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Management styles and practices that influence the success of technological change implementation within organizations

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ABSTRACT

This paper investigates the management styles and practices relevant to the successful implementation of technological change within an organization focusing on three organizations in Zambia. As firms struggle to cope with the ever-increasing competitive pressure to utilize new technologies, there is need to employ management styles and practices that can lead to successful implementation. This study adopts a qualitative multiple case study approach to analyse the various management styles and practices appropriate towards achieving effective technology integration in an organization. The study identifies transformational leadership as a primary driver and therefore emphasizes the need for a clear vision, open communication and employee engagement in overcoming resistance to change. The study also examines the adoption of technology as a process and emphasizes the role of organizational culture noting that a culture of adaptability enhances innovation and employee participation. The findings provide practical recommendations for enhancing leadership visibility, structured communication, and robust training programs, which are essential for navigating the complexities of technological change. Ultimately, this paper contributes valuable insights to the fields of change management and organizational development, reinforcing the need for adaptable and proactive leadership in the face of technological advancements.

1. Introduction

The global demand for technological advancement has accelerated the adoption of new innovations in many organizations across the globe. Several organizations are increasingly under pressure to modernize and digitize their operations in order to remain competitive and meet the demands of stakeholders. The adoption of these advanced technologies, however, requires more than just financial investments. It necessitates a fundamental transformation in organizational processes, culture, and leadership practices. As Aslam et al. (2018) note, while

new technologies offer immense potential to drive efficiency and growth, their successful implementation requires skilful navigation of the accompanying complexities.

Management plays a pivotal role in mitigating these challenges and ensuring the success of technological change initiatives. The leadership styles and strategies adopted by managers significantly influence the outcomes of such initiatives. Transformational leadership, characterized by a clear vision, motivational support, and a focus on employee engagement, has been identified as a key enabler of successful technology adoption. Zafar and Naveed (2014) emphasize that transformational leaders inspire trust and foster a sense of ownership among employees, making them more receptive to change. Similarly, Musaigwa (2023) highlights the importance of transparent communication and inclusive decision-making in reducing resistance and building a shared commitment to organizational goals.

The role of management is particularly critical in developing countries such as Zambia, where the challenges of technological change are compounded by infrastructural and socio-economic constraints. The SMART Zambia Institute (2023) underscores the importance of effective management in driving digital transformation in public and private sectors. The initiative's findings reveal that while Zambia has made significant strides in adopting technologies such as e-government platforms and mobile banking, the success of these initiatives often hinges on the ability of managers to engage stakeholders, allocate resources effectively and build organizational capacities. For example, the Zambia Revenue Authority's adoption of digital systems has improved service delivery, but the implementation process was heavily reliant on strong leadership and effective communication to overcome resistance and operational challenges.

The purpose of this study is to understand different management styles and practices influencing the success of technological change implementation within organizations. To achieve this objective, the paper adopted a qualitative multiple case study in order to determine the different management styles and practices influencing the success of technological change implementation within the three organizations in Zambia. This was achieved through conducting interviews to managers and ICT professional who are involved in technology implementation in the three organizations. The paper starts introduction followed by the literature review associated with management strategies and styles during technological change in organizations. This is followed by the explanation of the methodology, the results and then the conclusion and recommendation for future research.

2 Literature Review

The literature surrounding technology adoption has evolved significantly over the years, reflecting the changing landscape of both technology and organizational management.

2.1 Overview of Common Change Management Frameworks

Organizations all over the world are undergoing rapid changes due to technological enhancements, market trends and overall expectations of consumers. This requires managing processes in an efficient manner in order to remain relevant to the consumers. There are several theories that have been developed to assist leaders in this process. Some are more popular such as the Kurt Lewin Change Management Model, Kotter 8 Step Change Model and the ADKAR Model. Lewin's model, focuses on the psychological perspectives of change and is composed of three steps which are unfreezing, change, and refreezing (Lewin, 1951). In Kotter's 8 Step Change

Model, there is a process to follow towards change including sense of urgency, enabling action, and building commitment (Kotter, 1996). On the other hand, the ADKAR Model focuses on different individual transitions and the changes are defined in five elements: awareness, desire, knowledge, ability, and reinforcement (Prosci, 2023).

2.2 Management Strategies and styles that support technological changes

With the development of new technologies, organizations are expected to change their structures, procedures and business strategies to take advantage of technological developments across the world. Technological change is not just a matter of changing tools; it is a more complex activity which must be done carefully, systematically and thoughtfully so that it is easy for all people involved to adopt to the new approach and for the change to be smooth (Burnes, 2004). The thorough incorporation of new technology has to be managed well to ensure that there are no or minimal disruptions to work and cooperation is enhanced to reap the rewards that the new systems intend to bring. Organizations, therefore, need to appreciate the steps involved in the management of technological change, use sophisticated change methodologies and consider both organizational culture and people to manage the issues regarding the transformation complexities that organizations face (Glaser, 2016).

Leadership Style and Vision

In orders for an organization to adopt technological change, it is imperative that leadership is strong in transforming the direction the organization has chosen. In this case, a certain style of transformation leadership is one of power. Transformational leaders focus on the vision rather than the details (Bozkus, 2023). A great deal of research evidence correlates those with transformational leadership style and successful implementation of technology, proving the importance of leadership in transforming organizations technologically. The most effective leaders are those with idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Such leaders have greater chances of succeeding in introducing innovative technologies in the organization as they encourage new inventive ways of doing things therefore allowing the organization to easily adjust to such advanced novel changes. Such leaders who can be called values-based leaders are able to encourage their employees to transform the company through the advanced vision they present to them while giving them the attention needed especially to those struggling with the shift in the complex technological innovations.

The importance of transformational leadership in cultivating a culture of creativity, flexibility, and employee participation amid technological change has been highlighted in many research studies (Bozkus, 2023). Creating a shared vision for the future state, empowering employees to participate in the implementation process, and inspiring and motivating people to embrace change are all characteristics of transformational leaders. It is important to create a compelling and clear vision for the future state enabled by new technologies (Kotter, 1996). This vision should outline the potential benefits for the organization and its employees and provide direction and sense of purpose to the transformation process (Mohamed & Frank, 2024).

Transformation leadership can be proven to be practically true both in quantitative and qualitative ways. Quantitative studies show that transformational leadership improves an organization's odds of successfully undertaking technology changes that are drastically different. Bass and Steidlmeier (1999) in their study found out that attempts to successively implement change within organizations having an elevated level of transformational leadership are more successful than in organizations where dominant leadership style is transactional leadership. Clearly, the research showed that 75% of companies with transformational leaders

portrays success in their technology integrations, while those with transactional leaders portrayed only 35% success. The results emphasize the efficacy of transformational leadership in promoting change within the organization.

While quantitative data highlight the existence of strong relationships, qualitative data also add another layer of understanding as to how transformational leaders implement technologies successfully. Transformational leaders are known to promote participation, feedback and communication openly with their subordinates in relation to technology issues. This type of employee participation not only improves technology comprehension, but also mobilizes employees to utilize it. According to a study conducted by Gachugu (2024), employees from different organizations undergoing a change in technology reported being more dispositional towards the accepting of new technologies under the leadership of transformational leaders who had a vision and actively supported their subordinates' participation. Employees said that these leaders assisted in reducing apprehension towards new technologies and, as a result, resistance to change was decreased.

Communication and Engagement

Primary communication and engagement actions are important steps when managing changes, as is the case with the implementation of new technologies in an organization. Most assessments and studies conducted have shown that organizations that tend to communicate more during the change processes seem to have higher achievement levels and employee contentment. The following data and findings portray the advantages of communication and engagement actions in the organizational change processes.

According to the study conducted by the Project Management Institute (PMI), the report titled "Pulse of the Profession" made it clear that organizations that communicate well during the change processes have a better possibility of attaining the goals set for changes. In particular, as opposed to other organizations, the PMI noted that 80% of high performing organizations focus on effective communication. Thus, high performing organizations tend to have lower project failure rates than the other types of companies, at 15% versus 42% (Project Management Institute, 2021; Kinder, 2021).

Moreover, a report by McKinsey & Company states that those organizations, which are well known for their communication skills and focus on their people's performance during the implementation of change, are 4.2 times more likely to outperform their peers, realizing an average 30 percent higher revenue growth and experiencing attrition five percentage points lower than those organizations which do not communicate as frequently (Mckinsey & Company, 2024). In their study, they stated that 70 percent of workers were engaged and dedicated to their jobs when they were regularly updated on organizational changes. This engagement results in higher productivity, better morale, and greater ownership of the changes taking place.

Another observation of the importance of communication was noted in the Prosci report on Best Practices in Change Management in the Year 2020. The report indicated that organizations with effective communication did have employees participate through the processes of change and as a result, the success proportion of the projects increased from 30 to 75 percent when compared with other organizations. The report noted that change initiatives which have the least inhibited employees are more likely to achieve or succeed compared to those that do not use collaboration and openness to the engagement (Prosci, 2020).

Training and Development

Training and development play a pivotal role in enhancing employee skills, increasing job satisfaction, and ultimately impacting employee retention and organizational performance. In today's dynamic work environment, various training methodologies have emerged, each with its unique characteristics and benefits. Notably, blended learning, e-learning, and mentorship are three prevalent approaches that organizations employ to foster continuous learning among their workforce.

Each of these training methodologies that is, blended learning, e-learning and mentorship contributes uniquely to employee retention and performance. Blended learning enhances knowledge retention and engagement while e-learning offers flexibility and accessibility and mentorship fosters personalized growth and support. By integrating these methodologies into their training and development programs, organizations can create a robust learning culture that not only enhances employee skills but also improves overall organizational performance. As such, investing in diverse training methodologies is not just beneficial for employees but also essential for organizations seeking to maintain a competitive edge in their industries. A well-trained and engaged workforce leads to improved customer satisfaction, higher productivity and greater innovation, ensuring that organizations thrive in an ever-changing business landscape (Quantum Workforce, 2025).

There are several case studies from well-known organizations that have used training and development as a tool to empower employees in readiness for technological change. The prominent ones are Siemens and Banco Santander. Siemens offers comprehensive training and development initiatives to its employees in order to equip them with digital skills. Through its Global Learning Campus, Siemens offers a variety of online courses, seminars and workshops, which focus on both technical and soft skills (Learning Light, 2019). Siemens emphasises on continuous learning, ensuring that its workforce is not only able to cope with the current technological requirements, but also ready to innovate in the future. Siemens also prioritises the development of digital skills in its employees through specialised programmes that are offered by Digital Business Experience Centres. These centres expose employees to cutting-edge technologies such as the Internet of Things and artificial intelligence (Siemens, 2023). Apart from Siemens, Banco Santander also runs an Open Academy that offers tailor-made courses on digital literacy and agile methods to its employees in order for them to meet the diverse skill levels and prepare them for the digital transition (Santanderopenacademy, 2024).

Change Management Support Systems

Supervising the mechanisms of organizational change alongside the change itself may be one of the tougher tasks within a company. One of such systems is Kotter's 8-Step Change Model that was developed by John Kotter. As the name suggests, it consists of eight steps in which one gives the necessary 'boost' to change within the organization. These steps are: a sense of urgency is established, powerful coalition is formed, a vision for change is created and communicated, actions are empowered, short term wins are generated, gains are consolidated, and action is anchored in the culture. As noted by Kotter, the most successful transformations are built on a foundation of strong leadership, which highlights stakeholder buy-in (Kotter, 1996). This shift makes Kotter's model incredibly useful within large or complicated organizations and transformations known in corporate and healthcare industries.

Another relatively popular model is Prosci's ADKAR Model. This model is more focused on individual change and consists of five elements: awareness, desire to participate, knowledge on how to make the change, skills and behaviors needed to do the change, and reinforcement for sustaining the change. Prosci the organization responsible of the ADKAR model states that the model provides a platform for managing the people side of change, which is through information technology and manufacturing (Prosci, 2023). This particular model focuses on the individual change process and offers direct guidance on how to address employee concerns and resistance, which is essential for maintaining change in a turbulent environment.

Kurt Lewin's Change Management Model is composed of three steps: unfreeze, change, and refreeze. This diagrammatic model works exceptionally well for parents with small or medium-sized enterprises (SMEs) or with students in educational institutions. The portion of Lewin's model that everything revolves around is that a person is at the center of change. This means that a change which is successful needs to first go through the unfreezing state where a person is at that moment in order to come to a new state" (Lewin, 1951). This makes it easy to understand and helpful for industries where people who do not know the field. Still, this model might not be very helpful for those constantly changing targets. Unlike the McKinsey 7-S Frame Work, which consists of seven pieces of interconnected components that is, structure, systems, shared values, skills, style, it is the staff that are critical towards successful change. Suwanda and Nugroho (2022) state that for an organization to be successful, the 7 elements of the 7S framework should work together and reinforce one another. The model is ideal for those in consulting or professional services type of organizations as they have a greater insight into the different elements that need to be reordered strategically.

Resource Allocation and Budgeting

Investments in technology development are imperative for companies that are keen on becoming more competitive and improve their operations especially through digital transformation. These investments have substantial economic impact, which require thorough planning and proper allocation of resources. There is a prominent concern regarding capital investments associated with new technology. Depending on the complexity and size of the technological initiative, new technology can cost an organization a lot of money. While this may seem like a costly investment, Lund argues that these initial costs should be compared against potential long-term savings, particularly in labour expenses as digital transformation has the potential to increase productivity by as much as 50% in certain industries. The offset in expenditure against the initial investments makes the ROI attractive (PWC, 2022).

Apart from the initially capital-intensive expenses and labour costs, organizations need to also account for the ongoing costs of hiring, maintenance, regular updates, and periodic retraining of the staff in new technology. Effective utilization of automated systems requires appropriate training, which increases overall training spending, thereby reducing the agile training eLearning budget. Such anticipated issues have been proposed earlier as some of the challenges that companies face as they shift to new technology. They include reduction in productivity during the shift, disruptions in ongoing processes and productivity integration slumps caused by the automation use and the lack of adequate automation friendly systems and processes. According to research done by the Harvard Business Review (Goydan & Kelley, 2024), setting aside a budget to address these transitional issues is important for sustaining operational performance and maintaining financial stability during the rollout stage.

Another important financial implication of technology change investments is the enhance operating profitability and quality improvement potential. Beyond the tangible financial returns, organizations ought to consider the impact of automation on service and customer satisfaction. A PwC report in 2020 noted that improvement of service quality and service delivery speed ratios due to automation can increase customer retention and increase customer lifetime value, which are crucial for long-term profitability. Therefore, traditional technology investment analyses can be supplemented with qualitative benefits analysis to help comprehend the full extent of service received (PWC, 2022).

To support their highly rated qualitative decisions on technology investments, many organizations use discounted cash flow (DCF) and net present value (NPV) analyses. These analyses provide a way to estimate the financial benefits of technological change projects over a number of years which allows for assessment of the projects' ROI. By analyzing the information critically, organizations are able to determine what resources to allocate where to ensure best outcomes in the quickly changing technological environment (Le, 2021).

To summarize, effective budgeting for strategic spending towards technology and automation resources requires a thorough calculation of the initial costs, operational expenses, savings on labour, interruptions, and other benefits. By proving these aspects, the proper allocation of resources will be achieved and the organizations financial standing over time can and will improve. A comprehensive analysis of the funds allocated to technology can help the organization sustain themselves in an ever so demanding and advancing world.

Performance Management and Measurement

Performance management and measurement are critical for organizational success, especially during periods of change such as restructuring or mergers. Organizations usually implement a variety of performance metrics which can be divided into quantitative and qualitative measures.

Quantitative metrics include Key Performance Indicators (KPIs), ratios and production levels that provide a general appraisal of performance. For example, KPIs such as revenue rate and employee productivity assist the management in making informed decisions (Parmenter, 2010). It has been highlighted by Drucker (2006) that what gets measured gets managed, hence reinforcing the point why organizations during change need straightforward metrics to assist as a guiding framework. Qualitative metrics include non-numeric measures, for example, satisfaction and engagement of employees and customers mostly through surveys and interviews. These capture sentiments that provide insights into the transitions and the grievances employees may potentially have. For example, understanding the human side of performance can help address issues of morale so that the organizational culture is embraced (Macey & Schneider, 2008).

Balanced scorecards are often used by organizations to track quantitative and qualitative metrics in one place, making it easy to track performance from a financial, customer, internal processes and learning view. This ensures that all activities are guided towards achieving the strategically defined objectives, at all times, even during transitions when much focus is required. Kaplan and Norton (1996) argue that a balanced scorecard links performance measurement to strategy which is a key aspect of managing change effectively.

As technology advances, organizations are using real-time analytics and predictive performance measurements more and more, as these provide key insights easily and allow for changes to be made to strategies beforehand.

Predictive analytics can help identify changes in the market so that management can make changes timely and create a competitive advantage (Waller & Fawcett, 2013).

3 Methodology

3.1 Research Design

This study adopted the qualitative design (Yin, 2014) The researcher was able to study the different management styles and practices influencing the success of technological change implementation in three selected organizations in Zambia.using a multiple case study design (Hunziker & Blankenagel, 2021; Yin, 2014). The participants' individual views and experiences were explored using various data collection techniques and procedures in the three organizations. This type of design was suitable for the study because it allowed the researcher to: (a)understand the challenges and opportunities associated with effective technology adoption and utilization (b) address the practices of the phenomenon, and (c) provide additional information to the available literature (Yin, 2014).

3.2 Data Collection

The data was collected using interviews from the three organizations. According to Yin (2014), interviews are considered “one of the most important sources of case study evidence” (p. 110), and the data collected provide the researcher with information about human actions. The purpose of the interviews used in this study was to collect data and hear participants' statements about the details associated with implementing technology change into an organization.

3.3 Data Analysis

Thick case descriptions, which serve as the foundation for qualitative investigation and reporting, were the first method the researcher employed (Patton, 2015). After gathering information from the interviews, the researcher transcribed the data. He then arranged the data and searched for recurring themes (Creswell, 2013) using the Insight7 software. The researcher employed coding as a second data analysis tool (Patton, 2015). To code the data, the researcher employed a coding system (Yin, 2014). The data, which was divided into smaller categories and given a code, was represented by codes that were found (Creswell, 2013). The researcher employed inductive analysis, which incorporates cross-case analysis, as his third method of data analysis (Creswell, 2013; Patton, 2015; Yin, 2014). This analysis is significant because it provides “a strategy for engaging in qualitative inquiry and comparative case analysis that identify patterns of behaviours, interactions, and perceptions” (Patton, 2015, p. 592).

Trustworthiness was established through various measures. Triangulation was accomplished by identifying common themes from participants' interviews, documents, and artifacts. Memoing was used to document ideas and themes, and the transcriber used intercoder agreement to analyse data and compare coding results across interview participants. Member checks were used to ensure data was accurate and peer reviews were conducted by external parties to confirm trustworthiness.

4 Results

4.1 Management Strategies and Styles needed for Technological Change initiatives

The responses from respondents suggest that proactive and supportive management styles play a significant role in ensuring successful technological change. Managers who were actively involved in setting goals, offering

guidance and providing necessary resources were consistently associated with smoother project implementation. For example, one respondent highlighted how management clarity in setting goals and allocating resources was essential for overcoming obstacles, demonstrating that clear, strategic guidance creates a stable foundation for project success. Additionally, transformational management practices characterized by inclusivity, open communication and adaptability emerged as essential in addressing employee needs and fostering engagement. Managers who encouraged teamwork and cross-departmental collaboration described by some respondents helped reduce resistance to change and facilitated employee buy-in. These practices highlight that inclusive, adaptive management styles are instrumental in aligning employee efforts with organizational goals.

Furthermore, across cases, supportive management practices that included resource allocation, continuous engagement, and structured feedback were directly linked to positive project outcomes. Management that actively provided financial and technical resources as mentioned by some respondents enabled teams to address technical and logistical challenges promptly. This supportive style allows employees to focus on problem-solving rather than resource limitations, highlighting that accessible resources are a foundational aspect of effective technological change.

Structured feedback and communication loops also played a vital role. Respondents frequently mentioned that regular updates and open feedback channels allowed for adjustments in real-time, helping the teams remain aligned with the project's objectives and ensuring a responsive, agile approach to project challenges. This style of communicative, responsive management enables project teams to stay resilient and adaptable, particularly when facing unforeseen obstacles.

The analysis shows that management practices fostering employee engagement and adaptation significantly influence project success. Respondents, highlighted that transformational leaders who prioritized employee training, promoted open communication, and encouraged active participation were effective in easing transitions. These practices are essential for reducing employee resistance to new systems, as they create a sense of ownership and involvement, leading to more committed and engaged teams. Additionally, management styles that prioritize psychological safety and inclusivity create an environment where employees feel comfortable asking questions, providing feedback, and adapting to new roles and responsibilities. This was exhibited by some respondents who mentioned the importance of training and supportive feedback from management. These practices underscore the idea that leadership styles that promote continuous learning and adaptability facilitate smoother implementation of technological changes.

The findings also indicate that strategic, hands-on leadership approaches positively impact operational efficiency and user satisfaction. Managers who combine clear strategic oversight with regular involvement contribute directly to achieving measurable project outcomes. Some respondents noted great improvements in customer satisfaction and others observed enhanced network reliability and linked these outcomes to management's ongoing support and alignment with organizational objectives. This link suggests that management styles that balance strategic vision with hands-on guidance help teams achieve goals that positively affect the organization's operations and end-user experience. In these cases, directive, goal-oriented management resulted in projects that were aligned with broader organizational objectives, demonstrating that such leadership styles can maximize the effectiveness of technological changes.

4.2 Implications of the Study to Managers involved in Technological Change initiatives

The findings of this study illustrate the practical use of change management strategies and the importance of management, communication and organisational culture in the successful implementation of technological change in organizations. Through case studies and organizational practices, this study closes the gap between theoretical frameworks and their application in various context and provides valuable insights for practitioners dealing with similar challenges.

The findings show that leadership is the cornerstone of successful technological change, and that the style and attitudes of leaders have a significant impact on employee engagement and the convergence of the organisation. The findings from respondents show the transformative potential of visionary and adaptive leadership in navigating organizational change initiative. Empirical evidence from the investment by organizations like Banco Santander in training and digital infrastructure shows how strategic guidance can ensure that the technical and human aspects of change are addressed (Santander, 2024).

This study also highlights the importance of tailor-made communication strategies that help to reduce resistance from employees and promote trust. The findings of the study demonstrate how proactive ways of communication can increase employee understanding and engagement in technology change and help manage controversies among employees. Tactics like the use of town hall meetings, internal newsletters and social media as indicated by some respondents and also in the literature review to reach employees for spreading information and getting feedback highlights the effectiveness of multi-channel communication in addressing different needs of employees. These findings support the practical relevance of communication-oriented models such as the Kotter 8 step model, which show that vision, communication and empowerment are key steps in the process of change. Training and adaptation emerge as another area of managerial focus. Respondents indicated that training and adaptation provides a good practice in developing skills and capacity building. Comprehensive training programmes, including digital skills upgrading and leadership development initiatives, provide employees with the tools they need to effectively manage technological change. These trainings address the growing demand for technical talent in the organization, demonstrating the value of targeted training programmes to bridge skills gaps and promote long-term organisational resilience.

The study also highlights some challenges of technological change especially in resource-constrained environments. In Zambia, for example, the introduction of e-government platforms such as the Government Service Bus encountered barriers such as limited internet access, poor infrastructure and high taxation on equipment (SMART Zambia Institute, 2023). These challenges underline the need for innovative solutions such as off-grid systems and solar energy technologies to address infrastructure gaps in a similar context.

The study also shows the impact of organisational culture on technological change. The respondents show how a culture of openness and adaptability can drive innovation and reduce resistance to change. There should be emphasis on autonomy, risk-taking and continuous learning in order to create an environment conducive to technological innovation and rapid adaptation to change. On the other hand, hierarchical and rigid organisational cultures, as seen in some public sector implementations and other organizations may impede employee engagement and slow down the process of change.

The findings further confirm the importance of continuous evaluation and feedback mechanisms. There is need to pioneer the use of data-driven performance-based systems and structured feedback loops to assess and refine technology initiatives. These practices not only increase the efficiency of the change effort, but also foster a culture of innovation and continuous improvement, which ensures that technological change yields sustainable benefits.

To summarize the observed findings of this study, it is important to emphasize the practicability of action-based approaches of managing technological changes within different organizational frameworks. The study offers a comprehensive strategy for practitioners by demonstrating successful cases and addressing typical challenges. Effective leadership, good internal communication, thorough trainings and supportive organisational culture are vital for advancing technology in an organization. These results strengthen the relevance of models such as Lewin's change management model, Kotter's eight-step model and ADKAR, while also proving their relevance to modern business challenges. The combination of these theories and practice offers an ideal solution for organizations wishing to operate in a world dominated by rapid technological changes.

4.3 Integrating Theoretical Frameworks into Change Management

The theoretical implications of this study highlight the importance of adopting existing change management models in studying and dealing with processes of technological change within organizations. The use of Lewin's Change Management Model, Kotter's 8-Step Model and ADKAR Model demonstrates how change can be managed within organizations through a well harmonized relationship through organizational communication between organizational leaders and employees.

Lewin's Change Management Model, with its three-step process of unfreezing, moving, and refreezing, offers a foundational understanding of the behavioural and cultural shifts required for technological change. The model's emphasis on creating a disequilibrium during the unfreezing phase (Lewin, 1951) aligns with findings from Schein (2010), who underscores the importance of generating psychological safety while addressing employee anxieties. However, some critics of the model, like Burnes (2004) believe that the linear and static aspect of this model does not fully capture the iterative and adaptive nature of the complexity associated with modern organizational change. Regardless of these limitations, Lewin's change model continues to play a significant role in analysing the psychological issues related to employee resistance to change that come as a result of technological change and identifying strategies that can be used to facilitate employee acceptance and involvement.

Following Lewin, Kotter's 8-Step Model evolves towards an additional, more complex, emergent model of change management. Kotter (1996) places the emphasis on creating a sense of urgency, building coalitions, and embedding change on the organization's culture. This model is strong because it views change in a holistic manner incorporating both the structural and human elements of change. Jain (2023) is one of those who proves its applicability in different organizational settings, especially in solving this multifaceted of digital transformation. However, there are some critics like Hughes (2015) who argue that Kotter's model is top-down which can hinder bottom-up innovation and change. In spite of these criticisms, the model's emphasis on strategic communication and leadership is beneficial in resolving the numerous facets of a technological change. In addition to the Lewin and Kotter 8-Step models, the ADKAR model places a lot of emphasis on individual change management by aligning awareness, desire, knowledge, ability, and reinforcement in order to facilitate

a smooth transition. This model is useful for dealing with the human elements of a change in technology, such as a skills shortage or a hostile attitude towards change. Taufik and Ariestyadi (2021) emphasize that the ADKAR model is useful in formulating more precise and effective communication and training activities to meet particular need of different employees. In contrast, Bekmukhambetova (2021) critiques ADKAR as being excessively sequential and linear, rendering it incapable of addressing the more intricate interdependent factors that influence change in a large organization. In addition, Mangeconsulting (2024) contends that the model's inadequate emphasis on systemic and cultural factors may result in the neglect of essential enablers of sustainable transformation.

These theoretical frameworks together explain the multifaceted approach taken in order to understand the role of management in the implementation of technological change in organizations. Lewin's model captures the more psychological and cultural aspects of organizational change while Kotter and ADKAR focus on leadership styles and voluntary cooperation, respectively. These models demonstrate the importance of the existence of appropriate organizational level and employee level conditions that are necessary for successfully implementation of technological change in organizations.

The findings of this study also expand these theoretical models by emphasising the interaction between contextual factors and change management practices. The study shows, for example, that transformational and participatory leadership approaches are the main leadership styles that are key to creating the urgency, vision and confidence needed for successful technological change. This view is consistent with Burns (1978) and Heifetz (1994), who argue that adaptive and transformational leadership can address the uncertainties and resistance that change creates. In addition, the study emphasises the use of communication strategies such as open dialogue, iterative feedback and multichannel approaches stressing the importance of transparent and inclusive communication that promotes employee engagement. These findings follow the conclusions of Weick and Sutcliffe (2007) and Huy (2001), which highlight communication as a key driver for trust, alignment and resilience of organisations in the face of change.

In summary, the theoretical implications of this study emphasize the importance of integrating established theoretical frameworks in order to respond to the complexities and dynamics of technological change. With the theoretical frameworks embedded in a broader context of leadership, communication, and cultural change, the study confirms and also responds to modern organizational challenges. This comprehensive approach promotes understanding and managing technological change and helps professionals and scholars alike, while also highlighting the dangers of ignoring these changes.

5 Conclusions and Recommendations

5.1 Summary of key management strategies and styles for successful technological change initiatives.

The results highlight the fact that different styles of management affect the achievement of change as a result of technology implementation. The use of transformational leadership emerged as the best style in achieving employee engagement and preventing resistance to change during organizational change processes. The emphasis was placed on the fact that leaders who motivate and provide clear instructions foster an atmosphere where employees feel appreciated and serve a positive purpose in the set objectives of the organization. One respondent highlighted that, a technological change project can only be successful if management set clear objectives, involve employees early, communicate freely, give sufficient training, use information for decision

making, promote innovation, as well as measure and analyse the outcomes. Similarly, the literature has supported this. Kotter (1996) pointed out that introducing a sense of urgency and communicating the vision are key elements of successful change initiatives. Transformational leadership as described in Kotter's 8 Step Change Model includes "inspiring and motivating people to accept change'' (Kotter 1996), which aligns with respondents' views on how transformational leaders drive successful outcomes.

In contrast, not every strategy implemented by management was perceived to be effective. Certain respondents pointed out some elements of non-responsive management, such as, slowness and inconsistency in the decision-making process and poor resource allocation, which impaired the implementation phase. This is inline with the criticism levelled against Lewin's Change Management Model which highlight its weaknesses in dealing with emerging and ever-changing processes (Burnes, 2004). Lewin's model highlights the framework of "unfreezing, moving, and refreezing" (Lewin, 1951), but, as Burnes et al. (2004) suggests, the model is often rigid in its approach and does not provide allowance for the sophisticated nature of organizational change in the modern world.

In terms of practices, respondents highlighted the importance of inclusion and participation during the planning and implementation phases. One respondent stated that, "strong leadership, clear communication thorough planning and the involvement of end users early in the process" were the key characteristics that differentiate successful technology transformation initiatives from unsuccessful ones. Another respondent stated that "involving the employees from inception was important so that they can buy into the technology before the implementation stage". This points to a gap in inclusive decision-making, which the literature identifies as crucial for minimizing resistance (Weick & Sutcliffe, 2007). Open communication strategies, such as two-way dialogue and feedback loops, have been found to enhance employee buy-in and foster a sense of ownership (Huy, 2001).

Furthermore, effective resource allocation was another recurring theme. Respondents emphasized the need for sufficient training, tools, and financial support to facilitate smooth transitions. One respondent explained that management in their organization used several methods or techniques such clear goal-setting, resource allocation, stakeholder engagement, change management and training and using project management tools. This aligns well with findings from Carrillo et al., (2017), who stress that, "insufficient training and support can lead to significant drops in user competency and engagement," demonstrating the importance of commitment of resources during the processes of change. Cummings and Worley (2014) have also remarked that too few resources create greater implementation difficulties which in turn foster frustration and loss of energy.

Communication was consistently identified as a critical enabler of success. Respondents who experienced clear, consistent messaging from leadership expressed greater confidence in the process. One respondent advised that managers responsible for driving technological change initiatives should prioritize clear communication throughout the project lifecycle. This echoes Kotter's assertion that "communicating the vision for buy-in" is fundamental to managing resistance and inspiring action (Kotter, 1996). Conversely, respondents with experience of poor communication strategies described feelings of uncertainty and resistance. As one participant noted, "unsuccessful initiatives often lack proper trainings, face resistance due to poor communication or are not adequately supported by management during the transition."

In summary, the findings reveal that effective management during technological change depends on adopting transformational leadership, employing inclusive and transparent communication and ensuring adequate resource allocation. The study highlights that while structured frameworks like Kotter's 8-Step Model can guide change, their success relies heavily on how leadership engages employees and navigates challenges. Respondents' quotes and the literature collectively underscore that successful technological change is not merely about the introduction of new systems but about fostering trust, participation, and a shared vision across the organization.

5.2 Recommendations for management to strategically approach technology adoption for long-term success.

The results of this study highlight the challenges associated with managing technological change in an organization, particularly the balance of management support, involvement of employees, training and adaptation, impact of the technology, and contextual difficulties. Although technology has the ability to dramatically increase productivity, foster new avenues of innovation, and improve service delivery, its adoption must be approached from a multifaceted standpoint. This section offers practical and research-oriented recommendations on the management of technological change in organizations.

Recommendations for Practice

Enhancing the visibility of leadership. Leaders should give priority to visibility and be actively involved in technological change initiatives. As Kotter (1996) notes, leaders who actively engage can inspire employees further by creating a shared vision and emphasizing collaboration. Managers need to lead by example, instilling confidence and demonstrating commitment to change-oriented initiatives.

Structured communication strategies. Organizations should adopt open dialogue and multichannel communication to deal with resistance and promote cooperation. Using tools such as town hall meetings, intranets and social media platforms, employees can remain informed and engaged throughout the process of change. Strong training programs. Continuous training initiatives equip staff with the skills they need to adapt to technological change. The importance of lifelong learning is the key to securing the future of work, with training programs tailored to the role of employees, including hands-on learning, simulation and iterative feedback to tackle skills gaps.

Proactive problem solving. Organizations should put in place mechanisms to identify and address problems early during technological change. Carrillo et. al., (2017) highlight that addressing potential barriers will actively maintain momentum and strengthen employee confidence.

Embedding change in culture. Celebrating achievements and integrating new practices into the organizational culture promote long-term acceptance. Kotter (1996) stresses the importance of embedding change in culture and ensuring that new behaviour becomes part of organizational standards. Recognition and rewards of employees who embrace and lead change promote a culture of continuous improvement and adaptability.

Recommendations for Future Research

While this study provides valuable insights into the role of managers in implementing technological change, further research is needed to explore emerging trends, challenges, and best practices in this field. The following recommendations outline potential areas for future investigation:

Longitudinal studies on the impact of management strategies. Future research should carry out longitudinal studies to assess the long-term effectiveness of management approaches in the implementation of technological change. Understanding how leadership styles, communication strategies and educational programmes influence long-term adoption would provide a deeper insight into best practice

Comparative studies across sectors. Technological change affects organisations in different ways depending on the sector. Future research should compare the role of management in technological change in different sectors such as health, education, manufacturing and finance. This would help to identify sector-specific problems and tailor-made management strategies**.**

Impact of emerging technologies on management practices. With the rise of artificial intelligence, automation and digital transformation, there is a need for further research into how new technologies affect management decision-making and change the governance strategies. Studies could explore how managers can use AI-based insights, digital tools and agile methodologies to foster the uptake of technologies.

Employee resistance and psychological factors in technological change. Future research should address the psychological factors contributing to the resistance of employees to technological change. Exploring concepts such as obsolescence, job insecurity and cognitive biases can help managers develop more effective strategies for mitigating resistance.

Evaluating the effectiveness of change management models. Most of the initiatives for technological change rely on established frameworks such as the Lewin Change Model, the Kotter Eight Step Model and the ADKAR model. Future studies should assess the effectiveness of these models in different organisational environments and identify possible adaptations or integrations to improve their applicability.

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