Government of information technology and organizational culture in application of management and management processes

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Abstract. The constant changes in the business environment force managers to propose strategies aimed at continuous improvement, strengthening the objectives of the organization and its alignment with new technologies; It is here that the relationship between the performance of the information technology government and the organizational culture arises; Generating the intention of this theoretical approach that is framed in analyzing and interpreting the influence of organizational culture in the application of information technology government in the “Universidad Francisco de Paula Santander, Seccional Ocaña”. The information technology government represents a wide area of corporate governance, being necessary to ensure the alignment of the strategies and objectives of the organization as described by the information technology governance Institute; It should be noted that the first principle of COBIT 5 implies the satisfaction of the interested parties, which include the human talent of the organization, therefore there is a close link between the human factor and the performance of the information technology government, finally it is sought to unveil how the organizational culture affects the performance information technology governance within the institution of the “Universidad Francisco de Paula Santander, Seccional Ocaña”.

1. Introduction
The definitions provided by the literature on organizational culture (CO) are broad, perhaps the most welcomed is that provided by Edgar Schein, the well-known father of organizational development, who describes CO as: “answers that the group has learned about their subsistence problems in their external environment and their internal integration problems” [1], in practical terms the organizational culture describes the environment in which people work and the influence it has on how they think, act and work experience [2]; On the other hand, in the global context, the achievement of business objectives contains an important component of the information technology (IT) capacity of an organization [3], with the implementation of IT governance, companies seek to generate value for processes [4], in addition to allow the alignment of its mission objectives with the information technology resources; With the development of this project, we seek to structure an evaluation model that allows us to reveal the incidence of organizational culture in IT governance, which will be validated in the “Universidad Francisco de Paula Santander, Seccional Ocaña”. In effect, the organizational culture defines the development and implications of the success or failure of the institutions, leaving behind a wealth of knowledge and strategies that demarcate the actions and therefore the direction of the institutions according to the administration and organization of the institutions. plans and programs that are executed
within the mission and vision in the case of the “Universidad Francisco de Paula Santander, Seccional Ocaña”.

2. Methodology
This developed project uses a mixed paradigm that allows us to take advantage of the benefits of a qualitative and quantitative approach, since, in the first place, the methodological intervention mode allowed an interpretation of the study phenomenon, supported by the results that have been taken from the managerial level, said analyzes and interpretations are accompanied by a quantitative analysis that is implemented when measuring the impact of the model to be implemented. Subsequently, the population and the sample are presented, together with the validity and reliability and the collection and analysis of the data, which allows to establish behavioral patterns regarding the analysis of the information collected [5], in the same way in this way, it is expected to prove the validity of the model proposed through the case study of the “Universidad Francisco de Paula Santander, Seccional Ocaña” as an institution of higher education. That without fear of error leaves traces and strategies applicable to improvements concerning IT governance based on an adequate direction that generates development, progress and well-being.

3. Developing
Every organization should be seen as a system composed of multiple variables that encloses each of the systemic phases (input - process - output), which converge with internal and external factors in search of increasing work efficiency, achieving goals of the business and the objectives associated with continuous improvement [6], studies carried out show the organizational culture as a success factor for the positioning of the different companies, since as described by Warrick [7], it is closely related to its performance, the productivity of its employees, the ability to attract and retain quality human talent, among other factors that drive the efficiency of the organization; in the annual report presented by Fortune “100 Best companies To work for de fortune” the opinions of a large number of employees are presented, who anonymously state information about the culture within their workplaces [2], showing the organizational culture as an element of success, in his article “Climate and organizational culture: two essential components in labor productivity” [8], describes the elements that make up the work environment as well:

![Figure 1. Determinants of the work environment, adapted from [8].](image_url)

Each of the elements described in Figure 1, represent factors that affect the organizational climate of a company, leading each of the employees to take certain behaviors and these in turn will be reflected in the activities developed by the organization, the sense of belonging to it and finally its effectiveness and effectiveness which translates into the identification with an organizational culture, the Doctor of Social Psychology Edgar Shein proposes an organizational culture model in which three levels of culture are involved [9] which are connected and form the beliefs and assumptions of culture [1], Figure 2 shows
the model proposed by Shein, which reflects the set of basic assumptions that give way to the experimentation of events within the groups and the way they respond to their internal and external problems, this being the very essence of the organizational culture.

![Organizational culture model, adapted from [9].](image)

Figure 2. Organizational culture model, adapted from [9].

The literature allows to identify different types of organizational culture, in the model proposed by Cameron and Quinn the “Competing values framework” developed by the same author is designed as a reference to design the “Organizational culture assessment instrument (OCAI)” an instrument that allows the valuation of organizational culture in four types of culture [10]: starting from flexibility, where referential aspects converge that complement the external plane and that are then regularized by control and monitoring, without ruling out the internal plane that is the basis for the generation of changes and transformations.

![Typology of organizational culture, adapted from [11].](image)

Figure 3. Typology of organizational culture, adapted from [11].

Figure 3 identifies the types of culture [11], the culture called Clan also known as group or family culture identifies a group of employees who carry out their activities in an environment of camaraderie and affinity, the individuals of this group are similar to a large family where management levels are associated with the paternal relationship, show high concern for the client and value teamwork; While the hierarchical culture refers to a work environment with a clear structure with well-defined processes and tasks, its main objective is reflected in long-term stability generating performance in everyday operations; the rational or market culture is associated towards obtaining results, its main objective is the delivery of results in an established time, adhering to a high degree of competitiveness; Finally, in
the culture of adhocracy, creativity is promoted, risks are taken to try innovative solutions in the face of constantly changing situations, based on the growth of the products or services offered [4]. Bearing in mind that these elements become indicators that define the production of institutions based on their innovation and impact on society.

The IT government has been present in the research carried out by the scientific and academic community, seeking to incorporate its components in which to make organizations as a strategy for the acquisition of value by senior management; the study of IT governance has been established as the key discipline to face the challenges that arise when generating integration between information technologies and the objectives and goals of the organization [10]; IT governance can be defined as a set of policies, processes, roles, responsibilities, aimed at managing the adoption and implementation of information technologies in accordance with business objectives [11]. Within the globally accepted frameworks for IT governance, the information systems audit and control association (ISACA) and the IT governance Institute (IT GI); COBIT proposes a benchmark for government and information technology management that has evolved since its creation in 1996 which “brings together a series of best practices aimed at the control and supervision of information, information technology and related risks, their guidance helps organizations implement effective governance throughout the entire IT company” [12], in the 2019 version it hosts decades of research in the area in addition to the experience of the knowledge acquired in practice, which suggests the relationships of human capital with the components of the IT government; aspects reflected in the following Figure 4:

![Figure 4. Government components related to human capital.](image)

According to [4], IT governance is not a process that develops in isolation, but instead suffers from the environment in which it is executed in Figure 4, two of the components of a system of Government according to COBIT, which are related to human talent and culture within the organization; in [13] mention is made of the holistic vision that COBIT presents as a strategy to generate the correlation between the IT government and the aspects related to the culture of the organization, likewise in [14] it is affirmed that each of the levels of culture affect what people do and therefore the development of the activities of an organization carrying out an information exchange task for the prevention of errors; in this way it is possible to [15] indicate that culture has a degree of influence on information systems and the correct performance of IT governance. In the research carried out by [16] it is shown how the Chinese culture keeps the dialogue and the participation of the collaborators isolated by valuing the information as a personal benefit, the adhesion to this culture of individual character generates an impact that can vary from positive negative as the case may be, this type of culture does not allow fluency in teamwork or interaction between employees in the IT area making it difficult to make decisions in the organization [17], in the same way a culture is identified that tends for respect and to remain unmoved in the face of changes which is known as "culture of harmony" [18].

The study carried out by [19] highlights the importance of the role of leaders in the IT area to raise awareness about ethics and a culture of compliance that allows employees to feel motivated to establish a loyalty bond with the organization as well to facilitate decision making and the relationship with IT governance; Meanwhile, the research carried out by [20] in a utility company in Thailand, reveals the
benefits present in the communication between the managerial levels and IT operators due to the closeness between the employees and the common fraternity between the team. This indicates that teamwork strengthens work that seeks well-being according to the demands made to maintain the work group.

4. Conclusions
The “Universidad Francisco de Paula Santander, Seccional Ocaña”, has almost 7,000 students between undergraduate, postgraduate, distance, virtual modality and continuing education; For these processes there is a plant of 416 full-time, occasional and teachers and with administrative support of 420 workers of different modalities. Additionally, there are three missionary processes, academic management, research and extension; eight support processes: University welfare management, human management, telecommunications and technology information system, administrative and financial management, communications management, general secretary, admissions registration and control, infrastructure and maintenance; strategic processes such as management and planning; Evaluation and improvement processes: Internal control and integrated management system. According to the research carried out in the different processes, two predominant cultures that are clan and adhocracy are evident.

In the same way, we can see that each of the cultures is defined by the actions and the links that they have among themselves to generate management and management elements that impact the development, progress and well-being of the university; Reflecting on teachers, administrative staff and therefore on the students that are the backbone of the institution, with the implementation of the strategies derived from the IT government, it opens the way to an application model that guarantees the well-being of the university community in general.

References
[1] Pedraza L, Obispo K, Vásquez L, Gómez L 2015 Cultura organizacional desde la teoría de Edgar Schein: Estudio fenomenológico Clio América 9 17
[2] Warrick D, Mueller J 2015 Lessons in changing cultures: Learning from real world cases (New Zeland: RossiSmith Academic Publications)
[3] Jhosi A, Bollen L, Hanssink H, De Haes S, Van Grembergen W 2018 Explaining IT governance disclosure through the constructs of IT governance maturity and IT strategic role Information & Management 55 368
[4] Parisa A, Lazar R y Shengnan H 2016 The Influence of organizational culture on IT governance performance: Case of the IT department in a large Swedish company 49th Hawaii International Conference on System Sciences HICSS (Koloa) (New York: IEEE) p 5157
[5] Satidularn C, Tanner K, Wilkin C 2011 Exploring IT governance arrangements in practice: The case of A utility organisation in Thailand Proceedings of Pacific Asia on Informatics Systems PACIS (Ho Chi Minh) (Vietnam: AISel) p 1
[6] Lapina I, Kairisa I, Aramina D 2015 Role of organizational culture in the quality management of university Procedia Social and Behavioral Sciences 213 770
[7] Warick D 2017 What leaders need to know about organizational culture Business Horizons 60 395-404
[8] Salazar J, Guerrero J, Machado Y, Cañedo R 2009 Clima y cultura organizacional: Dos componentes esenciales en la productividad laboral ACIMED 20(4) 67
[9] Schein E 1998 La cultura empresarial y el liderazgo. Una visión dinámica (Barcelona: Plaza & James Editores)
[10] Vivanco J, Franco R 2012 Los tipos de cultura organizacional y el rendimiento de las pymes en Aguascalientes XVII Congreso Internacional de Contaduría Administración e Informática (Mexico: Universidad Nacional Autónoma de Mexico) p 1
[11] Cameron S, Quinn R 2011 Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework (New York: John Wiley & Sons)
[12] Bounagui Y, Mezioui A, Hafiddi H 2018 Toward a unified framework for cloud computing governance: An approach for evaluating and integrating IT management and governance models Computer Standards & Interfaces 62 98
[13] Shaker A, Abdelbaki N 2014 A New Cloud Computing Governance Framework Proceedings of the 4th International Conference on Cloud Computing Service Science (Barcelona) (New York: AMC) p. 671-78
[14] Camargo H 2017 Marco de gobierno, gestión y arquitectura de TI para el diseño e implementación de sistemas de información en entidades públicas colombianas (Bogotá: Universidad del Norte)
[15] De Haes S, Van Grembergen W, Debreceny R 2013 COBIT 5 and enterprise governance of information technology: Building blocks and research opportunities Journal of Information Systems 27(1) 307
[16] Leidner D, Kayworth T 2006 Review: A review of culture in information systems research: Toward a theory of information technology culture conflict MIS Quarterly 30(2) 357
[17] Parisa A, Lazar R, Shengnan H 2014 The influence of culture on IT governance: A literature review 47th Hawaii International Conferences on System Sciences (Waikoloa) (New York: AMC) p 4436
[18] Zhong X, Vatanasakdakul S, Aoun C 2012 IT Governance in China: Cultural fit and IT governance capabilities Proceedings of Pacific Asia on Informatics Systems PACIS (Ho Chi Minh) (Vietnam: AISeL)
[19] Janssen L, Luciano E, Testa M 2013 The influence of organizational culture on IT governance: Perception of a group of IT managers from Latin American companies 47th Hawaii International Conferences on System Sciences (Waikoloa) (New York: AMC) p 4485
[20] Ali S, Green P, Parent M 2009 The role of a culture of compliance in information technology governance International Workshop on Governance, Risk and Compliance GRCIS’09 (Amsterdan) vol. 459 (Netherlands: CEUR Workshop Proceedings)