Original Article

Analysis Of The Impact Of Information And Communication Technologies On Accounting Systems

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Abstract

The objective of this research work is to publicize the impact of information and communication technologies on business accounting systems. At present, due to economic changes characterized by levels of competitiveness, high quality in the provision of goods and services, it is necessary and essential to have mechanized and automated tools that provide accounting and financial information that is timely, reliable and truthful. In order to facilitate decision-making in relation to their entities to the various stakeholders, for which it is essential to determine the importance of Information and Communication Technologies and how they influence business accounting systems. The study was carried out in the accounting systems of the Chimbote fishing companies, with a sample of 15 entities during the year 2022.

Keywords: accounting system, technologies, economy, development, impact

INTRODUCTION

The process of globalization that Latin America has been going through for several years has made manifest the need to think about business operations oriented to an international level, this with the intention not only to seek economic growth but also to seek sustainability in the different companies that operate in the country. Due to this, it is necessary for organizations to begin to adapt to the variations presented by the global economic panorama, being necessary to carry out efforts in a structured and conscious way, in order to reduce the uncertainty involved in operating in foreign markets (Palacio, Estrada, & Gómez, 2017). An important role in this regard is the introduction of Information and Communication Technologies (ICT), which has been developing in the accounting system of small, medium and large companies.

ICTs are a set of tools and methods that allow the collection, storage, processing and transmission of information. They include devices and systems such as computers, communications networks, mobile devices, the internet, and application software. These technologies have revolutionized the way people interact, communicate and access information, and have had a significant impact on the economy, society and culture.

In Peru, information and communication technologies (ICTs) have been constantly growing in recent decades. The country has made great efforts to improve its telecommunications infrastructure and expand internet access. Currently,

more than 80% of the population has access to the internet and the ICT sector is one of the most dynamic in the Peruvian economy. However, there are still challenges in terms of coverage and speed in rural and low-income areas.

ICT plays an important role in the accounting system of companies by allowing a more efficient and automated management of accounting information. This includes tools such as accounting software, inventory management systems, and electronic invoicing, among others. These systems enable companies to quickly and accurately record, store and access accounting information, facilitating decision-making and regulatory compliance. In addition, ICT also allows the integration of different areas of the company, such as finance, sales and purchasing, allowing better visibility into the overall performance of the company.

The management of a company requires the control of a variety of factors and, one of themost important is to keep a detailed record of all transactions involving the flow of cash flow and outflow, this allows the control of its accounts and the financial situation of the organization (Macías-Collahuazo, Esparza-Parra, & Villacis-Uvidia, 2020). An accounting system in an enterprise is used to record, classify and summarize the financial transactions of the enterprise; This includes records of income, expenses, assets, liabilities, purchases, sales, and cash movements. The accounting system is also used to generate financial statements, such as balance sheet, income statement, and cash flow, which help managers and owners of the company make informed decisions about the growth and direction of the company. In addition, the accounting system is also essential to comply with the legal and tax obligations of the company. Without a proper accounting system, businesses could face tax and legal penalties and struggle to obtain financing. The accounting system is a key tool for controlling financial operations and measuring the profitability and performance of the company.

Some of the main problems of the accounting system in Peru include:

- Lack of proper accounting regulation: Often, companies are not required to follow international accounting standards, which can lead to unreliability in financial statements
- Lack of accounting training: Many accountants and accounting professionals in Peru are not properly trained in accounting best practices, which can lead to errors and poor judgments in decision-making
- Lack of transparency in companies: Many companies in Peru do not have the culture of transparency, which makes it difficult to assess the financial health of the company
- Lack of technology in accounting: Many companies in Peru still rely on manual accounting systems, hindering efficiency and accuracy in recording transactions
- The lack of an electronic accounting system: Although there is an electronic accounting system in Peru, not all companies use it properly, which makes it difficult to manage and control accounting

In the investigation, some of the companies of agricultural activities that will be analyzed, such as fishing, must comply with the accounting regulations established by the National Superintendence of Tax Administration (SUNAT) and the Comptroller General of the Republic. This includes keeping complete and up-to-date accounts, filing tax returns and complying with international accounting standards. It is important for agricultural businesses to work with accountants or trained accounting professionals to ensure compliance with regulations and proper handling of their financial records. In these companies an accounting system is used to record and control financial transactions related to the production and sale of crops and agricultural products. This includes recording expenditures on inputs, labor, machinery and equipment, as well as income from product sales. It can also include inventory accounting for finished and in-process products. An effective accounting system is essential for informed business decision-making and compliance with tax obligations

Information and communication technologies (ICTs) are critical to the success of these companies. They allow greater efficiency in the management and planning of productive operations, improve decision-making and communication between the different departments of the company, and help maintain a better relationship with customers and suppliers. Some examples of how ICT can be used in agriculture and production include: the use of drones for field supervision and monitoring, the use of sensors to measure soil moisture and temperature, and the use of mobile

applications for inventory management and operations planning. Today, ICT is essential to improve efficiency, reduce costs and increase productivity in companies.

Taking into account the above elements, the research aims to carry out an analysis of the impact of ICT on the accounting systems of fishing companies in the town of Chimbote. For the fulfillment of this purpose it is required:

• Diagnose the main difficulties in the accounting systems of companies

• Assess the use and application of ICT in the accounting systems of companies

MATERIALS AND METHODS

For the development of the research it was necessary to use some materials and methods, which facilitate the search and analysis of information, among which are referenced:

- Historical-logical: that allowed to determine the essential aspects in the accounting systems implemented in the companies and the application of the ICT that is carried out in them.
- Inductive-deductive: which allows to verify the factors raised regarding the research topic in addition to structuring the research profile for its application given the problems in the actions of the implementation of ICT in the accounting systems of companies.
- Analytical-synthetic: to compare all the phenomena involved in the investigation and the causes that originate it.
- Observation: allows analyzing the existing deficiencies in the implementation of accounting systems with the use of information and communication technologies.
- Interview: which enables the exchange with representatives of the companies under study, in the aspects related to the accounting systems implemented in them, the use of technologies and the impact they have within the system for the development of the company.
- Statistical-mathematical: in order to analyze the data collected during the process and the review of documents.
- Intentional sampling: allowed the selection of those specialists in the accounting processes of companies, with 10 years or more of experience in the activity, those who have a complete mastery of the accounting activity and the work system in the company.
- Surveys: In the design and application of a questionnaire, a balance between simplicity and clarity must be sought, without delving into the superficial (Santamaría, Andachi, & Montoya, 2020). For this process, the steps to be followed with the subjects participating in the research were organized in a planned manner (Geography, 2010).

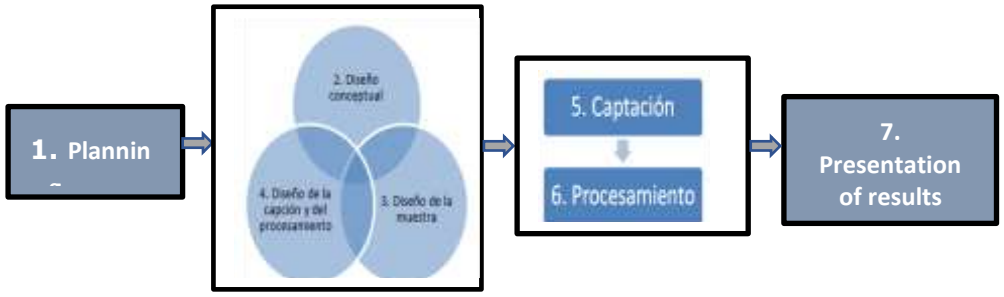


Figure 1. Organization for the application of surveys.

IADOV: The technique of V.A. Iadov in its original version was created by its author for the study of satisfaction for the profession in pedagogical careers (Kuzmina, 1970). This technique was used to evaluate the satisfaction of the profession in pedagogical professional training and the methodology for its use explained in (Gonzalez, 1994). The technique for its application is made up of five questions, of which three closed and 2 open. It constitutes an indirect way for the study of satisfaction, since the criteria used are based on the relationships established between three closed questions that are interspersed within a questionnaire whose relationship the subject does not know. These three

questions are related through what is called the "Iadov Logical Picture". Unrelated or complementary questions serve as an introduction and support for objectivity to the respondent who uses them to locate and contrast the answers. The number resulting from the interrelation of the three questions indicates the position of each subject on the satisfaction scale (Calle, Betancourt, & Enríquez, 2019); (Santamaría et al., 2020); (Hernández, Izquierdo, Leyva-Vázquez, & Smarandache, 2018); (Squilanda, Diaz, & Gallegos, 2020)

Table 1. Evaluation system for students

Category		**Punctuation**	
A	Clearly satisfied	3	(+1)
B	More satisfied than dissatisfied	2,3	(+0,5)
C	Not defined	1.5	(0)
D	More dissatisfied than satisfied	1	(-0,5)
And	Clearly dissatisfied	0	(-1)
C	Contradictory	2	(0)

Note: This is the satisfaction scale. (Hernández Calzada, 2013)

For the triangulation of the questions interspersed in the applied survey that allows to assess the level of satisfaction, the IADOV Logical Table is used.

Table 2 IADOV Logic Table

	1st question								
	Yes			I do not know			No		
	2nd question								
	Yes- I don't know-no			Yes- I don't know-no			Yes- I don't know-no		
3rd question									
I really like it	1	2	6	2	2	6	6	6	6
I like it more than I dislike it	2	3	3	2	3	3	6	3	6
I am indifferent	3	3	3	3	3	3	3	3	3
I dislike it more than I like	6	3	6	3	4	4	3	4	4

I don't like it	6	6	6	6	4	4	6	4	5
I can't say	2	3	6	3	3	3	6	3	4

Note: (Hernández Calzada, 2013)

The Group Satisfaction Index (ISG) is obtained using the following formula:

$$\text{ISG} = \frac{\text{A}(+1) + \text{B}(+0.5) + \text{C}(0) + \text{D}(-0.5) + \text{E}(-1)}{\text{N}} \quad (1)$$

Where: N is the total number of respondents and the letters correspond to the number of respondents in the categories indicated in Table 1.

The group satisfaction index can range from [-1;1], divided into the following categories:

Note: (Hernández Calzada, 2013)

Figure 2. *Satisfaction categories*

RESULTS AND DISCUSSION

The fishing activity in the town of Chimbote has historically been one of the fundamental economic activities due to its location on the Pacific coast, so it results in tradition. The fishing industry has mainly focused on fishing for anchovy, a fish commonly used in the production of fishmeal and fish oil. However, in recent decades, the fishing industry in Chimbote has faced challenges, such as overfishing and degradation of the marine environment. Despite these challenges, the fishing industry remains an important source of employment and economic resources for the city and its surroundings. The current transformations in science and technology, make these companies not stay behind, the implementation in ICT accounting systems, are proof of this as a way to improve processes and decision-making, as a means to maintain competitiveness and services to the population and trade.

Thecontrol tools, however simple they may be, are those that largely allow the integration of different areas, processes and personnel, allowing the company to move towards a more efficient and dynamic action in the face of both internal and external changes (Ríos, Londoño, & Jiménez, 2021). There are several studies that show that ICTs are used as a facilitating agent of socioeconomic consolidation (Albarracín, Erazo, & Palacios, 2014). In order to assess the benefits that the application of ICT has brought in the selected companies, a survey was applied to an intentional sample of the personnel who work in them within the accounting process. For this, the criteria of those members of the accounting processes department, who had the most time and experience in the company, were taken, taking as a reference more than 10 years in the job. The selection within the 15 companies led to the study being carried out with 41 accounting specialists.

Among the first characteristics to be analyzed of the selected personnel was the knowledge of the activity and the years of experience in their work, which could contribute to an accurate analysis of the influence on the accounting activity of the company from the application of ICT (Figure 3).

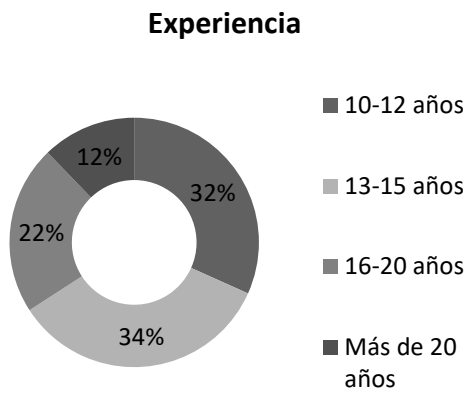


Figure 3. Experience in the activity of the selected personnel.

Source: Authors.

The level of activity of the personnel who work in the execution and control of accounting processes within companies, was valued as very high for the most part, considering they have to keep control of all activities, productions and the personnel who work in them (Figure 4). They are also of the criterion that the quality of the service, the criterion of the clients about the company and the satisfaction of all the workers, as well as the information that managers and administrators may have for decision-making at any time necessary, also depends on the quality of the accounting.

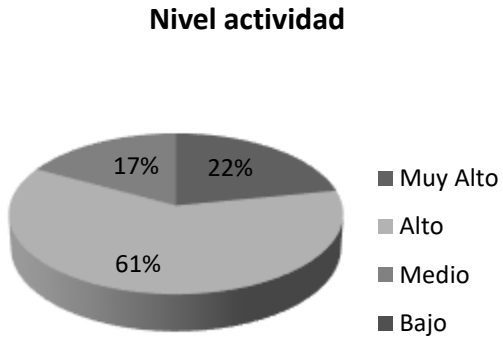


Figure 4. Level of activity by workers in the accounting system.

Source: Authors.

The accounting systems that are carried out in companies,previously had to be carried out by many people, required a large number of papals and accounts to be made, the time spent for the different operations was excessive and the processes could take longer than expected and even present delays, difficulties and errors frequently. The introduction of ICT to this system initially caused new difficulties due to the lack of mastery and knowledge (Figure 5), but as its application and mastery increased, the transformation in each of the processes developed was appreciable.

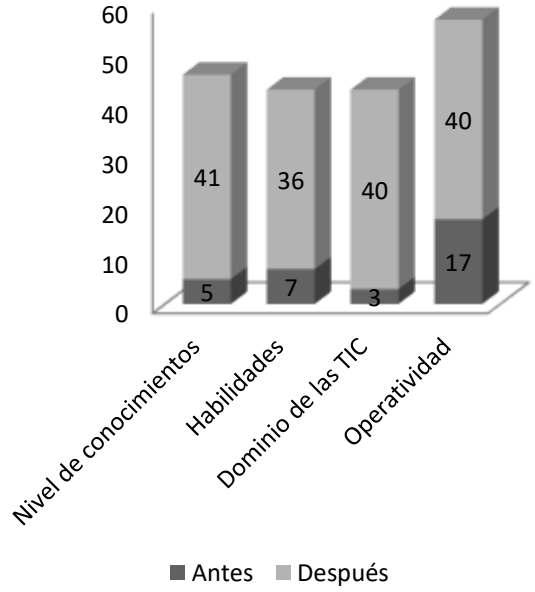


Figure 5. Preparation of staff in the domain of activity and ICT.

Source: Authors.

By making an assessment by them of the behavior of the company in terms of production, quality and competitiveness, before the application of ICT to the accounting system and after its implementation, it could be appreciable in the criterion of the same, as everyone considers that it was a significant step forward for their companies and the quality of the work as well as the humanization of it for the workers of this activity, the use of the day, among others. When requesting a comparison of the progress in the quality of production, services and competitiveness of each of the companies, the results shown in figure 6 could be observed, which shows the impact appreciated by the workers in the activity developed with the implementation of ICT (Each indicator was evaluated on an ascending scale of positive order from 1 to 5).

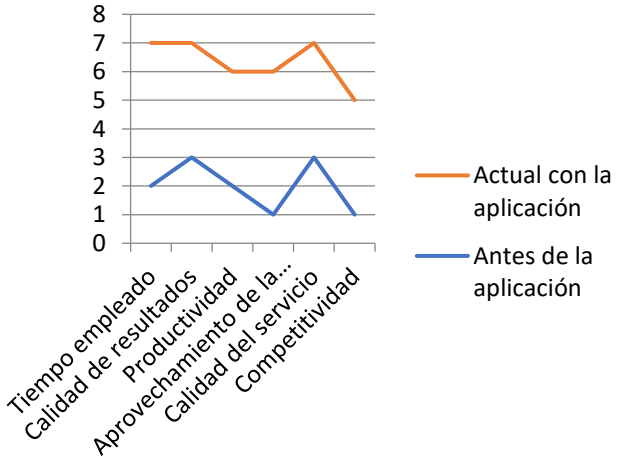


Figure 6. Average evaluation of activities in companies.

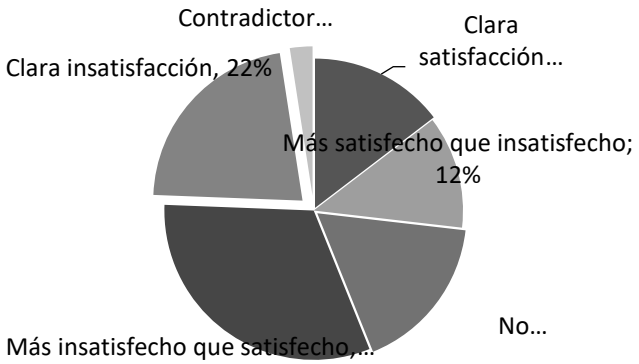
Source: Authors.

Once analyzed the results of the survey applied to specialists, we proceeded to the analysis of the level of satisfaction achieved with the applicationof ICT to the accounting system, for which we work with the same sample to which the survey instrument was applied, so that there was a greater comparative correspondence in the results. These results were processed in each of the companies applying the IADOV method (Table 3).

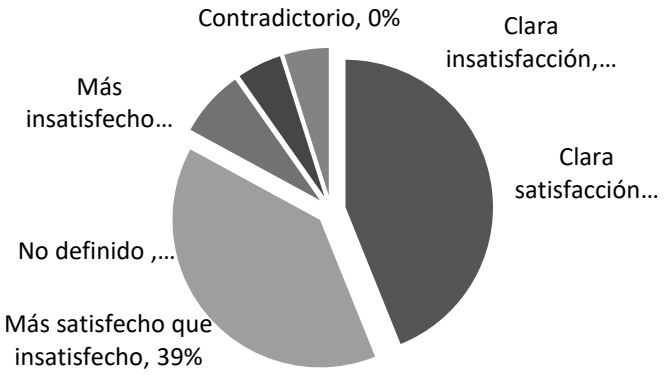
Table 3. Distribution of specialists according to satisfaction scale

Satisfaction scale	**Before application**	**Current with the app**
Clear satisfaction	6	18
More satisfied than dissatisfied	5	16
Not defined	7	3
More dissatisfied than satisfied	13	2
Clear dissatisfaction	9	2
Contradictory	1	0
Total	41	41
ISG	-0.171	0.561

Note: Own elaboration



Results before ICT implementation



Current results after the application of ICTs

Figure 7. Comparative graphs between respondents' perception

Note: Own elaboration

The analysis of the results obtained shows that the group satisfaction index achieved in workers reflects satisfaction with the application of Information and Communication Technologies to the accounting processes of companies, given that in this technique the range between 0.5 and 1 is considered as an indicator of satisfaction, so this result has been interpreted as a good level of specialists, with the activity that is carried out today in the accounting system through the application of ICTs. That is, they agree in majority that the work that is done contributes to achieving a good quality in the information, speed, humanization of the work and a better service to the client, although there are still some difficulties to work.

In the case of analyzing the results before the application of ICT to the accounting system of companies, the satisfaction index obtained was -0.1 71 which is in the category Not defined or Contradictory, which shows the dissatisfaction existing in most specialists with the work, due to its complexity, the difficulties that had to be faced and the excessive use of time for the development of the activity, a fact that is largely solved with the application of ICT to the accounting system.

The research carried out allows us to distinguish the double role that ICTs can play in companies; first, like any other type of capital, ICTs can be used directly as a production technology that improves labor productivity; second, as a transforming element of production processes (Rodríguez, 2017) , which facilitates improving the level of activity and quality in the processes and in this case, the accounting of the company.

The observation of the different accounting processes in each of the companies under investigation, the exchange with the workers, managers and main specialists in the activity by the level of experience in it, allowed to determine the difficulties that were previously faced for the development in any of the companies of the accounting system, which caused limitations and some deficiencies in the development of the same and their services to the client. At present, a totally different situation can be appreciated, where the staff is more satisfied with the way of working, the accounting processes are developed more quickly and effectively and this, in turn, improves the productive activity in the company, allows managers to make faster decisions and better customer service.

Information and communication technologies (ICTs) are central to companies' accounting systems for several reasons, including:

1. Improve efficiency: ICT allows you to automate accounting processes, which reduces errors and increases their speed

2. Facilitate access to information: ICT-based accounting systems allow users to access accounting information anytime, anywhere
3. Increase security: ICT allows you to protect accounting data through security measures, such as encryption and access control
4. Improve decision making: ICT-based accounting systems provide detailed and up-to-date information that enables companies to make informed decisions
5. Facilitate integration with other systems: ICT allows accounting systems to be integrated with other business systems, such as the inventory management system or the payroll management system.

In this sense, information and communication technologies are fundamental for the accounting systems of companies because they improve efficiency, facilitate access to information, increase security, improve decision-making and facilitate integration with other systems. The above elements make ICT have a significant set of impacts within accounting systems for companies, someof the most notable changes include:

- ICT has made it possible to automate many accounting processes, which has reduced the time and effort required to carry out accounting tasks.
- Achieve greater accuracy, as electronic accounting systems are less prone to human error and provide greater accuracy in accounting records
- Allowaccess to real-time accounting information, enabling more informed decisions
- Improved security by providing security measures to protect accounting data, including passwords, encryption, and automated backups
- Greater efficiency in reporting, since they allow to generate accounting reports more quickly and efficiently, which facilitates decision making.

CONCLUSIONS.

Business systems in today's developing world economy have been presenting systematic difficulties in controlling processes in the accounting system, which have repeatedly led to deficiencies in the production system and their economic progress. In this sense, companies are obligedto carry out increasingly efficient quality control and quality processes that allow maintaining sustainable production, with ample demand in internal and external trade.

The introduction of advances in information and communication technologies, within the accounting systems of companies, is a tool of innumerable value for companies, its potential facilitates workers and managers to achieve a path towards economic development in today's world and its competitiveness, as well as efficiency in customer service.

Information and communication technologies have significantly improved the efficiency, accuracy and security of accounting systems, which in turn allows companies to make more informed and effective decisions, through concrete and current analyses of the company's financial situation at all times.

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