficiency. Digital transformation encompasses the comprehensive evolution of business and organizational activities, involving various business processes, competencies, and innovative models. It seeks to leverage digital technologies, fostering change and capitalizing on opportunities across society and stakeholders. When examining the scope of digital transformation, the focus is often on developing organizational capacities that are agile, people-oriented, and innovative. These capacities should be customer-centric, efficient, and capable of seizing opportunities. Digital transformation is a journey marked by interconnected intermediary goals that must be addressed before implementation. While existing research literature extensively explores the advantages and disadvantages of digital transformation, there is a notable gap in understanding the relationship between digital transformation and employee engagement. The transformation of an organization through digital means necessitates management to prepare and motivate its employees effectively. With this consideration, this study aims to investigate how digital transformation influences employee engagement and how both employees and businesses can adapt and thrive amid the ongoing digital transformation. The research emphasizes the crucial interplay between the digital revolution, employee commitment, human resource management, customer involvement, process productivity, and commercial showcasing.*

Keywords *Digital Revolution, Employee Commitment, Human Resource Management, Customer Involvement, Process Productivity, Commercial Showcasing, etc.*

INTRODUCTION

The realm of Human Resource Management (HRM) has experienced extraordinary growth and has become indispensable for organizational success in today's rapidly evolving business landscape. The infusion of information technology into the business domain has not only created numerous opportunities for employees but has also heightened the complexity of business operations significantly. The swift progression of digital technologies, encompassing smart technology, artificial intelligence (AI), automation, robotics, cloud computing, and the Internet of Things (IoT), is fundamentally reshaping the nature of work and organizational structures. This collective transformation is often referred to as the Fourth Industrial Revolution or Industry 4.0, raising concerns about the profound impact these technologies will have on workplaces and the potential displacement of workers.

The effects of digital disruption on labor markets are a subject of ongoing debate, with some anticipating substantial job losses through automation, while others predict the creation of as many new jobs as those displaced. Despite these

divergent views, the influence of digitalization is already evident across various job roles and industries, prompting businesses to adapt their models for competitiveness. While there is significant scholarly attention to how digital technology disrupts job tasks and occupations, there is a limited understanding of how both workers and organizations can effectively respond to such disruptive technological changes. A central concern revolves around fortifying employee and organizational resilience to disruption caused by emerging technologies.

Though digital transformation is a contemporary and pressing imperative, there exists a substantial body of rigorous research across multiple disciplines that can be readily applied to comprehend these emerging trends. The impact of technology in the workplace has been under study for several decades, originating from fields such as information systems, psychology, sociology, organizational behavior, management, and communications. Recent years have witnessed a surge in studies from business and strategic information systems, human resources, and healthcare, indicating that digital disruption is increasingly affecting a wider array of industries and occupations.

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Given the scope and scale of the ongoing digital transformation and the wealth of diverse academic perspectives addressing these changes, we find it opportune to conduct an evidence review of relevant literature. Moreover, we aim to enhance the coherence of our understanding of this swiftly evolving landscape by adopting an integrative approach that identifies linkages across different disciplinary perspectives. Therefore, we have examined studies from various disciplines and synthesized their findings into a comprehensive, multi-level framework. Our framework discerns and consolidates critical factors essential for an organization's overarching digital transformation at the individual, group, and organizational levels.

PROBLEM STATEMENT

In the present era of digital transformation, the matter of employee engagement with organizations has gained significance. Numerous research findings suggest that digital transformation has facilitated a transactional dynamic between employees and organizations. This transactional nature of the relationship has evolved into a more fulfilling and goal-oriented connection. The key issue revolves around how employees sustain continuous engagement with digital updates in the business environment and why the digital business relies on employees to execute business processes. This study aims to identify the correlation between these two components and endeavors to discern the optimal path for advancing this synergy to foster organizational growth.

OBJECTIVES OF THE STUDY

This study aimed to investigate the influence of digital transformation on employee engagement, focusing on the following objectives:

- To explore the extent of digitalization in various business functions, as reported by employees in organized retail stores within the NCR region.
- To evaluate the impact of digital transformation on employee engagement with the organization.
- To analyze the interrelationship between digital advancements and employee sustainability.
- To observe the structure of human resource management in the context of digital business technologies.

RESEARCH METHODOLOGY

In this research, an exploratory and descriptive research design was chosen by the researcher. Both primary and

secondary data were utilized to fulfill the research objectives. Primary data collection was conducted through a survey method employing a well-structured questionnaire. The questionnaire, designed based on a literature review and insights from various authors, covered dimensions of digital transformation and employee engagement. Respondents were asked to rate their responses on a scale of 1 to 5, where 1 signified "strongly disagree," and 5 indicated "strongly agree."

The researcher personally collected data by visiting several organizations in the NCR region. Initially, 250 questionnaires were distributed to employees in different small and medium-sized organized retail stores in the NCR region. After editing, 186 questionnaires were deemed suitable for the study, as 195 responses were received. A pilot test involving 25 respondents was conducted, and reliability statistics were computed using SPSS. The reliability (alpha) value of .671 indicated that the data is reliable.

Based on feedback received during the pilot study, necessary adjustments were made to the questionnaire before the full-scale survey. The subsequent reliability check, still at .671, affirmed the reliability of the data. Various statistical tests, including Mean, Standard Deviation, and regression analysis, were performed to analyze the information trend and assess the impact of digital transformation on employee engagement.

LITERATURE REVIEW

Kozanoglu and Abedin (2021), Existing literature on digital transformation has predominantly focused on technologies while overlooking the significance of digital skills and capabilities within workforces. Some studies emphasize that digital transformation goes beyond technology, necessitating a focus on human factors. This raises questions about the need to develop skills in existing workers and the skills required for future workers who will constitute the digital workforce.

McKinsey (2021), Predicts that many companies are facing increasing skills gaps, requiring workforces with a diverse set of skills, including critical thinking, complex problem-solving, adaptability, and resilience, identified as crucial skills in today's workforce. There is a growing emphasis on soft skills such as problem-solving and creativity in technology-driven environments.

Watson (2019), Highlights that digital technologies enhance the autonomy of workforces, but the demand for advanced digital-skilled workers will rise, particularly in Industry 5.0, where humans collaborate with efficient, intelligent, and

accurate digital technologies. The challenge of developing, finding, or competing for a digital-skilled workforce is acknowledged as a significant obstacle during digital transformation, with a high priority in the European Union.

Chuang and Graham (2018), The study suggests that alongside the increasing demand for highly specialized skills, employers also emphasize essential human skills such as creativity, problem-solving, and critical thinking. The hypothesis is formulated that human characteristics like critical thinking, complex problem-solving, adaptability, resilience, and creativity are crucial impacts of digital transformation, particularly for small and medium-sized enterprises (SMEs).

Sebastian and Mocker (2017), To achieve benefits through successful digital transformation adoption, organizations need to address digital skills at various levels of their business. Hypotheses are formulated, suggesting that workforces possess basic digital skills used in certain parts of companies, and digital transformation has intensified challenges related to the lack of digital skills in the workforce. Digital transformation necessitates not only possessing digital skills but also relying more heavily on other individual characteristics. The increased adoption of digitally skilled workforces is accompanied by growing skills shortages in the labor market, making reskilling and upskilling workforces one of the most critical challenges.

HYPOTHESES OF THE STUDY

H0: There is no significant impact of digital transformation on employee engagement.

H1: There is a significant impact of digital transformation on employee engagement.

ANALYSIS AND INTERPRETATION OF DATA

The initial findings of the study involve the demographic profile of the respondents, as presented in Table 1.

Table 1: Demographic Characteristic of Respondents

	Categories	Count	Percentage
Age	Below 25 Years of age	35	18.8
	25-35 Years of age	70	37.6
	35-45 Years of age	50	26.9
	45 to 55 Years of age	21	11.3
	55 to 65 Years of age	10	5.4
Gender	Male	119	64
	Female	77	36
Marital Status	Married	117	62.9
	Unmarried	69	37.1
	Upto Matric	23	7
Education Level	Under graduate	9	4.8
	Graduate	22	11.8
	Post Graduate	54	29
	Professional Qualification	98	47.3
	Total	200	100

Explanation of Table 1

In any social research, the collection of employees' demographic profiles is crucial as these indicators measure their adaptation to digital transformation and their engagement levels in different demographic segments. The demographic profile presented in the table above reveals that the sample is predominantly composed of middle-aged respondents, with almost 64% falling in the age range of 25-45 years. For research related to digital transformation and its impact on employee engagement, understanding the gender distribution of respondents is important, as gender can influence both digital transformation and employee engagement. The data presented in Table 1 indicates that the sample is dominated by male respondents (64%). Additionally, 62.9% of respondents in the sample are married. The survey further reveals that the sample consists of highly educated individuals, with more than three-fourths (87%) holding graduate, postgraduate, or professional degrees.

Table 2: Extent of Digitalization at Various Level of Business Operation: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Front office	200	1	5	3.8495	0.96922
Production process	200	2	5	3.5645	1.00734
Supply chain	200	1	5	3.0215	1.20341
Entire HR Finance and Material Division	200	1	5	3.2957	0.77368
Entire Business Operation	200	2	5	3.1935	0.78166
Valid N (list wise)	200				

Explanation of Table 2

For an organization to achieve excellence in its business operations, it is imperative to align its information technology (IT) setup with its business goals. This necessitates the digitalization of all business operations, ranging from the front office to the entire business process. The mean ratings of digitalization, as presented in Table 2, indicate that in

most organizations, the front office is highly digitalized, receiving the highest rating from employees (mean = 3.8495, SD = 0.96922). The production process has a mean rating of 3.5645 and a standard deviation (SD) of 1.00734. On the other hand, the supply chain received a lower rating, with a mean of 3.02 and an SD of 1.20341. This suggests that while most front offices are digitalized, the supply chain division tends to be less digitalized.

Table 3: Digital Transformation and Employees Engagement: A Descriptive Statistics

	N	Reliability	Mean	Std. Deviation
Customer Experience		0.737	3.4288	0.85145
Information and communication technologies like analytics as well as social media are used to understand our customer in a better way.	200		3.3763	1.14763
Digital channel like online, social media are used to understand market movement as well as marketing of products.	200		3.6452	1.23591
Organization uses digital channels to sell their products & services	200		3.1452	1.06309
Digital channels are extensively used to extend better customer service	200		3.5484	1.10053
Operational Efficiency		0.71	3.5941	0.85969
Digital technology is extensively used for having customer interface with operational processes	200		3.7581	1.11528
All our core processes are digitally automized	200		3.6129	1.06067
Extensive digital technologies are applied in our organization for integration of customer information with production and operation.	200		3.457	1.15818
My organization use analytics for taking better operational decisions	200		3.3871	1.06575
Business Modeling		0.627	3.0941	0.98118
For improving performance and value of our product, company use digital technologies extensively.	200		3.1774	1.10318
we focus on digital technologies for launching new business models	200		3.0108	1.19453
Employee Engagement		0.671	3.77453	0.36767
Digital transformation has help us in bringing Transparency and openness	200		3.4409	0.75641
Digital transformation has help us in aligning myself with the company's' vision and values	200		3.629	0.74762
Digital transformation has helped in Creating a supportive work environment through effective leadership	200		3.5484	0.58847
Digital transformation has help in bringing organizational justice and getting Reward for deserving employees	200		3.9731	0.76003
Digital transformation has help us in Empowering and working from distance	200		4.4355	0.58691
Employees have become highly involved in routine decision making at my organization after Digital transformation	200		4.4409	0.76352
Digital transformation has help in strategic decision making in my job	200		3.3871	0.85148
Digital transformation has help us in working in a group	200		3.6935	0.73349
My performance output is always high even when I work independently after	200		3.8656	0.75566
Digitalization				
I feel embracing when r my performance falls below standard	200		3.7097	1.2088
I feel motivated when I get training Opportunities	200		4.5591	0.56878
I can share my opinion feely at all level in the organization.	200		3.6452	1.23591

	N	Reliability	Mean	Std. Deviation
I feel motivated and work harder by involving in team work	200		3.1452	1.06309
I am highly motivated and always put extra effort toward meeting organizational goal.	200		3.5484	1.10053
All my colleagues are fully committed for better work	200		3.7581	1.11528
I do not distract from my work	200		3.6129	1.06067
Valid N (list wise)	200			

Explanation of Table 3

In the contemporary business landscape, organizations are increasingly focusing on their productivity, adopting either reactive or proactive approaches. Many service-oriented organizations are placing significant emphasis on delivering services to customers around the clock. The application of digital technology for monitoring customer experience, managing operational excellence, and introducing new business models contributes to employee satisfaction, motivation, and engagement with the organization.

To measure the factors influencing customer experience, variables under different constructs related to customer experience were identified based on a review of previous literature. Respondents were then asked to rate these variables on a Likert scale ranging from one to five, where one indicated “strongly disagree,” and five denoted “strongly agree.” Descriptive statistics, such as mean and standard deviation, were employed to analyze the comparative importance of constructs related to customer experience.

The results presented in Table 3 offer further insights into the dimensions of customer experience, operational efficiency, business modeling, and employee engagement. Descriptive statistics indicate that digital technology has brought about a more significant transformation in operations compared to business modeling and customer experience. Additionally, to assess the impact of digital transformation on employee engagement, the researcher employed regression analysis.

Data Analysis: Regression analysis was conducted to examine the hypothesis, specifically to determine if there is a relationship between digital transformation and employee engagement. The null hypothesis assumes that there is no significant relationship between digital transformation and employee engagement. Regression analysis is a statistical method used to estimate relationships between independent and dependent variables.

The initial results of the regression analysis, as displayed in Table 4, include values for R, R square, Adjusted R square, and Std. Error of the Estimate.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760a	0.578	0.571	0.24083

a. Predictors: (Constant), Business modeling, customer experience, Operational Efficiency.

Implications: The information presented in Table 4 provides insights into the calculated values of the model summary. From the table, the value of R indicates the correlation between observed and predicted values, with an ideal range of -1 to +1. Small R values suggest that the model may not fit the data well. In this case, R equals 0.760, indicating a moderate level of correlation.

Furthermore, the adjusted R² for the model is 0.571, with an R² of 0.578. These values serve as an overall measure of the

strength of the association. In this instance, it can be inferred that the model (regression analysis) explains 61.9% of the variance in the data.

The subsequent outcome of the predicted model (regression analysis) is the Analysis of Variance (ANOVA) table, which aims to elucidate the model fit. It indicates how well the regression aligns with the investigated data.

Table 5: ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.453	3	4.818	83.065	.000B
	Residual	10.556	182	0.058		
	Total	25.009	185			

a. Dependent Variable: Employee Engagement.

b. Predictors: (Constant), Business modeling, customer experience, Operational Efficiency.

Implications: The data presented in Table 5 displays the value of the F-test. The F-test statistic, also known as the regression mean square (RMS) divided by the residual mean square, is a crucial measure. The values in Table 5 indicate an F-value of 83.065 at a 5% level of significance and 182 degrees of freedom (DF). Based on this data, it can be

inferred that the test is highly significant, suggesting a linear relationship among the variables in our model.

The subsequent table provides coefficients for the regression between various components of digital transformation and its impact on employee engagement.

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.495	0.083		29.939	0
	Customer experience	0.147	0.027	0.34	5.419	0
	Operational Efficiency	0.191	0.03	0.447	6.325	0
	Business modeling	0.029	0.022	0.077	1.286	0.2

a. Dependent Variable: Employee Engagement.

Implications: The regression equation is expressed as follows:

Employee Engagement = 2.495 + (.0147*Customer experience + 0.191*operational efficiency + .029*business modeling)

Upon conducting the regression analysis, the null hypothesis is rejected, leading to the conclusion that there is a significant relationship between digital transformation and employee engagement.

DISCUSSION AND CONCLUSION

This study, along with existing literature, investigates into the impact of digital transformation on employee engagement. The researcher aimed to explore employees' perceptions of digital transformation and its influence on their engagement with the organization. The study suggests a high level of employee engagement, with a mean of 3.7745 and standard deviation of 0.36767. Based on the available information, there is a possibility that employees may exhibit higher engagement in a digitized environment compared to a manual working environment. Results indicate that while most front offices are digitalized, the supply chain division is less digitalized. The study offers insights into various dimensions, including work-life, customer experience, operational efficiency, business modeling, and employee engagement.

Descriptive statistics reveal that digital technology has brought about a more significant transformation in operations compared to business modeling and customer experience. The regression equation confirms that out of the digital transformation factors related to customer experience, operational efficiency, and business modeling, the digital

transformation aimed at improving operational efficiency has a significant effect on employee engagement with the organization. The technological implications are expected to be widely used in the future.

Therefore, considering the interests of both organizations and employees, the influence of digital transformation on employee engagement needs to be rigorously examined in the social context. Organizations must aim to achieve digital transformation with minimal resistance from employees, as engaged employees contribute significantly to positive outcomes. All strategies and policies related to digital transformation should be focused on achieving long-term objectives related to employee engagement with the organization and society at large.

REFERENCES

- Aral, S., Dellarocas, C., & Godes, D. (2013). Introduction to the special issue—social media and business transformation: A framework for research. *Information Systems Research*, 24(1), 3-13.
- Arches, J. (1991). Social structure, burnout, and job satisfaction. *Social work*, 36(3), 202-206.
- Ayers, K. (2009). Why engagement is not enough. *Training and Development in Australia*, 36(2), 10.
- Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of Educational Psychology*, 99(2), 274-284.
- Berman, S., & Marshall, A. (2014). The next digital transformation: from an individual-centered to an everyone-to-everyone economy. *Strategy & Leadership*, 42(5), 9-17.

- Bharadwaj, A., El Sawy, O., Pavlou, P., & Venkatraman, N. (2013). *Digital business strategy: Toward a next generation of insights*.
- George, D., & Mallery, P. (2006). *SPSS for windows step by step, a simple guide and reference* (6th ed.). Pearson Education, Inc.
- Hanna, N. K. (Ed.). (2016). Mastering digital transformation: Towards a smarter society, economy, city and nation. In *Mastering Digital Transformation: Towards a Smarter Society, Economy, City and Nation* (pp. 1-26). Emerald Group Publishing Limited.
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Press.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). Strategy, not technology, drives digital transformation. *MIT Sloan Management Review*, 14, 1-25. Deloitte University Press.
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *The Academy of Management Journal*, 33(4), 692-724.
- Kelly, M. & Lauderdale, M. (1996). The internet: Opportunities for rural outreach and resource development. *Human Services in the Rural Environment*, 19(4), 4-9.
- Mithas, S., Tafti, A., & Mitchell, W. (2013). How a firm's competitive environment and digital strategic posture influence digital business strategy. *MIS Quarterly*, 37(2).
- Oestreicher-Singer, G., & Zalmanson, L. (2012). *Content or community? A digital business strategy for content providers in the social age*.
- Lauby, S. (2018). *Brace for changing times: Digital transformation opens a window for the future of employee engagement*. Retrieved from <https://www.talentmap.com/change-digitization-employee-engagement/>
- Ramaswamy, V. (2009). Leading the transformation to co-creation of value. *Strategy & Leadership*, 37(2), 32-37.
- Resnick, M. (2002). *Rethinking learning in the digital age*.
- Siemens, G. (2014). *Connectivism: A learning theory for the digital age*.