

The effectiveness of the strategic activities of production and operations management in achieving the total quality of products in the Jordanian Pharmaceutical Production Company

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Abstract

The study aimed to identify the effectiveness of the strategic activities of production and operations management in achieving the total quality in the Jordanian Pharmaceutical Production Company. The researchers adopted the descriptive approach (survey), a simple random sample was chosen from the company. The sample size was determined by the previous research community with a confidence coefficient of 95% and an error of 5%, where the sample size was 74 members. The study used a questionnaire form in order to collect data from the study population, through interviews and a survey of the opinions of the research sample about the items that aimed to verify the hypotheses of the study. The study reached a set of results, the most important of which are: There is a statistically significant relationship between the dimensions of the strategic activities of production and operations management (supply chain improvement, efficient quality management, operation re-engineering) and the product's total quality. The results of the study also revealed the existence of canonical correlations linking two groups of elements of the dependent and independent variables.

Keywords: production management, operations management, product's total quality, Jordan Pharmaceutical Production Company.

Introduction

Strategic thinking has become one of the basic necessities for the success of organizations of all sizes and sectors in which they operate. Strategic activities for production and operations management are a necessity and a requirement for all businesses that aim at excellence, success, and achieving a sustainable competitive advantage, in addition to the total quality of products.

Anand & Gray (2017) pointed out that the strategic activities of production and operations management are essential activities that organizations undertake to achieve their goals, and that any organization, whether public or private, service or manufacturing, should manage its operations to add value to its

customers. Fukuzawa (2019) also noted that choosing appropriate methods and strategies enables organizations to design and operate processes to achieve product's total quality and desired competitive advantage.

On the other hand, the intensification of competition and the acceleration of environmental changes led to the introduction of radical changes to management systems, and the search for new methods for the organization, allowing it to make internal changes and rearrange its affairs, in line with the new challenges related to the strategic activities of production and operations management in improving the product's total quality (Sting & Loch, 2016).

Chiarini & Vagnoni (2017) indicated that the strategic activities of production and operations

management help to confront the unstable environment, by relying on regulating a management style based on operations and not only on the basis of functions. These operations are geared towards creating added value in relation to the customer's needs. Matthias & Brown (2016) also indicated that the strategic activities of production and operations management allow controlling the total quality of the products and services provided, and this is according to the transverse organization directed towards the customer to satisfy his needs and desires, so the system of production and operations management activities is based on the principles of product improvement and providing satisfactory results with high competitive quality.

It should be noted that the strategic activities of production and operations management involve the planning, design and operation of production systems to achieve the goals of the organization. The success of the strategic activities of the production and operations management in achieving its goals is seen in terms of its ability to provide the society's requirements of products, service in quantity, delivery and high quality (Hitt et al, 2016). The primary objectives of the business are to earn a steady and increasing flow of profits and to maintain long-term demand for its products. The focus should be on the final goals and not only taking into account the aim of reducing the cost and overemphasizing it, which can lead to decisions that contradict the goals of the organization, which means that operations decisions must be taken and implemented in a way that achieves the overall goals of the organization such as profitability, growth and product's total quality . (Chen et al, 2015).

According to the previous considerations, the importance of the strategic activities of production and operations management revolves around the dimensions of its fields that directly affect the overall performance of the organization as it is a functional strategy that must be an integral part of the overall strategy of the organization because it is responsible for the largest part of the organization's assets (Qi et al, 2015). . Here, Paul & Chowdhury (2020) indicated that the vital role of the strategic

activities of production and operations management is to provide support and assistance to the overall strategy of the organization in addition to enhancing and improving capabilities that lead to achieving competitive advantage and achieving a strategic dimension that adds distinctive capabilities for the benefit of the organization.

On the other hand, the strategic activities of production and operations management are related to the total quality of products, as quality is the product of the interaction of the characteristics of marketing, engineering, manufacturing and maintenance activities, which in turn enables the customer's needs and desires to be met (Gutierrez et al, 2018). Accordingly, the total quality of products is represented in reliability: the extent of stability of performance over time, and conformance: since the product is often defined through a set of specifications, it is of high quality whenever the required specifications correspond to the desires of the consumer. In addition to durability, which means the expected service life of the product, and this dimension is related to reliability, as the life of the product may be long if it is repaired every time it becomes damaged (Macchion et al, 2018).

Based on the foregoing, the importance of the strategic activities of production and operations management is highlighted by giving a strategic dimension to the operations function that goes beyond the responsibilities and tasks it performs. Accordingly, organizations exercise, through the operations strategy, the primary role within the framework of achieving their goals of cost, quality, flexibility and delivery. Therefore, the strategic dimension of the fields of operations is the activity that is most aware of the distinctive capabilities within the organization and competition.

Problem of the Study

The strategic activities of production and operations management are an integrated systemic philosophy and thought, aimed at creating a positive impact on the total quality of products, which may allow competition in the markets. Ali & Haseeb (2019) indicated that the strategic activities of production and operations

management work to provide a base for the organization to use in the integration of its various functions, and coordination with the rest of the organizations with which it participates in the flow of its goods and services, in order to increase the value of what the organization offers to its markets, and this as a result increases its organizational performance in the production process. Niu et al (2019) also indicated that as the strategic activities of production and operations management contribute to improving operations within companies by raising levels of external procurement, reducing transportation costs, increasing the importance of electronic commerce, and increasing competition pressures, all these contributions give high quality organizational performance. .

It is worth noting that the application of the mechanisms of strategic activities of production and operations management in achieving the total quality of products increases the ability of strategic projects to achieve the requirements of organizations represented in transforming any problem or opportunity into clear goals and plans that can be seized and applied easily for the good of the organization, in addition to increasing productivity and performance and maximizing profit while providing Time, effort, and money (Chiarini et al, 2020).

In this context, the Jordanian Pharmaceutical Production Company has become obliged to adopt the mechanisms of strategic activities for the management of production and operations to achieve the total quality of products, achieve high competitive advantages in the markets and develop production operations. Hence, the foregoing called the researcher to research the effectiveness of the strategic activities of production and operations management in achieving the total quality of products, and in the context of diagnosing and understanding the context of the current reality related to providing high-competitive quality products in the Jordanian Pharmaceutical Production Company, and accordingly the main study question is the following:

What is the effectiveness of the strategic activities of production and operations

management in achieving the total quality of products in the Jordanian Pharmaceutical Production Company?

Objectives of the Study

1. Identifying the effectiveness of the strategic activities of the Production and Operations Department in achieving the total quality of the products of the Jordanian Pharmaceutical Production Company.
2. Identifying the level of product quality in the Jordanian Pharmaceutical Production Company.
3. Identifying the nature of the relationship between the strategic activities of production and operations management through its dimensions (supply chain improvement, efficient quality management, operation re-engineering), and improving the quality of products.

Hypotheses of the Study

The following sub-hypotheses stems from the main question of the study problem:

1. There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to improving the supply chain and improving the products' total quality.
2. There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to efficient quality management, and achieving the total quality of products.
3. There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to operation re-engineering and achieving the total quality of products.

Significance of the study

The significance of the study stems from the fact that it studies an important aspect of the strategic activities of production and operations management, as it is one of the important topics

in organizations. The importance of the study is highlighted by the following:

1. Linking the two variables of strategic activities of the management of production and operations and achieving the total quality of products in the Jordanian Pharmaceutical Production Company.
2. Shedding light on the nature of the work of the Production and Operations Department in the Jordanian Pharmaceutical Production Company.
3. Determining the reality of the actual application of production and operations management in the Jordanian Pharmaceutical Production Company
4. Attempting to crystallize the role that the strategic activities of production and operations management play in bringing the company under discussion to the possibility of achieving the total quality of its products.

Terms of the Study

Operations management: It is an administrative approach to strategic planning represented in the activities, decisions and responsibilities for managing the resources that are allocated to the production and delivery of goods, services and production quality (Kolus et al, 2018). Glock et al (2019) pointed out that production and operations management means how the organization produces and delivers the goods and services required and which is the reason for its existence, and is described as that part of the organization that is concerned with the production and delivery activities of goods and services.

Quality: is the suitability of the product for use." The main criterion for judging quality is whether the product is suitable for use or not, regardless of the condition and status of the product (Cheng & Li, 2020). In another definition, quality is an expected accuracy that fits the market at a low cost in the sense of

matching needs, and the more the product specifications conform to the customer's requirements, the more good quality this product is (Cheng et al, 2018).

Field Study

Methodology of the Study

The researchers adopted the descriptive (survey) approach, which is based on interpreting the current situation of the phenomenon under study and research and determining the dimensions and conditions of the phenomenon, in addition to conducting analysis and interpretation of the data on the phenomenon. The researcher can review the research methodology through the following elements:

Determining the type and sources of data; When collecting the primary data necessary for the study, the researchers relied on the survey method through personal interviews and e-mail. The members of the research community, including managers and employees of the Jordanian Pharmaceutical Production Company, were asked about their views on the impact of the strategic activities of production and operations management in improving the quality of products.

Population and Sample of the Study

The study population is represented by all the managers and employees of the Jordanian Company for the Production of Pharmaceuticals, their number reached (850) employees at various job levels. The researchers relied on withdrawing a simple random sample from the company. The sample size was determined by the previous research community with a confidence coefficient of 95% and an error of 5%, where the sample size was 74 individuals, and the research sample can be distributed as shown in the following table:

Table (1) Distribution of the Study Sample

Departments of the Jordanian Pharmaceutical Production Company	Total	Sample
Medical	680	42
Sales	79	15

Management and Marketing	91	17
Total	850	74

Instrument of the Study

The study used a questionnaire form as an instrument in order to collect data from the study population, through interviews and a survey of the opinions of the research sample about the items that aimed to verify the hypotheses of the study.

Validity of the Questionnaire

The validity of the study instrument was calculated through the validity of the internal

consistency, as the study instrument was distributed to an exploratory sample of workers in the Jordanian Pharmaceutical Production Company. Their answers were then transcribed into the Statistical Package for Social Sciences (SPSS). Then, the correlation coefficients were calculated between the total score for each dimension of study through the significance degrees of the values of the correlation coefficients. Table (1) shows the procedures for calculating the internal consistency validity.

Table (2) Pearson Correlation Coefficients

Dimensions	Correlation Coefficients	Value of Significance
Strategic activities of production and operations management (supply chain improvement, efficient quality management, operation re-engineering)	0.79**	0.000
Achieving the product's total quality	0.75**	0.000

Table (2) shows that the correlation coefficients are high, and they are statistically significant at the level of significance (0.01), and this indicates that the dimensions have internal consistency validity.

Reliability of the Questionnaire

The researcher adopted Cronbach's Alpha method, and the following table shows the reliability coefficients of the resolution.

Table (3) Cronbach's alpha coefficients

Dimensions	Cronbach's alpha coefficients
Strategic activities of production and operations management (supply chain improvement, efficient quality management, operation re-engineering)	0.96
Achieving the product's total quality	0.73
Total Reliability	0.99

It is evident from Table (3) that the total reliability coefficient of Alpha Cronbach reached (0.99), which is a high reliability coefficient, and this indicates that the study instrument has a high degree of reliability and can be relied upon in the field application of the study.

Results and Discussion

The main Question: What is the effectiveness of the strategic activities of production and

operations management in achieving the total quality of products in the Jordanian Pharmaceutical Production Company?

To answer the main question of the study, a descriptive analysis was conducted of the responses of the sample members to the elements of the external and internal environment affecting the strategic activities of the production and operations management in the Jordanian Company for Pharmaceutical Production and the following table shows that:

Table (4) strategic activities of the production and operations management

Code	Elements	Canonical correlation coefficients
X1	The Jordanian Pharmaceutical Production Company adopts a flexible system in measuring the achieving of the total quality of products	0.96
X2	The Jordanian Pharmaceutical Production Company uses experts to implement its training programs	1.04
X3	The Jordanian Pharmaceutical Production Company contributes to creating and enhancing the competitive advantage through the total quality of its products.	1.55
X4	The Jordan Pharmaceutical Company enhances the product audit function.	1.09
X5	The Jordan Pharmaceutical Production Company participates in coordinating the offerings of medical products to achieve an effective product.	0.89
X6	The Jordanian Pharmaceutical Production Company contributes to reducing costs to generate high quality products	0.41
X7	The Jordan Pharmaceutical Production Company contributes to coordinating institutional performance activities through total quality.	1.14
X8	Decision support provides the ability to provide quality control programs for all products to prepare analysis related to product quality.	1.20
X9	The company has data warehouses that contribute to supporting the decision-making process.	0.97
X10	The company's decision support process makes it easier to respond quickly to competitive situations with other companies.	0.66
X11	The data is converted into information and then into knowledge for the purpose of making the right decisions in the company.	0.33
X12	The company provides computerized systems that help in the ability to take appropriate decisions related to total quality.	1.10

From the foregoing, the researchers found a large number of positive and strong correlations for most of the elements of the studied variables and their special elements for the external and internal environment with the strongest impact, which was produced by the canonical analysis. This indicates the need to take them into account in the strategy of operations and operational objectives. This conclusion represents an important pillar when addressing the system of subsequent hypotheses in the relationship between the strategic activities of production

management and operations, and achieving the total quality of products.

Hypotheses Test Results

The First Hypothesis: There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to improving the supply chain and improving the products' total quality.

To test the validity of the first hypothesis, the results of linear regression were analyzed, and the following table shows that:

Table (5) Results of Linear Regression

Independent Variable	B	Standard Error	Beta	T Value	Dependent Variable
Supply Chain	0.309	0.014	0.629	28.482	Achieving the product's total quality

It appears from the previous table that the values of the "T" test for the supply chain variable are significant at the level of significance 0.05, and this shows the strength of the regression relationship. Also, the significance level of each of the correlation coefficient and regression coefficient is less than 0.05, which means that there is a statistically significant relationship. In addition, the sign of the correlation coefficient is positive, which means that there is a direct correlation with a statistical significance between the supply chain and achieving the total quality of medical products in the Jordanian Pharmaceutical Production Company. Moreover, the value of the level of significance for testing the regression equation as a whole is less than

the value of the significance level 0.05, which means that it is possible to rely on the estimated regression model and thus the possibility of generalizing the results of the sample to the population under study, from the above, the researchers can accept the first hypothesis.

The Second Hypothesis: There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to efficient quality management, and achieving the total quality of products.

To test the validity of the first hypothesis, the results of linear regression were analyzed, and the following table shows that:

Table (6) Results of Linear Regression

Independent Variable	B	Standard Error	Beta	T Value	Dependent Variable
Efficient Quality Management	0.292	0.307	0.639	23.385	Achieving the product's total quality

It appears from the previous table that the values of the "T" test for the supply chain variable are significant at the level of significance 0.05, and this shows the strength of the regression relationship. Also, the significance level of each of the correlation coefficient and regression coefficient is less than 0.05, which means that there is a statistically significant relationship. In addition, the sign of the correlation coefficient is positive, which means that there is a direct correlation with a statistical significance between the efficient quality management and the achieving of the total quality of medical products in the Jordanian Pharmaceutical Production Company. Moreover, the value of the level of significance for testing the regression equation as a whole is less than the

value of the significance level 0.05, which means that it is possible to rely on the estimated regression model and thus the possibility of generalizing the results of the sample to the population under study, from the above, the researchers can accept the second hypothesis.

The Third Hypothesis: There is a statistically significant relationship at the significance level (0.05) between the strategic activities of production and operations management in relation to operation re-engineering and achieving the total quality of products.

To test the validity of the first hypothesis, the results of linear regression were analyzed, and the following table shows that:

Table (6) Results of Linear Regression

Independent Variable	B	Standard Error	Beta	T Value	Dependent Variable
Operation Re-Engineering	0.388	0.073	0.748	27.750	Achieving the product's total quality

It appears from the previous table that the values of the "T" test for the supply chain variable are significant at the level of significance 0.05, and this shows the strength of the regression relationship. Also, the significance level of each of the correlation coefficient and regression coefficient is less than 0.05, which means that there is a statistically significant relationship. In addition, the sign of the correlation coefficient is positive, which means that there is a direct correlation with a statistical significance between the operations re-Engineering and the achieving the total quality of medical products in the Jordanian Pharmaceutical Production Company. Moreover, the value of the level of significance for testing the regression equation as a whole is less than the value of the significance level 0.05, which means that it is possible to rely on the estimated regression model and thus the possibility of generalizing the results of the sample to the population under study, from the above, the researchers can accept the third hypothesis.

Results

1. The results of the field study showed the existence of a statistically significant relationship between the dimensions of the strategic activities of production and operations management (supply chain improvement, efficient quality management, operations re-engineering) and product quality improvement.
2. The study confirmed the possibility of relying on the main and sub-variables to reveal the nature of the relationship between the strategic activities of production and operations management and achieving the total quality of products in the Jordanian Pharmaceutical Production Company.
3. The results of the descriptive analysis revealed that the response of the study sample members focused on agreeing and strongly agreeing with most of the elements of the strategic activities of production and operations management.
4. The results of the study revealed that there are canonical correlations linking two groups of variable elements.
5. The results of the proper analysis showed that the internal and external environment variables and the strategy of the above operations were important in the study model.

Recommendations

1. The necessity for the Jordanian Pharmaceutical Production Company to continue working on owning and developing an effective system related to the strategic activities of the production and operations management so that this system includes all forms of product quality, which helps it acquire useful information that gives it a competitive edge.
2. The importance of directing the senior management of the Jordanian Pharmaceutical Production Company to form work teams of specialists, and to conduct seminars and educational lectures regarding employment in the strategic activities of production and operations management.
3. The necessity of providing a database and information in the Jordanian Company for Pharmaceutical Production, which helps in clarifying the vision of decision makers regarding improving the quality of products, by making strategic decisions whose results may change the future of the company and its cadres.

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