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THE ROLE OF TECHNOLOGY IN OPERATIONAL MANAGEMENT PROCESS SELECTION

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Abstract

The selection of operational management processes is significantly influenced by technology, which can enhance the efficiency and effectiveness of company operations. The application of information technology enables organizations to manage equipment, human resources, and production processes in a more efficient and effective manner. In the selection of operational management processes, information technology plays a pivotal role in identifying and selecting production processes that align with the needs of the organization. Furthermore, information technology facilitates the implementation of effective human resource management systems. This paper examines the role of technology in operational management process selection and the impact of information technology on organizational operations.

Keywords: ***process selection, operation management, technology***

1. INTRODUCTION

In the contemporary digital era, technology has become an indispensable component of modern business operations. The role of technology in operational management processes is inextricable. In the contemporary business environment, technology facilitates the enhancement of operational efficiency, quality, and transparency. The application of technology enables organizations to optimize operational processes, reduce costs, and enhance customer satisfaction.

In the selection of operational management processes, technology plays a pivotal role in meeting the needs of businesses. The use of technology allows companies to utilize operational data in order to make informed decisions and to enhance operational capabilities. Information and communication technology (ICT) plays a pivotal role in the realm of business operations. Furthermore, this technology affects the company's performance in comparison to existing competitors. This is due to the fact that the technology updates applied have a significant impact on the effectiveness and efficiency of operational and management activities within a company (Mawarni et al., 2022).

Management technology has made significant advancements in recent years. The implementation of management technology has the potential to enhance customer satisfaction, reduce operational costs, and facilitate more efficient business operations. One

of the software tools utilized in the field of supply chain management (SCM) can assist in elucidating the intricacies of the supply chain, thereby enabling more precise planning and a more expedient response to market fluctuations.

This article examines the role of technology in operational management process selection and its impact on the operational activities of an organization or institution. The article also provides examples of technologies that can be employed in the selection of operational management processes, including supply chain management systems, operational management software, and automation systems.

2. RESEARCH METHOD

The research method employed in this study is a secondary technique with a literature review approach. It involves a critical and systematic analysis of various sources, including scientific journals, articles, books, and proceedings, that are pertinent to the topic of the role of technology in operational management process selection. This approach enables researchers to collate and integrate information from previous studies, thereby providing a comprehensive overview of the contribution of technology to the efficiency and effectiveness of operational process selection. By reviewing existing literature, this study can identify key trends, uncover knowledge gaps, and formulate practical and theoretical guidelines applicable in modern operational management contexts. The analyzed literature includes case studies from various industries, empirical reports, and operational management theories that highlight the implementation of technologies such as management information systems, automation, and data-driven technologies in operational process decision-making. The objective of this analysis is to provide in-depth insights and strategic recommendations for practitioners and academics in the field of operational management.

3. RESULTS AND DISCUSSION

The field of operations management has evolved significantly over the past five decades. Its primary objective is to achieve economic efficiency in the production of goods and services, while ensuring the quality of the final product and a fast sales process. Additionally, operations management allows production equipment to be used for other products. The approach taken by operations management is broad and encompasses quality, cost, delivery, and process flexibility (QCDF orientation) (Nuriah et al., 2021).

The terms "management" and "operations" comprise the term "operations management." Management activities include planning, organizing, directing, coordinating, and controlling, which are performed to achieve organizational goals by optimizing available resources. In contrast, operations activities are those that convert inputs into outputs or generate new profits. Therefore, based on the meanings of the two words, operations management is the activity of managing and processing resources effectively during the process of converting inputs into outputs (Novitasari, 2022).

3.1 Process Selection in Operations Management

The design and preparation of production and operation systems, as well as their operation, fall within the purview of production and operation management. The selection and design of products, or products, are not only part of the purview of management responsibilities, but also the selection and design of processes and systems. Two of these are designated as "process selection." The selection of these processes will inform the choice of production methods and the optimal timing for the process.

In this case, the manager must also determine whether to organize the process flow as a high-flow batch production process or a low-flow batch production process. The same is true for the decision regarding whether to integrate forward (toward the market) or backward (toward suppliers). The type of process to be employed in the production of the product will be informed by the decisions. Consequently, the selection of a process or product can be conceptualized as a series of decisions pertaining to the type of production and equipment to be utilized in supporting the company's production process.

3.2 The Role of Technology in Operational Management

The role of technology in the production process is significant. The incorporation of technology into operational management can result in a reduction of costs, an improvement in product quality, a faster delivery of goods, and an increase in customer value. Furthermore, technology can facilitate the transformation of each step of the production process into a more effective and efficient process. Technological innovation is a crucial factor in the country's economic growth, as it enables the achievement of productivity and efficiency in the business sector.

The advent of technology has facilitated changes in the selection of operational management processes, including planning and scheduling, as well as subsequent activities. The utilization of specialized software in this process has enabled the generation of more accurate data analysis capabilities, which has in turn enabled managers to make decisions based on actual data rather than estimates or predictions. Furthermore, technology has facilitated the use of automation techniques such as the Internet of Things (IoT) and Artificial Intelligence (AI) in the production process. This will undoubtedly enhance operational efficiency through real-time monitoring, forecasting market demand, and optimizing production flow.

3.3 Effect of Technology Utilization in the Company's Operational Production Process

The role of technology in the success of a company's production process is significant. The utilization of appropriate technology can enhance labor productivity. The deployment of optimal technology will also result in the generation of a greater number of products with superior quality, a reduction in the level of waste, and the assurance of timely completion of the production process. While technological advances can improve production outcomes, they cannot alter the quantity of production. The transition of the production

process from one that relies on human labor to one that employs modern machines will also have an impact on the amount of labor demand, resulting in a continued decrease in the need for human labor (Divianto, 2014; Ningsih, 2024).

As time progresses and technology becomes increasingly sophisticated, the quality of production improves, yet the quantity of production remains unchanged. This is because the production process is still largely reliant on manual labor. In business, the use of technology minimizes the budget or costs that must be incurred through automation in the production, distribution, and marketing processes. This fact causes the industry to prefer to continue to increase the use of technology in its operating process rather than absorbing labor.

Concurrently, the implementation of technology in business activities facilitates the enhancement of business operations through the automation of processes that were previously conducted manually. For instance, the utilization of customer engagement or customer relationship management software, such as e-procurement applications and integrated CRM applications, can assist companies in reducing the time and resources required for the management of procurement processes and the interaction with customers.

3.4 Factors to Consider in Technology Selection for Operational Management Process Selection

The selection of technology in the operations management process is contingent upon several factors. These factors fall under the umbrella of technical and technological aspects, which are essential for ensuring the efficient and effective functioning of production processes and business operations. Additionally, technology analysis aims to ascertain whether the technology employed by a company is appropriate and meets existing technology standards or if it still requires refinement.

The following aspects merit consideration in this context:

1. The technology utilized in the production process, including equipment and raw materials.
2. The level of sophistication of the technology employed and its alignment with current technology standards.
3. Potential future technological developments and their impact on business.
4. Potential changes in the technology employed in the production process and business operations.
5. Analysis of the costs and benefits of the proposed technology change.

3.5 Examples of Technologies that Can Be Used in Operational Management Process Selection

Information obtained from the ivosight.com website indicates that various forms of the latest technology can be employed to assist in the efficient operation of a business. The following examples illustrate this point:

1. Business process automation: The use of software and algorithms to automate the company's routine tasks is part of business process automation. This allows the company to reduce the use of time and resources, improve accuracy, and maximize employee production capacity.
2. The field of artificial intelligence (AI) encompasses a range of technologies that aim to replicate human intelligence in machines. The application of AI in practice enables companies to automate more complex tasks and make informed decisions.
3. Data Analytics: The application of data analysis can assist companies in optimizing their operations, identifying avenues for enhanced efficiency, and making decisions that are informed by actual data.
4. Cloud computing offers a number of advantages for businesses. Firstly, the software can be easily customized to meet specific business needs. Secondly, it provides flexibility in terms of the scale of cloud computing operations. Thirdly, it allows for good teamwork and remote access.
5. Robotic Process Automation (RPA) is a technology that automates repetitive tasks through the use of software robots. The use of software robots in RPA can facilitate the acceleration of work cycles, the minimization of the potential for human error, and an enhancement of overall productivity.

Through the implementation of existing technologies, companies can improve accuracy in operations, maximize production capacity, improve customer service and facilities, and manage business competition.

4. CONCLUSION

The findings of the study indicate that technology plays a pivotal role in the selection of operational management processes in the digital era, commonly referred to as the 5.0 era. The integration of technology into operational activities can enhance efficiency, effectiveness, operational productivity, customer satisfaction, and the ability to maintain competitiveness in a competitive market.

The application of existing technologies, such as business process automation, artificial intelligence (AI), data analytics, cloud computing, and robotic process automation (RPA), among others, within operational management production processes can also assist companies in reducing costs, enhancing product quality, accelerating the delivery of goods, and increasing the value added to consumers. For managers, the utilization of technology can assist in the precise and accurate analysis of data. Consequently, managers can make optimal decisions based on accurate data, as opposed to estimates or predictions. Consequently, this will diminish the probability of erroneous outcomes in the company's operational performance process in the future.

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