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CHALLENGES WITH EMERGING TECHNOLOGIES OF DIGITAL TRANSFORMATION

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ABSTRACT

In the domain of organizational digital transformation, numerous critical factors influence the process, each presenting unique challenges and consequences. Foremost among these is the significant hurdle of cultural resistance to change. Overcoming entrenched traditional practices and embracing a digital-first mentality requires a fundamental shift in attitudes, behaviors, and approaches. Organizations frequently encounter challenges such as resistance to change, technological apprehension, and the comfort of familiar routines, which hinder the smooth implementation of digital projects. Organizations are now confronted with the challenging endeavor of closing skill gaps among their existing workforce while also attracting new talent well-versed in specialized areas such as data analytics, artificial intelligence, and cybersecurity.

Keywords: Digital transformation, Challenges, Cultural resistance.

1. INTRODUCTION

In the fast-paced realm of contemporary business, constant digital innovation serves as the driving force behind transformative shifts. With the rise of digital technologies, companies across various sectors find themselves compelled to undergo what is commonly known as "organizational digital transformation." This process goes beyond simply adopting new technologies; it signifies a fundamental change in operational methods, customer interactions, and overall relevance in today's digital landscape; Owosemi (2023).

At the core of this transformation lie emerging trends and technologies poised to fundamentally alter business operations. Artificial intelligence (AI), with its ability to analyze vast datasets and generate insights, is empowering organizations to make rapid and informed decisions. The Internet of Things (IoT) connects devices and systems, enabling seamless data exchange for real-time monitoring and predictive analytics. Cloud computing has made computational power and storage more accessible, fostering scalable and flexible operations. Data analytics is essential in extracting valuable insights from large volumes of data, driving strategic advancements. Finally, blockchain, known for its decentralized and secure nature, holds the promise of transforming trust and transparency across various sectors.

Digitization is a pivotal factor in spearheading digital transformation endeavors across diverse sectors and supply chains. It offers cost-saving benefits to businesses by minimizing reliance on paper documents and other traditional materials. The crux of a successful corporate digital transformation lies in a comprehensive grasp of the intended business objectives. Once these goals are clearly understood, organizations can make informed choices about the appropriate digital technologies and partnerships to facilitate the digitization process.

Mazzone (2014) defines digital technology as the intentional and continuous digital advancement of a company, business model, idea process, or methodology, encompassing both strategic planning and tactical implementation.

Digital transformation refers to the incorporation of digital technology across all facets and functions of an organization, resulting in fundamental changes to its operational infrastructure and the manner in which it delivers value to customers; McGrath and Maiye (2010), Vial (2019).

Cybersecurity vulnerabilities have the potential to compromise the advantages of digital transformation, requiring comprehensive measures to protect sensitive data and transactions. The continuous training and development of the workforce are essential to fully leverage the capabilities of these technologies, ensuring that employees possess the necessary skills to navigate the digital realm. Additionally, ethical concerns pertaining to data privacy, AI algorithm bias, and the environmental repercussions of technology implementation need to be addressed thoughtfully.

In the domain of organizational digital transformation, numerous critical factors influence the process, each presenting unique challenges and consequences. Foremost among these is the significant hurdle of cultural resistance to change. Overcoming entrenched traditional practices and embracing a digital-first mentality requires a fundamental shift in attitudes, behaviors, and approaches.

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Organizations frequently encounter challenges such as resistance to change, technological apprehension, and the comfort of familiar routines, which hinder the smooth implementation of digital projects; Hai et al. (2021). Additionally, the complexity of legacy systems and integration poses another layer of intricacy. Many organizations struggle with outdated systems that do not easily integrate with modern digital solutions. This complexity in merging new technologies with existing infrastructure demands significant time and resources, making it a multifaceted challenge that requires careful consideration; Zaki (2019).

Moreover, the rapid advancement of digital technologies has brought about a significant issue: Skill Gaps and Talent Acquisition. There is now a heightened demand for skilled professionals who are proficient in navigating the digital terrain, leading to a shortage of such individuals. Organizations are now confronted with the challenging endeavor of closing skill gaps among their existing workforce while also attracting new talent well-versed in specialized areas such as data analytics, artificial intelligence, and cybersecurity; Martinez-Moran et al. (2021).

Objective: To study the challenges with emerging technologies of digital transformation.

Methodology: In the present research study, the research methodology includes survey design, data sources, data collection tools, sample design, data analysis and interpretation.

Research Design: The descriptive research design has been adopted to study opportunities and new challenges with emerging technologies of digital transformation.

Population: The present research study has been conducted on employees working in Google (Cambridge), Amazon (Boston), Cloudera (San Jose, CA), Wipro, TCS & Bose India, Bed Bath & Beyond (NJ, USA).

Method of Sampling: In the present study, stratified random sampling has been considered so as to collect the data.

Sample size: The sample size is determined by various factors, including the research design, the level of precision required, the expected effect size, and the available resources**.**

Sample Size= 390 Respondents

Primary Data: In the present study the primary data has been collected from the selected employees working in in Google (Cambridge), Amazon (Boston), Cloudera (San Jose, CA), Wipro, TCS & Bose India, Bed Bath & Beyond (NJ, USA) through questionnaire method.

Research Instrument: In this study, primary data has been acquired through the use of a questionnaire.

2. DATA ANALYSIS

Distribution of Respondents on the Demographic Basis

Table 1: Distribution of Respondents on the basis of age group

Age group (Years)	Number of Respondents	Per Cent
21≤ -≤30	119	30.5
30≤ -≤40	90	23
40≤ -≤50	78	20
50≤ -≤60	73	19
Above 60	30	7.5
Total	**390**	**100**

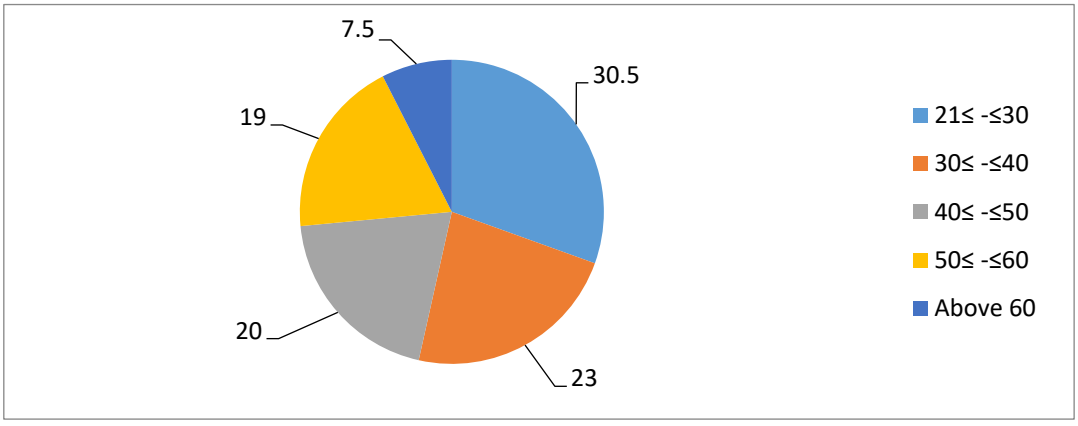

Figure 1: Distribution of Respondents on the basis of Age group

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Analysis: Among the age group of 21 to 30, there were 30.5 respondents, moving on to the next age range of 30 to 40, there were 23 respondents, in the range of 40 to 50, there were 20 respondents, followed by 19 respondents in the 50 to 60 range. Notably, as the age group exceeds 60 with only 7.5 participants falling into this category.

Table 2: Distribution of Respondents on the basis of Gender

Gender	Number of Respondents	Per Cent
Male	199	51
Female	191	49
Total	**390**	**100**

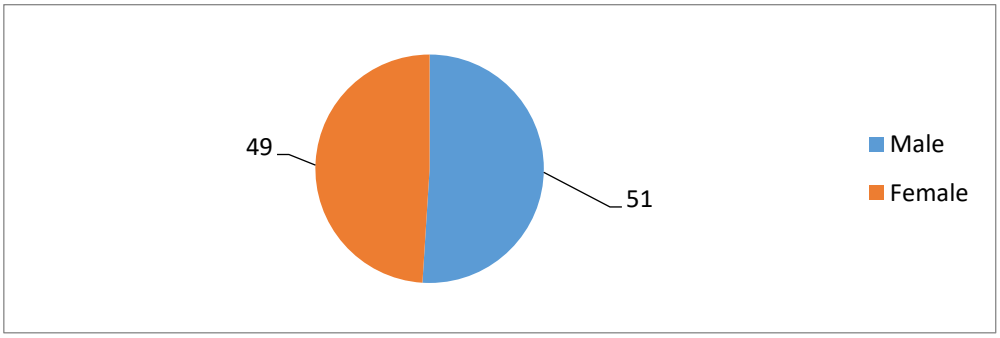

Figure 2: Distribution of Respondents on the basis of Gender

Analysis: The distribution of respondents based on gender reveals a nearly equal split between male and female participants. With 51 male respondents and 49 female respondents, there is a balanced representation across genders in this dataset.

Analysis Related to Challenges with Emerging Technologies for Digital Transformation

Table 3: Table showing the response related to challenges with emerging technologies for digital transformation

S. No.	Opportunities	Extremely	Very Much	Moderately	Slightly	Not at all
1	How significant do you perceive cultural resistance to change as a challenge in implementing digital transformation initiatives within organizations?	45 (11.5%)	84 (21.5%)	127 (32.5%)	105 (27%)	29 (7.5%)
2	To what extent do you believe that adherence to familiar routines hinder the smooth implementation of digital technologies within organizations?	82 (21%)	146 (37.5%)	74 (19%)	60 (15.5%)	28 (7%)
3	How challenging do you find the complexity of integrating modern digital solutions with existing legacy systems within organizations?	54 (14%)	82 (21%)	154 (39.5%)	78 (20%)	22 (5.5%)
4	How significant is the issue of skill gaps and talent acquisition in hindering organizations' efforts to navigate the digital landscape and implement digital transformation initiatives?	68 (17.5%)	80 (20.5%)	80 (20.5%)	127 (32.5%)	35 (9%)
5	To what extent do you believe technological apprehension among employees poses a challenge to the adoption of emerging technologies for digital transformation within organizations?	74 (19%)	105 (27%)	113 (29%)	88 (22.5%)	10 (2.5%)

Analysis: 1. Among all respondents, 11.5% who perceive cultural resistance to change as extremely significant in implementing digital transformation initiatives within organizations demonstrate a profound understanding of the formidable challenge posed by ingrained cultural norms and attitudes. Similarly, the 21.5% of respondents view cultural resistance to change as very significant, 32.5% of respondents perceive cultural resistance to change as moderately significant, conversely, the 27% of respondents who perceive cultural resistance to change as slightly significant suggest a more cautious outlook regarding the impact of cultural factors on digital transformation initiatives. 7.5% of respondents who perceive cultural resistance to change as not significant represent a small number with a more optimistic view toward the impact of cultural factors on digital transformation initiatives.

2. The 21% of respondents who perceive adherence to familiar routines as extremely and similarly, the 37.5% of respondents who view adherence to familiar routines as very much hindering the smooth implementation of digital technologies within organizations demonstrate a strong recognition of the entrenched nature of existing processes and workflows as potential barriers to change. The 19% of respondents perceive it as moderately, 15.5% of respondents view adherence to familiar routines as slightly whereas 7% of respondents who perceive adherence to familiar routines as not hindering the smooth implementation of digital technologies represent a small number with a more optimistic view toward the impact of routine-bound behaviors on digital transformation efforts.

3. The data reveals a diverse perception regarding the challenge posed by the complexity of integrating modern digital solutions with existing legacy systems within organizations. The 14% of respondents perceive this challenge as extremely significant, 21% of respondents view the complexity of integration as very challenging, 39.5% of respondents who perceive the complexity of integration as moderately challenging demonstrate a balanced perspective that acknowledges the complexities involved while also recognizing the potential for mitigation through strategic planning and execution. 10% of respondents view the complexity of integration as slightly challenging, whereas 5.5% of respondents who perceive the complexity of integration as not challenging represent a small number with a more optimistic view toward integration efforts.

4. The data indicates a range of perceptions regarding the significance of skill gaps and talent acquisition as hindrances to organizations' efforts to navigate the digital landscape and implement digital transformation initiatives. The 17.5% of respondents perceive this issue as extremely significant, 20.5% of respondents view the issue of skill gaps and talent acquisition as very much, 20.5% of respondents perceive the issue as moderately, 32.5% of respondents who view the issue of skill gaps and talent acquisition as slightly hindering digital transformation efforts suggest a more cautious outlook regarding the impact of talent shortages on organizational capabilities. Finally, 9% of respondents perceive the issue of skill gaps and talent acquisition as not hindering.

5. The data highlights a range of perceptions regarding the challenge posed by technological apprehension among employees to the adoption of emerging technologies for digital transformation within organizations. The 19% of respondents perceive this issue as extremely significant, 27% of respondents view technological apprehension among employees as very much, 29% of respondents perceive technological apprehension among employees as moderately hindering. 22.5% of respondents slightly agreed and 2.5% disagreed suggest a more cautious outlook regarding the impact of employee resistance on organizational change initiatives.

3. FINDINGS

1. The result found that among all respondents, 11.5% who perceive cultural resistance to change as extremely significant in implementing digital transformation initiatives within organizations demonstrate a profound understanding of the formidable challenge posed by ingrained cultural norms and attitudes. Similarly, the 21.5% of respondents view cultural resistance to change as very significant, 32.5% of respondents perceive cultural resistance to change as moderately significant, conversely, the 27% of respondents who perceive cultural resistance to change as slightly significant suggest a more cautious outlook regarding the impact of cultural factors on digital transformation initiatives. 7.5% of respondents who perceive cultural resistance to change as not significant represent a small number with a more optimistic view toward the impact of cultural factors on digital transformation initiatives.

2. The study found that 21% of respondents who perceive adherence to familiar routines as extremely and similarly, the 37.5% of respondents who view adherence to familiar routines as very much hindering the smooth implementation of digital technologies within organizations demonstrate a strong recognition of the entrenched nature of existing processes and workflows as potential barriers to change. The 19% of respondents perceive it as moderately, 15.5% of respondents view adherence to familiar routines as slightly whereas 7% of respondents who perceive adherence to familiar routines as not hindering the smooth implementation of digital technologies represent a small number with a more optimistic view toward the impact of routine-bound behaviors on digital transformation efforts.

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4. CONCLUSION

The present research study focused on various challenges concerned with emerging technologies for digital transformation. The study considered various challenges like: Cultural resistance to change, nature of familiar routines, complexity of integrating modern digital solutions with existing legacy systems within organizations, skill gaps and talent acquisition shortages and study concluded Cultural resistance to change emerges as a significant hurdle and technological apprehension. The present research study concluded that majority of respondents recognizing its profound impact on transformation efforts. Similarly, the entrenched nature of familiar routines presents a formidable barrier, hindering the smooth integration of digital technologies. The complexity of integrating modern solutions with legacy systems poses another substantial challenge, requiring strategic planning and execution for effective mitigation. Skill gaps and talent acquisition shortages are also identified as significant impediments, underscoring the critical need for nurturing a skilled workforce. Moreover, technological apprehension among employees emerges as a pervasive challenge, highlighting the importance of fostering a culture of adaptability and continuous learning.

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