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The Impact of Implementing the Total Quality Management Practices on the Performance of Human Resources in the Food Processing Sector in Egypt

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Thesis submitted in partial fulfillment of
The Requirements for the degree of Doctorate of Philosophy
In Agricultural Sciences
(Agricultural Economics)

Department of Agricultural Economics
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2023

Summary

The agricultural sector is one of the most important sectors of the national economy, as it contributes to achieving food security and supporting comprehensive economic development, as it contributes about 11.8% of the gross national product, and about 24% of the total value of exports, and absorbs about 25% of the total labor force, and the industrial sector occupies a great degree of importance in the national economy, as it contributes about 14% of the GDP, and the food industry is one of the most important industries on which the industrial sector is based, as it contributes About 21.6% of the total value of industrial production, representing about 66.8% of the total value of agricultural industry production, and absorbing about 29% of the total number of workers in the field of agricultural industries, and the dairy industry is one of the most important areas of agricultural processing, and the value of dairy products represents about 25% of the value of animal production, about 12.7% of the value of agricultural production, about 1.8% of the value of GDP. It also contributes about 27.89% of the total production of food processing activities, and about 19.05% of the total value of exports of food processing activities on average for the period (2015-2019).

Total quality management practices are one of the administrative approaches and methods followed by organizations to meet the challenges of the surrounding environment, as they are based on the need to develop and improve performance levels by building an organizational culture that makes each worker realize that quality with inputs, processes and outputs is a major goal, to meet and meet the growing demand for high-quality services and products, and therefore organizations are in dire need to think about putting human resources as the most important assets of the organization, redesigning its functions and policies, and

developing its skills and results. Its work to become a strategic partner in achieving competitive advantage, to push the organization to the top of outstanding performance, through creative skills of human resources, and continuous updating of ideas through the application of total quality management practices.

This study aims to study the development of the structure of industry in the Arab Republic of Egypt, in addition to the development of industrial production in Fayoum Governorate, the production capacity and the structure of costs and revenues of the study company, and also aims to study the impact of the application of total quality management practices on the efficiency and performance of employees in the study company, and study the most important determinants that prevent the successful application of total quality management practices and raise the efficiency and effectiveness of the performance of employees in the company under study, and develop a proposed vision to expand the application of total quality management practices, and increase the effectiveness of the management of Human resources in order to improve the performance of employees, and improve the quality of the products of the study company.

The study also relied on two sources of data, the first of which is published and unpublished secondary data, which was obtained from different entities such as the Central Agency for Public Mobilization and Statistics, the General Organization for Export and Import Control, and the General Office of Fayoum Governorate, in addition to studies, research, references, reports and websites related to the subject of the study, second: the primary data obtained through the personal interview of employees of Fayoum Food Company, and a questionnaire form was designed that contains a set of questions which meet the objectives of the study.

The study included four main sections, in addition to the introduction and summary in Arabic and foreign language, furthermore Arab and foreign references. The first chapter dealt with the theoretical framework and reference review of some previous studies concerned with the subject of practices and economics of total quality management and human resources management.

The second chapter included the development of the industrial structure in the Arab Republic of Egypt. It became clear that the number of industrial establishments in the public sector in the governorates of the Republic amounted to about 405 establishments in 2010, and about 421 establishments in 2019, with an average of about 412 establishments. It was also found that the highest governorates in terms of the number of establishments are Cairo Governorate, followed by Giza, Alexandria and Qalyubia with an average of about 132, 69, 57 and 30 establishments respectively, equivalent to about 32.04%, 16.75%, 13.83% and 7.28% respectively of the total number of industrial establishments in the Republic, while the remaining percentage is distributed about 30% to the rest of the governorates of the Arab Republic of Egypt.

The number of industrial establishments in the private sector in the governorates of the Arabic Republic of Egypt reached about 8868 establishments in 2010, and about 6443 establishments in 2019, with an average of about 7718 establishments, and it was found that the highest governorates in the number of establishments are Cairo, Alexandria, Giza, Qalyubia and Sharqia governorates, with an average of about 1502, 980, 979, 655 and 520 establishments respectively, equivalent to about 19.46%, 12.70%, 12.68%, 8.48% and 6.74% respectively, of the total number of industrial establishments in the Arabic Republic of Egypt, while the rest are distributed About 40% on the rest of the governorates of the Arabic Republic of Egypt.

It was also found that the highest governorates in terms of the number of employees Cairo, Alexandria, Gharbia and Giza with an average of about 65, 39, 33, 27 thousand workers respectively, representing about 21.92%, 13.29%, 10.96% and 9.24% respectively of the total number of workers in industrial facilities in the Arabic Republic of Egypt, while the remaining percentage is about 44.59% distributed to the rest of the governorates of the Arabic Republic of Egypt.

According to this study, the number of establishments registered with the National Food Safety Authority (**NFSA**) during the period (2018-2021), it was found that the highest food processing activities in terms of the number of establishments that meet the food safety requirements of the authority is the bakery manufacturing activity with an average of about 11 establishments, representing about 12.79% of the total number of establishments that meet food safety requirements, while the activity of freezing vegetables and fruits came in second place with an average of about 10 establishments, representing about 11.63% of the total number of establishments that meet the requirements Food safety, and the activity of manufacturing juices, concentrates and jams of vegetables and fruits, and the activity of manufacturing additives and nutritional supplements came in third place with an average of about 8 establishments, representing about 9.30% of the total number of establishments that meet food safety requirements, while the dairy industry activity came in fourth place with an average of about 7 establishments, representing about 8.14% of the total number of establishments that meet food safety requirements.

It was observed from the study of the development of industrial production in Fayoum Governorate that the total number of industrial establishments ranged between a minimum of about 224 establishments in 2016, and a maximum of about 286 establishments in 2020, with an average of about 269 establishments during

the period from (2012-2021), and it was found that the highest industrial activities in the number of industrial establishments is the activity of the food industry with an average of about 90 establishments, representing about 33.59% of the total number of industrial establishments, followed by The activity of the basic chemicals industry with an average of about 50 establishments, representing about 18.58% of the total number of industrial establishments, while the lowest is the glass, ceramics and Chinese industry with an average of about 7 establishments and representing about 2.72% of the total number of industrial establishments during the study period. It was also found that the highest food processing activities in terms of the number of establishments were the activity of producing pickles by about 21.95%, followed by the activity of drying and processing vegetables and fruits by representing about 17.07%, followed by the activity of producing juice concentrates and jams and the activity of producing medicinal and aromatic plants by about 12.20% and 9.76% respectively, and the percentage of the number of dairy production facilities represents about 4.88% of the total number of food processing facilities during the study period. It was also found that the average production of white cheese in Fayoum Governorate amounted to about 5584 tons, and by studying the number of establishments registered with the National Food Safety Authority in Fayoum Governorate in (2021), it was found that the total number of factories reached about 4 factories, and the total number of approved suppliers and packaging centers reached about 5 approved suppliers, and one center for packing and sorting dry onions.

The third chapter dealt with the production structure and indicators of the production and financial performance of the Fayoum Food Industries Company, through the organizational structure, production capacity, cost structure and revenue, and performance indicators of Fayoum Food Industries Company, and it

turns out from the data of the organizational structure of Fayoum Food Industries Company in 2021 that it consists of project management and includes the Chairman of the Board of Directors, who is the first responsible for management and decision-making within the company, Vice Chairman of the Board of Directors, CEO and General Manager of the company, in addition to unit managers. The study of the production capacity of the study company before the application of quality requirements in 2019 showed that the total available capacity amounted to about 4965 tons, while the total actual production reached about 4216 tons, representing about 84.91% of the total available capacity, while the total idle capacity was about 749 tons, representing about 15.09% of the total available capacity.

As for the production capacity of the company under study after the application of quality requirements in 2021, it was found that the total available capacity amounted to about 6276 tons, an increase estimated at 26.40% compared to before application, while the total actual production reached about 5184 tons, equivalent to about 82.60% of the total available capacity, an increase estimated at 22.96% compared to before application, and the total idle capacity reached about 1092 tons, equivalent to about 17.40% of the total available capacity, with an increase estimated at 45.79%. About them before application.

The results also showed that the raw material costs represent the largest percentage of the total costs of the company under study after the application of quality requirements in 2021 by about 70.91% of the total costs, followed by the costs of used devices by about 14.95% of the total costs, followed by packaging costs by about 6.38% of the total costs, followed by wages, incentives and return costs (non-conformity costs) and depreciation of machinery by about 2.19%, 1.89% and 1.58% respectively of the total costs.

It was also clear from the results of the study of the revenue structure of the company under study after the application of quality requirements in 2021 that the amount of production reached about 5184 tons and the total revenue reached about 185,776 million pounds, and the amount of production sold in the local market reached about 4803 tons, an increase estimated at 23.72% compared to before application, while the amount of exported production reached about 370 tons, an increase estimated at 13.85% compared to before application, and the amount of inventory reached about 11 tons, an increase estimated at 22.22% compared to before Application.

The results of the study of production performance indicators of the company under study showed that the productivity of production requirements in the study company before the implementation of the quality system in 2019 amounted to about EGP 1.62, while after the implementation of the quality system in 2021 it amounted to about EGP 1.59, during the study period. It was also found that the total market share of the company under study before the application of quality requirements represents about 39.96% of the governorate's total production of white cheese, while after the application of quality requirements, it represents about 44.46% of the governorate's total production of white cheese, an increase estimated at 11.26% compared to before application. It turned out that the net return of the study company before the application of the quality system amounted to about 7,718 million pounds, while the net return after the application of the quality system amounted to about 21,187 million pounds, an increase It is estimated at 174.51% of the percentage before the application, during the study period. The quality costs in the study company before the application of quality requirements represent about 2.29% of the total production costs, while after the

application of quality requirements they represent about 2.01% of the total production costs.

The fourth chapter dealt with a study of the effect of applying total quality management practices at Fayoum Food Industries Company, through the utilization of the most important statistical analyzes represented in the averages, standard deviation, and matrix and phased multiple regression analysis, in addition to the SWOT Analysis Matrix.

The results of the gradient regression analysis to determine the most independent factors affecting production efficiency indicate that the calculated value of (F) amounted to about 21,838 at ($\rho \leq 0.01$), and that the value of the coefficient of determination amounted to about 0.561, which indicates that the practices of total quality management affecting production efficiency are training, supplier management and customer focus, as these practices are responsible for about 56.1% that the most important variables affecting strategic planning, information and analysis. The results of the gradient regression analysis of the production quality variable showed that the calculated value of (F) amounted to about 22,536 at ($\rho \leq 0.01$), and that the value of the coefficient of determination amounted to about 0.468, which indicates that the practices of total quality management affecting the quality of production are strategic planning and focus on customers, as these practices are responsible for about 46.8% of the changes that occur in the quality of production. With regard to the results of the creativity and innovation variable, the results showed that the calculated value of (F) amounted to about 21,401 at ($\rho \leq 0.01$), and that the value of the coefficient of determination amounted to about 0.477, which indicates that the practices of total quality management affecting creativity and innovation are training and leadership, as there is a positive relationship between creativity and innovation and between

training and an inverse relationship between creativity and innovation, and leadership, as previously mentioned that leadership means democratic management, which contributes to the development of creativity and innovation among employees, The inverse relationship is due to the centralization of senior management in the company under study, which is negatively reflected at the leadership level and limits creativity and innovation, which was explained by the inverse relationship with the results of the interim regression analysis, as decision-making in the study company is limited to senior management and not allowing the participation of the rest of the departments, and not encouraging them to adopt new ideas and encourage workers to accept change, if any.

It turns up from the outcomes of the quadruple analysis matrix of strengths and opportunities that the company under study can exploit the opportunity of the possibility of marketing its products in new markets at the local and international levels (O_2) by maximizing its following strengths: The company is distinguished by the quality of its products and obtaining quality certificates (ISO, GMP and HACCP) and the existence of a clear and specific system for selecting workers and having sufficient financial resources to expand production, in addition to having a large marketing share in the market and a suitable work environment by about 0.5%, 0.4%, 0.3%, 0.2%, 0.1% and 0.075% respectively.

$$SO_1= (O_2, S_1, S_2, S_3, S_4, S_5, S_6)$$

It was observed that from the results of the quadruple analysis matrix of weaknesses and opportunities that the company under study can take advantage of the opportunity to participate in local exhibitions (O_3) by facing the following weaknesses: weak interest in training programs provided to employees, lack of intensive advertising campaigns, labor instability, problems of using modern

technologies, and weakness of the wage and incentive system by about 0.2%, 0.2%, 0.2%, 0.2% and 0.1%, respectively.

$$SO_1 = (O_3, W_1, W_2, W_3, W_4, W_5)$$

Concerning the results of the quadrilateral analysis matrix of strength and threat factors, it was found that the company under study faces the threat of the existence of competing companies (T_3) by maximizing the following strengths: The company is distinguished by obtaining quality certificates (ISO, GMP and HACCP), the quality of its products, its possession of sufficient financial resources to expand production, a large market share in the market, the existence of a specific system for selecting workers, in addition to the availability of an appropriate work environment and the availability of a specific and clear plan for the expansion of production by about 0.3%, 0.3%, 0.1%. , 0.08%, 0.08%, 0.05%, and 0.05% respectively.

$$SO_1 = (T_2, S_1, S_2, S_3, S_4, S_5, S_6, S_7)$$

This study was found that the most important technical problems of the company under study after the application of quality requirements are the lack of experience and skill necessary for the workforce by about 92.86% of the total number of employees, and the most important external marketing problems are the difficulty of accessing new markets by about 85.71% of the total number of employees, as for the most important problems of workers in the company under study after the application of quality requirements, the most important of which is not allowing all employees to participate In the administrative decision-making processes or the strategic planning process and not providing employees with the results of evaluating their performance level continuously by about 85.71% and 78.57% respectively of the total number of employees.

According to study the most important proposed solutions to the problems facing the company under study after applying quality requirements, it was found that one of the most important proposed technical solutions is the availability of skilled manpower by representing about 92.86% of the total number of employees, and with regard to the most important proposed marketing solutions are to provide information on new markets, and provide adequate information about competitors by about 78.57%, 71.43% respectively of the total number of employees, as for the most important proposed solutions to the problems of employees are In providing employees with the results of evaluating their performance level on an ongoing basis, to identify weaknesses and try to avoid them by representing about 92.86% of the total number of employees.