

The Rule Of The 5s Technology In Achieving The Competitive Advantage For The Industrial Companies Applied Research In The Light Industries Company

Mohammed T Mohammed¹ , Noor Fadhil Shahatha² , Ezzaddin Hasan Alhussaini³

¹Imam Al-kadhum college , financial and banking dep.

²AL-Farahidi University, Accounting department.

³Al-Mustaqbal university college , Accounting Department, Iraq, Babylon.

Corresponding Author : Ezzulddin.hasan@mustaqbal-college.edu.iq

Abstract:

There is an increase in the cost of the product that has been noticed lately in the economic units, after many kinds of research on the reasons for the rise in the costs of the products, the results have shown there are many reasons such as using the payment system, increasing loss and waste, unpleasant work environment, irregular work stages, repeated delaying and lower employees morale. All of the aforementioned reasons led to the increase in product costs. So we cannot eliminate the bad working conditions without using new methods, one of the major issues in the economic issue is the increase in the losses and waste which will lead to a rise in the cost of the products, increasing the competition and lower market shares in the face of new technology and open and unregulated market.

What we conclude in this research is that implementing the 5s technology led to a decrease in the unnecessary waste and losses and organizing the working environment according to the international standards which would ensure save environment for the workers and the work.

Keywords: 5S , competitive, environment , waste, competitive advantage.

Introduction

Many researchers sought that using the 5s technology which was adopted by the Toyota company, will lead to achieving the economic unit its aims, such as the cultural and material changes, devolving the infrastructure, cleaning the production environment and other changes which will lead to achieving the complete advantage. To find the best cleaning method, and arrange to achieve high quality in the working environment which will decrease the waste and the loss, in the end implementing the 5s technology will lead to decreasing products costs and enhancing the work environment.

And we conclude that using this technology will lead to a decrease the production costs without compromising the quality of the products, which will help the economic unit to achieve its main aims, this research will aim at implementing the 5s technology in the light industries companies.

The concept of 5s technology:

Its technology is used to organize the work environment, and it was created in Japan, It is a method for organizing the workplace, there are a lot of definitions for the 5s technology such as (its active tool used to the continuous development which could create better organization and would decrease the costs. (Alsaman ,2008: 134)

And they define it as ((technological engineering manufacturing to gain the necessary steps to operate the cell because it is the first step in synchronization of the manufacturing, it was designed to reduce the wastes in because it focuses on the consolidation of the process to for avoiding the wastes)). (Willson, 2010:260)

There are a few steps needed for implementing the 5s technology: (Agrahari&others ,2015:184)

- 1- sorting: what does this level mean for sure is eradicating the unnecessary elements from the work. What we do at this level for sure is sort the necessary and the unnecessary elements in the work.
- 2- originating and arrangement: what we do in this phase is arrange the necessary tools so that they become easy to access.
- 3- cleaning: we focus on cleaning the place for providing a better and more comfortable working environment, better visual, better retrieval time and high-quality work.
- 4- standardization and calibration: the work team should find the best course of action in the workplace to keep the improvements of the last phases.
- 5- self-discipline: implementing this plan requires that the workers be disciplined, with respecting the systemization rules and arranging the workplace.

There are a lot of advantages to implementing the 5s technology such as(Fuku, et. al. ,2003:79):

1. easy flow for the resources and production, reducing the waste which leads to better utilizing the available resources.
2. it provides a suitable working environment, it provides a clean working environment, which makes the products better.
3. delivering products in a faster time, providing high-quality products, improving workers and work productivity, and reducing the research time and improving inventory management.

the competitive advantage:

There are many definitions for the competitive advantage such as (the ability to formulate and implement strategies which could make the company in a better place than those others in the same field). (Abu Bakr · 2008: 13), they have defined it also as (the search for something unique and different from the competitive). (Lynch· 2000:153) , and (the advantage for the organization from the market view which could achieve more than one competitive position for the company) (Liu· 2003: 15)

The competitive advantage got many characteristics such as(AI-Ghalbi& Idris,2009:309)

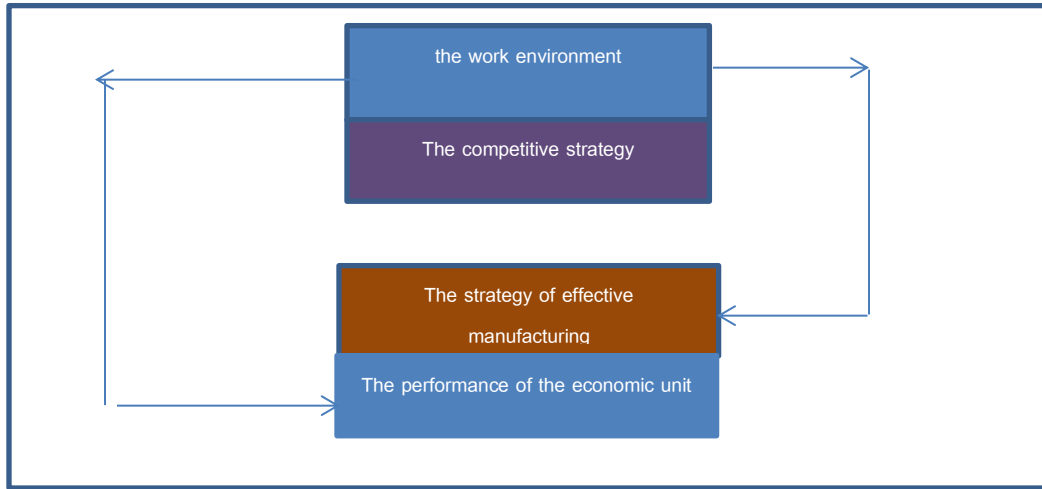
1. it's a long term advantage, it ensures good chances for the organization in the future.
2. is determined by two major factors, the environment of the organization and its inner capabilities.
3. it is flexible to changes that come from the environment of the organization.
4. it is relative when we compare it to other competitive or itself in different times.
5. it must be proportionate to the aims and the results that the organization wants to achieve in future.

Factors that determine the competitive advantage (fatiha,2011:40) the volume of the competitive advantage: this factor determines the continuity of the competitive advantage such as the lower the price of the organization's products or the product differentiation, the bigger the competitive advantage the harder it gets to overcome it from the competitive. And the competitive advantage has a life circle, first, it grows, then other competitors will adopt it, then it will pass to the stagnation phase when another competitive mimic it or try to overcome it, and then the organization due to the technological development has to lower the price of its products or its differentiation (Kadhim, 2022:138), the scope of the competition or the target market: when the scope of the activity or the competition for the organization is wider the cost would be rationalized for the organization compared with the other competitive organization, and the competitive advantage could be achieved when the organization focus on a target market with lower prices for its products or the differentiation of its products,

1. Seventh: the rule of the technology of regulating the work environment 5s in achieving the competitive advantage:
2. If the organization wants to develop its competitive advantage, it has to use technology that regulates its work environment, and the 5s technology will help the organization to develop its differentiation through the response to its customer and the wishes of clients, by delivering its product in the appropriate time.
3. Expert has shown his table for managing the relationship between (the work environment, effective manufacturing and the performance of the economic unit) (Ward &Duray, 2000: 124)

figure (1)

Venkatraman’s model the figure above has shown us that the work environment can affect the competitive advantage as well as the strategy of the effective manufacturing



Source: Ward, P. T., & Duray, R., (2000), "Manufacturing Strategy in Context: Environment, Competitive Strategy and Manufacturing Strategy", Journal of Operations Management, Vol. (18),

Practical aspects

In order to prove the theoretical aspect of the research we will implement it in the light industrial company. To achieve the research aim, we will apply the research result on the refrigerator factory, and we will use the measurement to know the prices of the factory products

Table 1 The materials that are used to make The 9-foot refrigerator

N	Material's name	Unit of measure	Scalar quantity	The price of the unit
1	The crew	Crew	1	96082.11
2	The compressor is 1/6 horse	Number	1	60429
3	Capacitor	Number	1	6042.9
4	Thermostat	Number	1	3625.74
5	Filter-driers	Number	1	906.435
6	Gasfornuis	Kg	0.18	604.29
7	Welding wire 15 % copper	Kg	0.0095	1208.58

8	copper welding wire 15% mixed copper	Kg	0.0095	4532.175
9	Bar shelf	Kg	3	7251.29
10	Powder shelf painting	Kg	0.18	604.29
11	Fume materials	Kg	7	18430.845
12	iron plates	Kg	31	39580.995
13	Thermal powder polyester	Kg	1	3927.885
14	Copper pipes	M	1	302.145
15	Plastic parts	Package	1	58616.13
total				302145

The table 1 has shown us the rise in the price of the materials used to make the refrigerator due to low production quantiles and the company's dealings with limited suppliers who increase the interest rates which makes the materials costs higher for the company.

Table 2 The cost of the wages, salaries and the indirect industrial cost for the 9-foot refrigerator

N	intended cost	9-foot refrigerator
1	the indirect industrial cost	86031
2	wages and salaries	1816181
3	Managerial cost	20111
4	Marketing cost	66076

The last table 2 has shown us that the costs of managing the company apportion to managerial, marketing, and wages and salaries, it is used in the uniform accounting system. It got many problems but it does use the cause and results in a relationship when the organization allocate the costs.

From the past information, we can imply the 5s technology on the research sample which is the 9-foot refrigerator.

We began the process by implementing the **five** steps of the 5s technology:

1- **sorting**: it means sorting the necessary and the unnecessary materials used for the research in the workplace.

After we have viewed the refrigerator factory, the working mechanism and its phases. We have been able to determine many unnecessary materials to the process which is redundant for the work, thus it must be removed from the workplace, like some machines and tools which it has become unnecessary since the company buys these tools and machines from suppliers, and some machines become functionless and can't be used unless it maintained or turn it into scrap after it ends its life service, and there are a lot of unnecessary materials which was left before 2003 and some of them become obsolete, the total price of the unnecessary materials total cost around 10000000 IQD.

2- **arrangement**: after we have classified the materials into necessary and unnecessary ones, we should classify those unnecessary materials into five workplaces, so that every workplace becomes a phase for production so that we can determine which materials are necessary for every phase, to separate every phase of the work inside the factory, better work division, clean the workspaces to use them better, arranging the work inside the factory, faster work completion and the existing of the necessary materials only.

3- **cleaning**: then we come to the third phase which is cleaning the factory, after we visited the workplace we noticed that it need a lot of cleaning carrier lines and rails, some of them had eroded due to the lack of cleaning and that the water is existed in the workplace, so there must be a process for cleaning the factory, and there must be continuous lubrication for carrier lines and rails and tools.

4- **standardization and calibration**: in this phase, we should put a list that clarifies the work schedule to set time for the cleaning and list the necessary materials and the work instruction and hung It on the walls so that it becomes clear for the workers what to do.

5- **self-discipline**: the workers should be well informed about the importance of the work management and the importance of preserving it so that the workers should discipline themselves on this technology after they become aware of its importance or the importance of any accounting system. This phase is important to preserve what has been accomplished. So that has become the basic principle of the work. If the company implement this technology save around 10000000 IQD from unnecessary materials, some carrier line, and a lot of tools.

Conclusion:

The 5s technology is one of the continuous improvement tools, it is used to reduce the waste and loss of the materials used in the work such as workers, energy, building and tools. Gaining a competitive advantage requires implementing effective strategies because the work environment could affect the competitive advantage. After the implementation of the 5s technology, the limited company saved around 10000000 IQD, which could enhance its place in the competitive advantage, so we recommend implementing the 5s technology because it's the best method to reduce waste and loss. And is considered one of the strategic cost management tools, using it will

give the organization a better competitive position. because it could help to achieve its strategic aims and one of them is a competitive advantage so we recommend implementing it.

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