

Exploring the Role of Technology in Enhancing Organisational Productivity

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Abstract

This research delves into the dynamic relationship between technology and organisational productivity, aiming to provide a nuanced understanding of the impact and potential enhancements. Through a thorough literature review, case studies, and empirical analysis, the study investigates how emerging technologies, such as artificial intelligence, automation, and collaborative tools, influence various facets of organisational operations. Key areas of focus include the transformation of work flow processes, employee collaboration, decision-making efficiency, and overall business agility. The research also explores the challenges associated with technology adoption and proposes strategies for organisations to optimise productivity gains while mitigating potential drawbacks. By elucidating the intricate interplay between technology and organisational productivity, this research contributes valuable insights for both scholars and practitioners, fostering informed decision-making in an increasingly tech-driven business landscape.

Keywords: Artificial Intelligence, Efficiency, Technology, Literature Review, Organisational Productivity

Introduction

In the ever-evolving landscape of contemporary business, the symbiotic relationship between technology and organizational productivity has become increasingly pivotal. The advent of transformative technologies has ushered in an era where the effective integration of digital tools can significantly reshape the dynamics of how organizations operate and thrive. This research seeks to explore, dissect, and illuminate the multifaceted role of technology in enhancing organizational productivity.

As businesses navigate a global landscape marked by rapid technological advancements, understanding how these innovations impact productivity is paramount. From automation and artificial intelligence to collaborative platforms and data analytics, a myriad of technological tools offers promises of efficiency gains, streamlined processes, and improved decision-making capabilities. However, the nuanced interplay between technology adoption and its consequential effects on organizational productivity warrants a closer examination.

This exploration encompasses a comprehensive review of existing literature, contemporary case studies, and empirical analyses to provide a holistic understanding of the intricate relationship. By dissecting the implications of technology on workflow processes, employee engagement, and overall operational efficiency, this research aims to contribute actionable insights that empower organizations to harness the full potential of technology while navigating the challenges associated with its adoption.

In essence, this investigation endeavors to unravel the intricate tapestry woven by technology and organizational productivity, shedding light on how businesses can strategically leverage advancements to not only survive but thrive in the dynamic and digitally-driven landscape of the modern workplace.

Objectives

- To understand the role of technology in enhancing organisational productivity
- Task Automation and Operational Efficiency
- Communication Transformation Through Technology
- Data-Driven Decision-Making and Analytics
- Project Management Excellence Enabled by Technology
- Innovation Catalyst - Technology's Role in Fostering Creativity

Review of Literature

Asih Rumanti, Augustina, et al., 2023 Examining how open innovation and organizational creativity might improve the performance of SMEs, While there is growing recognition of the value of encouraging organizational creativity and open innovation, there is still a dearth of empirical data regarding the contribution of creativity and innovation to improving the performance of SMEs. Furthermore, earlier research claimed that there is still no clear evidence on the impact of creativity and innovation, particularly in SMEs. SMEs occasionally believe that research & development is an expensive endeavor and that it cannot immediately enhance performance.

Monika Lakhwani, et al., In 2020, Monika Lakhwani and others The effect of technology adoption on productivity within an organization The effect of technology adoption on organizational productivity is examined in this study. Organizational productivity is the only dependent variable in the framework, with the other three independent variables being technological change, information technology (IT) infrastructure, and IT knowledge management. Data, methodology, and research design: Data was gathered utilizing a self-administered questionnaire employing both an online and an offline survey. An explanatory research design and quantitative research approach were used. Using snowball sampling, 300 IT managers and senior-level executives from top Malaysian IT companies—including those in the production and service teams—were included in the sample. In the first phase, Confirmatory Factor Analysis (CFA) was carried out with SPSS 22, and Normalcy and Reliability Assessment was completed using maximum likelihood estimate to evaluate the discriminant validity, convergent validity, and internal consistency. Lastly, AMOS is used to perform path analysis and the structural equation model (SEM).

Manal Yunis, et al, Manal Yunis and others, 2018 The role of innovation and information and communication technologies (ICT) in improving organizational performance: Innovation and ICT-based applications, along with the catalytic effect of corporate entrepreneurship, have emerged as significant drivers of improved organizational performance, social change, and economic growth. The significance of complementary elements, including corporate entrepreneurship, in improving the influence of technological innovation on organizational performance has not yet been addressed, despite the fact that the body of research relevant to this field has risen significantly. In light of

potential effects from corporate entrepreneurship, this study creates and evaluates a framework that illustrates and analyzes the nature of the relationship between ICT adoption and use and organizational performance in the Lebanese market. PLS is employed to evaluate the suggested connections. In addition to the importance of corporate entrepreneurship's mediating function. To investigate the influence of ICT-use level on the model, a multi group analysis is also implemented. The hypotheses are validated, the suggested model is shown to be fit, and the consequences are explored.

Wulong Gu, et al., 2004 Information technology and organizational innovation's impact on business performance This study looks at the question of whether information and communication technology (ICT) investments, along with organizational modifications and employee skill development, improve performance in Canadian businesses. It has been observed that Canadian companies have been actively involved in implementing organizational reforms concerning production and efficiency methods, Human Resource Management (HRM) procedures, and practices connected to the quality of their products and services. It is discovered that using ICT in conjunction with these practices leads to improved company performance. While ICT is productive on its own, our research shows that it is even more effective in businesses that integrate high ICT with high organizational change. Businesses that integrate ICT with organizational modifications have a high frequency of increased productivity and high levels of innovation. According to these results, ICT adoption by businesses usually requires it to be a part of a "system" or "cluster" of organizational strategies that reinforce one another. Furthermore, we discover that in the services industry, ICT and human capital are complementary. Businesses with strong worker skill levels and ICT proficiency function better as a whole.

Maria Teresa Bolivar-Ramos, et al., (2013) Information Technology (IT) presents numerous opportunities for businesses to prosper due to its effects on organizational performance and absorptive capacity. This research aims to propose a model reflecting the ways in which the use of IT in interdependent tasks and technical IT skills may impact the development of an organization's potential and realized absorptive capacity, which in turn influences the performance of the organization. Absorbent capacity is a critical component of success since knowledge is one of the primary resources that organizations use to obtain a competitive edge and enhance organizational performance. A sample of 160 European technology enterprises was used to conduct an empirical test of this model. Our analysis's findings indicate that the possession of technical IT expertise and the Utilizing IT for interdependent jobs improves absorptive capacities, both realized and potential, which improves organizational performance. The study's shortcomings, theoretical and practical ramifications, and potential directions for future research are discussed in its conclusion.

Encarnación García-Sánchez, et al., García-Sánchez, Encarnación et al. (2018) Technology assets' impact on an organization's success through internal labor flexibility, organizational creativity, and absorptive ability Organizational innovation is becoming more and more necessary for businesses to outperform their rivals. In today's dynamic and turbulent environments, organizational innovation is especially important. To create value and gain a competitive edge, other internal variables such as technology resources, employee training, coordination of new management capabilities, flexible human resources, and more adaptable organizational designs must be encouraged. Our study aims to investigate the relationship between technical assets and absorptive capacity, including both prospective and realized absorptive capacity. Additionally, we seek to understand the impact of absorptive capacity on organizational performance, internal labor flexibility, and creativity. To do this, we apply the theories of internal labor flexibility, organizational innovation, and performance to analyze the relationships between internal labor flexibility, performance, and capacities and resources. Data from in-person interviews utilizing a standardized questionnaire were used in

a quantitative analysis. Using a sample of 160 European technology companies, relationships indicated in the theoretical model were calculated using a structural equation model. The findings demonstrate how favorable effects on processes of prospective and realized absorptive capacity, along with the enhancement of technological abilities and technological distinctive competencies, support technology and enhance organizational performance. Potential absorptive capacity affects realized absorptive capacity, which affects organizational performance and innovation as well as internal labor flexibility. Additionally, through organizational innovation, internal labor flexibility affects organizational success. Given the dynamic and volatile technical contexts in which the organization operates, this issue is especially important. Thus, technological assets help to uncover new avenues for organizational innovation and flexibility by utilizing tools that support the company's knowledge capacity and deeper contextual understanding.

Beheshti, Hooshang M. et al. (2010) Enhancing efficiency and business effectiveness through enterprise resource planning Productivity is commonly defined as the effective use of organizational resources and is expressed as the efficiency of an individual, business, or country. However, concentrating only on efficiency may be detrimental to the organization's long-term competitiveness and success. When productivity is analyzed from two angles—operational efficiency (output/input) of a single employee or business unit and performance (effectiveness) with respect to end user or customer satisfaction—the full benefits of productivity enhancement initiatives are realized. Businesses have incorporated new technologies into their operations over time to increase operational effectiveness and efficiency. Many businesses have made investments in enterprise resource planning (ERP) to combine all company operations into a single, standardized system. By putting ERP in place, the company may lower transaction costs while increasing profitability, customer happiness, and productivity.

In 2012, Mahmoud Migdadi et al. Intranet use orientations and the effects of collaborative technology on organizational performance If information systems are not used, they cannot enhance an organization's performance (Davis et al., 1989, as quoted by Merono-Cerdan et al., 2008). Furthermore, it was demonstrated by Devaraj and Kohli (2003) that real use could have a significant bearing on the value of information technology (IT). This method is predicated on the notion that assessing collaborative technologies' (CTs') actual impact on organizational performance requires more than just determining their existence. Consequently, the researchers came to the conclusion that the effects of CTs on organizational performance should be viewed as a multi-phase process that begins with adoption and continues through use. Thus, this study examines the indirect effects of intranet CTs on organizational performance through adoption contrasted with non-adoption, albeit via an intermediary variable (orientations toward intranet use). The actual use of CTs is represented by the three intranet use orientations (e-information, e-communication, and e-transaction). As a result, an empirical assessment is conducted on how each orientation affects organizational performance. Data were gathered via a postal survey from 71 small- and medium-sized (SMEs) in developing nations like Saudi Arabia in order to meet the research objectives. Hierarchical regression analysis and ANOVA were used to test research hypotheses. The findings showed that various CTs are connected to various intranet use orientations. The outcomes additionally illustrated the beneficial correlations between intranet use orientations and organizational effectiveness. Ultimately, the outcomes verified that there are synergies between the intranet usage perspective.

In 2016, Hanna Hottenrott et al. Organizational transformation and the effects of adopting green technologies on production, This study looks into how new environmental technology introduced by businesses affect their induced productivity. According to research on productivity and within-firm organizational transformation, companies that modify their organizational structures can

increase productivity gains from using new technologies. Such complementary impacts could be especially significant for the uptake of technologies aimed at reducing greenhouse gas emissions (GHGs). In order to reduce the societal costs of climate change, public bodies frequently encourage the implementation of these technologies. Impact of connecting information technology strategy with organizational strategy and value generation on organizational performance.

Ahmad Firman et al. (2016) Organizational strategy significantly and substantively affects organizational performance, according to earlier empirical research. This study aims to investigate the linkages and interactions between information technology strategy, organizational performance, value creation, and organizational strategy in the province of south Sulawesi, as reported by the Regional Civil Service Agency (BKD). Items related to “stakeholder orientation” were included to the definition of organizational performance. Smart-PLS 2.0 was used to create the model and test the hypothesis on a sample of 196 respondents from 24 Civil Service Agencies (BKD). The findings support earlier research in that they test the notion that organizational strategy influences performance in a meaningful and favorable way, either directly or through the mediating role of information technology strategy and value production. The study’s limitations include the fact that it was limited to examining leaders in municipal and county government organizations, which restricts the generalizability of the results.

In 2016, Wageeh A. Nafei, et al. The secret to enhancing organizational performance is organizational adaptability. Goal: This study aims to demonstrate how Organizational Agility (OA) has a major influence in enhancing Organizational Performance (OP) in Egypt’s pharmaceutical sector. Research Design and Techniques: Use the OA Questionnaire, Jaworski & Kohli (1993) and the OP Questionnaire (OP Questionnaire & Darroch, 2003; Pathirage et al., 2007; and Chen & Mohamed, 2008) to evaluate positive OA. Thirty-one employees provided the data. 356 useable questionnaires were distributed; of them, 310 were returned, representing an 87% response rate. Utilizing Multiple Regression Analysis (MRA), the study hypotheses were verified.

In 2018, Ra’ed Masa’deh et al. The relationships between organizational performance and market orientation, technological orientation, and entrepreneurial orientation, This study aims to investigate the relationship between organizational performance in the Jordanian pharmaceutical industry and three strategic orientation variables: market orientation, technological orientation, and entrepreneurial orientation.

In 2017, Hemlata Gangwar et al. The impact of cloud computing on the performance of organizations In order to evaluate how cloud computing utilization affects business performance, this article offers an integrative study model that connects organizational, technological, and environmental capacity variables. Additionally, the study fills a vacuum in the literature by surveying 403 Indian manufacturing enterprises on post-adoption stages, or real usage and value creation. In addition to exploratory and confirmatory factor analysis, structural equation modeling is used to examine the suggested model further. According to the findings, firm size influences both actual usage and performance of cloud computing. Other important antecedents of cloud computing adoption are organizational culture, change management, business, human, and technological capital, regulatory and supplier support, and organizational culture. The distinctive perspectives the findings offer can assist organizations in improving adoption of cloud computing and thereby enhance their operational efficiency.

Research Methodology

With the speed at which technology is developing in today’s business world, companies are using technology more and more to stay competitive and increase efficiency. The objective of this study is to present a thorough examination of the contribution of technology to organizational

productivity, highlighting its various uses and consequences. A variety of aspects of organizational functioning are impacted by technology, from task automation to data-driven decision-making.

The introduction of automation technologies has completely changed the way businesses function by accelerating formerly labor-intensive, manual processes. Processes are accelerated and errors are reduced by automation, giving workers more time to concentrate on the more strategic and creative facets of their jobs. The subtleties of task automation are examined in this section, along with particular tools and technology that have proven crucial in maximizing operational effectiveness.

Any organization needs effective communication to function, and technology has changed the game by offering cutting-edge tools for teamwork. The impact of digital communication technologies, including collaborative platforms, instant messaging, and video conferencing, is covered in detail in this section. It examines how these technological advancements dismantle geographical barriers to promote smooth team interactions and improve communication dynamics in general within businesses.

Organizations have access to an unprecedented amount of data in the big data era. The use of technology to leverage this data for well-informed decision-making is examined in this section. We talk about artificial intelligence algorithms and advanced analytics tools, demonstrating how they can evaluate big data sets and yield insightful information. By incorporating data-driven decision-making procedures, businesses may maintain their flexibility, adjust to shifting market conditions, and establish a competitive edge.

An essential component of any successful business is project management, and modern technology offers advanced solutions to improve efficiency and coordination in this area. An in-depth analysis of project management software is given in this part, along with information on how it helps teams to plan, track progress, and communicate in real time. These tools' transparency guarantees efficient use of resources and timely project completion.

Technology is a catalyst for creativity and new ideas, and innovation is a major factor in the growth of organizations. The revolutionary potential of emerging technologies, such as Augmented Reality (AR) and Virtual Reality (VR), is being investigated. This section focuses on how businesses can set themselves apart from the competition by using innovation and technology to teach staff, engage customers, and develop product prototypes.

Key Findings

Task Automation and Operational Efficiency

- Automation technologies play a crucial role in expediting manual and time-consuming tasks within organizations.
- The adoption of automation not only accelerates processes but also reduces errors, enabling personnel to concentrate on the most innovative and strategic facets of their jobs.

Communication Transformation Through Technology

- Digital tools for communication, like instant messaging and video conferencing have redefined how teams collaborate.
- These technologies break down geographical barriers, fostering seamless interactions among team members and enhancing overall communication dynamics within organizations.

Data-Driven Decision-Making and Analytics

- The era of big data provides organizations with unprecedented volumes of information.
- Advanced analytics tools and artificial intelligence algorithms enable the extraction of valuable

insights, empowering organizations to make informed decisions, stay agile, and gain a competitive advantage.

Project Management Excellence Enabled by Technology

- Sophisticated project management software enhances coordination, efficiency, and transparency within organizations.
- Real-time collaboration, progress monitoring, and resource optimization contribute to streamlined project delivery.
- Innovation Catalyst - Technology's Role in Fostering Creativity.
- Technology serves as a catalyst for fostering creativity and driving innovation within organizations.
- New technologies such as Augmented Reality (AR) and Virtual Reality (VR) provide new opportunities for engaging customers, training employees, and prototyping products

Conclusion

As organizations continue to embrace technological advancements, they position themselves not only to thrive in the current business landscape but also to adapt and innovate in the face of future challenges. The strategic integration of technology is, therefore, imperative for organizations aspiring to achieve sustained growth and competitiveness in today's dynamic environment. This paper has illuminated the multifaceted impact of technology on organizational productivity, emphasizing its role as a driving force for transformative change in the modern business world.

- The strategic integration of technology is imperative for organizations aiming to achieve sustained growth and competitiveness.
- Technology not only enhances productivity but also positions organizations to adapt and innovate in response to evolving market dynamics.
- Addressing challenges related to technology implementation, such as cybersecurity risks, is crucial for maintaining uninterrupted operations and safeguarding sensitive data.

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