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A Literature Review on Operations Management and Strategy

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ABSTRACT

This paper distinguishes between operations management and operations strategy, both of which play crucial roles in achieving organizational success. Operations management focuses on the efficient management of production processes, from input acquisition to output delivery, ensuring high-quality products and services. It involves key aspects like inventory control, capacity planning, quality management, and cost reduction. Over time, it has evolved with technological advancements and new methodologies like Just-In-Time (JIT) and Total Quality Management (TQM), emphasizing continuous improvement to meet customer expectations. On the other hand, operations strategy is concerned with aligning operational resources and capabilities with long-term market demands and business objectives. It involves strategic decision-making, such as competitive positioning, resource allocation, and innovation, and plays a vital role in shaping a company's growth and sustainability in the marketplace. While these two areas are closely related, operations management typically addresses short-term operational tasks, whereas operations strategy focuses on long-term goals. This paper explores the differences and interconnections between operations management and strategy, integrating expert opinions and discussing their practical implications in both private and public sectors. Case studies, such as Tesla's operations strategy and Australia's Net Zero Plan 2050, illustrate how effective operations management and strategy drive both innovation and competitive advantage in dynamic markets.

1. INTRODUCTION

Before the 1960s, operations management was generally associated with manufacturing production (Bayraktar et al., 2007). Operations management is a fundamental aspect of management science, alongside financial management, marketing management, and human resource management. Unlike other management sciences, operations management's roots evolve according to technological developments and consumer requirements.

The increasingly rapid development of industry has also become a stimulus for changes and developments in operations management. Apart from responding to the challenges of changing times, operations management also plays a role as a guardian of the company's image by maintaining or improving the quality of the products or services produced by the company. It cannot be denied that quality is one of the keys to a company's survival. Past researchers argue that the level of quality of service can be measured by comparing consumers' perceptions or opinions of the services they have received with consumers' expectations of the services themselves (Susanto & Wurjaningrum, 2019).

Many factors influence the quality of a product or service, one of which is the continuously changing industrial environment (Wurjaningrum, 2010). Therefore, the operations management process carried out by a company must be able to follow the very dynamic rhythm of change if it wants to compete with its competitors. This is also supported by the emergence of popular methods originating from Japan, which also include quality as one of the scopes of operations management, such as those found in Just-In-Time (JIT) and Total Quality Management (TQM). Until now, the Total Quality Management (TQM) method is considered one of the most compatible tools to help companies compete through its basic concept, namely continuous improvement (Wurjaningrum, 2012).

Even though quality is one of the main factors in a company's success, the scope of operations management does not only include quality factors. A past study stated that there are 17 main focuses in operations management, namely inventory control, aggregate planning, forecasting, scheduling, capacity

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planning, purchasing, facility location, facility design, process design and technology (Process design/technology), maintenance, quality, performance measurement, strategy, quality of working life, project management, service (Services), and distribution (Distribution) (Meredith et al., 1989).

In practice, a company uses strategies to achieve the goals of its operational functions. This strategy is called an operations strategy. Companies typically use operational strategies to reconcile market requirements and operational resources. Therefore, the researcher will conduct a literature review on operations management and strategy, including its differences and implementation in private and public institutions.

2. METHODS

This study employs a literature review method that involves analyzing prior research from reputable sources such as journals, books, and other scholarly articles to address previously raised research questions.

3. RESULTS AND DISCUSSIONS

Results

Operations Management

Operations management is the lifeblood of an organization or company's survival, which is reflected in the presence of operations management in manufacturing companies and service provider companies. Experts have their definitions to explain the meaning of operations management. Operations management is an effective and sustainable activity that aims to achieve goals by using management aspects to integrate the required resources efficiently (Herjanto, 2008). According to Heizer and Render (2011), operations management is a connected activity that produces value in the form of a product or service by transforming input into output. Meanwhile, other researchers argue that operations management is a scientific discipline initially used to solve problems in the manufacturing sector. However, since the mid-20th century, many experts have begun to use this discipline in service operations (Peinado et al., 2018). Another expert, Skripak (2018), defines operations management as all activities that change a product idea into a finished product. Management science expert Daft (2006) believes that operations management is a field of management that focuses on using various tools and techniques to solve problems that exist in the production process to produce goods. Meanwhile, Subagyo (2000) defines operations management as the implementation of management science in order to streamline production activities.

From the various opinions of experts and academics above, it can be concluded that operations management is all activities related to the production process of goods or services, starting from the input process to producing output effectively and efficiently. Rusdiana (2014) stated that four components form operations management:

1. *Management Activities.* This component includes the entire cycle of planning, organizing, implementing, controlling, evaluating, and improving within the organization.
2. *IPO concept (Input-Process-Output).* Every process in management activities has three core components: input, process, and output. Input to the operations process includes raw materials for production and other resources such as labour, time, and other resources. A good process will produce sound output. A process runs well if it can add value to the input being processed.
3. *Process Indicators.* From general industrial needs, four process indicators are obtained:
    a. *Quality* is defined as the effort to fulfil a product's specifications or improvement over the previous product.
    b. *Cost* in the process indicator is meant by the costs required to carry out a business process.
    c. *Delivery and responsiveness* relate to the company's flexibility in producing products that customers want and sending them to consumers as quickly as possible.
    d. *Security* relates to the safety, security and occupational health of employees and the impact of operating processes on the environment.
4. *Efficiency and Effectiveness.* Efficiency and effectiveness are different things. Efficiency is success in reducing costs incurred in achieving an activity's results, while effectiveness, in this case, is success in achieving a process's output or goals (Rusdiana, 2014).

Apart from the components of operations management, there is a scope of operations management, which is usually related to the implementation of operating systems and decisions related to capacity planning, determining the layout of factories or production facilities (plant and facilities planning), and inventory management. (inventory management), scheduling, quality control, and many others. Therefore,

Rusdiana (2014) also stated that there are three interconnected aspects within the scope of operations management, namely:

1. *Structural* aspects involve components that work together in synergy in building an operations management system and their synergies.
2. *Functional* aspects which closely related to the company's structural functions and interactions in planning, implementation, and control to obtain optimal performance.
3. *Environmental* aspects mean companies must pay attention to developments outside the operating system.

Yamit (2003) states that operations management system has three traits. First, the production process of a good or service must be in line with previously planned criteria. Second, it must include Transformation Process Activities, which involve transforming raw materials into finished products, considering factors such as quantity, quality, price, and time. Lastly, an Operation Control Mechanism should be in place to add value to the output or results during the operation process, ultimately benefiting the consumers.

Operations Strategy

Strategy is a plan implemented by an institution to achieve predetermined goals. Every organization has a strategy to achieve its goals. Generally, companies divide their goals into short-term, medium-term, and long-term periods. Each goal has a different strategic approach because different periods have different characteristics. For a company's strategy to be competitive, the strategy must align with the company's external and internal conditions because a strategy that cannot achieve competitive advantage will not produce good performance for the company (Gambe et al., 2014).

Veiga et al. (2020) argue that operations strategy can be defined as developing competitive factors based on production functions to achieve an organization's long-term goals. Operations strategy functions in defining manufacturing functions to support the company's business goals by providing structural aspects and infrastructure to help the company achieve effective performance (Veiga et al., 2020). Slack and Lewis (2015) provide an understanding of operations strategy as an overall pattern that plays a role in establishing long-term operational capabilities through reconciliation between market requirements and operations resources. Generally, operations strategy revolves around corporate-level strategy. Corporate-level strategy can help a company obtain a strategic position in the market, namely a position that can increase the company's value (Hitt et al., 2016).

Figure 1. Operations Strategy Perspective (Slack & Lewis, 2015)

Wurjaningrum (2010) argues that operations strategy must represent four perspectives, according to the opinion of Slack and Lewis. The first is a top-down perspective, meaning operations strategy is a translation of the company-level strategy set by top-level managers. Then, there is a bottom-up perspective where operational strategies also represent the daily activities carried out in the company. The third point of view from operations resources is that companies must have capabilities based on the resources owned by the company. Finally, there is a market requirements perspective, where the company must satisfy the market or its consumers.

Discussion

Difference between Operations Management and Operations Strategy

Difference	Operations management example	Operations strategy example
Longer time-scale	*'What demand fluctuations do we have to deal with over the next few months?'*	*'When should we plan to add further capacity so that we can meet rising forecast demand?'*
Higher level of analysis	*'Where should we position each product category within our department store?'*	*'How many stores should we have, where should we locate them and how should we supply them?'*
Higher level of aggregation	*'How do we provide tax advice to the small business sector in Antwerp?'*	*'What is our overall business advice capability compared with our other European activities?'*
Higher level of abstraction	*'How do we improve our purchasing procedures?'*	*'Should we develop strategic alliances with selected medical products suppliers?'*

Figure 2. The distinction between Operations Management and Operations Strategy (Slack & Lewis, 2015)

Many people misunderstand the difference between operations management and operations strategy due to a lack of understanding of the words "operational" and "strategic", which have opposite meanings. The primary difference between operations management and operations strategy is the focus period. Operations management concentrates on short- and medium-term goals. In contrast, with its strategic thinking, operations strategy focuses on the company's long-term goals, challenging the status quo and envisioning new possibilities. Operations strategy also has a higher level of abstraction than operations management, dealing with more complex problems. While operations management focuses on the company's operational functions, such as functions between departments, operations strategy has a broader domain as it covers the company's network of resources and suppliers. The level of aggregation of the two is also different, with operations management focusing on the details of a product or service and operations strategy providing a broader view of the issues within the company (Slack & Lewis, 2017). Both operations management and strategy are widely implemented in the private and public sectors, even though they did not use the term. The paragraphs below provide an example of implementing operations management and strategy in a private and public establishment.

Private Institution Implementation's Example

Tesla, a global leader in terms of market value, has been a trailblazer in the electric vehicle industry. Nearly two decades ago, Elon Musk, the visionary founder, unveiled the Tesla Motors master plan on the company's website. The plan's undisclosed objective was to develop a range of electric vehicles, starting with the luxurious Tesla Roadster and progressing towards a more affordable family option. This strategy was designed to hasten the transition from fossil fuels to a solar-powered electric economy, embodying Tesla's operations strategy with its emphasis on long-term goals and a high level of abstraction. Musk's influence was profound as he sought to shift the automotive industry's mindset, both among manufacturers and consumers, from fossil fuels to electric-powered vehicles.

Tesla intends to penetrate the upper echelon, targeting customers prepared to pay a premium. Subsequently, they aim to rapidly expand their market share by progressively introducing new models at lower prices, resulting in increased sales volume. Tesla is dedicated to environmental stewardship and promotes the sale of lithium-ion batteries to recycling firms once they have reached the end of their design life, which is greater than 100,000 miles. The company's approach to decreasing power plant emissions involves using General Electric's H-System Combined Cycle Generator, which boasts a remarkable 60% efficiency in converting natural gas into electricity. Although the Tesla Roadster has exceptional performance, it emits considerably less carbon dioxide (CO2) than conventional gasoline-powered sports cars. The last-mentioned plan is categorised as a part of operations management because Tesla's decision on the generator selection has a lower level of complexity and aggregation that can be managed by intra-department teamwork without the need to broaden the scope to another stakeholder.

Public Institution Implementation's Example

Like the rest of the world, Australia is in the midst of a profound and swift economic transformation comparable to the Industrial Revolution. The urgency of the climate crisis necessitates reducing emissions to mitigate its severe impacts. This transition also presents a unique opportunity to create new jobs and

industries. The Australian Government is committed to harnessing these opportunities through a coordinated and practical strategy, paving the way for a brighter future for Australia.

In pursuit of the ambitious goal of zero net emissions, the Australian Government invests heavily in innovation across all sectors. The aim is to cultivate a highly efficient, productive, and high-wage economy that thrives on renewable energy, positioning Australia as a global leader. This commitment is exemplified by the Net Zero Plan 2050, a program designed to neutralize greenhouse gas emissions by 2050 completely. The Net Zero Plan 2050 is a testament to the power of operation strategy, as it requires a long-term vision and a detailed analysis of how to achieve its goals.

The Net Zero Plan 2050 encompasses several sub-strategies, including the Capacity Investment Scheme (CIS), Safeguard Mechanism, New Vehicle Efficiency Standard, and many others. These implemented policies are projected to lead to a significant reduction in Australia's emissions by 42% compared to the levels recorded in 2005, by the year 2030. This reduction brings us close to achieving our mandated goal of reaching 43% below 2005 levels by 2030. The Net Zero Plan will bolster the Government's overarching policy agenda, encompassing its aspiration for a future crafted within Australia. These sub-strategies and sub-policies, functioning as operations management, are handled directly by one department within the Australian Government, ensuring their effectiveness and efficiency.

4. CONCLUSION

Even though operations management and strategy have significant differences from various perspectives, the two still cannot be wholly separated. Operations management is the basis for various developments in the company's operational environment, including operations strategy itself, which is a fusion of operations management and strategic management. Previous research in these two areas is also related to each other. One of the reasons is that the strategies or approaches in operations strategy are approaches that were originally developed from operations management science and continue to develop to this day. Academic research related to operations strategy also has potential space for conducting further research, especially in operations strategy in service companies.

Institutions that want to compete in this modern era need to implement a holistic operational strategy. Implementing an operational strategy supported by appropriate methods can provide a competitive advantage compared to their competitors. The operational strategy managers will place the company in a superior position with advantages in timely delivery, guaranteed product quality, and new product or service innovation to answer market demand. At the same time, companies can also reduce costs and activities that do not provide added value to the company.

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