Investigating the Influence of Digital Leadership on Technology Integration and Work Performance in the Post-Covid Workplace: A Focus on the IT Industry in Chennai

Dr.Darwin Joseph

Senior Lecturer / Program Leader (DBA Program)
School of Business and Social Sciences,
Management Development Institute of Singapore, Singapore

Abstract

In the repercussion of the Covid-19 pandemic, the global landscape, particularly in the Information Technology (IT) sector, has witnessed profound changes in work environments and digital leadership plays a crucial role in ensuring organizational resilience and adaptability, particularly in the IT sector. This investigation aims to understand the intricate relationship between digital leadership, technology integration, and overall work performance. This study employs an exploratory and descriptive research approach, incorporating both qualitative and quantitative methods to investigate the workforce of IT/ITES companies in the Chennai district, India. The population and sample consist of employees in the IT industry, selected through convenience sampling. Data is collected via a structured questionnaire administered to 150 employees. The researcher utilizes a combination of descriptive and inferential statistical techniques to analyse the gathered data. This study underscores the significance of "Digital Proficiency" as the most influential factor in determining technology integration among IT/ITES company employees, while "Digital Citizenship" has the least impact, and "Supportive Environment" shows minimal influence. The findings from this study hold significant practical implications for digital leaders, organizational decision-makers, and policymakers, serving as a foundation for cultivating resilient, innovative, and digitally proficient work environments within Chennai's IT industry. These insights have the potential to influence best practices not only in Chennai but also in similar contexts globally.

Keywords: Digital Leadership, Technology Integration, Work Performance, Digital Proficiency, Digital Citizenship, Supportive Environment, IT Industry

Introduction

As the outcome of the Covid-19 pandemic, organizations worldwide, particularly in the Information Technology (IT) sector, have undergone significant transformations in their work environments. The post-Covid era has reshaped the contours of the workplace, escorting in an era where digital leadership stands as a pivotal force driving organizational resilience and adaptability and a critical determinant of organizational success. The seamless integration of technology and agile work practices has become an essential requirement, particularly evident in the Information Technology (IT) sector.

As IT companies navigate the challenges and opportunities presented by the post-Covid workplace, understanding the impact of digital leadership on technology integration and the work

performance of employeesbecomes imperative. The study is anchored on the premise that digital leadership serves as the key player in steering organizations through the complexities of the digital age. This study aims to investigate the dynamic interplay between digital leadership strategies, technology adoption, and overall work performance, with a specific focus on the IT industry in Chennai, India.Chennai, renowned for its robust IT ecosystem, stands at the forefront of technological innovation, making it an ideal locale for this investigation. As organizations recalibrate their strategies in response to the enduring effects of the pandemic, this investigation is poised to contribute valuable insights that can inform and empower digital leaders, decision-makers, and practitioners in the Chennai IT sector and beyond.

Conceptual Framework

DigitalLeadership

Digital leadership involves guiding organizations through the complexities of the digital age, where leaders not only understand but also embrace and leverage digital technologies for innovation and growth. According to Asri and Darma (2020), digital leaders effectively manage technology and human resources to achieve organizational goals. De Waal, van Outvorst, and Ravesteyn (2016) emphasize combining leadership competence and culture to leverage digital technology for organizational value. El Sawy et al. (2016) define digital leadership as implementing business strategy, models, and digital skill sets.

Digital leadership is defined as a style dedicated to implementing digital transformation and fostering a culture of sustainable change within the organization, navigating it through a wholly digital environment (Tuba, Tugba et. al. 2022). Munirah Khalid AlAjmi (2022) underscores the need for high standards of innovation in digital leadership. According to Zhu, Zhang, Xie, and Cao (2022), effective digital leaders master the latest technical knowledge, set examples for continuous learning, and create an atmosphere supporting innovation. Digital leadership, as highlighted by DeLuca, Bolden, and Chan (2017) and Klein (2020), involves strategically leveraging IT assets to ensure organizational competitiveness in service or product delivery.

Influential Factors of Digital Leadership

In the domain of digital leadership, several influential factors play a pivotal role in steering organizations towards success in the digital age. These influential factors collectively shape a digital leader's ability to guide organizations through the complexities of the digital era, ensuring relevance, resilience, and sustained growth. The following factors are considered for digital leadership in this study.

Technological Vision

Technological vision refers to a leader's ability to foresee and comprehend the potential impact and applications of emerging technologies within the context of an organization. It involves having a clear and strategic outlook on how technology can be leveraged to achieve long-term goals and maintain competitiveness.

Innovation Culture

Innovation culture encompasses fostering an environment within an organization that encourages and values creativity, experimentation, and the generation of new ideas. It involves promoting a mindset that embraces change, values continuous improvement, and provides the necessary support for employees to explore and implement innovative solutions.

Digital Proficiency

Digital proficiency denotes the level of competency and expertise individuals or organizations possess in utilizing digital tools, technologies, and platforms. It involves not only having the necessary technical skills but also the ability to effectively apply digital knowledge to achieve desired outcomes and navigate the digital landscape.

Supportive Environment

A supportive environment refers to the creation of organizational conditions that enable and encourage employee success and well-being. In the context of technology integration, it involves providing resources, infrastructure, and a culture that fosters collaboration, risk-taking, and adaptability, contributing to a positive and empowering workplace.

Digital Citizenship

Digital citizenship involves the responsible and ethical use of technology, both within and outside the organizational context. It encompasses adhering to principles of cybersecurity, respecting digital privacy, and promoting a culture of responsible online behavior. Digital citizenship is essential for maintaining a positive and secure digital environment within an organization.

Technology Integration

The concept of technology integration refers to the seamless incorporation and utilization of diverse technologies and digital tools within the operational processes, systems, and workflows of an organization. It entails strategically aligning technology solutions to enhance overall business performance, efficiency, and productivity. As per the National Center for Education Statistics (2002), Technology integration involves integrating technology resources and practices into the daily routines and management of organizations, including computers, specialized software, communication systems, and other infrastructure. The integration should be routine, seamless, and both efficient and effective in supporting organizational goals (NCES 2002).

In the IT sector, technology integration extends to the adoption of hardware, software, networking infrastructure, and digital platforms to streamline operations, foster innovation, and ensure the effective utilization of technological resources to meet organizational objectives. It plays a crucial role in scheduling and coordinating services, as well as staying informed about employee activities through data and analysis. The ultimate goal of this process is to create a cohesive and interconnected technological ecosystem, enabling organizations to adapt to industry trends, optimize workflows, and harness emerging technologies for sustained competitiveness and growth.

Work Performance

Work performance refers to the successful and efficient completion of assigned tasks and the overall effectiveness in carrying out job responsibilities within a professional or organizational setting. It involves evaluating both the behaviors exhibited by individuals or teams and the outcomes they achieve in their work. Motowidlo (2003) defines 'Work Performance' as the total expected value to the organization derived from discrete behavioral episodes an individual undertakes over a specified period.

In essence, work performance is a comprehensive assessment of how well employees or teams meet established goals, objectives, and expectations in the workplace. It goes beyond mere task completion and encompasses considerations of quality, efficiency, and effectiveness in task execution. The definition of work performance also involves assessing the total value of expected behaviors during an evaluation period, covering both behavioral aspects and the results of employees' work (Szara, Marta et al. 2017).

Literature Review

Chang (2012) investigated the perspectives of 1000 teachers in Taiwan, revealing that the digital leadership of principals enhances teachers' technological literacy and directly motivates them to effectively incorporate technology into the classroom. Sasmoko et al. (2019) explored the impact of digital leadership on fostering innovation capability based on market orientation, establishing a positive relationship between digital leadership and innovation capability. Sabrina Zeike et al. (2019) explored the correlation of digital leadership with perceived psychological well-being in upper-level managers, finding that enhanced digital leadership skills were significantly associated with higher well-being, while factors like gender, age, and managerial experience had no impact.

Munirah Khalid AlAjmi (2022) investigated the influence of digital leadership among school principals on teachers' technology integration during the Covid-19 pandemic in Kuwait. The study, involving 113 school principals and 404 teachers, indicated a positive impact of digital leadership on teachers' technology integration. Zhu, Zhang, Xie, and Cao (2022) examined the relationship between digital leadership and employee creativity, uncovering a positive effect, where employee job crafting mediated the relationship. Person-organization fit also positively moderated the relationship, enriching the understanding of digital leadership's impact on employee creativity.

Huma Akram et al. (2022) presented teachers' perceptions of technology integration in teaching-learning practices in Pakistan. The findings reflected positive attitudes toward technology integration, indicating that technology-enhanced teaching positively impacted instructional practices, making learning more engaging and motivating. Jose Benitez et al. (2022) conducted a multiple case study on ten companies, establishing a theoretical model linking digital leadership to innovation performance. Empirical testing on 117 European firms confirmed that digital leadership enhances innovation performance through digitalizing the firm's platform. Munsamy, Dhanpat, and Barkhuizen (2023) developed and validated a scale measuring digital leadership competencies to enable employee relevance. The study identified six competencies, including embracing digital, facilitating the digital drive, digital adaptiveness, cultivating a digital culture, and possessing digital skills and competitive intelligence.

The synthesis of previous studies reveals a notable research gap in the specific examination of digital leadership within the IT industry in Chennai, particularly in the post-Covid workplace. While the cited studies provide valuable insights into the impact of digital leadership on technological literacy, innovation capability, psychological well-being, and technology integration in various contexts, there is a lack of research that focuses on the IT sector in the specific geographic and occupational context of

Chennai post-Covid. The existing studies offer a broad understanding of digital leadership across different industries and regions but do not address the unique challenges, strategies, and outcomes within the IT landscape in Chennai after the pandemic. Therefore, the present study aims to bridge this gap by concentrating on the IT industry in Chennai, providing tailored insights into how digital leadership influences technology integration and work performance in the outcome of the Covid-19 pandemic, contributing to a more context-specific understanding of the implications of digital leadership in this dynamic and evolving professional environment.

Formulation of Research Problem

Asorganizations struggle with unprecedented challenges and opportunities brought forth by the Covid-19 pandemic, the influence of digital leadership on key organizational outcomes, specifically technology integration and work performance, emerges as a critical area of exploration. The sub-variables considered under scrutiny, i.e., technological vision, innovation culture, digital proficiency, supportive environment, and digital citizenshipreflect the multifaceted dimensions through which digital leaders can either catalyse or impede the integration of technology and subsequently impact the overall efficiency of the workforce.However, despite the growing recognition of this importance, there exists a gap in our understanding of how digital leadership practices influence the IT workforce, particularly in Chennai. This research seeks to bridge this gap by addressing two fundamental questions:

❖ How do digital leadership practices impact employees' ability to seamlessly integrate new technologies into their work processes within the context of the post-Covid IT workplace?

❖ What is the intricate relationship between the strategies employed by digital leaders and the overall work performance of employees in the IT industry in Chennai in the post-Covid era?

By dividing these questions, the study aims to extract actionable insights that can serve as a compass for organizations navigating the digital landscape, offering strategies for leaders to optimize technology integration and, consequently, elevate work performance in the dynamic and rapidly evolving IT hub of Chennai.

Methodology

This research employs an exploratory and descriptive approach, utilizing a mixed research methodology that integrates both qualitative and quantitative methods. The study concentrates on the workforce of IT/ITES Companies in the Chennai district, considering them as the population and sample. The sample selection is based on convenience sampling, and primary data is collected through a structured questionnaire administered to 150 employees serving in the IT industry in Chennai district, India.

To analyse the gathered data, the researcher employs a combination of descriptive and inferential statistical techniques. Statistical tools such as Mean Analysis, Independent Sample 't' test, Correlation Analysis, and Multiple Regression Analysis are utilized to scrutinize the primary data.

Data Analysis and Results

Employees' Perception of Influential Factors of Digital Leadership

To identify the employees' perception of the influential factors of digital leadership, 15 questions relating to the five factors i.e.,technological vision, innovative culture, digital proficiency, supportive environment and digital citizenship (3 Likert scale sentences for eachfactor) are questioned from the employees working in IT Industrythrough the structured questionnaire and the results are as follows.

Table 1: Influential Factors of Digital Leadership

	Descriptive Statistics			
S. No.	Influential Factors of Digital Leadership	N	Mean	Rank
1.	Technological Vision	150	12.14	Second
2.	Innovative Culture	150	11.68	Third
3.	Digital Proficiency	150	12.65	First
4.	Supportive Environment	150	10.73	Fifth
5.	Digital Citizenship	150	11.16	Fourth
	Employees' Perception of Influential Factors of Digital Leadership	150	58.36	

Source: Primary Data

From the above table 1, based on the Mean score, it is inferred thatemployees perceived more on'Digital Proficiency' (M = 12.65) and perceived lesser on'Supportive Environment' (M = 10.73)when compared with other factors of digital leadership in the IT industry. It is also inferred that theemployees' perception of the influential factors of digital leadership is above the average level since all the Mean values are above 10 out of 15 (two-thirds). The Overall mean score of theemployees' perception ofinfluential factors of digital leadership in the IT industryis 58.36 which is 77.81% (58.36/75 x 100) which indicates the average level and is appreciable.

Independent Sample t-Test Analysis

H_0: *There is no significant difference between the employees belonging to IT and ITES companiesconcerning the perception of the digital leadership factors.*

An independent-sample t-test was conducted to compare the differences between the employees belonging to IT and ITES companies concerning the perception of the digital leadership factors.

Table 2: Type of Company – Perception of Digital Leadership Factors

Variable	Type of Company – Digital Leadership Factors						t - value	p – value
	IT			ITES				
	N	Mean	SD	N	Mean	SD		
Perception of digital leadership factors	82	53.46	4.589	68	51.77	3.796	4.635	0.000**

Source: Primary Data
(**1% Level of Significance)

As the P-value (0.000) is lesser than Sig. Value at 1%, the null hypothesis is rejected. Based on the mean score, it is inferred that the employees' perception ofdigital leadership factorsis higher in the case of employeesbelonging to IT Companies (M = 53.46) than the employees (M = 51.77)belonging to ITES Companies. Hence, it is concluded that there is a statistically significant difference between the employees belonging to IT and ITES Companies concerning the perception of digital leadership factors.

Technology Integration and Work Performance

H₀: *There is no significant difference between the employees belonging to IT and ITES companies concerningtechnology integration and work performance.*

An independent-sample t-test was conducted to compare the differences between the employees belonging to IT and ITES companies concerningtechnology integration and work performance.

Table 3: Type of Company – Technology Integration and Work Performance

Variables	Type of Company – Technology Integration and Work Performance						t - value	p – value
	IT			ITES				
	N	Mean	SD	N	Mean	SD		
Technology integration	82	20.58	3.666	68	18.69	4.365	3.960	0.000**
Work performance	82	20.12	3.751	68	18.53	4.540	3.854	0.000**

Source: Primary Data
(**1% Level of Significance)

As the P values (0.000) are lesser than sig. value at 1%, the null hypotheses are rejected. Based on the mean score of technology integration and work performance of employees due to the influence of digital leadership, it is inferred that employees belonging to IT companies have perceived more technology integration (M = 20.58) and have perceived higher work performance (M = 20.12) than their counter-part i.e., employees belong to ITES companies (M = 18.69 and 18.53). Hence, it is concluded that there is a statistically significant difference between the employees belonging to IT and ITES companies concerningtechnology integration and work performance.

Correlation Analysis

Relationship Between Digital Leadership Factors and Work Performance of Employees in the IT Industry

H₀: There is no significant relationship between digital leadership factors and the work performance of employees of IT/ITES companies.

A Pearson product-moment correlation was run to determine the relationship between digital leadership factors and the work performance of employees of IT/ITES Companies.

Table 4: Relationship between Digital Leadership Factors and the Work Performance of Employees in the IT Industry

Variables	N	'r' Value	P - Value	Relationship	Remarks	
					ignificance	Result
Technological Vision – Work Performance	150	0.742**	0.000	Positive	Significant	Rejected
Innovative Culture – Work Performance	150	0.710**	0.000	Positive	Significant	Rejected
Digital Proficiency – Work Performance	150	0.812**	0.000	Positive	Significant	Rejected
Supportive Environment – Work Performance	150	0.504**	0.000	Positive	Significant	Rejected
Digital Citizenship – Work Performance	150	0.645**	0.000	Positive	Significant	Rejected
Digital Leadership Factors – Work Performance	150	0.769**	0.000	Positive	Significant	Rejected

(Source: Primary Data)

**Correlation is significant at the 0.01 level (2-tailed).

As the P values are lesser than Sig. Value (0.01) in all the above relationships, the null hypotheses are rejected. There are moderate to high positive correlations between digital leadership factors and the work performance of employees of IT/ITES companies. Out of fivedigital leadership factors, "Digital Proficiency" (r = 0.812) has more relationship with work performance and "Supportive Environment"(r = 0.504) has a lesser relationship with work performanceconcerning employees of IT/ITES companieswhen compared with others. Overall, the digital leadership factorshave a strong, positive and high relationship (r = 0.769) with the work performance of employees of IT/ITES companies. Hence, there is a significant relationship between digital leadership factors and the work performance of employees of IT/ITES Companies.

Relationship Between Technology Integration and Work Performance of Employees in the IT Industry

H$_0$: There is no significant relationship between Technology Integration and Work Performance of employeesof IT/ITES Companies.

A Pearson product-moment correlation was run to determine the relationship between Technology Integration and Work Performance of employees of IT/ITES Companies.

Table 5: Relationship Between Technology Integration and Work Performance of Employees in IT Industry

Variable	N	'r' Value	P - Value	Relationship	Remarks	
					ignificance	Result
Technology Integration–Work Performance	150	0.855**	0.000	Positive	Significant	Rejected

(Source: Primary Data) **. Correlation is significant at the 0.01 level (2-tailed).

As the P value is lesser than Sig. Value (0.01) in the above relationship, the Null Hypothesis is rejected. There is a high positive correlation (r = 0.855) between Technology Integration and Work Performance of employees of IT/ITES Companies.

Multiple Regression Analysis

Multiple regression analysis was conducted to determine the best linear combination of the digital leadership factorsfor predicting the technology integration of employees working in IT/ITES Companies.

Table 6: Regression Coefficient of Digital Leadership Factors – Technology Integration

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.775	.736		1.887	.070
	Technological Vision	.243	.186	.230	3.746	.000**
	Innovative Culture	.255	.190	.211	3.222	.008**
	Digital Proficiency	.433	.177	.275	4.852	.000**
	Supportive Environment	.052	.203	.057	0.696	.706
	Digital Citizenship	.126	.195	.118	2.468	.034*

Dependent Variable: Technology integration of employees
(**1% and *5% Level of significance)

The combination of four out of five independent variables i.e., digital leadership factors, significantly predicts the dependent variable i.e., technology integration of employees, F (5, 144) = 158.634, *p values are* lesser than 0.01 and 0.05 (Sig. Value 2-tailed) and Adjusted R square is 0.712 or 71% which is large effect according to Cohen.

Out of five digital leadership factors, "Digital Proficiency" (0.275) is the strongest influencing strategy in predicting 'Technology Integration of employees.' From the unstandardized coefficient, it is found that the one unit increase in the "Digital Proficiency" factor would increase the technology integration of employeesby 0.433 units. Technological vision (0.230), innovative culture (0.211) anddigital citizenship (0.118) factorsalso influence the technology integration of employeessignificantly but less than

"Digital Proficiency".However, a supportive environment (0.057) does not predict the technology integration of employeessignificantly.

Another multiple regressionanalysis was conducted to determine the best linear combination of digital leadership and Technology Integration for predicting the work performance of employees serving in IT/ITES Companies.

Table 7: Regression Coefficient of Digital Leadership Factors and Technology Integration – Work Performance of Employees

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.365	.542		2.656	.038
	Digital Leadership	.631	.117	.554	6.321	.000**
	Technology Integration	.278	.136	.232	3.447	.000**

Dependent Variable: Work performance of employees
(**1% Level of significance)

The combination of all the two independent variables i.e., digital leadership and technology integration, significantly predicts the dependent variable i.e., the work performance of employees, F (2, 147) = 224.557, *p values are* lesser than 0.01 (Sig. value 2-tailed) and adjusted R square is 0.757 or 72% which is large effect according to Cohen.

Out of two independent variables, "Digital Leadership" (0.554) is the stronger influencing variable in predicting the work performance of employees than technology integration.From the unstandardized coefficient, it is found that the one unit increase in "Digital Leadership" would increase the work performance of employees by 0.631 units.

Summary of Findings

The findings of this study indicate that among the factors examined, "Digital Proficiency" emerged as the most influential, while "Digital Citizenship" demonstrated the least impact on determining "Technology Integration" among employees in IT/ITES companies. "Supportive Environment" did not exhibit a significant influence on the "Technology Integration" of employees. Furthermore, the research found that the perception of employees belonging to IT Companies is more on digital leadership factors andtechnology integration and they have perceived more impact of digital leadership on work performancethan the employees belonging to ITES companies.

Particularly, the study identified robust and positive relationships among digital leadership factors, technological integration, and work performance of employees. Particularly, the impact of digital leadership was found to be more pronounced on "Work Performance" than on "Technology Integration" within the IT industry in Chennai. These findings underscore the unique dynamics between leadership in

the digital domain, the seamless integration of technology by employees, and the subsequent impact on overall work performance in the IT sector of Chennai.

Suggestions and Recommendations

In order to enhance overall technology integration within companies, a crucial focus should be placed on initiatives that elevate the digital skills and proficiency of employees. This necessitates strategic investments in targeted training programs, workshops, or certifications aimed at bridging skill gaps and ensuring the workforce remains adept at leveraging emerging technologies. The limited impact of "Digital Citizenship" and the insignificant influence of a "Supportive Environment" on technology integration highlight the need for a reassessment of organizational strategies. To address this, implementing awareness programs and cultivating a culture that underscores responsible digital behaviour can enhance the digital citizenship of employees. Additionally, creating an environment that actively supports and encourages technology adoption can further facilitate continuous integration efforts.

The distinct perceptions of employees in IT Companies compared to their ITES counterparts underscore the necessity for tailored approaches. Companies, particularly those in the ITES sector, stand to benefit from adopting practices and strategies that align more closely with the perceived priorities and expectations of their workforce. Moreover, identifying strong positive relationships among digital leadership factors, technological integration, and work performance suggests an opportunity for comprehensive improvements. Leaders should consider implementing digital leadership training programs to enhance both technology integration and subsequent work performance. While fostering supportive work environments is essential, leaders should tailor their approaches based on the distinct perceptions of employees in IT and ITES companies. Strengthening digital leadership practices, staying abreast of technological trends, and cultivating innovation-driven cultures can significantly impact overall work performance. This study emphasizes the strategic alignment of digital leadership practices with the unique dynamics of the IT industry in Chennai, fostering a more efficient and technology-forward organizational culture.

Conclusion

This study investigates the complex landscape of digital leadership, technology integration, and work performance in the post-Covid environment of the IT industry in Chennai. As the IT sector continues to evolve, the findings of this study provide a roadmap for leaders to strategically position their organizations for success, embracing the opportunities and challenges inherent in the digital era.This study significantly contributes by highlighting the pivotal role of "Digital Proficiency" and the importance of cultivating a culture of "Digital Citizenship" for technology integration and work performance in post-Covid IT Chennai. The identification of perceptions among employees in the IT and ITES sectors provides practical insights for tailored leadership approaches.

The subtle dynamics identified underscore the significance of continuous adaptation and strategic leadership. The imperative for ongoing digital proficiency training, the cultivation of a responsible digital culture, and the need for tailored leadership approaches emerge as key considerations. Leaders in IT/ITES companies must navigate these complexities with a focus on creating environments that foster innovation and seamlessly integrate evolving technologies. Ultimately, the insights generated from this study are

poised to offer practical implications for digital leaders, organizational decision-makers, and policymakers, providing a foundation for fostering resilient, innovative, and digitally proficient work environments within Chennai's IT industry and potentially influencing best practices in similar contexts globally.On the whole, the study offers actionable guidance for leaders in enhancing digital strategies and fostering a dynamic and resilient organizational culture.

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