

# The Effect of the Strategic Vigilance on the Lean Production: A Field Study Conducted on the Jordanian Dairy Company

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**Abstracts:** This study aimed to demonstrate the effect of the strategic vigilance on the lean production in the Jordanian Dairy Company as a case study. This study dealt with the effect of the strategic vigilance along with its dimensions of (competitive vigilance, social vigilance, commercial vigilance, and technological vigilance) on the lean production in its dimensions of (continuous improvement, empowerment of employees and agility of operations) in the Jordanian Dairy Company (Maha). This study which adopted the descriptive analytical method was applied on the population, which consisted of the Jordanian Dairy Company (Maha). The researcher designed a special questionnaire as an instrument and distributed it to the sample which consisted of (51) respondents who were selected randomly and then retrieved and subjected to the necessary statistical analyses. The study concluded with many results, the most prominent of which is the existence of a statistically significant effect of strategic vigilance with its combined dimensions on lean production. The competitive vigilance had the greatest impact on lean production, while the technological vigilance had the least effect. In light of the results, the study recommended that the company under research should pay better attention and improve its capabilities towards the strategic vigilance and should focus on the technological vigilance because of its impact on improving its productivity and raising its capabilities towards the lean production in the future.

**Keywords:** Strategic Vigilance, Lean Production, Jordanian Dairy Company.

## 1. INTRODUCTION

Organizations of all kinds, types and sizes are currently working within an environment characterized by rapid and continuous development in various fields, whether social, technological, economic or cultural. This environment has paved the way for the increased interest of these organizations in the all new management sciences based on the tremendous technology in communications and information. This technology has proven a great advantage that contributes to reducing effort, time and costs. Due to the intense competition today between the different organizations, competition has become an option that must be considered by them, whereas the organizations compete in order to be the best and the most worthy in the market where it is operating for its survival, continuity and the sustainability of its business (Heintz, et al., 2016).

From the reality of the dynamics of the business environment and its continuous change and in light of global competitiveness; Organizations are seeking to make optimal use of the information available to them as a result of their work. This information would help them to make various decisions, which in turn contribute to the development of the organization's structure and its operations that aim at producing products with perceived value to the consumer or provide high quality services in a way that enhances its competitive position. These processes are an organized method represented in the strategic vigilance, which is represented in studying, processing and analyzing information collected from the organization's surroundings, and then using it in order to exploit the available opportunities and avoid potential threats in a proactive and anticipating nature of external variables (Omar, 2017).

Due to the need of industrial organizations for an administrative leadership capable of adapting and responding to the changes and developments accompanying the great technological revolution that these organizations are experiencing, the necessity of paying attention to the strategic vigilance and developing it becomes a factor of optimum success in it in order to achieve the best organizational performance (Mahmoud, 2017). The manufacturing process in the industrial organizations is the main objective for their existence and survival in providing their products as required. Through vigilance of all kinds, these organizations apply the concept of the lean production, which is intended to eliminate waste in the production processes and thus reduces special costs in

these processes, which is reflected in the achievement of the competitive advantages for these organizations (Al-Jarjari, 2014).

Due to the necessity of the concept of the strategic vigilance and its extreme importance in the business environment and what it reflects in terms of the performance development and increasing the competitive position of the organization, which can be achieved in the lean production processes, the researcher believes that it is necessary to study the effect of the strategic vigilance of all kinds on the lean production in the Jordanian Dairy Company because of the importance of the dairy sector in the Jordanian economy, which is currently experiencing intense competition.

### 1.1. The Problem of the Study

The problem of this study is represented by the researcher's assumption that there is an effect for the strategic vigilance on activating the lean production in the Jordanian industrial companies. Technological changes and the possibility of using information have led to an opportunity available for these companies to improve their productivity, which ensures a competitive advantage for them at the present time. The necessity of the concept of the strategic vigilance and the possibility of its impact on the operations as a whole in companies, the problem of the study has emerged and chose the strategic vigilance as a management style through which the gap for the lean production in the company under study can be bridged.

Based on the foregoing, the objective of the study can be achieved by asking the following questions:

- **The first main question:** What is the effect of the strategic vigilance represented in the (competitive vigilance, social vigilance, commercial vigilance, technological vigilance) on the lean production with its dimensions of (continuous improvement, employee empowerment, agility of operations) in the Jordanian Dairy Company (Maha)?

The following sub-questions emerge from the first main question:

- **The first sub-question:** What is the effect of the strategic vigilance represented by the (competitive vigilance) on the lean production in the Jordanian Dairy Company (Maha)?
- **The second sub-question:** What is the effect of the strategic vigilance represented by the (social vigilance) on the lean production in the Jordanian Dairy Company (Maha)?
- **The third sub-question:** What is the effect of the strategic vigilance represented by the (commercial vigilance) on the lean production in the Jordanian Dairy Company (Maha)?
- **The fourth sub-question:** What is the effect of the strategic vigilance represented by the (technological vigilance) on the lean production in the Jordanian Dairy Company (Maha)?

### 1.2. The Hypotheses of the Study

This study is based on the following hypotheses:

- **The main hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) for the strategic vigilance represented in the (competitive vigilance, social vigilance, commercial vigilance, technological vigilance) on the lean production with its dimensions of the (continuous improvement, employee empowerment, agility of operations) in the Jordanian Dairy Company (Maha).
  - The following sub-hypotheses are derived from the main hypothesis:
  - **The first sub- hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) for the strategic vigilance represented by the (competitive vigilance) on the lean production in the Jordanian Dairy Company.
  - **The second sub- hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) for the strategic vigilance represented by the (social vigilance) on the lean production in the Jordanian Dairy Company.

- **The third sub- hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) for the strategic vigilance represented by the (commercial vigilance) on the lean production in the Jordanian Dairy Company.
- **The fourth sub- hypothesis:** There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) for the strategic vigilance represented by the (technological vigilance) on the lean production in the Jordanian Dairy Company.

### 1.3. The Significance of the Study

The significance of this study stems from the importance of the concepts of strategic vigilance and the lean production which they occupy in the field of contemporary and modern management. It also stems from the reality of what industrial organizations are experiencing in a highly dynamic and changing environment and the role played by all kinds of strategic vigilance as a precise integrated system that contributes to the development of the various internal processes in the company in general and the production processes in particular. Thus, the researcher tries to address both concepts by reviewing the relevant literature in addition to what the results of the study will show in the hope of contributing to improving the productivity of the company under the study in terms of the lean production and relying on the strategic vigilance in its work.

### 1.4. The Objectives of the Study

- 1- Clarifying and defining the reality of the concept of strategic vigilance and its main types of competitive, social, commercial and technological vigilance.
- 2- Identifying the concept of lean production and its basic dimensions of continuous improvement, employee empowerment and agility of operations.
- 3- Demonstrating the effect of the strategic vigilance on the lean production in the Jordanian Dairy Company.

### 1.5. The Paradigm of the Study

Figure (1) represents the study paradigm and shows the independent and dependent variables and their dimensions as follows:

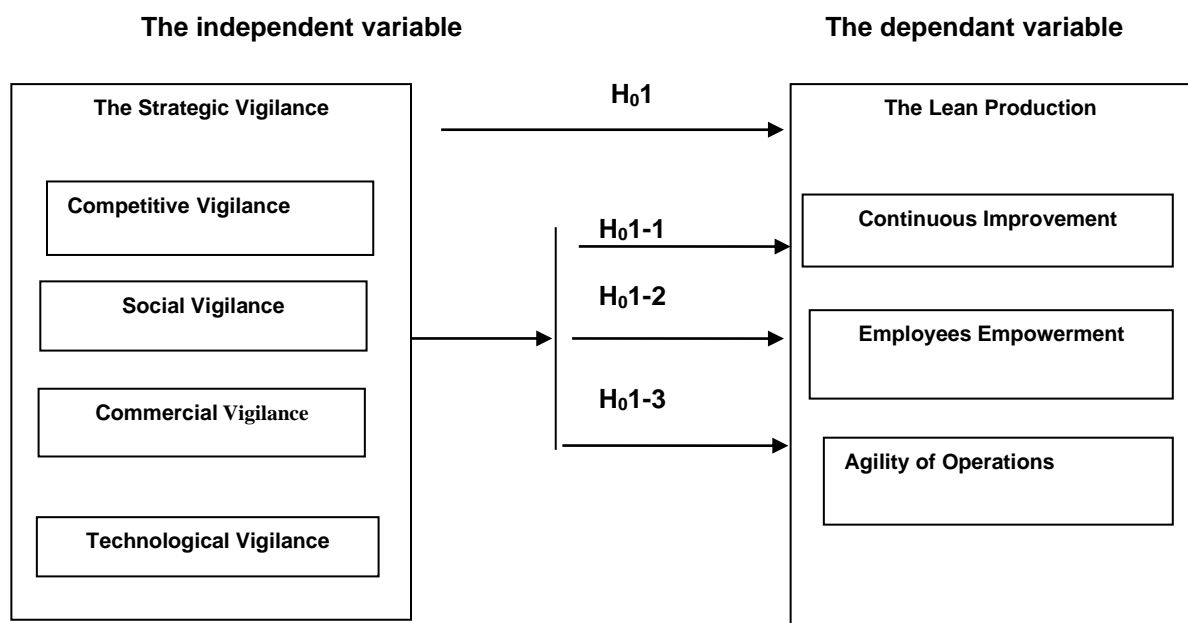


Figure (1) the study's paradigm

In determining the variables of the study, the researcher relied on the following studies:

**Table (1): References of the study variables**

The independent variables	Reference	The dependant variable	Reference
The competitive vigilance	Belhaj, 2017; Daoud Ibrahim, 2017	The continuous improvement	Al-Kiki, 2012
The social vigilance	Heintz, et al., 2016	The empowerment of employees	Gomez, et al., 2015
The commercial vigilance	Mahmoud, 2017	The agility of operations	Shalash and Al-Hasnawi, 2012
The technological vigilance	Warm, et al., 2017		

## 1.6. The Operational Definitions

The researcher will review the most important definitions of the study as follows:

- **The strategic vigilance:** It is defined procedurally as all the information gathering and analysis carried out by the company in order to obtain outcomes that contribute to improving its ability to form a holistic view of its internal environment that includes all operations and activities that aim to respond to environmental changes, reduce uncertainties, and make future predictions to achieve a good competitive advantage.

- **The competitive vigilance:** It is defined as all the processes that companies undertake to understand competitors, their strategies, products, services, and customers, and to analyze the information available about them. This is with the aim of assisting companies in developing their optimal competitive strategies and facing any changes in a systematic way that contributes to making decisions about products.

- **The social vigilance:** It means the process of realizing all the variables of society as soon as possible that may affect the company and its relations in the surrounding environment, as this vigilance is concerned with changes in consumers' desires, their geographical presence in a particular area, their consumer habits and their expectations towards products.

- **The technological vigilance:** It is defined as all the efforts undertaken by the company by relying on technology in analyzing and processing data to become useful information that can be converted into knowledge, retrieved and benefited from in a timely manner to meet any challenges and exploit any opportunities available to it in the production processes.

- **The lean production:** It is defined procedurally as a set of streamlined production methods aiming at reducing costs and time required for the production and eliminating all types of waste in all activities and operations of the company under study.

- **The continuous improvement:** It is defined as all operations aiming at improving the exploitation of all resources in the company, whether human, technical, creative, or any improvements that occur to the production on an ongoing basis to make work more efficient and with less effort or cost.

- **The empowerment of employees:** It is defined as all that are granted to employees, such as delegating authority and increasing the participation in making productive decisions in the company under the study, which encourages their commitment and stimulates their creativity towards the products manufactured by the company.

- **The agility of operations:** It is defined procedurally as using the dimensions of the strategic vigilance to know and exploit the opportunities available in the markets and increases the competitive advantage of the company under the study. It can be also considered as all the methods used in the lean production in the company's manufacturing operations.

## 1.7. The Limitations of the Study

- **The place limitations:** This study will be limited to the Jordanian Dairy Company (Maha).
- **The time limitations:** The study will take place during the second semester of the academic year (2017-2018).
- **The human limitations:** The study will be limited to the opinions of the respondents who are represented by the employees in the company's factories, whose number is (75).
- **The scientific limitations:** This study will be limited to the strategic vigilance in its dimensions the (competitive vigilance, social vigilance, commercial vigilance, technological vigilance) and its impact on the lean production in its dimensions the (continuous improvement, employee empowerment, agility of operations).

## 2. THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

### 2.1. The Preface\*

This chapter of the study deals with theoretical literature and previous studies related to the concept of strategic vigilance and the concept of lean production. The researcher elucidated the most important definitions and objectives of these topics along with a clear review of its most important dimensions and also referred to a number of previous studies at the end of this chapter.

### 2.2. The Strategic Vigilance

Strategic vigilance is the result of the traditional information systems, as these systems have gained currently a great importance in light of the famous developments in all fields. Thus, having it is considered a natural thing at the level of organizations of all kinds (Yasin, 2009, p. 90). From this standpoint, the contemporary business world has recently become dependent on information in all fields. Therefore, organizations must build a new system that allows them to have the strategic vigilance, which allows them to track all of the urgent changes in their surroundings and to keep abreast with the various developments in order to achieve their basic objectives, which are represented mostly in survival, continuity, growth, optimal productivity and cost reduction (Stead & Stead, 2014, p 102).

There is no specific definition for the strategic vigilance that is well-known among specialized scholars. The strategic vigilance can be defined as being "consistent with the state of consciousness so that the senses are open to everything that is going on around them with the presence of the desire to continue in this state. Therefore, the vigilance is being aware of something and taking caution about it, and what applies to the human also applies to organizations" (Daoud and Ibrahim, 2017). Additionally, it can be defined as a sequential and systematic process of searching, analyzing and testing information appropriately, where the organization can obtain it through information in an intelligent manner and thus supports its competitive advantage strategically (Finkelstein, et al., 2009. P55).

The strategic vigilance is defined as that continuous process of searching for strategic, economic, commercial, political and technological information about the organization's surroundings and all the changes, opportunities or threats it faces. This process consists of collecting, processing and storing information and all the strong and weak influences and signals emanating from the internal and external environment of the organization in order to achieve the objectives (Ghellab and Malika, 2012) as quoted from (Dhenin &Fournier, 1998. P203). From this point of view and through the previous definitions, the researcher considers the definition of the strategic vigilance as the intelligent monitoring and following-up of the organization's surroundings through the information available to it. This is done with the aim of seizing opportunities and avoiding threats. In addition to that, this vigilance is carried out through collective and proactive efforts in line with potential changes in the internal and external environment of the organization.

### 2.3. The Objectives of the Strategic Vigilance

There are a number of special objectives for the strategic vigilance, which it seeks to achieve, as follows:

- Increasing the organization's ability to predict the available opportunities and the possibility of exploiting them and avoiding threats and the possibility of avoiding them. This is done by providing sufficient information about the environment where the organization operates, competitors' conditions and movements, and the effects imposed by the current competition that can be exploited to become a market leader and to ensure its survival (Hambrick, et al., 2015).
- Achieving integration and reducing centralization through the continuous improvement of the internal communication process in the organization and via coordination between the various activities. In turn, this is reflected in raising the flexibility and ensuring the response to internal and external changes, along with its role in achieving the overall efficiency of its information system (Tasa & Whyte, 2005).
- Contributing to ensuring the quality of operations in the organization and increasing the accuracy of the decisions taken and related to the main activities in it. It also contributes to increasing profits, reducing costs, shortening time, and conducting good analysis for the value chain of the production and supply chain managements, human resources, marketing and the financial aspects of the organization mainly (Ruigrok, et al., 2006).
- Supporting the competitive advantage in organizations by comparing the competitive performance and the objective evaluation of it now and in the future, along with achieving the organizations' vision appropriately in the sector in which they operate (Mohat, 2014)

### 2.4 The Dimensions of The Strategic Vigilance

There are a number of special dimensions for the strategic vigilance stemming from its different characteristics which are represented in the strategy, collective intelligence and creativity; whereby these characteristics interact to achieve the dimensions of this vigilance (Daoud and Ibrahim, 2017). It is possible to refer to the dimensions of this strategy in each of the competitive, social, commercial and technological dimensions, in addition to the economic, environmental, political, marketing, legislative and other dimensions. In this study, the researcher will address the following as the main dimensions for this strategy: the competitive, social, commercial and the technological dimensions because of their connection to the work of the organization under this study, and which aims to produce dairy in the Hashemite Kingdom of Jordan:

#### 2.4.1. The Competitive Vigilance

The competitive vigilance is defined as all activities carried out by the organization in order to identify its current or potential competitors in terms of production, financial and economic aspects, which are represented in their projects, investments, human resources, trademarks and products presented in the markets (Mahmoud, 2017). Within its activities, the organization carries out special operations to collect and process data about the competitive environment from various sources in order to determine the capabilities of the competitors and their strengths and weaknesses. This is done with the aim of anticipating proactively the opportunities for their future decisions and for setting the appropriate strategy in the market (Kim & Mauborgne, 2014).

The competitive vigilance can also be considered as that organized process that aims at collecting, analyzing and evaluating in a scientific, systematic and organized method, any data related to current and potential competitors in order to provide useful outcomes for the management which are useful in taking various decisions. These outcomes are represented in an overview of the competitors' product range and their strategic performance; continuous tracking of their businesses and analyzing their costs compared with the organization's costs, and enriching the organization's thinking in line with the market requirements of its products with the presence of intense competition in the sector (Omar, 2017).

Accordingly, the competitive vigilance aims to know the strategies and decisions of the competitors, their products, their operational and price policies, their customers, their partnerships, their strategic alliances, and their financial results. It also allows setting the most effective commercial and marketing strategies for organizations and identifying the most threatening competitors with the possibility of the emergence of new competitors (Ghallab and Malika, 2012).

#### **2.4.2. The Social Vigilance**

The social vigilance is defined as perceiving all the changes that may occur in society as soon as possible and with an appropriate response, which can provide the organization with any influential disturbances in its relations with the surrounding community. This is performed by taking into consideration the developments in the demographic growth, consumption patterns and its volume, population groups, changes in tastes, standards of living, traditions, values and problems that may occur in societies. It also should allow knowing the method of good dealing with the employees, improving their relations with the organization, and the ease of addressing any internal problems related to their work, and understanding the community and getting close to it, which provides special indications for introducing new products and entering other markets (Waqnoui, 2016).

#### **2.4.3. The Commercial Vigilance**

The commercial vigilance is defined as those activities aiming at studying customers, suppliers, and the labor market, where the focus is on gathering information related to markets, which includes these suppliers and customers. This vigilance enables the organization to know the levels of demand and buying behaviors of customers and their satisfaction with the products. Furthermore, this information contributes to improving and developing products according to customers' desire, which is reflected implicitly in developing their relations with the organization and gaining their trust (Mahmoud, 2017).

The commercial vigilance can include the customer's vigilance, which aims to study what was mentioned previously. It is also able to study the characteristics of the customers and their consumer attitudes. The customers' vigilance is achieved in the customer's relationship management system (CRM), which is one of the applications of the commercial vigilance, which aims to manage the relation of the organization with its customers (Larivet, 2009).

The commercial vigilance also includes the supplier's vigilance, which aims to study the suppliers and to analyze their technological, financial and commercial developments and plans. This is clearly reflected in the development of offering the product by these suppliers and the relation resulting from the supplier and the organization. The sufficient knowledge about the suppliers contributes to the possibility of entering new competitors in the markets (Lee & Whang, 2004).

Accordingly, organizations always seek to develop their commercial vigilance, which is represented in some organizations in the marketing vigilance, which is concerned with everything related to relations, commercial activities, and marketing methods used by the organization in order to focus its attention on its front markets, which customers and the back market, which means suppliers (Al-Abidin, 2012). Omar (2017) believes that the commercial vigilance is an important source of the competitive advantage, which aims to ensure the permanent competitiveness of organizations through the relations resulting from their exploitation between customers and suppliers on the one hand, and between the organizations on the other.

#### **2.4.4. The Technological Vigilance**

The Technological vigilance is defined as the optimal exploitation of information systems used by the organization in enhancing the industrial information and its decisions. This vigilance is based on listening attentively to all the innovations that can benefit the organization which helps it in meeting the competitive challenges. This is done by considering the scientific and technological gains, products, their forms and production, and the equipment used in it, and identifying the technology used by competitors in the sector in which the organization operates (Warm, et al., 2017).

Therefore, the technological vigilance is considered the activity through which the organization monitors the scientific and technological environment associated with it, that is, all the means used for the purpose of knowing new developments in the information technology. These means seek to collect information that enables organizations to anticipate the areas of creativity and development in production and to improve the steps of the industry through innovations and modern patents (Diaz-Diaz, et al., 2006). Accordingly, the researcher considers the technological vigilance as observing and analyzing the practical, technical and technological environment, and their current and future economic impact on organizations, and using them in direct prediction of risks, threats and opportunities for development.

## **2.5. The Lean Production**

The concept of the lean production is one of the most prominent concepts that emerged after the Second World War. It came from Japan, specifically the Toyota Automotive Corporation. This emerged as a result of the problems that the company suffered from, which affected the industry's sector as a whole. The most prominent problems were the difficulty of production in light of the severe shortage of financial, material and human resources. This prompted the Toyota Corporation to find a special system for process-oriented production, which later became known as the lean production (Abdullah, 2003). The lean production refers to the system in which the inputs are exploited to generate the outputs by using human resources and by using a limited and few manufacturing capacity and by investing in equipment with the least effort and time possible to develop new products extensively, while the outcomes are characterized by great diversity and few defects (Berg & Ohlsson, 2005, p.5). Therefore, the lean production is considered as a business model that focuses on reducing waste in all activities of the organization through the continuous improvement of products and the empowerment of employees (Buggy, J. & Nelson, 2005).

Al-Samman (2012) believes that the lean production or manufacturing is one of the modern ways to move from the artisanal production to the manufacturing products, starting with design and supply chains. This is intended to achieve the optimal performance of the production system and to know the requirements of customers while eliminating the activities that do not add any value and thus resulting in a wise leadership of the costs of these activities. Thus, the lean production includes a tangible elimination of waste in all the operations of the organization, as the waste occurs through the loss of resources that do not lead directly to the manufacture of the final product according to the requirements of consumers. The industrial organizations mainly seek to choose the lean production methods for several reasons, including increasing the response to consumers, improving the product's image, and reducing the resources used in production and its costs (Krajewski & Ritzman, 2005, p 495).

From this point of view, we can refer to the concept of the lean production as that philosophy based on the Toyota production system and the other Japanese methods aiming at reducing the time between the demand for the product and its manufacturing, with an emphasis on eliminating any resulting waste of all kinds (Abu Shaaban, 2012, p 11).

## **2.6. The Dimensions of the Lean Production**

There are a number of special dimensions for the lean production. The idea of this production is based on reducing waste and reducing it in the production companies. The researcher in this study relies on three main dimensions that have been adopted in the Japanese management, especially in the Toyota Corporation in the past decades. These dimensions include the continuous improvement, the empowerment of the employees and the agility of operations. These dimensions contribute to creating products that bring benefits to all partners in the production process (Loukakou, 2012).

### **2.6.1. The Continuous Improvement**

The concept of the continuous improvement is one of the concepts that were introduced by the Japanese scientist (Ohno) under the name (Kaizen). In its philosophical sense, this means a change for the better, as it refers to the leadership of Japanese organizations to prevent the waste of costs, energy, time and effort that were adopted largely after the Second World War. This came to improve the directions of change in the external environment and



respond to its changes and adapt to them in order to achieve the desired success and what can be recognized in the midst of the current rapid changes and the environmental instability that face the companies (Saleh, 2017).

Thus, the production systems adopted this concept in their work within the lean production and the flexible manufacturing, which is one of their most important field applications that seek to achieve excellence in the business environment. The continuous improvement is also considered a new method different from the administrative and operational fields at all levels, as the organizations that adopt it must continue in this approach because it is viewed as the secret of success and the permanent excellence (Al-Jubouri, 2010). The continuous improvement method also aims to introduce gradual and continuous improvements for products through various processes that aim at reducing the percentage of waste, defective production and costs in addition to reducing the returned products. Moreover, it aims to prevent waste in all its forms in order to improve the productivity rates as well as improve the quality levels and to exploit the various and limited resources (Aqili, 2001).

In order for the continuous improvement to achieve its objectives of which it was approved, it must include the human and material resources represented in equipment, devices, materials and work steps related to production, and to involve the employees of all levels and motivating them to introduce innovative ideas and new suggestions and to apply them accurately to achieve the objectives of these suggestions (Heizer & Render, 2001, p.88).

### **2.6.2. The Empowerment of Employees**

The empowerment of the employees is one of the main dimensions of the lean production, due to the important role of the employees in achieving the objectives of the lean production and to the use of the mechanisms and methods used in this through their experience and special skills that lead to work proficiency (Picchi & Granja, 2004). The concept of empowering the employees is defined as involving the employees in making decisions and delegating them with the necessary authority for that in a way that supports the production processes, whether at the individual or the collective organizational level (Noe, et al., 2003).

The empowerment can be considered as a strategy that organizations can follow and apply on work teams in a way that enables them to achieve the objectives in general and the production objectives in particular. This is achieved by identifying the best ways to accomplish work in the production environment and making effective decisions without referring to the higher management within specific powers. Thus, organizations must equip the work teams with the necessary requirement to motivate and enable them to carry out the tasks assigned to them (Hasan, 2010).

Manufacturing according to costs, which is one of the main objectives of the lean production, requires the involvement of many different jobs and the individuals who occupy them in the economic unit. Consideration is given to the market research and those responsible for it and the departments of design, procurement, production and engineering, as well as to production scheduling, cost management and material handling as individuals from all these diverse areas of expertise can make major contributions by empowering the lean production processes. Moreover, the teams that have empowerment in their functions and specializations are considered fully responsible for the products, and this achieves the concept of the agility in production (Hamdan and Rahima, 2017).

From this point of view, the researcher believes that the empowerment of employees leads to the empowerment of the organization, and this may lead to improving its production, as relying on the human resources is a way to succeed in improving products. This is done by working in a team spirit and stimulating creativity and innovation among the employees to come up with work methods that reduce costs and waste of time and effort in the organization's production processes.

### **2.6.3. The Agility of Operations**

The agility of operations is considered one of the main dimensions in the lean production according to the Toyota Corporation system and its principles in the lean production, along with the agility and empowerment of employees and the technological agility. The agility of operations leads to product development through the flow of

information in the product development system in factories, which aims at reducing waste and cost and obtaining valuable production processes (Sobek, et al., 1999).

Thus, the agility of operations is a philosophy of lean manufacturing that aims at the continuous improvement of operations, which in turn aims to maximize operations. The agility of operations also means that it is the elimination of activities that do not add a systematic value based on methods for introducing new and innovative products efficiently (Womack, et al., 1990). Therefore, the researcher believes that the agility of operations is a final step after the process of continuous improvement and the empowerment of the employees. This dimension comes as the last process that can be performed on the company's products.

## **2.7. The Related Previous Studies**

### **2.7.1. First: The Previous Studies in Arabic**

Al-Kiki (2012) had shed light on the possibility of applying the elements of the lean production on the boys' clothing factory in Al-Mosul. This study relied on the descriptive analytical method in studying the population. As for the sample, it used a purposive sampling consisted of all the employees in the factory under the study. A questionnaire was distributed to them as instrument, and the number of respondents was (34). The study ended up with a number of results, the most prominent of which was the availability of some elements of the lean production in the factory under the study. Thus it was possible to apply them in light of the respondents' viewpoints. The study recommended that the factory management must provide all the requirements and human, material, technical and informational resources necessary to implement these elements. It also recommended that the factory should form a specialized team to implement the elements of the lean production and to motivate the employees for applying them.

Meanwhile, Abdel-Wahab and Al-Shammari (2016) conducted an applied study in the General Company for the Automotive Industry in Babylon/Alexandria. The study aimed to demonstrate the development of the product by using the lean production tools. The study also aimed to analyze the reality of production processes in the car assembly line (Rana) in the General Company for the Automotive Industry by using some tools of the lean production. The study adopted the descriptive analytical method and used the field observation method to find out the most important problems that the car production line in the company under the study may face. It hoped to find the appropriate solutions by relying on the lean production tools.

The study concluded with a number of conclusions; the most important of which was the existence of a waste of time in some production stations, which increased the time of delivery. Moreover, there are some other problems, the most important of which is not taking into account the customers' preferences for the product, such as the color or the gear, where most customers prefer to be automatic. The results of the study showed a lack of interest in the company's research and the development department and a lack of paying attention to the complaints and suggestions of customers and addressing them. The study recommended the need to build a special information system to develop products and to improve the level of reliance on the principles of the lean production.

Meanwhile, Mahmoud's study (2017) which aimed to demonstrate the strategic vigilance and its impact on the organizational success was conducted as an exploratory research in the Faris General Company of the Ministry of Industry. This study attempted to identify the types of the strategic vigilance available in the company under investigation and its impact on the organizational success. The population of the study included the company's employees, while the sample consisted of (71) employees, including managers, heads of departments and assistant managers. The study adopted the descriptive analytical method for achieving its results. The most prominent of results was that the best dimension of the strategic vigilance is the technological vigilance. The results also showed that there was a positive effect of the strategic vigilance on the organizational success. The study recommended not to focus on one type of the strategic vigilance, but rather to diversify it in all its commercial, competitive and technological dimensions at all the administrative levels.

### **2.7.2. Second: The Previous Studies in English**

Many studies in English have dealt with the issue of the strategic vigilance and the lean production. The researcher reviewed the following most important of these studies:

Shirey's (2015) conducted a study, titled "Strategic Agility for Nursing Leadership". It aimed to demonstrate the strategic agility for nursing leadership. The results of this study showed that the change management strategies may be successful in supporting the strategic planning and the organizational implementation in health institutions and in the nursing departments in particular. The study dealt with strategic agility as one of the competencies to be available in the leadership of organizational teams. It also presented some special methods for integrating the strategic agility in the health care systems and considered it as a strategic vigilance that can be relied upon in providing information about the health organization, which is reflected on its comprehensive performance.

However, the Chew & Anthony's (2014) conducted a study, titled "Learning to Create Sustainable Value in Turbulent Operational Contexts: The Role of Leadership Practices". It aimed to demonstrate the role of learning in creating the sustainable value in the contexts of the turbulent operations: the role of leadership practices. This study aimed to explore the role of leadership practices in particular in enhancing the ability of organizations to learn new value creation from a variety of sources (vigilances), as well as their ability to maintain this value in the changing environments. The study also found that the leadership practices depended on the social vigilance, and that the capital resources contributed to increasing the confidence in the outcomes of vigilance in general and in the processes of value creation.

Meanwhile, the study of Zafar, et al., (2015) confirmed that the competitive vigilance is manifested in the fact that information about competitors is an essential resource in economic systems, especially organizations, for their continuity and survival. It is necessary for organizations to collect and store all the information that helps them to achieve their objectives and carry out their activities. This is done through special information systems in light of the witnessed globalization, where the world has become very complex and fast-paced economic as a result of the tremendous development and rapid changes in the information technology. The results of this study concluded that there is an effect for the strategic vigilance referred to in the information systems of small and medium companies in the Kingdom of Saudi Arabia. The results also showed that a number of companies still lack these systems and the technical skills associated with them, and that the good application of the strategic vigilance through these systems leads to an increase in the competitive advantage of these companies.

### **2.7.3. Commenting on the Previous Studies**

- Some studies dealt with the concept of the strategic vigilance without addressing its importance in the lean production, its processes and its various dimensions.
- A number of studies dealt with some of the dimensions of the strategic vigilance and studied them only comprehensively.
- Some studies have shown the importance of the strategic vigilance in some of its aspects in improving the lean production and the competitive advantage.
- The strategic vigilance has an implicit impact on improving the lean production in an industrial company.
- Based on the foregoing, the researcher noted the importance of the subject of the study and that it is worthy of research and study in depth.

## **3. THE METHODOLOGY OF THE STUDY**

This study aims to demonstrate the effect of the strategic vigilance on the lean production: a field study on the Jordanian Dairy Company. The researcher adopted the descriptive analytical method to attain the objectives of the study. The descriptive method is used to provide a theoretical framework for the variables of the study and to describe the nature of the answers for the study sample members, which is performed by calculating the arithmetic

means and the standard deviations of the answers. As for the analytical method, it relied on analyzing the results of the correlation and regression for the study variables extracted from the answers of the study sample which are applied on the items of the questionnaire whose items cover all the dimensions of the study variables.

### 3.1. The Population and Sample of the Study

The study population consisted of the (75) employees in the factories of the Jordanian Dairy Company. From this population, the researcher selected a random sample of (51) employees.

Table (1) shows the retrieved questionnaires as received from the sample members, which are valid for the statistical analysis.

**Table (1) The distributed and retrieved questionnaires which are valid for the statistical analysis**

The population of the study	The distributed questionnaires		The retrieved questionnaires		The questionnaires that are valid for the statistical analysis	
	Number	Percentage	Number	Percentage	Number	Percentage
The employees	65	%100	55	%84.6	51	%78.5

Source: Prepared by the researcher

### 3.2. The Instrument of the Study

To collect the necessary data which are needed for the verification of the hypotheses of the study, the researcher designed a three-part questionnaire as follows:

- **The first part:** It includes the five demographic variables, namely (gender, academic qualifications, age, years of experience, job title).
- **The second part:** It consists of items that measure the independent variables of the study, which includes the following dimensions:
  - The first dimension: The competitive vigilance which includes the items (1-10).
  - The second dimension: The social vigilance which includes the items (11-19).
  - The third dimension: The commercial vigilance that includes the items (20-31).
  - The fourth dimension: The technological vigilance that includes the items (32-39).
- **The third part:** It includes items that measure the dependent variables of the study as follows:
  - The first dimension: The continuous improvement which includes the items (40-49).
  - The second dimension: The empowerment of the employees which includes the items (50-54).
  - The third dimension: The agility of operations which includes the items (55-59).

The level of answers was categorized by using the five-item Likert scale. This scale is the most widely used one and it is easy to understand it:

**Table (2)**

Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
5 points	4 points	3 points	2 points	1 point

As for the significance level for the arithmetic means of the answers, it was determined according to the following equation:

$$(5 - 1) / 3 = 1.33 \text{ and then it is distributed as follows: } 1-2.33 \text{ weak, } 2.34-3.66 \text{ average, } 3.67 -5 \text{ high.}$$

### 3.3. The Validity and Reliability of The Instrument

To ensure the apparent validity of the questionnaire, the extent to which its items are able to measure the variables, and the clarity and integrity of the formulation of these items, the researcher presented the questionnaire to the supervising professor to review its items. Then it will be presented to a group of specialists and academics in the Jordanian universities.

To check the consistency of the answers of the members of a particular unit, the Cronbach Alpha coefficient was calculated. It was found that the total percentage of the stability of the answers to the items of the questionnaire was 84.6%, which exceeds the minimum acceptable percentage.

**Table (3): The reliability coefficient of the study variables (The Cronbach Alpha Scale)**

The variables of the study	Cronbach Alpha
The competitive vigilance	0.782
The social vigilance	0.91
The commercial vigilance	0.658
The technological vigilance	0.842
The continuous improvement	0.738
The Empowerment of employees	0.698
The agility of operations	0.754
The overall reliability rate	0.846

The reliability is tested by using the Cronbach's Alpha internal consistency test to find out the degree of consistency and the internal reliability in the scale used to measure the study variables. Based on (Nunnally, 1978) and (Sekaran, 2003) if the Cronbach's Alpha coefficient is more than 0.60, this means that it can be relied on for analyzing the research data and the more the value of the Cronbach's Alpha coefficient is related to the integer one (1), the more accurate the scale is and reflects the reliability of its instrument.

### 3.4. The Sources of Data and Information Collection

The researcher relied on two types of sources for collecting the data for the purpose of this study, namely:

- 1- **The secondary sources:** The researcher referred to books, articles, research and previous studies (in Arabic and English) available in libraries and specialized refereed scientific journals and other sources available in the scientific research databases as well as university theses and dissertations.
- 2- **The primary sources:** It consisted of the study instrument, which is a questionnaire which the researcher developed and designed its items and distributed them to the respondents in the company under the study. The instrument of this study fulfilled its purpose through its items in providing and collecting the necessary data.

### 3.5. Methods of the Statistical Analysis

The researcher subjected the primary data collected through the study instrument (the questionnaire) within the statistical package for social sciences (SPSS), where it was analyzed according to the tests that achieve the desired objectives of the study. Specifically, the following methods were used:

- **First:** The descriptive statistical methods which include the measures of central tendency such as the arithmetic mean. These methods were used to describe the characteristics of the sampling unit about the study variables and to determine the importance of the statements of the questionnaire, as well as the standard deviation to show the extent to which the answers are dispersed from their arithmetic mean.
- **Second:** The statistical inference methods which include the following:
  - 1- **The multiple regression analysis:** it tests the effect of a group of the independent variables on the dependent variable.

**2- The simple regression analysis:** it tests the effect of the independent variable on the dependent variable.

**3- The Cronbach's Alpha test:** it tests the extent of the reliability of the instrument on the data collection used to measure the variables included in the study.

**4. SHOWING THE RESULTS & TESTING THE HYPOTHESES**

**4.1. First: The Results**

To identify the relation between the variables of the study, the Pearson Correlation coefficient was calculated between all of the study variables as shown in the table below.

**Table (4): the Pearson Correlation coefficient between all of the study variables**

	The competitive vigilance	The social vigilance	The commercial vigilance	The technological vigilance	The continuous improvement	The empowerment of employees	The agility of operations
Pearson Correlation sig. (2-tailed) <b>The Strategic vigilance</b>	1						
Pearson Correlation sig. (2-tailed) <b>The social vigilance</b>	-.174 .222	1					
Pearson Correlation sig. (2-tailed) <b>The commercial vigilance</b>	.085 .551	.663** .000	1				
Pearson Correlation sig. (2-tailed) <b>The technological vigilance</b>	-.081 .571	.492** .000	.660** .000	1			
Pearson Correlation sig. (2-tailed) <b>The continuous improvement</b>	-.100 .484	.372** .007	.424** .002	.516** .000	1		
Pearson Correlation sig. (2-tailed) <b>The empowerment of employees</b>	-.075 .602	.152 .287	.147 .305	.170 .233	.347* .013	1	
Pearson Correlation sig. (2-tailed) <b>The agility of operations</b>	-.297 .034	-.041 .776	.032 .821	.148 .302	.521** .000	.377** .006	1

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

The above table shows that the highest correlation coefficients were between the social vigilance and the commercial vigilance, as the Pearson coefficient was (0.663) and at a level of the statistical significance (0.00). On the other hand, the lowest correlation coefficient (0.032) was between the commercial vigilance and the empowerment of employees. It is also noted that all of the correlation coefficients between the competitive vigilance and the rest of the variables were inverse except for the commercial vigilance. On the contrary, the correlation coefficients between the variables with the social vigilance were positive, except for the agility of operations, which was negative. This is due to the fact that the company under the study considers the requirements of the customers greatly and that it is interested constantly in its products and its types in the market.

#### 4.2. Second: The Inferential Statistics

The multiple regression test was conducted in addition to the level of the statistical significance for the level of significance (0.05).

The results were as follows:

- **First:** The results of testing the main hypothesis, which states: "There is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) of the strategic vigilance represented by the (competitive vigilance, the social vigilance, the commercial vigilance and the technological vigilance) on the lean production represented by its dimensions the (continuous improvement, the empowerment of employees and the agility of operations) in the Jordanian Dairy Company.

**Table (5) The results of the regression test for the sample's answers to the items related to the main hypotheses Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	f	Sig.
	B	Std. Error	Beta				
1 (Constant)	3.740	.508		7.364	.000	3.021	0.027
<b>The competitive vigilance</b>	-.146	.129	-.159	-1.132	.042		
<b>The social vigilance</b>	.001	.098	.002	.013	.990		
<b>The commercial vigilance</b>	.061	.113	.116	.539	.020		
<b>The technological vigilance</b>	.115	.061	.333	1.873	.000		
<b>R: 0.670 R<sup>2</sup>: 0.449</b>							

a. The Dependent Variable: The lean production

- The table above shows that the value of (f) was (3.021) and that the level of the statistical significance was (0.27). This means it is not accepting the null hypothesis which states that there is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) of the strategic vigilance represented by (the competitive vigilance, the social vigilance, the commercial vigilance and the technological vigilance) on the lean production represented by its dimensions the (continuous improvement, the empowerment of employees and the agility of operations) in the Jordanian Dairy Company. The results confirm the existence of a statistically significant effect of the strategic vigilance in all its dimensions on the lean production. It was clear from the analysis that the coefficient of determination was 44.9%, which means that the strategic vigilance in its dimensions was able to explain this percentage of the variance of the dependent variable, the lean production. These results confirm that the concern paid to the strategic vigilance enables the existence of a good system for the lean production in the company under the study.

- **Results of the first sub-hypothesis test:** There is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the competitive vigilance on the lean production in the Jordanian Dairy Company.

**Table (6) The results of the simple regression test for the sample's answers to the items related to the first hypothesis**  
**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	S ig.
	B	Std. Error	Beta		
1 (Constant)	4.453	.429		10.381	0.000
<b>The competitive vigilance</b>	-.162	.129	-.176	-1.255	.0215

a. The Dependent Variable: The lean production

The above table shows that the value of (t) was (-1.255) and that the level of the statistical significance was (0.0215). This means that there is a statistical significance at a significant level of (0.05) and therefore the null hypothesis is not accepted, which states that there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the competitive vigilance on the lean production in the Jordanian Dairy Company. This also means accepting the alternative hypothesis and confirming that there is a statistically significant effect at the significance level ( $\alpha=0.05$ ) of the competitive vigilance on the lean production in the Jordanian Dairy Company.

- **The results of the second sub-hypothesis test**, which states that "there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the social vigilance on the lean production in the Jordan Dairy Company.

**Table (7) The results of the simple regression test for the sample's answers to items related to the second sub-hypothesis**  
**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.436	.247		13.928	0.000
<b>The social vigilance</b>	.144	.073	.271	1.969	.055

a. The Dependent Variable: The lean production

The above table shows that the t-value was (1.969) and that the level of the statistical significance was (0.055). This percentage is not statistically significant at the level of significance (0.05). This means accepting the null hypothesis which states that there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the social vigilance on the lean production in the Jordanian Dairy Company. Thus, accepting the alternative hypothesis and emphasizing that there is a statistically significant effect at the significance level ( $\alpha=0.05$ ) of the social vigilance on the lean production in the company. This result reinforces that the company under the study is studying constantly its produced varieties.

- **The results of the third sub-hypothesis test**, which states that "there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the commercial vigilance on the lean production in the Jordanian Dairy Company.

**Table (8) The results of the simple regression test for the sample's answers to the items related to the third sub-hypothesis, Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.269	.273		11.988	0.000
<b>The commercial vigilance</b>	.170	.071	.324	2.398	.020

a. The Dependent Variable: The lean production



The table above shows that the t-value was (2.398) and the level of the statistical significance was (.020), which is considered statistically significant at a significant level of (.05). This means that the null hypothesis which states that there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the commercial vigilance on the lean production in the Jordanian Dairy Company is not accepted. It also confirms the existence of a statistically significant effect at the significance level ( $\alpha=0.05$ ) of the commercial vigilance on the lean production in the company under the study.

- **The results of the fourth hypothesis test**, which states that “there is no statistically significant effect at the significance level ( $\alpha=0.05$ ) of the technological vigilance on the lean production in the company under the study”.

**Table (9) The results of the simple regression test for the sample's answers to the items related to the fourth sub-hypothesis**  
**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.378	.168		20.111	0.000
<b>The Technological vigilance</b>	.146	.045	.424	3.277	.002

a. The Dependent Variable: The lean production

The table above shows that the value of (t) was (3. 277) and the level of the statistical significance was (.002), which is a statistically significant percentage at the level of significance (.05). This means it is not accepting the null hypothesis which states that "there is no statistically significant effect at the level of significance ( $\alpha=0.05$ ) of the technological vigilance on the lean production in the Jordanian Dairy Company" and that it confirms the existence of this effect.

## The Recommendations

In light of its results, the study concluded a number of recommendations, the most prominent of which are the following:

- Improving better the company's knowledge in the strategic vigilance is necessary.
- Focusing on the technological vigilance because of its impact on improving the productivity in the company under the study.
- Focusing on the lean production systems in the company under the study.
- Conducting future in-depth studies of the impact of each type of the strategic vigilance on the lean production.

## THE DISCUSSION OF THE RESULTS

This study presented a practical and conceptual introduction to the strategic vigilance and its role in activating the lean production of the Jordanian Dairy Company from a strategic and administrative perspective, which may increase its capabilities in improving its productive capacities in an effective practical way. Within the concept of vigilance, the study dealt with the competitive vigilance, the social vigilance, the commercial vigilance and the technological vigilance as individual dimensions. Besides the lean production, the study also dealt with the modern dimensions represented in (the continuous improvement, the empowerment of employees and the agility of operations). Industrial companies in particular are seeking, within their strategies and actions, to reduce costs associated with production and reduce loss and waste during the manufacturing process. This is the core of the work of these companies which contributes to their survival and the continuity of their business and ensures profitability and growth within the sector in which they operate. The strategic vigilance is also a pattern of openness and awareness that industrial companies initiate to determine the enhancement of their competitive advantage and to study the extent of their impact and influence in the markets where they operate. The link between the vigilance and the lean production increases the ability of these companies to predict their opportunities and to improve the

efficient and effective use of their resources, in addition to what may increase the quality of operations and the accuracy of decision-making and to ensure a bright future for their business. Meanwhile, the integration of the strategic vigilance with productivity increases the transition of the production process in its traditional image to a better flexible position that contributes to improving the supply chains and achieving the optimal performance of the production system followed through it. These systems require the pursuit of continuous improvement and the objective-based change in addition to empowering the human resources and considering them an indispensable asset within the assets of companies. These systems also require a continuous focus on the agility of operations, the adoption of modern technology in various manufacturing processes, the development of production lines that meet the needs of the markets based on deep and accurate studies that are useful in reformulating operations to suit these needs successfully. Therefore, this research paper has reviewed the most prominent topics related to the dimensions of the strategic vigilance and the dimensions of the lean production that may lead to enhancing the role of the lean production in the company under the study.

### **In Order to Answer Its Questions, This Study Came to The Following Results**

- There is a significant correlation between the social and the commercial vigilance and the lean production on the one hand, while the results showed that the relation between the commercial vigilance and the empowerment of employees was at its lowest levels.
- The results of the study showed that the company under the study studies the requirements of markets and customers greatly and pays great attention to continuously improving its products and its varieties within the markets where it operates.
- The results showed a positive effect of the strategic vigilance in all its dimensions on the lean production in all its dimensions in the company under the study. This means the existence of good production systems that contribute to the lean production effectively.
- The results of the study showed that there is a positive effect of the competitive vigilance on the lean production in the company under the study, which means that the company is constantly striving to study its competitive position and to improve its competitive advantage in the markets where it operates.

The study indicated that there is a positive effect of the social vigilance on the lean production. This means that it continuously studies its produced varieties and improves them in a way that suits customers, which may contribute to a significant increase in sales.

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