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THE POSSIBILITY OF APPLYING AN OBEYA SYSTEM IN MAKING PRODUCTION AND OPERATIONS DECISIONS

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ABSTRACT

The purpose of the research is to identify the Obeya system and its role in making production and operations decisions at the General Company for the Iraqi Automotive and Equipment Manufacturing Company. A questionnaire form was developed to ensure the existence of a relationship between the research variables, and based on the comprehensive inventory method, (143) questionnaire forms were distributed in the company, and their data were analyzed using the (AMOS) program.

The results of the research showed that there is a knowledge gap related to determining the nature of the relationship between the Obeya system in making production and operations decisions, and it was confirmed that there is a statistical relationship between the research variables. Therefore, the researched company needs to adopt the Obeya system in making production and operations decisions.

The results reached by the research can be benefited by employing the Obeya system in making production and operations decisions, thus increasing the company's chances of achieving its goals and objectives. As a result, the company should conduct training between units, and participate in training with other organizations.

It is the first research to combine current variables (the Obeya system, production and operations decision-making) in one hypothetical model in the General Company for Automotive and Equipment Manufacturing. This means that there is no knowledge product that determines the relationship between these variables, whether at the level of Iraqi organizations or others, so the current research came to fill that gap.

Keywords: Obeya system, decision making, production and operations, General Company for Automobiles and Equipment.

INTRODUCTION

In Japanese, the word "Obeya" means "big room." Why the link with Japan? Because Toyota created the first "Obeya" there when creating the Prius. The Obeya serves as a platform where operational teams and leadership can interact respectfully, honestly, and visibly to integrate the organization's strategy into their daily work. When implemented correctly, it helps prevent egotistical politics, unclear priorities, ineffective management techniques, misalignment, a lack of guidance for self-organizing teams, and a host of other "traditional management issues (Wiegel, 2012)

When Toyota introduced the Prius in 1993, it implemented Obeya. Whether you think the Prius is a lovely car or not, Toyota led the hybrid car industry by bringing the vehicle to market in roughly half the time it took for several of its rivals. The goal was to achieve twice the fuel efficiency of a typical car at that time. The Obeya was intended to serve as the group's focal

point for collaboration on the vehicle's development. According to Jeff Liker's account in The Toyota Way (2003), Takeshi Uchiyamada, the Chief Engineer and senior leader of the Prius project, set up the Obeya.

The chief engineer is sometimes personified as someone who knows everything. This means that even while constructing separate vehicle pieces, you know how the bolts go together and what the consumer wants. In the previous car development system, the program was coordinated by the chief engineer who toured about and met with people as needed.

Obeya, which translates to "big room" in Japanese, is a Lean Management technique that facilitates KPI control and monitoring (Mann, 2005). The Obeya room is a physical area used for business management, providing visual management for tracking and monitoring the performance of the company. It offers a clear picture of the company's progress toward the goal and the difference between the two. The Obeya room's visual displays of all the information will aid in questioning and sending messages. This will consequently promote a kaizen mindset among the staff. A weekly Obeya meeting will be held to assess the status, and Obeya will demand a high level of commitment from the management. The Obeya is a necessary aid in Japan that conceivably permits business promotion operations to enhance management decision-making. This is due to the fact that most decisions made via a value stream frequently ignore issues and their fixes. As a result, individuals will begin to believe that issues are just too complex to solve, and new ideas will only be proposed infrequently with no indication of their likelihood of success. Making these decisions in an Obeya will make it simpler to examine the issues and potential solutions, and it will make it simple to gauge the idea's success using a visual way (Nascimento, 2017).

This will therefore result in a substantial change for a particular problem from its current state to its desired state. This evaluation will happen in a management setting in Obeya. Basically, this is a space where senior management gathers to talk about challenges and resources to address issues or accomplish a particular objective. With the Obeya room representing both the intended and current state of their endeavors. In a Lean organization, an obeya is a space where a team completes its job. The name obeya is derived from the Japanese word for vast room. There are clear similarities between this and an Obeya's role in Lean. An Obeya is a Lean meeting place where a team working on a value stream meets every day. After that, the group will examine historical data to see if any progress has been made. In the event that nothing has changed, the group will investigate the underlying causes. Actions will be taken for those who are responsible if any concerns remain unresolved, and if more discussions about the value stream are required. This indicates that the process the team is working on will typically occur in the Obeya. This is exactly the same as the control room metaphor that was previously discussed (Wiegel, 2012).

DEFINITION OF AN OBEYA SYSTEM

In lean manufacturing, an Obeya system is a physical site where a team meets to understand the state of a specific value stream, conduct experiments to address problems, and coach team members on the Toyota Improvement Kata. An Obeya is utilized when the project or value stream is either extremely sensitive or the changes are so contentious that a team does not want to risk making matters worse. Obeya usually distributes numerous charts or papers to

ensure that all project-related information reaches and is understood by all parties involved. The function of Obeya itself is to ensure that we are doing the right things. In an Obeya room, usually the problem or project is divided into plan, do, check, and act. With this, an improvement can be taken step by step, and we can ensure the result of a change. Steps to make improvement are usually done by forming a hypothesis, PDCA, and validating learning. In an Obeya room, we can compare the actual state and the expected state of a result of a change. The purpose of Obeya is to ensure that we are doing the correct things. In an Obeya room, the problem or project is typically divided into four steps: plan, do, check, and act. This allows us to make incremental improvements while also ensuring the outcome of a change. Typically, steps for improvement include developing a hypothesis, PDCA, and validating learning. In an Obeya room, we can compare the actual and expected states after a change (Bryman & Bell, 2011).

Obeya Room hangs the expected state of a result and compares it with the actual result to understand the gaps in order to use CCAR (Concurrent Customer Assessment Review) to understand the voice of the customer. Obeya is an organized method for approaching PDCA improvement projects. It can also be used to visualize the situation and keep an eye on projects where changes need to be made step-by-step, ensuring that change is not a problem (Nascimento, 2017).

THE DIGITAL OBEYA ROOM

The Japanese word for "large room" is Obeya. A Toyota executive used it for the first time in a management-related capacity to improve the coordination of a challenging engineering project. A3 sheets were hung up on the wall of a meeting room, and each employee was required to write down a description of their point of view in order to make it easier to understand and access the opinions of other workers. The Obeya room has shown to be extremely effective in fostering collaboration during management processes, much like other Lean practices. According to, it facilitates quicker and more efficient decision-making, supports a significant reduction in waste, and lowers organizational barriers. Participants can quickly learn about the worries and concerns of other employees and develop a deeper understanding of issues. As a result, a more rapid agreement is reached through the use of digital systems, and a modern version of the Obeya room was created. Digital Obeya Room aims to improve productivity and efficiency in interdisciplinary project management, grounded in the visual management context and driven by the continuous improvement motto. In order to provide a more unified access to information generated in multiple sources, disparate engineering systems were combined. As a result, a more rapid agreement is reached through the use of digital systems, and a modern version of the Obeya room was created. Digital Obeya Room seeks to increase productivity and efficiency in the area of interdisciplinary project management, grounded in the continuous improvement motto and the context of visual management (Nascimento, 2017).

PRODUCTION AND OPERATIONS DECISION-MAKING

Skinner (1969: 144) is one of the first to be interested in production and operations decisions. He pointed out the importance of this function in strategic planning processes, even though

these decisions may be made at lower administrative levels in the organization. Schroeder (1982:18) believes that the function of production and operations management is to study decision-making related to the production and operations function, and that the production and operations manager has the responsibility of producing the product by making decisions and choosing the best alternative from among the available alternatives. (Al-Hamalawy, 1984: 47) refers to the production and operations function and its decisions as the function that works under the umbrella of the organization's strategy and not in isolation from it. It is noteworthy that the successful organizations are those that were able to use their productive capabilities as a competitive weapon, while the organizations that did not care about that, success was not their ally. In this regard, (Fine & Hax, 1985:28) point out that the production and operations function is one of the basic functions whose decisions must be taken into account when formulating its strategies, because the assets of this unit represent about 60% of the total operational assets of the organization. Bennett & Oakley (1988: 6) confirm that attention to improving and formulating production and operations decisions, whether strategic decisions or tactical decisions, falls on all administrative levels, starting from senior management to the workshop. Dilworth (1989: 72) emphasizes that strategic decision-making related to production and operations is done by choosing the best alternative from among the available alternatives in order to achieve the organization's goals of growth, survival and stability.

Krajwski & Ritzman (1999:4-5) emphasize that the production and operations manager makes many strategic and tactical decisions. These decisions may be made either by him or in conjunction with other decision makers in the organization. Angell (1999: 9) indicates that the production and operations manager makes many decisions of a structural nature in order to help the organization achieve competitive priorities.

DECISION MODELS IN PRODUCTION AND OPERATIONS MANAGEMENT

Production and operations decisions play an important and fundamental role in the production and operations function, as the production and operations manager aims by making these decisions to provide support and support to the organization's management in achieving its goals of growth, stability and survival. In light of these objectives, the available alternatives are evaluated. The process of choosing any decision requires the availability of two alternatives, and a comparison must be made between them to reach the choice of one of them. The writings of specialists in production and operations management have resulted in a number of ideas and theoretical models on how to make production and operations decisions. In this axis, we will trace the most important of these models, their decisions, and their trade-offs and describe them according to their chronological development, as well as the importance of the trade-offs within production and operations decisions. In this context, Schroeder (1982:28) believes that the nature of the trade-offs in production and operations decisions must be understood, which makes us rely on them in Decision making process.

Tab 1: Decision areas in production and operations management

Decisions	Samples of questions
Production capacity planning	How much human resources do we need to perform operations?
Location	What is the best location to establish the organization and its main formations?
Arrangement of facilities	What is the appropriate method for arranging equipment and facilities?
Overall planning	What is the appropriate rate of output that should be produced?
Scheduling	Is the production of the product commensurate with the organization's capabilities?
Quality Management	How can quality goals be achieved?
Storage control	What level of security storage is appropriate? How is it monitored?
Maintenance	How are physical assets maintained? Which standards should be adopted in processing?

METHODOLOGY

The research problem can be summarized in the difficulty faced by the General Company for Automotive and Equipment Manufacturing in adopting the Obeya system. Therefore, the current research attempts to reveal the relationship between its variables, and determine the extent to which the researched company has appropriate strategies for employing the Obeya system in making production and operations decisions, as there are no discussions about the extent to which the Obeya system contributes to making production and operations decisions to the best of the researcher's knowledge, and this indicates a need for knowledge in How to bridge the gap between the variables of current research. To achieve this goal, a survey was conducted at the General Company for Automotive and Equipment Manufacturing based on a checklist, which included specific paragraphs regarding the Obeya system in making production and operations decisions.
Based on the research problem mentioned above, the current research seeks to answer the following cognitive and practical questions:

1. What are the conceptual considerations of the Obeya system in making production and operations decisions?
2. Can the Obeya system contribute to making production and operations decisions?
3. Is there a relationship between the Obeya system in making production and operations decisions?

STUDY AIMS

Based on the research problem and questions, its objectives can be determined as follows:

1. Develop a conceptual model for the Obeya system in making production and operations decisions.
2. Determine the availability of the Obeya system in making production and operations decisions.
3. Determine the relationship between the Obeya system in making production and operations decisions.

STUDY HYPOTHESES

1. There is a positive correlation with statistical significance for the Obeya system in making production and operations decisions.
2. There is a statistically significant impact of the Obeya system on making production and operations decisions.

STUDY RESULTS

Testing the hypothesis (there is a significant correlation between the Obeya system and production and operations decision-making). It is clear from table 2 that there is a very strong and significant correlation between the Obeya system and production and operations decision-making, as the value of the correlation coefficient between them reached (0.748**), which is a value with moral significance at the level of (1%), and this in turn proves a high confidence rate for the results. The relationship is (99%), which confirms the existence of a level of harmony and relationship between the two variables on the ground, according to the sample's answers at the level of the factories of the General Company for Automotive and Equipment Manufacturing.

This result indicates that the more the company's management pays attention to the dimensions of the Obeya system and to making production decisions and operations that will make rational decisions and approve activities, processes and parts that support the company's directions in its production operations, in addition to conserving energy and reducing waste and losses, this will improve the company's performance. It increases its strength and competitive superiority, and thus the hypothesis is accepted.

Testing the hypothesis (there is a significant effect of the Obeya system on making production and operations decisions.

Table 2 shows that there is a significant impact of the Obeya system on making production and operations decisions, as it is clear that the estimated value of the standard parameter (the standard influence factor) reached (0.78). This means that a variable of the Obeya system affects production and operations decision-making by (78%). At the level of the General Company for the Automotive and Equipment Manufacturing Company, this means that production and operations decision-making will increase by (78%) in the event of increased interest in the Obeya system as a single unit. We also note that the value of the impact factor is a significant value because the value of the critical ratio (C.R.) shown in the table 2 amounting to (12.448) is a significant value at the level of significance (P-Value) shown in the same table, and this result indicates the presence of a significant effect. Moral significance of the Obeya system in making production and operations decisions at the company level. Based on the above, the hypothesis can be accepted.

Tab 2: Impact of the Obeya system on making production and operations decisions

Paths			Standard regression weights	Non-standard estimate	Standard error	Critical ratio	Sig. ratio
Obeya system	--->	Production and operations decision-making	.778	1.090	.088	12.448	***

CONCLUSIONS

The Obeya Room is a physical area used to manage production and operations, and provides visual management to track and monitor company performance. It provides a clear picture of the company's progress towards the goal and the difference between the two. Visual displays of all information in the playroom will help with questions and messaging.

The aim of the research is to identify the Obeya system and its role in making production and operations decisions in the General Company of the Iraqi Automotive and Equipment Manufacturing Company. The results of the research showed that there is a knowledge gap related to determining the nature of the relationship between the operational system in making production and operations decisions. It was also confirmed that there is a statistical relationship between the research variables. Therefore, the researched company needs to adopt an operational system in making production and operations decisions. The findings of the research can be benefited by employing the Obeya system in making production and operations decisions, which increases the company's chances of achieving its goals and objectives. As a result, the company must conduct inter-unit training, and participate in training with other organizations. It is the first research that brings together the current variables (Obeya system, production and operations decision-making) into one virtual model in the General Company for Automotive and Equipment Manufacturing. This means that there is no knowledge product that determines the relationship between these variables, whether at the level of Iraqi organizations or others, so the current research came to fill that gap. It is possible to conduct studies in similar production companies in the public and private sectors and compare them.

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