

The Role of Management Science in Solving Some of the Problems of Industrial Establishments Specialized in the Furniture Industry in Damietta (A Case Study)

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Abstract: Damietta city is considered one of the most important industrial entities in Egypt due to its excellence in a number of industries, especially furniture industry, which has gained wide fame worldwide over the past decades. The furniture industry in Damietta faced a large number of challenges that caused a state of recession and stagnation, which leads us to question the causes of this crisis and search for the best ways to deal with it. In the study, the administrative activity developments synchronized with the industrial developments were tracked, plus identifying external environment variables that had an impact on the industry. Plus, a questionnaire was distributed to a number of furniture factories that share several features. Its purpose is to determine the extent to which management principles are applied therein and its impact on the performance of the factory. The research dealt with a case study of one of the factories and the study indicated the existence of a number of problems that were addressed, and proposing appropriate solutions to them based on the scientific foundations and standards aimed at increasing effectiveness and raising efficiency and productivity. The results indicated that as the industry developed, administrative practices developed that would enable companies to Maximize the benefit of these industrial developments, plus the negative impact of external environmental changes on the industry, plus the weak application of management principles within Damietta furniture factories, and the possibility of raising the performance of furniture factories through Apply appropriate management solutions and practices.

Keywords: Management, Furniture Industry, Business Organization, Group Technology

1. Introduction and Research Plan

1.1. Introduction¹

Industry in Egypt occupies the most important position in the structure of the national economy, as the industrial sector represents the backbone of economic development, as it is one of the sectors that achieve the most high growth rates. The entire economy, according to the Federation of Industries, also contributed in 2019 to about 17% of the gross domestic product [4]. As for the Egyptian furniture sector, it includes

more than 120,000 establishments. Damietta contains about 35% of the total industrial establishments specialized in the furniture industry, which is the largest percentage among the governorates, followed by Greater Cairo with 19% [7]. Damietta also produces nearly two-thirds of furniture production. Wooden furniture in Egypt, which occupies 82% of the total manufactured furniture, and although the furniture sector is the third largest sector in Egypt, with a rise in the value-added factor by 50%, and no home is devoid of its products, its contribution to the GDP remains small, estimated at about 0.3% [2].

During the past few years, the furniture industry in Damietta faced an unprecedented situation of recession and stagnation, which prompted some workshops to close and

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others struggle to continue, which calls us to investigate the causes of that crisis and the reason behind the inability to manage it throughout that period. The research dealt with a monitoring of the relationship between administrative and industrial activity during the three industrial revolutions to emphasize the importance of applying management in the field of industry and believing that the solution to the crisis begins with good management. That period and its impact on the furniture industry. Then, using the questionnaire, the extent of application of management principles within the furniture factories in Damietta was identified. Then, a case study was used on one of the furniture factories in Damietta to identify the internal problems of the factory from an administrative perspective and propose appropriate administrative solutions and practices to deal with them.

1.2. Research Importance

The importance of the research lies in the fact that it is a scientific material that helps the owners of industrial establishments specialized in the furniture industry in Damietta to understand the external variables of the establishment and how they affect the furniture industry, in addition to clarifying the elements necessary to manage the establishment, their importance and the purpose of their existence, which enables the establishment to: 1- Achieving the highest possible use of its resources. 2- Improving the workflow plan within the facility, and thus raising its general performance.

1.3. Research Aims

- 1) Applying the principles of management within the industrial establishments specialized in the furniture industry in Damietta.
- 2) Identify the challenges facing the furniture industry in Damietta.
- 3) Determining the problems that exist within some furniture factories in Damietta.
- 4) Finding some scientific solutions that may contribute to raising the overall performance of factories.

1.4. Research Problem

The scarcity of scientific studies concerned with solving the problems of industrial establishments specialized in the furniture industry in Damietta from the administrative side, in addition to the low awareness among some owners of furniture factories of the importance of applying the principles of management, led to the limitation of the role of management science within some industrial establishments specialized in the furniture industry in Damietta. This created the research problem, which can be summarized in the following questions:

- 1) What are the challenges faced by furniture factories in Damietta?
- 2) What are the shortcomings within the furniture factories in Damietta?
- 3) How can deficiencies within the furniture factories be

addressed in order to raise the overall performance of the factory?

1.5. Research Axes

Through the previous questions, a number of axes can be raised, including a number of questions to be answered:

The first axis:

- 1) What is management and why is it important?
- 2) When did administrative practice begin and what is its relationship to industrial activity?
- 3) What is the furniture industry? And what are its factors?
- 4) What are industrial establishments from the perspective of management science? What is it made of?

The second axis:

- 1) What are the owners of furniture factories in Damietta suffering from?
- 2) What are the challenges facing the furniture industry in Damietta?
- 3) Is management science applied to furniture factories in Damietta?

The third axis:

- 1) What resulted from not applying the perspective of management science within the furniture factories in Damietta?
- 2) How can deficiencies be addressed within furniture factories?

Due to the individual differences between the furniture factories in aspects such as the establishment's resources, capital, size, financing methods, etc., this axis was limited to one of the factories as a case study, in order to get acquainted with all the data required to ensure the accuracy of the study, some of which can be generalized to other factories, including the suggested solutions.

The fourth axis:

Suggest some solutions.

1.6. Research Hypotheses

- 1) There is a direct relationship between the development of industry and the development of administrative activity from mere practice to science.
- 2) There are differences related to production efficiency between the furniture factories that apply the science of management and the factories that do not apply it.

1.7. Research Boundaries

- 1) The spatial boundaries: The study is limited to some industrial establishments specialized in the furniture industry in Damietta.
- 2) Temporal boundaries: Ancient history 1770 AD: 1960 AD, Contemporary history 2011-2020 AD.

1.8. Research Methodology

- 1) The historical approach: by researching the origins of management science and its relationship to industrial activity.
- 2) The analytical descriptive approach: through a

descriptive and analytical study of the challenges faced by furniture factories.

- 3) The case study approach: By studying one of the furniture factories in Damietta and accurately describing it, as a model that represents the problem, it can be studied accurately and thus obtain accurate results that enable the development of appropriate generalizable solutions.

1.9. Research Tools

- 1) Observation.
- 2) Traditional and electronic sources and documents.
- 3) The interview.
- 4) The questionnaire.

2. Management

2.1. The Concept of Management

The word “management” is a source of the verb manage, and it is the center of leadership and management, and the concept of management differs according to the difference in the field, or branch in which it is applied, and the intended management in this study is the management of industrial facilities specialized in the furniture industry, and it falls under the item of business management. Management is coordinating work activities among individuals and supervising their performance in order to complete them efficiently and effectively [27]. Harold Koontz defined management as the art of accomplishing things through people in formally organized groups. The concept of management in the field of business is of interest to many researchers. A long time ago, and accordingly, management theories developed over time, and one of the first theories was the scientific management theory of Frederick Taylor, which used the scientific method to determine the best way to do work, by analyzing the job and finding the best way to do it, and the aim is to improve the outputs that can be generated from a group specific input [15].

Henri Fayol's general management theory, which focused on describing the tasks of managers, namely planning, organizing, commanding, and controlling, and Max Weber's theory of bureaucracy, which appealed to the division and distribution of work in the form of specific formal duties to those in charge of jobs, where the relations and authorities between them are organized in a hierarchical manner to achieve the greatest degree of administrative efficiency. To achieve the objectives of the establishment, these three theories were known as the classical approach, which is the first studies of management, which aimed to make the work organization and its employees as efficient as possible.

2.2. The Importance of Management

Management is classified among the basic factors of production, which are natural resources, human resources, capital and management [6], and management is the most important of these elements; Because peoples, organizations and individuals are distinguished primarily

by the element of management and not by the rest of the elements of production, countries such as Japan and Singapore were able, despite the lack of resources, to become one of the most developed countries in the world through good management [27].

2.3. Administrative Practice and Its Relationship to Industrial Activity

Man has practiced administrative activity since ancient times when he realized that it is not possible to achieve what he wants with self-efforts only and that he must cooperate with others, and some examples of ancient civilizations confirm evidence of the existence of administrative activity from a long time ago. If we take the construction of the pyramids as an example, we find that the construction of one pyramid employed more than one hundred thousand workers for a period of 20 years, and of necessity there was someone who had to plan what should be done, and distribute the roles among the individuals and make sure that the materials are available on the site throughout the work period in addition to guiding and directing the workers. And monitoring the stages of the workflow to ensure that it is proceeding correctly and as planned, and this person is the manager; a manager is a person who coordinates and supervises the work of other individuals in order to properly complete objectives. [29]

Another noteworthy model for management has existed since 1400 in the Italian city of Venice, the economic center and commercial, the city's residents have come up with a business model that is already present in many modern organizations. In the Phoenician arsenal, warships were walking in water channels, and at each station supplies and materials were added to them, and this is very similar to the idea of a car assembly line, where the car is placed on a conveyor belt and the contents are added to it. They also used warehouses and inventory systems to follow up on materials. Accounting to follow up on revenues and expenses [31]. Despite the practice of administrative activity since ancient times in the administration of the state and in work organizations in various sectors, the nucleus of this development was within the industrial sector. Efficiency of the facility's employees.

3. The Furniture Industry and Its Factors

The word industry refers to the economic activity concerned with the processing of raw materials and the production of goods in factories [9], while furniture is defined as movable products that are used to make the internal space suitable for living or working [14]. The factors for establishing the furniture industry mean the basic elements that make up the industry and contribute to its existence and effectiveness. It is divided into natural factors such as geographical location, climatic conditions, surface characteristics, raw materials and energy sources, and human factors such as human resources, capital, transportation and market [12].

3.1. Industrial Facilities and Their Characteristics from an Administrative Perspective

An industrial establishment is every establishment whose main purpose is to convert raw materials or semi-raw materials into finished, semi-manufactured, or intermediate products, or to convert semi-manufactured or intermediate products into fully manufactured products. And power plants, and they deliver ready-made goods and semi-manufactured materials [16]. From the administrative perspective, the industrial establishment is like any work organization, which is defined as a deliberate and systematic organization of individuals to achieve certain goals and objectives. All work organizations share basic characteristics, whatever their activity, which are the purpose, individuals and structure. They do the work necessary for the organization to achieve its goals, but the structure is the place that the organization provides for individuals to do their work. [31]

3.2. The Internal and External Environment of the Industrial Facility

The industrial establishment is affected by the external factors and forces surrounding it, which are called the external environment and are divided into:

- 1) A special external environment: it includes suppliers, competitors, customers, and pressure groups.
- 2) General external environment: It includes the political, legal, economic, social, demographic and global conditions, which generally affect industrial establishments operating in the same field and the same region. [31]
- 3) While the internal environment of the facility is represented by its owners and a number of individuals who manage it, and their tasks revolve around three main axes, which are finance, marketing, and operations, under which five basic tasks fall under which are human resources, accounting, information systems, legal affairs, and public relations. [21]

- 4) All of these work within a general culture of the establishment, which is defined as a set of values, beliefs, concepts, and ways of thinking adopted by the members of the organization and participating in its application and following its approach. For new employees in the facility.

3.3. Some Phenomena that Reflect the Problems of the Furniture Industry in Damietta

The majority of industrial establishments specialized in the furniture industry in Damietta suffer from a number of difficulties, as follows: [1]

- 1) The decline in exports, and this appears in the value of Egyptian exports of furniture over the previous years.
- 2) The stagnation of the local market and the decline in sales.
- 3) Accumulation of products inside workshops and factories.
- 4) The closure of a large number of workshops and layoffs; because the factories are unable to fulfill their financial obligations towards them.

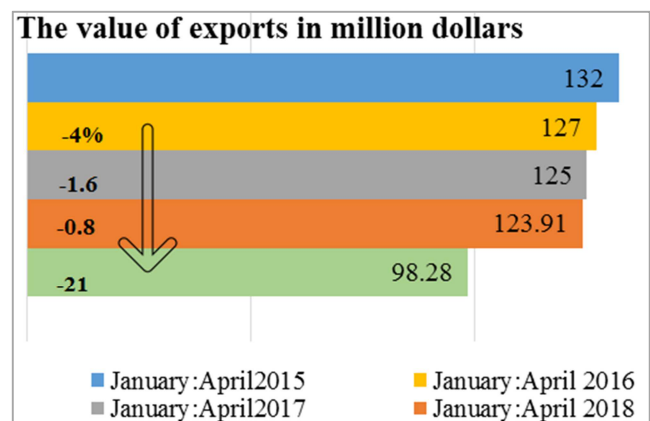


Figure 1. A comparison between the values of the Egyptian furniture sector exports during the first four months of the year from 2015 to 2019.

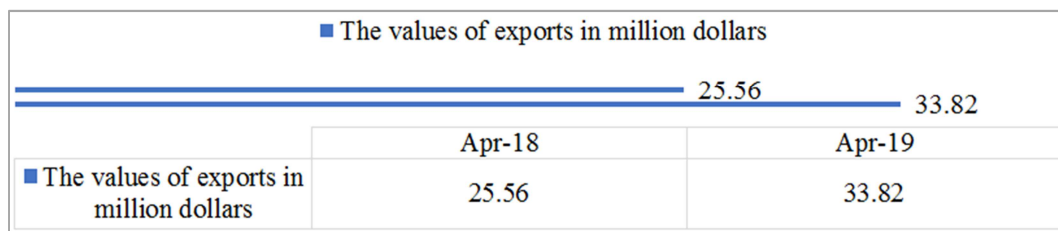


Figure 2. A comparison between the value of Egyptian furniture exports during April 2018 and 2019.

In order to identify the main reasons that made these establishments suffer from the previous problems, the external environment of the industrial establishments specialized in the furniture industry must be analyzed and its variables monitored, in addition to evaluating the internal environment of the establishment and then identifying the shortcomings causing the problems that the industrial establishments specialized in the furniture industry in Damietta suffer from. This process is called (strategic analysis).

4. Applied Study

4.1. Challenges Facing the Furniture Industry in Damietta

The challenges facing the furniture industry in the city of Damietta are represented in some variables of the external environment of industrial facilities. The following is a monitoring of the most prominent of these variables.

4.1.1. Economic Changes

An increase in the interest rate. High interest rates are considered one of the negative effects on the furniture industry in Damietta. As the decrease in liquidity led to a decrease in the demand for Damietta furniture and the tendency of potential customers to search for lower-priced alternatives, and therefore the industrial establishments were forced to sell

at cost and less in order to earn money, which leads the establishment to atrophy and its inability to continue. On the other hand, high interest rates led to directing capital. The liquid that is supposed to be pumped into the industry towards the banks to ensure profit and not risk freezing more funds, especially in light of the existing recession.

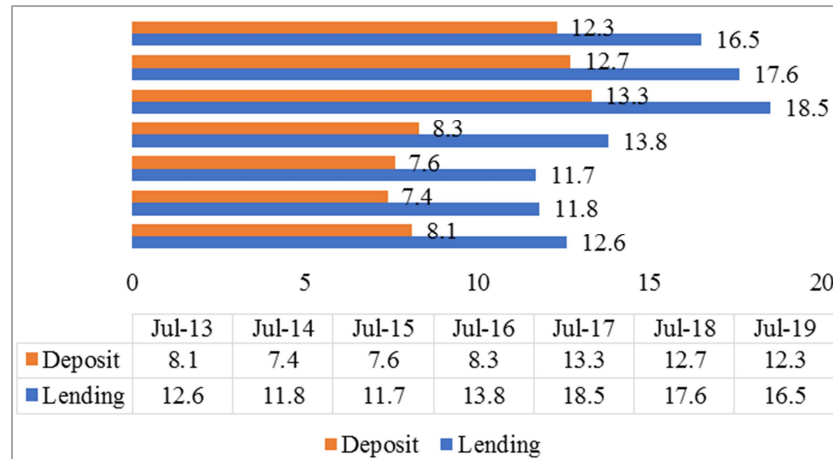


Figure 3. Percentages of interest rates during the seven years from 2013 to 2019, according to the official reports of the Central Bank of Egypt. [33]

The decision to liberalize the exchange rate (the floating decision). The decision to liberalize the exchange rate issued by the Central Bank of Egypt on November 3, 2016 came with an extreme rise in the prices of wood and raw materials for the furniture industry, especially since most of the raw materials used in the industry are imported, in addition to the impossibility for some leading companies in the industry to participate in international exhibitions that are held abroad, despite of its importance; Due to the devaluation of the currency, the importance of these exhibitions lies in: Achieving sales during the show period and Creating long-term cooperation opportunities with furniture companies and exhibitions abroad.

The rise in industrial land prices. The high prices of industrial lands in Egypt compared to their counterparts abroad is one of the most important obstacles investment [3]; While the price per square meter of land in the industrial areas of the cities of Obour, the sixth of October, and the tenth of Ramadan in 2014 was estimated at about 800 pounds, the price per square meter for industrial lands in America and European countries ranged between \$4 and \$6, and in Turkey it was \$4. In China, land was granted free of charge to foreign investors, and in Kenya and Uganda, land is granted free of charge in exchange for the investor employing a number of state residents in the existing project [26]. The price per square meter in Damietta Furniture City reached 5,800 pounds for workshops, equivalent to \$351, and 2,000 pounds for factories, equivalent to \$121, and in the industrial complex in Port Said, 6,000 pounds [24], and equivalent to \$363. The disappearance of the criterion of price setting and random estimation, which was confirmed by (Al-Suwaidi, 2014) [25] and called on the state to determine the price of the land according to the added value that the projects are supposed to contribute to the

national product. It is worth noting that the main reason behind the high price of land in Damietta City for Furniture and the Industrial Complex in Port Said is the cost of repairing the land, although one of the natural factors of establishing an industry is (surface characteristics), what leads us to wonder why this matter was not considered in advance.

Trend towards real estate investment. The real estate investment market in Egypt has witnessed a great boom in recent times, especially after the decision to liberalize the exchange rate issued in November 2016, as individuals tended to invest in real estate instead of industrial investment, especially in light of the stagnation of the furniture industry and the lack of clarity of vision about industry trends and customers' desires for them. The depreciation of the local currency against foreign currencies after the flotation decision is one of the most important reasons for real estate investment, in addition to being the most important type of investment in preserving the value of the local currency, and the continuous decline in the value of the Egyptian pound is not an incentive to maintain liquidity from the local currency even if the average interest rate rises on Pounds in banks.

(Al-Bahay) mentioned that simply buying a property or a piece of land and selling it at a higher price later is considered a freeze of assets and funds and does not achieve benefit at the general level and does not contribute to economic growth, while investment in industry increases production and export opportunities, which later benefits all other economic sectors. Including the real estate sector [8].

High prices of electricity and fuel. The rise in the prices of energy sources is one of the most important economic conditions facing the industry in Egypt, which multiplied by the following values during the period from 2014 to 2019.

Table 1. The amount of the increase in industrial electricity prices between 2014 and 2019 in Egypt. Official gazette, No. 29 - 17/7/2014.

Purpose of use	2014	2019		
	The average price of energy in pounds	In exchange for capacity in pounds	The average price of energy in pounds	In exchange for capacity in pounds
Super effort 132-220 KV	19.6	10	92.3	40
High voltage 33-66 KV	27.5	20	160	50
Medium effort 11-22 KV	39.8	30	111.6	60
Low effort 380V	29.8	-----	112.5	-----

4.1.2. Political and Legal Circumstances

Revolutions After enjoying a period of prosperity and growth, the furniture industry suffered from the negative effects of the revolutions of 2011/2013, where there was a weakness in the local demand as a result of the decrease in the purchasing power of the Egyptian customer, as he faced a continuous rise in the prices of fuel, electricity and basic commodities in addition to the depreciation of the pound, which made the customer in a situation of constant search for cheaper alternatives. The rate of foreign tourists' visits to Egypt was negatively affected by the unstable political situation in this period, which led to a relative decline in the chances of exporting Egyptian furniture abroad.

Immigration After the outbreak of the Arab Spring revolutions, statistics show that approximately 2.3 million Syrians and Libyans immigrated to Egypt during the period from 2011 to 2014, and the percentage of Libyans reached 70% of them, while the number of Syrians in Egypt reached 550,000 Syrians [11], and nearly a third of their families depend 45% on Work as a source of income, and businessmen preferred to hire Syrians; Because they are more committed to work, in addition to receiving lower salaries compared to what Egyptians earn, which made immigrants, especially Syrians, competitors to Egyptians in the labor market. As for the Syrians working in the furniture sector, they went to the city of Damietta due to its international reputation in this field, and the owners of Syrian factories depend on Egyptian labor to a large extent, which caused a problem for the owners of furniture factories in Damietta for the following reasons:

- 1) The direction of a number of large merchants in Damietta to buy from Syrians due to the low price and good quality.
- 2) Withdrawal of Egyptian labor from some Damietta factories in exchange for a higher salary than the Syrian furniture factories.

4.1.3. Social Changes

The expanded use of social networks over the past two decades Social media facilitated the process of imitating designs and models, which harmed the industry, especially in the absence of a clear law to protect the intellectual property of designers and makers. Customers tended to implement furniture pieces on commission, which reduced the facility's ability to produce quantitatively, and thus decreased profit. Social media helps spread new trends in all aspects of life, which in turn contributed to changing traditional home furnishing methods, and thus the customer's requirements became in continuous and rapid change with every common trend.

Decreased purchasing power The decision to liberalize the exchange rate, in addition to the economic reform measures, which include raising the prices of electricity, fuel, and some basic commodities, led to a decrease in the purchasing power of the Egyptian citizen. (Helmy 2019) stated that Egypt ranks 124 out of 136 countries in terms of purchasing power, and that the poverty rate among Egyptians has increased to reach to 32.5% in (2017-2018), after it was about 27.8% in 2015. [10]

As for the furniture industry in Damietta, the automatic price increase of the product as a result of the high prices of raw materials was one of the reasons for the low demand of consumers for Damietta furniture and their search for cheaper alternatives.

4.1.4. Demographic Changes

Marriage rates decline A large number of furniture dealers and makers depend on the young people who are about to get married as their target customers, and with the decline in marriage rates over the past years, the local market was negatively affected and faced a significant decline in sales. [10]

The high level of education and the average age of marriage According to an analytical study issued by the Central Agency for Public Mobilization and Statistics, the illiteracy rate decreased from 39.4% in 1996 to 29.7% in 2006, then to 25.8% in 2017. The percentage of illiterate females decreased from 37.2% in 2006 to 30.7% in the 2017 census, and the percentage of females with a university qualification increased from 7.9% in the 2006 census to 10.8% in the 2017 census [17]. As for the average age of marriage among young people, it increased to 30.1 years for males, while the average age of marriage among females is 24.4 years [5]. A number of furniture dealers and manufacturers in Damietta mentioned that the aforementioned factors increased the complexity of the purchase process, so that there are:

- 1) Less influence on the taste and opinions of the parents when choosing furniture, which tends to be more classic.
- 2) Scarcity of selection or selection among existing products or choose from them, but with changing some specifications such as paints, fabrics, type of surfaces, and others Looking forward to more modern designs that are specially implemented or purchased from outside Damietta due to the modernity of Damietta in the new trends (modern) and its impact on the furniture industry in several forms, namely: Slow sales, Indulging in commission manufacturing, which is not as profitable as mass production and Difficulty satisfying the customer.

4.2. Questionnaire Results

The questionnaire was sent to 10 furniture factories in New Damietta out of 50 furniture factories [28]. The questions of the questionnaire were answered by 4 furniture companies,

namely: Gamal Rezk For Wooden Furniture Company, Abdel Razzak Hesn Company, High Class Furniture Company and Orensa Furniture Company (in no order), and by analyzing the answers, the following facts were reached regarding each company:

Table 2. Analysis of the answers of some companies to the questionnaire questions.

Questions	CO., 1		CO., 2		CO., 3		CO., 4	
	YES	NO	YES	NO	YES	NO	YES	NO
Is there a separation of ownership and management?		•		•		•	•	
Does the company have a financial department?		•		•		•	•	
Has the financial department achieved its objectives?							•	
Does the company have sufficient liquidity to ensure that the manufacturing stages are not disrupted?		•	•		•		•	
Are tax obligations paid without difficulty?		•	•		•			•
Are obligations towards suppliers paid without insolvency?		•	•		•		•	
Does the company used to participate in local furniture fairs?	•		•			•	•	
Has the economic situation affected your participation times?	•			•				•
Have you ever participated in international furniture fairs?	•			•		•	•	
Can you participate in these exhibitions now?		•		•		•		•
Do you suffer from a decrease in the value of your exports?	•		•		•		•	
Do you conclude formal contracts with your employees and workers?		•		•	•			•
Do you enter into formal contracts with clients?		•		•	•		•	
Does the company have a human resources department?		•		•		•	•	
Do you have an accurate calculation of production costs?		•		•	•			•
Do you calculate manufacturing loss?		•		•	•			•
Do you hire marketing experts?		•		•		•	•	
Has the Marketing Department achieved its objectives?							•	
Do you produce new designs regularly?		•		•	•		•	
Do you use computers during work stages?		•		•	•		•	
Do you have a backlog of inventory?	•		•			•	•	
Do you use warehouse management software?		•		•		•	•	
Did the above economic conditions affect your company's performance?	•		•		•		•	
Have the aforementioned social and demographic conditions affected your company's performance?	•		•		•		•	

The positive points in the company were given a value of 1 and the negative points were given a value of zero.

The companies' evaluation was as follows: 1st 2/24, 2nd 5/24, 3rd 10/24, 4th 14/24, and the general evaluation: 7.5/24.

From the previous answers, the following points were concluded:

- 1) Ensure that there is a weakness in applying the principles of management within the furniture factories in New Damietta.
- 2) The application of sound administrative practices is reflected positively on the overall performance of the company and vice versa.
- 3) All companies agreed on the impact of previously explained economic conditions on their performance.
- 4) All companies agreed on the impact of the aforementioned social and demographic conditions on changing customer trends and tastes.

4.3. Case Study on an Industrial Facility for the Furniture Industry in Damietta

One of the industrial establishments participating in the questionnaire was chosen for the case study (co.1), and it was chosen for several reasons, namely:

- 1) The answers indicated that the size of the problems in this establishment is greater, and it was also the farthest

from applying the principles of management in it. This created an opportunity to discuss a larger number of internal environment problems of the industrial establishments specialized in the furniture industry and their impact on the performance of the establishment and to provide appropriate solutions.

- 2) The researcher has been working for This facility for more than three years, which enabled the researcher to use one of the most important research tools, which is the close observation of all aspects of work within the declared facility, such as the organizational structure and production process, and the unannounced, such as the organizational culture adopted by individuals and the facility's policies in dealing with all parties.
- 3) The management of the facility is very welcome to study it, and to provide all the necessary data to the researcher to conduct an accurate study based on real information, as the facility management believes in the role of scientific research in development.

4.3.1. Problems of the Internal Environment of the Facility

The problems of the establishment were identified on three main axes shared by all work organizations in all fields, which are the purpose, personnel and structure, which is divided into a management vacuum, a manufacturing vacuum and a storage vacuum. The problems were as follows:

(i). The Problems of the Purpose

- 1) The limitation of the organization's mission and the thinking of the establishment and the activity as a source of livelihood only for the owner and the employees, and despite the loftiness of this goal from a human point of view, from a practical point of view it prevents thinking about managing the thinking about managing the activity in a professional way that helps the establishment to grow and prosper.
- 2) Lack of awareness of the importance of setting specific goals for the establishment and lack of clear action plans.
- 3) Not responding to market changes, and sticking to producing the same designs even with low demand, which appears in the decline in factory sales over the past five years.
- 4) Decrease in the general culture of the organization, which was noticed by estimating a number of dimensions through which the culture of the organization can be described according to the classification of Robbins, 2010 [31].

(ii). The Problems of Individuals

There is no separation between ownership and management; this caused the company's financial position to be unclear.

Not seeking the assistance of qualified administrative cadres to carry out all the necessary tasks within the establishment, which resulted in a poor distribution of tasks, as the manager performs about 27% of the tasks, the accountant about 16.2%, and the legal accountant 2.7%, leaving 51.35% of the tasks unfulfilled, which cause:

- 1) Calculating the costs of work only after its completion, which makes some products take more time and costs, which raises their final price compared to similar products in the market, which reduces their competitive advantage.
- 2) The manager personally preparing the drawings for the product disrupts the work movement; Due to the large number of responsibilities and obligations he has, which causes delays in delivery times and slow movement of the workflow as a whole, thus increasing costs.
- 3) The director's design of the products also causes his personal taste to dominate the product design, which does not meet the needs of a large group of consumers, especially young people who are about to get married.
- 4) Failure to predict the future demand for the product led to the issuance of production orders for large quantities of some products, which with low demand for them or their imitation, some of them accumulated in the warehouses, while others were stuck in the various stages of manufacturing, which led to spending part of the capital in raw materials, labor and indirect expenses. This caused a partial disruption of the company's capital cycle.

(iii). Structure Problems

Misuse of the internal space of the factory, where the total area of the factory floors is estimated at about 3030.5 square meters, the management space occupies 0.3%, the

manufacturing space occupies 14%, the storage space occupies 39% and there is an unused space estimated at about 47% of the total factory area. The abuse is illustrated as follows:

- 1) Not allocating an appropriate space for management, as the current space is characterized by poor lighting and direct exposure to noise and dust, in addition to poor ventilation, chaos, and small space, which does not allow more than two people to work in an uncomfortable climate.
- 2) Not allocating a space for performing prayers, which makes the workers travel a distance of 100 meters in one way and 59 meters in the return twice a day to perform the noon and afternoon prayers, which leads to wasting a lot of time.
- 3) Not allocating space for eating and not having a suitable food solution for workers and management, which led to wasting part of the time collecting food requests for workers and one of them going to buy it and then distribute it.

The wasted time increases with the increase in the number of workers, in addition to having a place designated for eating improves the individual behavior of workers, strengthens the bond between management and the worker, raises the level of general hygiene in the factory, and saves time.

- 1) Not allocating a space for paints, which led to relying on some external workshops to finish the products resulting in: Waste of time and energy in transporting the product to and from paint workshops.
- 2) The inability to accurately calculate the costs of the process (painting), and thus the inability to control it.
- 3) The inability to control and follow up directly, which leads to the possibility of not reaching the required result.
- 4) Procrastination and delay from the owners of the workshops.
- 5) Delayed delivery times.

Poor storage system; as it did not achieve most of its objectives and this is evident through:

Putting raw materials on an unequipped floor to protect them from weather and moisture, in addition to using an open floor that is difficult to monitor and control incoming and outgoing.

- 1) The distance between it and the operating floor, and the difficulty of the handling and transportation process, which depends on the human element.
- 2) Not defining a perimeter for storing manufactured and semi-manufactured products, and thus mixing and randomly occurring between them in the warehouses.
- 3) Difficulty classifying and inventorying products and identifying excesses in quantities.
- 4) Negligence of warehouse management contributed to the accumulation of large quantities of products over several consecutive years without inventory or registration, and thus contributed to the freezing of a large part of the company's capital in products, for which the demand for them decreased significantly recently.
- 5) Using an unfinished floor to store semi-finished wood

products, which makes the product subject to color change and exposed to moisture and rain.

Decreased efficiency of the manufacturing system; This is evident through the following points:

- 1) The stationing of machines in the left half of the manufacturing floor, while work tables (banks) are located in the right half, which makes workers travel a great distance to perform tasks.
- 2) Stockpiling of unfinished products on the factory floor (interstitial stock); Due to the increase in quantities in production orders beyond the maximum production capacity of the system, which happened cumulatively over the years and was exacerbated by the reduction of labor inside the factory.
- 3) The length of the average total time to produce the unit resulting from the length of processing and handling times between different departments.
- 4) Difficulty scheduling production due to the diversity of products and their different paths, which leads to a decrease in production efficiency and misuse of machinery and labor times.
- 5) The difficulty of determining the responsibility for the production outputs due to the multiplicity of departments that contribute to the production of the product, in addition to the possibility of having more than one worker producing the same version of the product at the same time.

There is no camera or audio system inside the factory, and the factory monitoring system is of great importance. It consists of:

- 1) Follow-up of workers, control of work inside the factory, and control of warehouses.
- 2) Combating crime, reducing theft, and creating a safe work environment for workers.
- 3) Ease of settling potential disputes and disputes between employees, investigating them and taking appropriate decisions by the records kept.

Just as the monitoring system is of great importance, the absence of an audio system also inside the factory negatively affects the efficiency of the system. Because of its great importance:

- 1) The speed of passing information between individuals from the source directly.
- 2) The speed of calling individuals from all parts of the factory.
- 3) Raising the call to prayer automatically and not by one of the workers.
- 4) Ease of delivering safety and prevention instructions to workers, which is better than written signs which is not read by the workers.

4.3.2. Proposed Solutions to the Detected Problems

(i). Solutions to Purpose Problems

- 1) Determine and formulate a message and vision for the establishment and ensure that they are communicated to all its members, provided that the message defines the reason for the existence of the establishment and its

purpose, while the vision defines the aspirations and aspirations of the establishment.

- 2) Changing the general culture of the establishment, and this is done through:

- a) Defining desired values and translating them into actionable behaviors by all individuals in the facility.
- b) Harmonizing the culture with the strategy and operations, so that the mission, vision and values of the facility are compatible with all operations that take place in the facility, including recruitment, performance management, compensation, benefits and talent enhancement.
- c) Making the process of changing the culture a priority for the director and the board of directors, and working to define performance standards through which the culture can be evaluated and the degree of assimilation and work of individuals in it can be measured.
- d) Defining values and matters that are not subject to discussion or negotiation.
- e) Aligning the culture with the brand of the establishment; So that the culture resonates with employees and the market.
- f) Measuring the efforts made, by conducting employee surveys and analyzing the gaps between the desired behavior and the actual behavior. Do not rush because the process of change may take several years for the culture to become an integral part of the establishment. - Starting as soon as possible and not waiting for the completion of resources or employees [13], as perfection is the enemy of progress.

(ii). Individuals Problem Solutions

- 1) Dividing work activities into single tasks, grouping joint activities together into sections, and then forming an organizational structure for the facility showing the chain of command across the facility, the scope of control, the degree of centralization in decision-making, and the degree of formality and rigor in the rules that govern the behavior of workers.
- 2) Gradually forming the organizational structure; to reduce the financial burdens that the establishment may face when building an integrated organizational structure, this can be achieved by: One person initially performs a number of tasks, provided that specialized personnel are used when expanding.
- 3) Formulating quality standards for each task and making everyone in the factory a quality controller for his work. - Seeking help in carrying out some functions with external entities.
- 4) Applying the flexible employment policy to employees, such as enrolling the technical management personnel in the factory in training courses to learn sales skills, which results in:
 - a) Better ability to talk about the product and its features.
 - b) The ability to respond faster to customer inquiries.
 - c) The ability to issue the customer's operating request

without referring to a member of the technical department

- d) Avoid individuals remaining idle, in the absence of customer interviews.
- 5) Applying some methods that will rationalize the company's resources directed to manpower [23], such as: Making workers more efficient in what they do, by implementing training programs for workers and employees aimed at reducing the number of production stages, reducing the time used in each stage and increasing the flexibility of the system so that one worker can perform more than one task and work on more than one machine with the same efficiency. Applying the idea of changing working hours to reduce labor costs, by offering to work for 4 days for 10 hours a day instead of working 5 days for 8 hours a day for a lower salary, and some employees may prefer this system because it will allow them to spend more time with the family And it provides them space to do their own personal plans.
- 6) Offer to replace high fixed salaries with lower salaries with the application of a commission system. This may be acceptable to some workers, even if it seems less secure, but it may achieve higher profits than the fixed salary.
- 7) Automating and outsourcing non-critical tasks.

(iii). Solutions to Structural Problems

- 1) Redistributing the internal plan of the factory, and defining the appropriate location for each functional space based on the standards you set and decision-making based on, which aim to increase effectiveness and raise efficiency and productivity, taking into account all the scientific bases for designing the space and the considerations that must be available in it:
 - a) 7% of the factory space has been allocated to the administration space.
 - b) 40.5% has been allocated as a manufacturing space that includes a special warehouse for paints.
 - c) 2% has been allocated as separate storage spaces for raw materials such as paint materials, fabrics, and upholstery supplies, in addition to 10.7% as storage space for semi-finished products, provided that this percentage will gradually decrease after starting to apply solutions to drain stock.
 - d) Allocating a dining hall, a mosque, a guard room, two canteens, and toilets for workers and employees, men and women.
- 2) Allocating a wood store in the nearest location to the main manufacturing dormitory.
- 3) Raising the efficiency of warehouses and applying the ERP* enterprise resource planning system.
- 4) Applying the zero inventory philosophy.
- 5) Applying the group technology philosophy to raise the efficiency of the manufacturing system, which works on 4 axes:
 - a) Reducing the WIP factory's inter-stock [30]: by

inventorying and coding all the inter-stock parts and specifying their specifications and numbers, so that they are employed in the new designs of the factory instead of manufacturing new parts in order to rationalize resources, even if a modification is made to them. Of course, the process will be more flexible if the existing parts are Not very distinctive features.

- b) Working to reduce the semi-manufactured stock: by taking inventory of the stock of semi-assembled products, and working to present them in a more modern way, by using new methods and trends in paints and fabrics on the one hand (*Figure 4*), and on the other hand, developing the traditional composition of the sets, which is characterized by the fact that all pieces have the same decorations and fabrics and paints (*Figure 5*) and instead employ the already existing classic pieces with contemporary pieces of furniture; Thus, crews are formed in an advanced manner while maintaining homogeneity.



Figure 4. Demonstrates a more modern composition of furniture in the coordination of a number of pieces of different styles and materials.

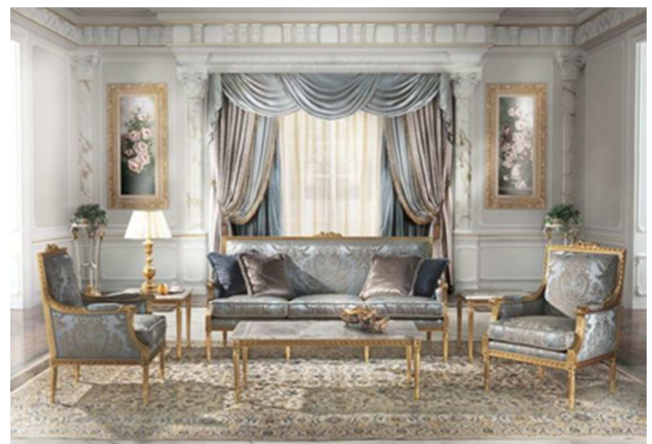


Figure 5. The traditional composition of the salon shows that all the pieces have the same style, paints and fabrics.

- c) Designing new models according to the group's technology philosophy: working on designing new

products (sleeping / dining / salon) that share design features and be produced in small batches; Where the similarity in design helps to sequence the parts on the machines with the least preparation and operation time, and when the product family moves to the assembly stage, a new product family enters the manufacturing stage, provided that the rest of the parts of each product family are prepared in parallel with its production process.

- 6) THE USE OF CELLULAR MANUFACTURING SYSTEM, The factory floor was divided into 2 work cells, the first specialized in producing designs for the factory and the second specialized in producing customer requests CUSTOMIZED PIECES, in order to prevent the flow of different parts within the production processes of the designs of the factory, which causes the long preparation time for the machines due to the diversity of customer requests and the need to produce only one piece of them.
- 7) Reducing the cost of raw materials, which is one of the important items in production costs, and this is done through:
 - a) Find ways to buy raw materials at a lower price.
 - b) Searching for the best suppliers, comparing them together and negotiating with them to ensure the most competitive prices.
 - c) Buying raw materials in bulk to take advantage of discounts on basic purchases, and this can be achieved if more than one company orders are grouped and purchased together. [22]
- 8) Using less raw materials, by:
- 9) Reducing the amount of materials used in the product without affecting the quality and dispensing with everything that does not serve the competitive advantage of the product.
- 10) Adopt design trends that serve the idea of using less raw materials such as MINIMALIST
 - a) Research in improving the efficiency of the production process so that less materials are wasted, and the process of reducing waste is due to training workers and obtaining skilled labor, in addition to employing professional designers who are able to develop designs and executive drawings that help rationalize resources to the maximum.
 - b) Activating surveillance cameras that are not activated in the factory, establishing an audio system, and providing the necessary electronic devices to perform work easily and conveniently, such as high-capacity computers, television screens necessary for surveillance and display purposes, printing machines for ordinary and executive documents.

5. Results and Recommendations

5.1. Results

- 1) There is a positive relationship between the development

of administrative activity and the development of industrial activity throughout history, and this is evident during the period of the first, second, and third industrial Revolutions.

- 2) The high-interest rate negatively affects Egypt's furniture exports, as it reached in July 2017 (13.3% / 18.5%) [30]. and the exports of the furniture sector decreased by 21% in the first half of 2018, while the interest rate in the top 10 furniture exporting countries in the same year [34] ranged between 0.05%: 4.7% ⁽²⁾ ⁽³⁾ [18-20].
- 3) There is a weakness in the application of management principles within furniture factories in Damietta this is evidenced by the value of the average general performance of four factories = 7.5/24, i.e. less than half.
- 4) Some of the proposed solutions can be applied to the factory to produce positive results related to productivity [32] as follows:
 - a) The rationalization of labor-oriented resources by the proposed methods increases wage productivity by reducing the value of wages relative to production.
 - b) Work to reduce the cost of raw materials and use less raw materials, leads to raising the productivity of materials by reducing the cost of materials relative to production.
 - c) The application of the philosophy of group technology in all its proposed axes increases production, which increases hourly productivity from machine operation, material productivity, hourly productivity, and wage productivity.
- 5) Choosing the appropriate locations for job spaces and worker services within the factory reduces the time wasted performing tasks during the working day, which increases the effectiveness of the use of machines by increasing the number of actual operating hours relative to the number of available operating hours.
- 6) The application of cellular manufacturing system increases energy efficiency by increasing production and rationalizing the energy used in the production process.
- 7) The selection of qualified administrative and professional cadres, along with the rationalization of labor-oriented resources, leads to raising the effectiveness of the individual by reducing the number of individuals in relation to production.

5.2. Recommendations

- 1) Investing in raising awareness among industrial establishments specialized in the furniture industry in Damietta of the importance of applying management principles.
- 2) Carefully study the surface characteristics of the sites proposed for the establishment of industrial projects, so as not to be a reason for raising the prices of industrial lands.
- 3) Work to support and provide nutritious raw materials

² (Poland Interest Rate: Deposit, n.d.)

³ (Canada Target for the Overnight Rate (%), eop), n.d.)

for industry.

- 4) Work to combat exploitation and impose control on the prices of raw materials.
- 5) Verify the conditions of immigrants working in the furniture industry in Damietta, and ensure that they do not enjoy greater facilities than Egyptians working in the same sector.
- 6) Studying the proposal to include small workshops in Damietta in new large companies so that they can be managed scientifically that enables the state to benefit from their skills and enables workshop owners to work with a clear vision, which they will not be able to access individually.
- 7) Studying the proposal of the 'Design Stock', which is an idea that provides for the creation of a unified platform for displaying designs for furniture and its complementary industries, through which standards and conditions for accepting the design are set in addition to laws protecting the rights of designers and manufacturers, and the importance of this idea lies in:
 - a) Enhance the value of the work of the Egyptian designer locally and internationally.
 - b) Maximizing the benefit of the design by buying and selling it as a standalone product, not just part of the manufacturing process.
 - c) Raise the degree of positive competition between designers as well as between companies, resulting in general progress for the industry.
 - d) The possibility of formulating a design pricing based on the existence of a minimum for all designs with the availability of a relative increase in the prices of some designers determined by the increase or decrease in demand for their designs, just like the shares of companies on the stock exchange.
 - e) Directing the thinking of the designer and companies to meet the needs of the actual market. Provide a database on consumer trends that enables reading the current market, predicting future demand, and helping to provide sound marketing research.
- 8) Apply the principles of management within the industrial establishments specialized in the furniture industry, and test the solutions proposed in the study.
- 9) Use strategic analysis to respond faster to the variables of the external environment of industrial facilities.
- 10) Investing in raising awareness among the student of the Faculty of Arts and the designer of the importance of learning the principles of management, because it creates added value to his work, whether it is independent or affiliated with a company.

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