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Derivative Impacts of the Implementation of Innovation Programs in Companies Located in the State of Puebla, Mexico and its Surroundings

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Abstract: One of the concepts that has been strengthened in recent years both in the area of knowledge and in the industry is *innovation*. According to several studies of various companies in highly industrialized countries, it can be established that investing in innovation generates a positive impact on the economic and technological development of both companies and the nation itself. Several of the companies established in these industrialized countries have an important budget dedicated to R&D, which allows them to be at the forefront in terms of technological advances.

However, considering the developing countries where these large companies are established, it is pertinent to ask ourselves, how is innovation sustained within these companies? Is there any method that allows these companies to develop ideas within these not-so-industrialized countries? In Mexico, especially in the study region (the state of Puebla and its surroundings), a few companies have chosen to establish various *innovation programs* where their employees, regardless of the hierarchical level they have within the company, participate with new ideas that allow to obtain a mutual benefit.

Once familiar with this type of programs, new questions arise to discuss, are these programs created with the firm commitment to undertake new ideas focused on the *continuous improvement* of the institutions? On the other hand, what are the benefits that institutions obtain when implementing these methodologies?

The main objective of this research is to corroborate the impact, whether positive or negative, of the implementation of these innovation programs within companies established in the study region. To carry out its verification, a study was conducted by analyzing data collected through surveys applied to companies established in the study region, to have an accurate view of the benefits or losses within the companies related to the implementation of this type of programs.

Keywords: Innovation, Innovation Programs, Continuous Improvement

1. Introduction

According to the "Organización para la Cooperación y el Desarrollo Económicos", OCDE for its acronym in Spanish (2012A), innovation is characterized by being the basis of sustained economic growth and prosperity, which has become a cornerstone for governments established in developed countries. Additionally, and taking into consideration less advanced economies, the OCDE (2012b) mentions that these economies also see innovation as a fundamental means to strengthen competitiveness and thus, point the right way to implement activities that allow to achieve greater added value.

Focusing on Mexico, Unger (2018) mentions that, within its economy, innovation actions are generated on a daily basis with the fundamental objective of developing and maintaining a sustainable economic competitiveness. In this way, the author mentions that the competitiveness of the companies present within a region or in a certain country has a very close relationship between their own economic sustainability and good innovation practices; considering this relationship, as a starting point to achieve a dynamic competitive advantage. However, the author shows that, in Mexico, the comparative profitability of companies is ensured by controlling local markets through commercial activities and low technological impact, rather than developing the technological capabilities of companies.

Thus, and as will be presented later, one of the main approaches on which innovation programs are based within companies is continuous improvement. The concept of continuous improvement has been widely recognized for providing an important competitive advantage between companies dedicated to the same or different business activities (Filho & Uzsoy,

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2014). In this way, the concept of continuous improvement is strongly related to methodologies such as "Theory of Constraints" (Goldatt & Fox, 1986 cited by Filho & Uzsoy, 2014) and "Six Sigma" (Pande, et. Al., 2000 cited by Filho & Uzsoy, 2014). In this manner, authors such as Thawesaengskulthai and Tannock (2008), propose that a decision based on a multidisciplinary proposal can help people responsible for what ideas to implement to make a better decision.

1.1 Problem statement

Efrat (2014) argues that, at present, companies located in countries with advanced economies are in a constant search for new forms or ideas that allow them to rejuvenate their economy; focusing mainly on the concept of innovation as the center and main point of new economic models. However, it is important to question what happens to companies located in countries with not-so-advanced economies? As will be seen in this investigation, some companies located in the region of Puebla, Mexico and its surroundings have generated internal programs where their collaborators can propose some innovative idea that allows to generate improvements in the productive, administrative processes and, sometimes, to the products and services provided by the company. The main objective of this research, focuses on the impacts that companies generate the implementation of these programs within their organizations.

2. Method

To understand the impacts within a company derived from the implementation of these types of programs, a survey was applied to eight different companies within the study region that present programs of this nature within their organizations. The survey was divided into three main parts; the first focused on knowing general information of the people responsible for conducting this program within the company, as well as, general information of the companies surveyed themselves. The second part of the survey focuses on gathering general information about the program implemented, as it is, the purpose of the program or the time of existence. Finally, the third section of the survey consists of a series of multiple-choice questions based on the Likert scale, which allows to know how much agreement or disagreement are the people responsible for these programs with some statutes; In this section, the main benefits that companies present when installing a program of these characteristics are also questioned.

To analyze the information collected and as mentioned above, the survey was conducted to eight companies established in the study region, which have programs with these characteristics implemented.

2.1 Results Obtained

The first section of the survey focuses on the collection of general information of the people responsible for these programs within the selected companies, such as gender (Table 1), the labor department where they carry out their activities (Table 2), location of the company (Table 3) and, finally, the business activity of the company (Table 4). The results obtained are presented below:

Table 1. Gender

Gender	***Total responses***	***Percentage***
Woman	5	62.50%
Man	3	37.50%
Total	*8*	*100.00%*

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Table 2. Labor Department

Business Activity	***Total responses***	***Percentage***
Human Resources	4	50.00%
Finance	1	12.50%
Continuous Improvement	3	37.50%
Total	*8*	*100.00%*

Table 3. Company Location

Company Location	***Total responses***	***Percentage***
Puebla	7	87.50%
Tlaxcala	1	12.50%
Total	*8*	*100.00%*

Table 4. Business Activity

Business Activity	***Total responses***	***Percentage***
Automotive	3	37.50%
Manufacturing	1	12.50%
Metal-Mechanic	2	25.00%
Services	1	12.50%
TI	1	12.50%
Total	*8*	*100.00%*

In the second section of the survey, general characteristics of the programs implemented are compiled; Figure 1 shows the time that the program has been implemented within organizations, while Figure 2 shows the main purposes with which these programs were stipulated. The results are presented below:

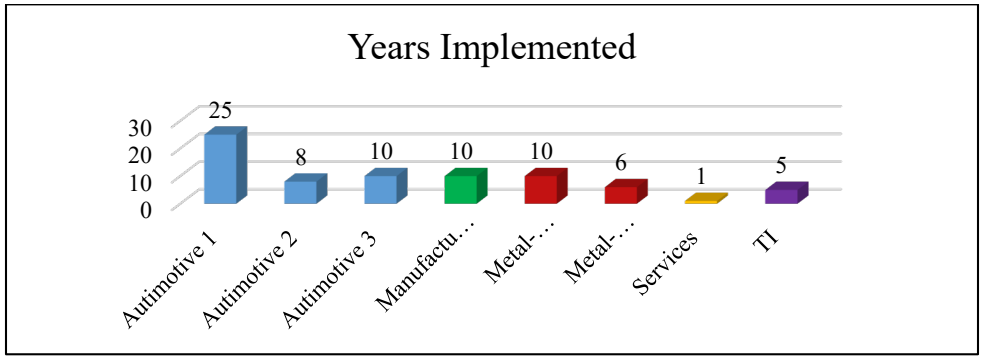

Figure 1. Years Implemented Within the Company of the Innovation Programs

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The graph shows that, on average, innovation programs have been maintained for nine years; highlights one of the companies in the automotive industry that has been maintaining this type of programs for twenty-five years.

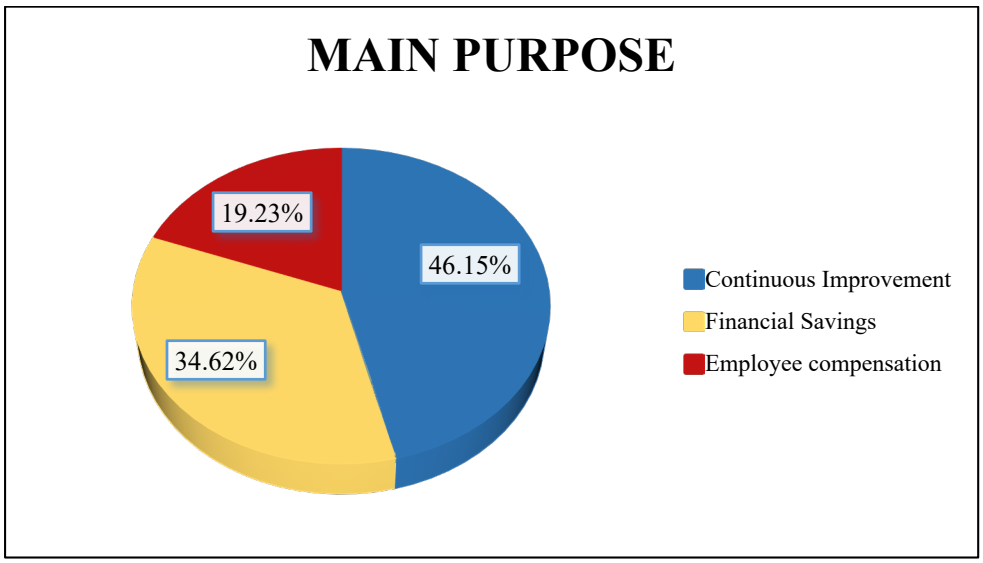

Figure 2. Main Purpose of the Innovation Program Implementation

The surveyed companies agreed on more than one main objective of the implementation of this type of innovation programs. Highlighting the continuous improvement within the processes and products present in the institutions, and, at the same time, seeking economic savings that generate considerable profitability for the sustainability of the programs.

The third and final section concentrates the information about various statutes or main characteristics of innovation programs within organizations, these statutes are shown in Figure 3. Finally, Figure 4 indicates the percentage of ideas proposed by employees within the company, which are accepted and implemented, which can be applied to productive processes, administrative or proposed improvements to the products and services offered by these institutions.

The information presented in the previous Figure gives us a clear overview of the current news of these innovation programs or new ideas present in the companies consulted. It can be seen how companies have a high concordance rate in which one of the main objectives of these programs is the continuous improvement of processes within organizations, as well as seeking active participation by employees within of the program, in turn, it can be seen that companies strongly agree that the implementation of these programs entails an economic remuneration for both the company and the participants. Additionally, and as one of the most important aspects, it is observed that the implementation of these programs does not generate additional excessive expenses to the company compared to the resources necessary for the execution of the ideas; to be precise, the economic remuneration is greater than the expenses of the program.

In contrast to the aforementioned, there are common weaknesses in the implementation of the program, as they are, that the program is not used in the manner sought; that is to say, there is still a very low rate of employee participation despite the fact that the average time of existence of this program is nine years. In turn, it is observed that other factors that negatively impact the execution of the program are the response time to the suggestions given, which is considered excessive, the guidelines could not become so clear to the collaborators and, not least, that it is necessary to train in a better way the people responsible for evaluating the proposed ideas, so that in this way, they have a clearer picture of the benefits that institutions could have with the implementation of certain suggestions.

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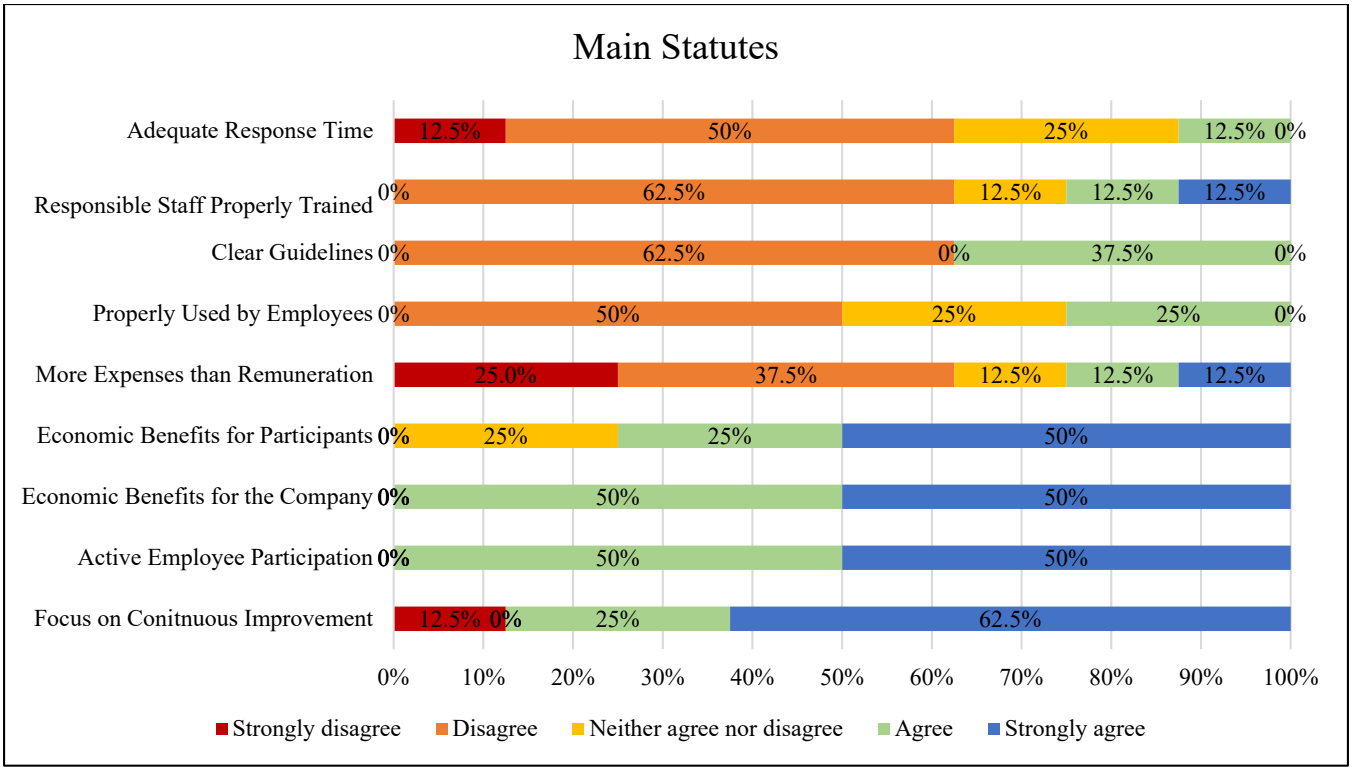

Figure 3. Main Statutes of the Innovation Program Implementation

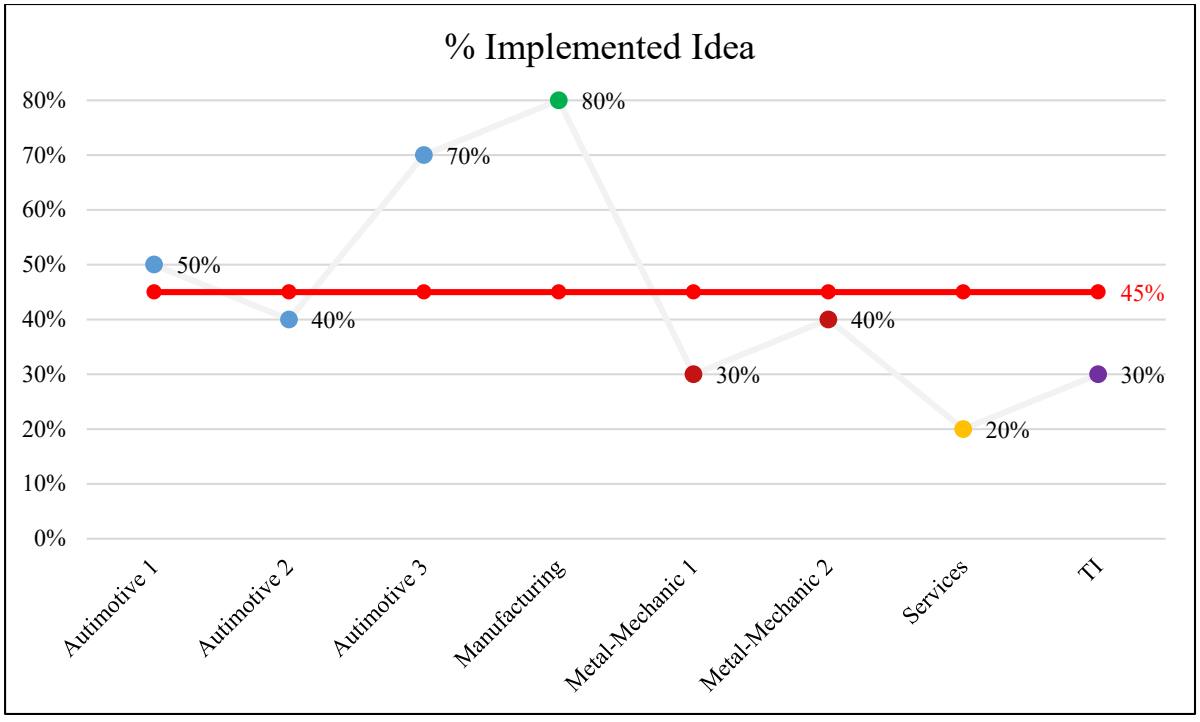

Figure 4. Percentage of implemented ideas of the Innovation Program Implementation

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3. Conclusions

According to González et. al. (2014), it is important to emphasize that each organization has several internal ways to manage innovation processes, this depending on the organizational culture, the leadership they present, among other aspects; which allow to identify that some companies have the concepts or programs more developed than others. However, these authors consider the importance of highlighting general principles and that should be common in companies that seek development and innovation, such as successful management of innovation programs and projects, promoting innovative thinking and culture among employees of the companies, have a thought of interdisciplinary collaboration for the implementation of innovative ideas, as well as the creation of internal or external networks that foster partnership. Unger (2018) argues that it is necessary to create a culture of management and innovation within each company, this will allow continuity and proper monitoring of each innovation project suggested by the collaborators; This innovative culture will allow not only cumulative and constant learning, but also sporadic participation of employees when generating innovative ideas.

Ávila & Morales (2019) argue that the application of innovative actions focused on continuous improvement within any organization, generate a considerable competitive advantage and are reflected in the improvement of innovative processes and pampering management; thus, with its implementation it implies an efficient improvement in the global performance of the companies, in a sustained way.

Focusing on the innovation programs present in these surveyed companies, the following positive impacts of their implementation can be rescued, as they are, the constant continuous improvement promoted by the workers themselves within the companies, promoting in the same way the labor motivation, due the collaborator feels recognized and in some cases, mostly committed to the company. Likewise, it is highlight the great economic benefits for both the company derived from the savings arising from the implementation of the idea, as well as for the participant, since one of the main characteristics of this type of program is that a percentage is provided to the worker, by way of remuneration, of the savings achieved. Returning to the savings generated to the company, the fact that these types of programs can support themselves is also outstanding, since the expenses generated are minimal compared to the savings achieved, taking into account that, on average, only 45% of the ideas become implemented.

However, and although some companies surveyed have more than 10 years of experience with the implementation of these programs, there are very specific points to pay attention to, such as the response times between which a proposal is suggested and It is declared whether it is viable or not. Additionally, it is observed that the stipulated guidelines for this type of programs are not clear enough for the collaborators of the companies, reflecting that the participation by the collaborators is not expected. Finally, there is a feeling that the people responsible for evaluating ideas are not fully qualified to perform this activity, reflected in the percentage of accepted ideas mentioned above; that is, it is possible that, by training these evaluators in a better way, the percentage of ideas and possible savings for the company will rise considerably.

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