Innovation and digital transformation index in the use of information and communication technologies in the management of Micro, Small and Medium Enterprises in the city of Xalapa, state of Veracruz of Mexico

Índice de innovación y transformación digital en la utilización de las tecnologías de información y comunicación en la gestión de las Micro, Pequeñas y Medianas Empresas en la ciudad de Xalapa, estado de Veracruz de México

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Abstract

The general objective of the research is to identify the rate of innovation and digital transformation that Micro, Small and Medium Enterprises (MIPYMES) currently have with the use of information and communication technologies TIC´s). We believe that after what happened to all organizations and companies with the COVID19 pandemic and the return to a new reality of organizing, operating, managing and directing companies, it is necessary for the personnel of the different hierarchical levels to get involved. with the use and mastery of information and communication technologies. The following questions help us to establish our hypothesis: Does the use of TIC´s in the organization influence decision-making at the management level? Is the age of the managers or owners of MYPYMES related to the use of TIC´s in the organization? Our study has a quantitative and qualitative approach; we will look at various pertinent data on variables and contexts in the study. For all of the above, we are interested in carrying out this research on MYPYMES since they represent a high impact on the economy of the city and if there is any relationship between innovation and business well-being.

Innovation, Digital transformation and Information and Communication Technologies

Resumen

El objetivo general de la investigación es identificar cuál es el índice de innovación y transformación digital que tienen actualmente las Micro, Pequeñas y Medianas Empres (MIPYMES) con la utilización de las tecnologías de información y comunicación (TIC´s). Consideramos que después de lo que les paso a todas las organizaciones y empresas con la pandemia del COVID19 y el regreso a una nueva realidad de organizar, operar, gestionar y dirigir a las empresas, es necesario que se involucren el personal de los diferentes niveles jerárquicos con el uso y dominio de las tecnologías de información y comunicación. Las siguientes preguntas nos sirven para establecer nuestra hipótesis: ¿El uso de las TIC´s en la organización influye en la toma de decisiones a nivel directivo?; ¿La edad de los directivos o dueños de las MIPYMES está relacionada con el uso de las TIC´s en la organización? Nuestro estudio tiene un enfoque cuantitativo y cualitativo; observaremos varios datos pertinentes sobre variables y contextos en el estudio. Por todo lo anterior nos interesa realizar esta investigación sobre MIPYMES ya que representan un alto impacto en la economía de la ciudad y si existe alguna relación entre la innovación y el bienestar empresarial.

Innovación, Transformación Digital y Tecnologías de Información y Comunicación

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Introduction

The pandemic caused many companies that did not use information and communication technologies (ICTs) in their processes and activities to close down and stop operating. For other companies it was a challenge to use ICTs to survive and move forward. The use of ICTs has a positive effect on the innovation of the organization, helps to make better decisions at the management level and consequently a business growth.

It is important to carry out this research to help companies to get involved in the use of ICTs, innovation and digital transformation, according to their possibilities and available resources, and to be part of this business change.

MSMEs represent a high impact on the economy of the city of Xalapa. There is a relationship between innovation and business welfare.

In a more globalized and competitive economy and with more demanding customers and users, MSMEs cannot stand idly by and just observe how the world is changing and how to do business and offer their services and products.

1.- Theoretical Framework

According to the information provided by the National Institute of Statistics and Geography (INEGI) in its definitive results of the 2019 Economic Census, there were a total of 438,214 establishments in the state of Veracruz, with 1,701,915 people employed in them. 46.7% of the establishments correspond to the Commerce sector, 40.7% to Services, 10.5% to Manufacturing and 2.1% to the Rest of economic activities. Of the total number of establishments, 96.1% are Micro size (0 to 10 people employed); 3.8% are SMEs (11 to 250 people) and 0.1% are Large (more than 251 people).

The 2019 Economic Censuses reveal, among other aspects, that our state economy is dominated by Micro businesses (0 to 10 employed persons), which represent 96.1% and these employ 52.2% of the employed personnel in the entity.

On the other hand, the PYMES businesses (11 to 250 people) represent 3.8% of the establishments and employ 32.2% of the personnel, while the Large businesses (251 and more people) represent only 0.1% and their employed personnel represent 15.5% of the jobs in the state. According to figures presented by the Observatory of Public Finance and Regional Development of the Universidad Veracruzana, in its bulletin 188 of 2021, in the municipality of Xalapa there are a total of 24,717 companies, of which 9,286 (37.6% of the total) are located in Retail Trade. Another 4,518 companies (18.3%) are located in the provision of Other services and 3,264 (14.7%) in Accommodation and food preparation services. This means that these three activities account for 70.5% of the municipal total.

It is important to consider innovation as a fundamental factor for MSMEs, which according to González et al, (2014:110), can be applied in "different sizes, items", spaces, mainly in companies that want to achieve business success; innovation is oriented to the transformation of value to obtain an improvement, making changes in the way of doing things, testing new options to optimize aspects such as: economic, functional, aesthetic, operational, among others, or creating new processes, or used in other fields.

It can be said that innovation uses resources to find new opportunities, it is also used for a product, a service or a process, making changes in technologies, in management that mean an innovation for the company or market, "innovation is more than pure and simple capacity to generate new ideas" (Sainz, 2006:33).

The above, is complemented by the thinking of Mesa (2015:29), who mentions that business innovation corresponds to a new value and not specifically to something new, but it is important to consider Bernal & Frost (2015: 253) who analyze that, "to respond to the demands of the new environment of organizations, in the field of innovation, the open innovation approach has emerged, which makes explicit the need for openness on the part of companies in their innovation processes and emphasizes processes such as the practice of external knowledge search routines as one of the main sources to contribute to enhance competitive capacity".

2. Research objectives

The objectives of the research are the following:

–   To determine if innovation and digital transformation has an important influence on the use of ICT's in MSMEs.

–   To analyze the type of ICT's used by MSMEs for proper decision making in the organization.

–   To evaluate which of the factors such as innovation, digital transformation and the use of ICT's have importance in decision making at the managerial level.

3. Research questions

The central research question is the following:

Does the use of information and communication technologies impact the rate of innovation and digital transformation in the decision making of MSMEs?

What is the degree of innovation and digital transformation that MSMEs have?

Does the use of ICT's in the organization influence decision making at the managerial level?

Is the age of the managers or owners of the MSMEs related to the use of ICTs in the organization?

Justification

We consider that after what happened to all organizations and companies with the COVID19 pandemic and the return to a new reality of organizing, operating, managing and directing companies, it is necessary to involve personnel at different hierarchical levels with the use and mastery of information and communication technologies.

Methodology to be developed

Data collection will be carried out in three closely interrelated activities:

a)   Select or develop a data collection instrument or method. This instrument must be valid and reliable, otherwise we cannot accept the results.

b)   Apply that instrument or method to collect data.

c)   Prepare the data, observations, records, and measurements for analysis.

In the quantitative approach, in the study to be carried out, among what we are going to measure is the use of ICT's in the organizations, the ages of the managers, the amount of technology that each company has.

Here we can elaborate a questionnaire of closed options based on the INEGI questionnaires and apply it to all managers.

In the qualitative approach, we are going to observe subjects, contexts or situations, for example: if innovation and digital transformation has an important influence on MSMEs' decision making.

In this approach we are going to meet with managers and through personalized interviews and open-ended questions to observe the behaviors and experiences they have had at the head of the organizations.

Any measurement or data collection instrument must meet two essential requirements essential:

1.   The reliability of a measurement instrument refers to the degree to which its repeated application to the same subject or object produces the same results.

2.   Validity, when they also measure what they are intended to measure.

Once the collected data have been compiled and worked on, we move on to their systematic interpretation and analysis, with this it is possible to answer those questions that had been raised at the beginning of the empirical research.

The stages of data interpretation that we are going to use are the following:

1.   Basic count: the analysis of the data begins with the basic count that serves to determine the frequency distributions of the various values of the variables. This stage already resolves an important part of the research project when it is a question of accurately describing some circumstance.

2.   Interpretation of scales: if scales of the summed rating scale or Likert scale type are used, it is necessary to add the corresponding values of the scale.

3.   Extrapolation calculation: in representative studies, the aim is to find out in what proportion the calculated absolute values are found in the universe as a whole. A calculation of this type is only admissible if the probability sample was carried out accurately.

4.   Bivariate analysis: the determination of relationships, type formation and hypothesis testing requires the combination of at least two variables; hypothesis testing requires the combination of dependent and independent variables.

Conclusions

We hope that this research will help companies to get involved in the use of ICT's, in innovation and digital transformation, according to their possibilities and available resources and to be part of this business change in a more globalized world.

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