

Study of measurement and improvement of productivity in medium-sized technology trading companies

Estudio de medición y mejoramiento de la productividad en las medianas empresas comercializadoras de tecnología

RODRIGUEZ-GUTIERREZ, Jose Joaquín†*, NOTARIO-PRIEGO, Ezequiel, MOREJON-SANCHEZ, Juana María and CORNEJO-BARRERA, Alejandra

Tecnológico Nacional de México, Campus Villahermosa, México

ID 1st Author: *José Joaquín, Rodríguez-Gutiérrez* / ORC ID: 0000-0002-4899-146X, Researcher ID Thomson: AAT-1209-2021, CVU CONACYT ID: 1003679

ID 1st Co-author: *Ezequiel Notario-Priego* / ORC ID: 0000-0002-3791-1823, Researcher ID Thomson G-2613-2018, CVU CONACYT ID: 407736

ID 2nd Co-author: *Juana María, Morejón-Sánchez* / ORC ID: 0000-0002-9930-181X, Researcher ID Thomson: ABE-2879-2020, CVU CONACYT ID: 362413

ID 3rd Co-author: *Alejandra, Cornejo-Barrera* / ORC ID: 0000-0001-6700-3159, Researcher ID Thomson: AAT-1171-2021, CVU CONACYT ID: 1003685

DOI: 10.35429/JTI.2021.23.8.1.5

Received July 10, 2021; Accepted December 30, 2021

Abstract

Productivity within any organization is represented as a growth rate, and which over time changes, this depends on many factors. The objective of this article is to measure and improve the productivity of medium-sized companies dedicated to the commercialization of technology in general in the city of Villahermosa, Tabasco. A study is carried out in a comprehensive way. The instrument used was the so-called Comprehensive Productivity Evaluation Technique (TIEP) which consists of 10 elements, each one related to the variables technology, economic, social, cultural, environmental, political (independent variables), with the aim of carry out the measurement from the general to the particular, since studying each area is of vital importance to have a general overview of the entire organization and thus there is no information lag. The instrument was applied in technology trading companies, with the aim of obtaining results to mediate and improve productivity. With the obtaining of the results, a series of graphs were made to analyze the areas of opportunity and thus design an improvement model.

Measurement, Productivity, Technology trading

Resumen

La productividad dentro de cualquier organización está representada como un índice de crecimiento, y la cual con el paso del tiempo va cambiando, esto depende de muchos factores. La presente investigación tiene como objetivo la medición y mejoramiento de la productividad de medianas empresas dedicadas a la comercialización de tecnología en general en la ciudad de Villahermosa, Tabasco. Se realiza un estudio de forma integral. El instrumento empleado fue la denominada Técnica Integral de Evaluación de La Productividad (TIEP) el cual consta de 10 elementos relacionados cada uno de ellos con las variables tecnología, económica, social, cultural, ambiental, política (variables independientes), con el objetivo de llevar a cabo la medición de lo general a lo particular, ya que estudiar cada área es de vital importancia para tener un panorama general de toda la organización y así no exista rezago en la información. El instrumento fue aplicado en empresas comercializadoras de tecnología, con el objetivo de obtener resultados para mediar y mejorar la productividad. Con la obtención de los resultados se realizaron una serie de graficas para analizar las áreas de oportunidad y así diseñar un modelo de mejora.

Medición, Productividad, Comercializadoras de tecnología

Citation: RODIRGUEZ-GUTIERREZ, José Joaquín, NOTARIO-PRIEGO, Ezequiel, MOREJON-SANCHEZ, Juana María and CORNEJO-BARRERA, Alejandra. Study of measurement and improvement of productivity in medium-sized technology trading companies. Journal of Technology and Innovation. 2021. 8-23:1-5.

* Correspondence of the Author (Email: rodriguez90@hotmail.com)

† Researcher contributing as first author.

Introduction

Productivity within organizations can be improved through continuous improvement processes, with the responsibility of both managers and employees, all this to obtain total quality.

Nowadays the measurement of productivity is a very important factor as organizations are becoming more and more competitive, they must be able to achieve productivity through different factors such as innovation, process optimization and especially the adaptation of new technologies, all this for a rapid adaptation in an increasingly competitive environment.

For everything to work correctly in an organization, a warehouse, a production line or simply in any work area, it will always be a complicated task that will require a lot of dedication and knowledge, but the results obtained will provide satisfactory benefits that will consolidate the proper functioning of a system with the optimization of resources.

Problem Statement

The objective of this research is to analyze the variables of the context to know the influence they have on the productivity of medium-sized technology commercialization companies, through the use of Table 1 TIEP tool (integral productivity evaluation technique), and in this way design a model that will allow an improvement in their productivity.

Currently in the municipality of centro, in Villahermosa tabasco, there are a large number of companies dedicated to the commercialization of technology and many of these companies do not have a planning much less carry out analysis to measure their productivity, do not take into account external factors. Factors that today as the pandemic of covid 19 has come to destabilize any type of organization and has moved drastically all the variables of the context.

That is why it is of vital importance that every type of organization has the adaptability to face all these factors and thus be able to remain competitive in an increasingly changing market and be able to offer its customers a quality service.

Hypothesis

That is why the hypothesis proposed for this research are the economic, social, cultural, environmental, political and technological variables to know if they have a significant impact or not on the productivity of medium-sized companies that commercialize technological products.

Methodology

The research will be carried out through a quantitative and qualitative study, developed on the basis of a study of a mixed nature where research of a correlational type will be used:

Correlational, since the impact of the independent variables (technological, economic, social, cultural, environmental, political) will be analyzed through the application of the Table 1 TIEP tool (integral productivity evaluation technique) that evaluates 10 elements: conceptual approach of the company, knowledge of the processes, social scope of the organization, planning administration, directive participation, creativity and organizational innovation, knowledge of the clients, technological development, macroeconomic knowledge, integral development of the human resource.

Hypothetical-deductive, because this research proposes 1 hypothesis, which starts from the general to the particular.

Description of the method and tool

In order to know the current state of the organization, data will be collected and the measurement of the company will be carried out, for this purpose a comprehensive measurement tool consisting of 10 elements related to the variables of the context will be applied.

The tool (TIEP) will be applied to the heads of each department, in total the tool will be applied to 5 heads that are part of the organization. The departments where the tool will be applied are:

- Management.
- Administration.
- Purchasing.

RODIRGUEZ-GUTIERREZ, José Joaquín, NOTARIO-PRIEGO, Ezequiel, MOREJON-SANCHEZ, Juana María and CORNEJO-BARRERA, Alejandra. Study of measurement and improvement of productivity in medium-sized technology trading companies. Journal of Technology and Innovation. 2021

- Sales.
- Service.

Assessment tool

The application of the instrument was carried out in each area of the organization, beginning with a brief explanation of how to collect the necessary information.

Each element applied in the instrument in Table 1 shows the degree of knowledge that each area manager has regarding the organization and was assigned a weighting that indicates the level of development of each criterion. With respect to the knowledge of each criterion in relation to the variables of the context, a score ranging from 0 to 10 was assigned according to the management of each variable. The researcher should be clear when asking questions and, if necessary, support the interviewee.

TIEP (Technique for Integral Evaluation of Productivity)												
Elements	Economic Variable		Political Variable		Environmental Variable		Cultural Variable		Technological Variable		Social Variable	
	P	E	P	E	P	E	P	E	P	E	P	E
1. Conceptual approach to the company												
2. Process knowledge												
3. Social scope of the organization												
4. Planning management												
5. Management participation												
6. Organizational creativity and innovation												
7. Knowledge of customers												
8. Technological development												
9. Macroeconomic knowledge												
10. Integral development of human resources												

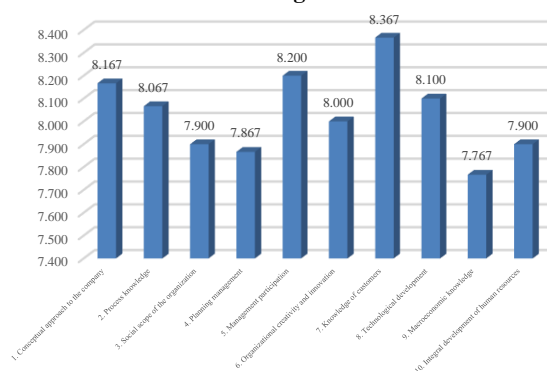
Table 1 Comprehensive productivity assessment tool
Source: *Eliseo H. 2021*

Results

The way to show the results obtained in Table 1. Integral productivity evaluation tool, is by means of bar graphs where simple averages and composite averages are obtained, in addition to the interpretation of each of the graphs.

The data obtained from the graphs show which are the areas of opportunity of the organization

Comprehensive company profile by simple average

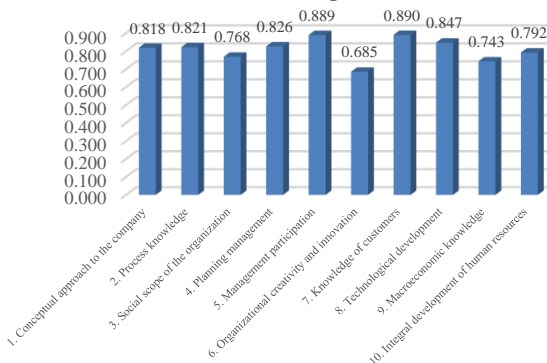


Graphic 1 Integral profile of the company by simple average

Source: *Author's perception, 2021*

The results shown in graph 1. Integral profile of the company by simple average shows the results obtained in each of the departments, showing that the organization has an acceptable value in terms of knowledge of the elements, with element 9 - macroeconomic knowledge being the one with the least knowledge.

Comprehensive company profile by composite average



Graphic 2 Integral profile of the company by composite average

Source: *Author's perception, 2021*

In the results of Graphic 2. And based on the quantitative evaluations of the averages composed by each department and where the elements and variables of the context directly intervene, it can be observed that not all departments have the same knowledge, in this way we can define which are the areas to be focused on to correct and improve.

Although the element 6.- creativity and organizational innovation is the one with the lowest qualification, we should not lose attention in the elements 3.- social scope of the organization, 9.- macroeconomic knowledge and 10.- integral development of human resources, since these elements have a qualification around 7.500.

Improvement proposal Model

As a result of the application of the tool (TIEP), it can be determined that all the independent variables have an impact on the investigated variable (productivity).

Taking into account the analysis carried out, there are some variables that have a greater influence than others.

For this reason, we proceed to the design of an improvement proposal based on the design of a model, which can be taken into account to carry out and solve the problem posed.

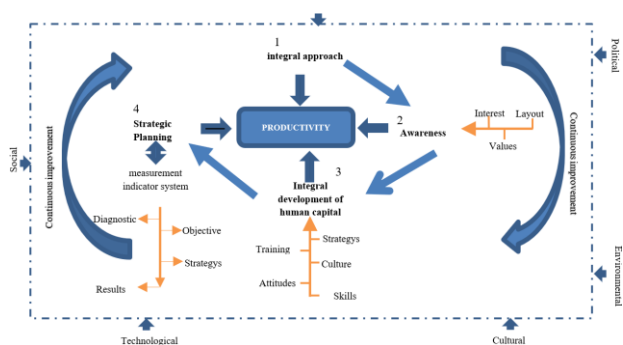


Figure 1 Proposed model for productivity improvement. Source: Authors' perception, 2021

The objective of developing the model Figure 1 is to apply this model in the organization and thus improve its productivity and allow a better functioning of the company.

For it to work well, it must be carried out in 4 stages, in stage 1 all the people involved in the organization must have a comprehensive approach to the entire company, see the company as a whole, take into account the internal and external factors that could affect the organization, this approach must be achieved through awareness, stage 2, this is one of the most important points and therefore difficult to carry out, The sensitization within the organization should be initiated from the managers to the lowest level workers, it is intended to generate greater commitment within all human capital, in this way will be given greater responsibility and motivation and development in an integral way throughout the company.

In stage 3, in order to have an integral development of human capital, strategies such as training and workshops should be carried out, where the participation and suggestions of all those involved are taken into account, and thus achieve greater growth in their creativity and innovation, so as to achieve a committed human capital, with attitudes and aptitudes.

Working in an integrated and committed way is an important part of strategic planning, the last point of the Figure 1 model, a fundamental part to achieve the objectives set, and thus carry out new projects where they can measure the results in an integral way and continue to increase their productivity through continuous improvement, since by applying the 4 stages of the Figure 1 model there will be this improvement.

Conclusions

The objective of productivity is the search for continuous improvement, since productive companies change rapidly and their environment becomes more competitive day by day.

The objective of this research is to know the current productivity of the organization, in addition to providing a clear and broad scenario of the same, through the analysis and design of a model, so that, through this, strategies are developed that allow the organization to give them an approach to their current needs, through a proposal for improvement, in order to obtain the objectives, set.

References

Arturo, M. A. (2011). *Metodologia de la investigacion cuantitativa y cualitativa*.

Contreras, M. (2019). Perfil logistico del sector farmaceutico de la ciudad de Bogota: una vision hacia el mejoramiento estrategico de las operaciones.

Perramón, A. G. (2019). La experiencia de gestion de los medicamentos en Cataluña objetivos de salud y economicos.

Prokopenko, J. (1989). *La gestion de la productividad*. ginebra.

Trabajo, O. I. (2016). *El factor humano y la productividad*. Suiza.