



TIC in Organizations, New Tools for Sustainability

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ABSTRACT

In the environment of technological development of this era, innovation and access to information mark a gap between populations. The social conditions imposed by the pandemic marked a before and after in both the development and use of technology. New needs to abruptly transform a way of life are based on the possibility of adapting, for which tools are needed to actively participate in society with a new perspective, in this sense from TIC. Organizations in general face challenges to remain operational, but due to situations such as social isolation, the first problem to solve is how to connect the entire organization so that processes can be transformed to resume operations.

Keywords: TIC, sustainability, transformation

1. INTRODUCTION

Undoubtedly, the leap in communication technology and the transmission of information had the pandemic of 2019 as the main driver of development. Isolation posed a challenge to technology and telecommunications organizations, as well as to public policies. The need to remain in contact with the functioning of society despite the mobility restrictions and the isolation imposed by the pandemic generated a change of focus in the use of TIC, mainly because interconnectivity was summarized in entertainment platforms for the most part, and a small part in virtual education. (Cruz - Carbonel y otros, 2020).

This leap of possibly a generation in just two years brought with it advances in TICs that not only facilitated access to daily life, but from a remote location, be it education or work, but also revealed significant backlogs in the reach of TICs in different territories and populations. The social gap was much more evident due to the high demand for TIC access and the low coverage not only in the most vulnerable populations and in rural areas, but also in the precariousness of services that, until before the pandemic, due to the low intensity of use before the pandemic, it was not clear what the level of service or real access to TICs was. (Díaz - Vera y otros, 2021)

Organizations, whether public or private, faced in isolation the challenge of staying in operation through the use of TICs, combined with the absence of protocols for the use of technology as a basic tool. The feasibility of going into operation remotely was not previously analyzed, so during the attempt to remain in operations, organizations improvised on processes that people in different scenarios found very complex to comply with. In the public sphere, the policies of access to internet coverage fell short, as well as the proposal to return to classes virtually with the expectation of using mobile telephony, but the situation was very complex for teachers and students due to the unequal conditions.

In the business environment, organizations also presented an important differentiation between those that had a robust technological infrastructure and those that remained trapped in manual or analogous processes. The strengthening of organizations found a balance between adaptation to new TIC and changes in processes, a strategic difference to overcome the crisis of isolation as remote work opened a new form of process efficiency by comparing the functionality and routes of the processes of the collaborators with respect to time and tools necessary for their development.

2. TIC in Organizations

Business models undergo transformations as society advances. Innovation in more efficient processes encourages the development of new technologies. Just as an operating system requires better technology, the organization needs better ways to connect and feed back processes (Gutierrez - Prada, 2020) Organizational communication allows horizontal and vertical reporting within the organization, which advanced in line with the technology of the time. With the development of Social Media platforms, access to information is rethought and changes format, with this connectivity takes on a new definition and scope.

The use of TICs in organizations has gone from being general information mechanisms that were gradually being specified, to being a mandatory tool in the business environment. Both the public, private, business and educational spheres have undergone profound changes during the pandemic.

The frequent use of technological tools in the daily life of the new generations did not present a major challenge at the time of adaptation in organizations. However, more analogous generations were faced with a greater challenge, due to the need to update technologies as work tools. This situation presented a complex scenario in organizations because it raised the need to invest in TIC training for valuable personnel involved in operations.

This divergence in organizations not only focused on the business sector, but also affected the education sector, causing a generational clash between teachers coming from an era of paper and pencil and students with greater access to the use of technological tools.

Also the Educational System, besides maintaining its historical role of teaching content in areas, has been interested in finding techniques that facilitate the student to better understand each of them and to rely on didactic resources as strategies that enable the capture of ideas. (Muñoz - Hernandez y otros, 2020).

3. TIC outreach

Isolation presented various challenges to society, none was more adaptable than TIC connectivity. The change in the form and purpose of TIC use during the pandemic fostered new technological developments that had a greater impact on regions or populations with better access to the Internet. The education sector and the public sector of government or entities in this area represent the sectors that have the greatest resistance to adapting to the use of TICs due to the crisis. Connectivity between areas with little access to TICs and areas with coverage became the most visible problem left by the isolation.

In countries such as Colombia, which do not have their own TIC development and need to import, the gap between rural and urban areas widens in a situation of isolation such as the COVID19 crisis. The implications of transforming organizational processes come from the basis of leadership that focuses on balancing changes in the use of TICs with processes in an environment of innovation systems. (Gonzalez - Castro y otros, 2021)

The high costs, difficult access and lack of technological focus in organizational practice, means that processes based on TICs are not developed in all areas. Urgent measures such as virtuality for the return to work or education were based on simple technologies that only allowed basic communication, such as the use of the WhastApp application, while other countries developed software, coverage and network power. (Pilliza - Luguana & Parra - Iñacasha, 2022)

Internet access marked a line between the services provided by cell phone companies and the reality of the coverage they received, it became a turning point for organizations, because modalities such as remote work were limited to the possibilities that people had. An overview of this situation was presented in the great difference between major cities and municipalities and rural areas, where the efforts to remain an active participant in society were greater due to limitations to TIC access.

4. Organizations and TIC overloa

A major challenge at the time of the need to move life to virtuality was the coverage capacity and power of tics globally, with more visible repercussions in countries like Colombia, with little infrastructure and scope of TICs. Organizations require specialized and differentiated channels to operate through TICs. An educational institution, for example, needs video conferencing channels to move the classroom to the student's device, while an industry needs platforms for communication with large information support and in specific formats. (Cruz - Carbonel y otros, 2020)

The initial limitations in the use of TIC as a mechanism for the return to operations of organizations were quickly overcome due to the accelerated growth of technology development prior to the pandemic. Without the advances made at that time, countries with such a precarious TIC infrastructure as Colombia would have faced a greater challenge.

During the adaptation to the new models based on the use of TIC, organizations found in their adaptation the opportunity to transform themselves based on the efficiency of processes. (Manzano - Duran y otros, 2021) Thus, TICs offer a tangible set of tools to help on multiple fronts not only within the organization, but also enable a positive change at the social level by increasing access to TICs in society.

The development of TICs made it possible for many economic activities to be active during the isolation and restrictions due to sanitary measures. Similarly, in the post-pandemic period, technologies are expected to become a significant tool for improving living conditions and productivity in different sectors. The pandemic led governments to include digital wellbeing, i.e. digital connectivity, in their social agenda, which also revealed the errors, successes and shortcomings of public policies.

"Information and communication technologies support and shape the competitive strategy in a business unit by contributing to the achievement of the strategic objectives set, as well as allowing the company to improve its ability to increase performance and productivity over its competitors, based on costs, quality and speed of response (Callon 1998, Newman 1994). Indeed, all this new action that generates significant changes in society has an impact on the organizational environment, as Mujica (2000) states, when considering that the transformations and advances that arise in information and communication technology activate in organizations a vision different from the traditional one, which mobilizes them to access knowledge, to manage quickly and independently in interactive environments, to develop new forms of business and to interact with their customers and suppliers" (Mujica, 2000). (Pacheco & Rodríguez, 2019)

Therefore, It is important that companies opt largely to the fact of satisfying what the consumer needs and demands, since currently workers have an extensive view of the labor market, due to the analyses carried out in addition to the value per product; therefore as it is known the customer is more

sensitive in relation to companies with socio-environmental responsibility, since this deduces trust, attracting more clientele and monetary profitability to the organization. (Pacheco- Sánchez & Rodríguez -Téllez, 2019)

5. RESULTS

In today's business world, the technological environment is very important and is increasing due to the pandemic, as these digital media helped several companies not to collapse due to the crisis. For this reason below are some of the advantages that brings its implementation in organizations; one is that they help to reduce errors in procedures and thus increases the performance of the company; facilitate the use, management and access to information through software, making its competitiveness increases in the market; also generates evolution and innovation; optimizes time, reduces costs and improves processes; provides security and confidence to customers; enables users to have a closer relationship with the company; strengthens corporate brands through advertising in media such as social networks; also benefits internal communication between areas and departments of the same; they are very useful when making decisions. (Atik, 2022)

"In Colombia there are more than 209 thousand teleworkers, a figure presented in the sixth Perception and Penetration Study in Colombian entities conducted by the Ministry of TIC through the Single Fund of Information Technologies and Communications - Fondo Único de TIC at the end of 2021. Today, 4 out of 10 of entities implement telework, this represents a penetration 41% higher than what it was in 2019, which was 38%, when the previous study was done." (Ministerio de Tecnologías de la Información y las Comunicaciones, 2022)

According to information revealed by the DANE or National Administrative Department of Statistics, with respect to the Information and Communication Technologies sector, the participation that was registered was of an approximate 3.8% to the national added value, but this participation was more active in the year 2020, since its percentage was 4.0%; therefore, the additional benefit of said sector, obtained \$40.2 billion and achieved an increase of 10.1%, comparing it with the year 2020 where it was 36.5%. According to the economic activity, the TIC sector reached a participation of 44.2% in telecommunications, 34% in IT services, 12.4% in commerce, 7% in media content, 0.5% in manufacturing and 0.3% in infrastructure and TIC resources. (Acosta Argote, 2022)

TICs are currently very relevant in several social areas, as expressed in the SMARTer2030 report, which is the follow-up report to the 2012 SMARTer2020 publication; It assesses the economic, social and environmental opportunities created by the innovative use of information and communication technologies in sectors such as food, energy, health, education, industry, mobility, labor, business and home. (ON24, 2022)

According to the SMARTer2030 study, certain results were revealed where it was concluded that technological means help to mitigate carbon dioxide emissions by 20% in 2030 to keep them at 2015 values, and the report also states that the expectation regarding global radiation from these tools will be reduced to 1.97% in the same year and not 2.3%, which is the current forecast. (ON24, 2022)

The most important benefits provided by TICs in the environment are an increase in agricultural production, annual savings of oil and liters of water; according to the economic aspect, it is shown to be profitable for 2030, since it will be able to generate more than 11 trillion dollars a year; it will also contribute to knowledge by offering all the necessary tools for virtual learning; it also strengthens the business world, connectivity and innovation in business. (ON24, 2022)

Considering the above, triadic thinking reflects the cerebral structural existence for the conformation of work teams as a cooperative learning process to maximize their own learning and that of the others. (Lemus - Quintero, 2021).

6. CONCLUSIONS

Opportunities present themselves in crisis situations, and the best advances are achieved on the verge of failure. In a situation as complex as the pandemic crisis, different situations faced society, but none as challenging as the problem of the continuity of social functioning from the limitation represented by a quarantine and health restrictions on mobility.

TICs in their daily use before the crisis, allowed a momentary interaction and with low investment platforms to support a massive use as it was presented with the pandemic. Virtuality modalities such as in the educational sector did not present major changes since they had the infrastructure, but in the administrative sector the remote work modality had problems with the change in the organizational climate.

Undoubtedly, organizations undergo transformations over time, as they adapt to advances and new needs. However, such a complex crisis forced in a short period of time a leap in the transformation according to the requirements based on the possibilities of development and sustainability offered by TICs.

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