Digital transformation and human capital: the resistance to change in the use of Information Systems

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ABSTRACT
Many digital transformation projects in organizations fail due to the resistance to the change lead by the human resources that, as end users, present themselves as opponents to new processes, systems or digital applications, putting in risk the whole investment in new systems. Human capital is assumed as being key factor in the success of any digital transformation project, so the purpose of this paper is to propose a strategy to help solving this problem, or minimize the effect of resistance to change. It will be conducted a case study in an organization with the goal of studying how the company deals with Digital Transformation processes and adoption of new digital artifacts. Since the digital tools are means for the realization of processes, it will be developed a study of concepts and methods in the area of organizational architecture, in order to understand how the organization under study is organized and how it deals with process mapping, execution of tasks or information processing.

Author Keywords
Digital Transformation, Human Capital, Organizational Change, Resistance to Change, Human Resources.

1. INTRODUCTION
We live in the age of digital transformation, where society and technology evolve faster than the ability of people (human capital) and organizations to adapt to new work processes. Disruptive technologies affect the market and the dynamics of how companies operate. From mobile applications to cloud computing to real-time digital marketing, technology is advancing at an ever-increasing pace in recent years. At the same time, companies strive to remain competitive and responsive to their customers' needs, and the customer is the focus of the organization's entire strategy of positioning, marketing, and strategy. The organization is motivated and obligated to the ever more competitive and constantly evolving technological and digital environment, to look for new ways of doing business, to manage its processes, to define its organizational structure, and to manage its human capital, in the objectives to be achieved and the satisfaction of its market. [1]

2. PROBLEM AND GOALS
Organizations that already have information systems and a digital culture are always looking for new sophisticated, effective and efficient digital solutions that allow to reduce costs and maximize the results; and organizations that still have a lack of digital culture or tools, seek to implement new solutions to achieve better conditions to compete and offer their stakeholders the best offer of products and services, and maximize results. The market is very active in the adoption of new digital tools and work artifacts, we are living the era of Digital Transformation. But is it enough to adopt new digital tools without leading an organizational process to understand how human resources will react to this new tools?

The success of adopting new technological and digital artifacts depends on how the change management process is lead. Organizations have an cultural habit of giving priority to aspects related to organizational and IT governance, not giving importance or devaluing the role of human resources in this process. They do not not take into account the impact that change will have on people, the management of human, behavioral and cultural factors. [2]

The organization's employees, who in most cases are seen as "machines" of the organization, should be seen as a social group with relevant importance for the efficiency and effectiveness of the organization's operation. The involvement and participation of employees in the process of change should be promoted, shared: the origin of the process and change, objectives, norms and values involved, so that employees feel informed, involved and committed to the goals they will have to achieve. [3]

In this paper, we present the results of a study of the organizational change processes, in order to ensure the successful implementation of the organizational change process in the adoption of digital or technological tools or artefacts. [4]

The main goal of this research is to present a proposal of action to deal with the problem of resistance to change by human resources in the adoption of new digital artifacts or information systems. It is intended to study the factors that trigger behavior of resistance to change in processes of digital transformation by the human resources of the organization. To this end, organizational behavior will be studied as a system of interactions between the various human actors, in harmony with machines, processes and input from abroad.
3. **METHOD**

This study intends to evaluate factors as the importance of the human factor in the organization, and how the organization manages the use of the employees of its digital tools scenario. It is also intended to perceive the motivations that the employees have about the digital scenario of the organization.

A case study was developed in an organization, in order to study: its organizational structure, its leadership structure, digital tools use by human resources, form of work organization and methods, and factors of resistance to change. It is used the interpretative method to measure the results of this work. It was select a panel of stakeholders from the organization involved in the transformation process, and participants in this study, as a representative panel of the organization's human capital, selecting key functions that influence the success of the transformation process.

To develop this study: i) it was conducted an observation work of 5 months in the company; ii) a digital tool was implemented in the organization so that you can be evaluated if the team has a tendency to resist change, or if they adopt new digital tools easily; iii) some key profiles were identified in the organization to whom was conducted an interview about the digital scenario and organizational structure. The main goal of this work is to answer the question: how to prioritize people, the human resources of an organization, in the implementation of new information systems?

4. **RELATED WORK AND CONCEPTS**

Information technology is a crucial tool for a better coordination of value chain activities, considering its ability to increase the capacity of companies and organizations to explore their internal and external activities, and integrate its various Information Systems. In this context, the ability to manage possible resistance to change is a critical factor for the success of the implementation of new Information Systems. [5]

Organizations feel the need for change when they are confronted with eminent needs and urgencies imposed by the environment where they are inserted. Nowadays market changes are becoming faster and more constant, that is, this need tends to increase. Information Systems should respond to the needs of the organization, but also be adequate and prepared for the needs of the end users, since a good experience of use will increase the benefits for the organization.

Major changes in organizations are usually provided by the adoption of new production techniques, such as the insertion of new Information Systems, and by the combination of external forces, such as market action and competitive requirements; and internal forces such as changes in organizational forms, work management, and organizational direction. [6]

During change processes there are difficulties in breaking paradigms, changing and creating new behaviors, changing attitudes. The most successful changes happen when people are prepared for them, and it presupposes something new, out of their comfort zone. The human being, of his nature, tends to resist everything he does not know without having information available that allows him to feel secure with new paradigms. Uncertainty and attachment to the model to which he is accustomed makes the human being feel psychologically affected, provoking fear and generating resistance. [7]

The Digital Transformation process is when the organization grows from its "Business as usual" state, to a state of innovation with a digital transformation project, six stages or stages of development of this project should be considered. The six phases are: business and usual; present and active state; formalization; strategy, convergence; innovation and adaptation. All this stages defined are elements of the digital transformation, from the current state of the organization "as is", to the desired state of digital maturity "to be". The new state of "digital maturation" requires the multidisciplinary involvement of all stakeholders, so that all areas of the organization develop in a stable way to receive the new processes and artifacts for their daily activity, aligned with the business strategy. This makes the organization able to make its activity more agile, innovative and competitive digitally. [8]

Digital transformation is an external agent impossible to stop or ignore, the market expects an increasingly effective response from companies and their products and services to their needs. For this, the organization will have to be able to form, attract and retain human capital capable of understanding the consumer of the digital age, and capable of using the digital tools essential for their productivity. [9]

The Enterprise Transformation Assessment (ETA) framework aims to provide a general understanding of Enterprise Transformation (ET) relating to the adoption of technological artifacts, focusing on changes in organization, associated benefits and engagement of human capital in the context of change. In order to apply this framework, there must be a transformation process underway, with the intention of transforming the organization around an objective. [4]

The ETA framework was designed to be used at the level of operational transformation, where there is concern about and evolution of the TE process in everyday life. This level concerns the actual work where the transformation will have its effects. All stakeholders should have an understanding of the organization and its entire internal and external system, have all the clear information on the changes that will be exposed with the transformation process and corresponding benefits. [4] It is essential to align the objectives related to transformation, to clarify goals and incentives. [3]

The Organizational Self Awareness (OSA) model can be used as an intervention model to ensure the effectiveness of organizational designs. The role of enterprise modeling is to improve the organization's active synchronization between Human and Non-human (machines or others). The Enterprise Architecture (EA) provides integrated concepts for the description of the organization from several points of view, through models with a high level of abstraction, only can be interpreted by people. The definition of the concept of Organizational Self-Awareness (OSA) aims to elaborate a
The company presents a culture of work without bureaucracies or defined work templates. A structure with a fairly large degree of freedom and too flexible as to the organization of tasks, documentation or reporting. The company has very few defined routines. There are no standard operation procedures - rules, procedures, and practices designed to facilitate organizational processes and simplify tasks.

The only policy documentation, or recurring procedural situations, is dispersed across multiple e-mails regarding one-off situations. Organizational culture is based on rigid compliance with schedules and labor law. There is a monotonous working environment and merely led by the work processes; without coexistence between the team, and without moments of leisure. Team-building strategies are not promoted in the team nor stimulated moments of coexistence. Extra-personal relationships are not encouraged among team members.

The organizational information is dispersed by several digital tools. It where identified more than seven relevant platforms, in which depends the normal company activity,. The team uses a large number of digital artifacts with multiple interfaces, multiple isolated databases, and several different platform-to-platform procedures. There is no centralized information system in the company, no defined process mapping that guides tasks, information flow, or supports employees to guide their work. Decision-making in the organization is not supported by scattered information handling across platforms. There is no strategy to involve human resources in the company's mission, so that they feel involved in ongoing innovation processes. Each employee is not aware of his "space in the organization" nor does he feel that he has been informed of his objectives and factors that will define his performance evaluation.

During the execution of this case study, a small process of digital transformation in the Internal Communication of the company was implemented, in order to solve problems of direct communication between the team during working hours and increase employee motivation. The whole team easily adhered to the new tool. The only person who did not initially adhere to this new tool was the CEO, being an obstacle to facilitate the communication between the entire team, and retaining crucial information. Surveys were conducted for three people with high responsibility in the company, where the digital tools have a high impact on their daily activity.

Despite the high degree of innovation and research in the area of footwear and clothing, in the the actual or "As Is" state to the company were identified internal problems that affect productivity and team performance, such as: organizational disorganization, no mapping of roles, no clear definition of responsibilities or respective tasks; no process mapping; communication gaps in ongoing projects - loss of...
information and not communication to the team about the status of projects; high volume of formal communication distributed by several emails and two task management tools and clients with unsynchronized information; instability in the team, with a very high turnover rate, and notorious demotivation of employees; difficulties in the management of client accounts given the dispersion of information by various tools; absence of a global database where all organizational information is recorded and easily accessible; high reliance on the decisions and command orders of the CEO, who controls all the operation and processes.

The main goals of the company, the “To Be” state, are very ambitious. They include a rapid growth in the international supply of a complete uniform to several transports companies and establish a strong logistical platform to increase the capacity of selling a large number of goods per day, and retain clients in the long term. The company has high financial goals and expects the team to be able to achieve them.

6. PROPOSAL OF A NEW DIGITAL TRANSFORMATION PROCESS

After the analysis of this case study, it was concluded that the current state of the organization, “As Is” state, is not favorable to become possible the achievement of its future objectives, the “To Be” desired state. The organization is not, at present, endowed with all the resources - human, physical and technological - in order to achieve its goals. So there was presented a proposal for a new process of digital transformation that could offer better conditions and organizational coordination, to become to reach the future state, to which the company intends to arrive. It was proposed the development of a new digital tool, an integrated information system.

Since the motivation is directly related to the fulfillment or non-fulfillment of individual goals, in the absence of recognized individual goals in the company, the demotivation for the performance of the work can be seen as present in the daily life of the company. People present a difficulty of interaction with each other, the work environment is monotonous and is based on the accomplishment of tasks with short-term impact. The high tax of turnover in the team demonstrates this fact. People end up leaving the company, and the know-how of this employee is lost. After observing the behavior of the team, it is concluded that employees will tend to easily adhere to new digital artefacts to replace processes, that are now carried out using physical tools.

The Organizational Self Awareness (OSA) model should be used in order to design an intervention model to ensure the effectiveness of organizational processes. Through an organizational architecture study, could be designed the future model that the organization needs to achieve its long term goals.

It was proposed the development of a new integrated information system that allows the design and implementation of a new work cockpit dedicated to each function / profile in the organization. This cockpit would guide the work of each employee, guiding tasks due to integrated processes and best practices. It would be possible to have a central and unique database with organized information. It would be possible to have agile team workflows, better control in the product delivery, better internal communications and integration within tasks and people, and in the end, better results and more costumer satisfaction due to a better service.

This tool would make it possible to innovate the work of each collaborator, simplify the dozens of tasks that are carried out today in different platforms, register information and documents in one database, easily to access.

This solution allows each employee to know his or her “place” in the company, meet his personal goals and understand the impact of his or her job in the achievement of the global company goals. The personal achievement would be adding value to a bigger goal, which is the common organizational goal, a team goal. This would lead to a higher motivation within the team, a more effective daily activity and would become possible to achieve the organization main goals in the long term.

This new information system also allows a better management and finance control, the decision could be supported by the analysis of updated and integrated information. It would be possible to define key performance indicators (KPIs), easily monitored by dashboard interfaces in this new system.

7. CONCLUSIONS AND FUTURE WORK

The growing market in terms of new digital tools is notorious nowadays. The large offer of different digital tools tends to make that the organizations adopt several digital artifacts. But adopting a large number of digital tools may not be what will give the company more conditions to have better performance. If there is no well-defined organizational structure, with clear descriptions of jobs, functions and positions in the company, focused in human resources.

The case study developed in a portuguese company demonstrates the great importance of organizational self-awareness and the high impact of employees motivation in the company's daily activity and performance. It was presented a solution of a new digital transformation and development of a new information system.

In terms of future developments in this work, complementary studies in the context of portuguese small and medium companies may be carried out in order to understand if this company profile is within the regular profile of national companies, or if it is a deviation from the standard.

In summary, it is recognized the importance of analyzing the organizational context of a company, focusing on people and their roles in the organization, before the adoption of new digital artifacts of information systems. Factors of resistance to change can be anticipated, if it is studied the organizational context and the way the company is organized in terms of people management and process mapping. The organizational analysis and profile design of the "as a whole" allows an insight into its dynamics in terms of the use of digital artefacts, or of adherence to new tools in digital.
REFERENCES


