

Organizational Culture - Promoter of Technological Innovation and Sustainable Development

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Abstract

As it is more and more included in socio-economic life's area, sustainable technology has become a competitive advantage for organizations with a relevant performance. The paper proposes, based on a specialized literature systematic review, a study of the ways through which organization can integrate innovative sustainable development policies in various fields within the organizational culture. The topic addressed is one of maximum interest for the business environment, so the research attention to these aspects is constantly increasing. The transition of the organizational culture towards a digital culture, by promoting a responsible leadership, results in the appreciation of the final performance through the filter of sustainability. The outcome obtained from this study have both theoretical and managerial implications, the organizational culture representing one of the main pillars of the company's orientation towards digital innovation and sustainability.

Key words: organizational culture, technological innovation, sustainable development management, social responsibility, organizational change

J.E.L. classification: M14, M15

1. Introduction

The sustainable development that characterized the beginning of the third millennium is a subject that has enjoyed a growth at an overflowing rate, becoming from a simple desire (WCED, 1987) a condition sine qua non for organizations committed to respecting the values of the organizational culture directed towards sustainability (Enquist et al., 2007; Epstein M., 2008; Ihlen & Roper 2014). Such organizations that have chosen to protect, support and permanently improve relationships with human, capital, technological or financial resources in accordance with innovative and sustainability requirements become development models with multiple economic advantages. This business model represents an intelligent method of solving all kinds of challenges of an economic, social, ethical, personal or environmental nature. Although innovation is associated with progress and novelty and sustainable development plays an essential role in maximizing performance and increasing reputation (Dinu, 2010), managers' access to the "ingredients" of success that facilitate change within their own organizations is quite limited. Changing visions, missions, values, beliefs, behaviours, plans is the starting point in connecting to sustainability principles. Organizational culture (OC) is the one that creates the bridge between the national culture and the individual culture of its members who, in turn, adapt the elements of national culture to the specifics of the activity and act as an interface of the other organizational elements (Mansour et al., 2022).

Within this new competitive context, innovation represent a critical principle associated with the know-how and intellectual property transfer, the innovation potential being dependent on the level of training and of the organization improvement. The leaning of reducing innovation cycles increases the innovation pressure inside the organizations.

This work *relevance* emerges from the strong influence that organizational culture manifests on the organization transformation, but also from its trend oriented towards innovation and sustainability.

The *purpose* of this paper is to identify the most effective ways of integrating innovative sustainable development policies within the OC and what is the impact of these policies on organizations.

In order to achieve this goal, we systematized and analysed relevant works from the literature and identified two work objectives:

Objective no. 1 aims to identify and propose a supporting framework for improving organizational culture.

Objective no. 2. Pursues in the specialized literature to identify the processes and the ways through which organizations can integrate innovative sustainable development policies in various fields within the OC.

Solid transdisciplinary communication, qualified, dedicated human resources, recognition the innovative performance in the organization development are basic requirements of OC directed towards innovation and sustainability.

The used *methodology* in order to achieve these established objectives consisted into a specialized literature systematic review in order to build a basis for analysing the ways through which OC can promote innovation and sustainability within organizations.

The present work is intended to be useful to the business and research environment in understanding the need to develop strong OC, oriented towards innovation and sustainability in this extremely dynamic and complex socio-economic environment. Approaching this topic at a time when specialized literature has moved from the phase of conceptual presentation of OC to the analysis of the factors that influence it, but also to the analysis of the implications of high-performing organizational cultures development, gives these papers relevance. The level of scientific development of a research field is what determines the interest of researchers and the speed of publications growth, supported by the information emergence (Mansour et al., 2022).

The results demonstrate that the complex interdependencies between various factors (OC, support for innovation, resources allocation for research-innovation activities, clear, common vision, management and capital holder common interest) area the starting point of the joint for successful innovation. The conducted study represents a contribution to enriching the literature in the OC field, directed towards technological innovation and sustainability. The necessary requirements for the existence of an open framework for the identification, testing and evaluation of innovation initiatives are found in the organization's ability to implement and maintain dynamic working relationships, high team spirit, to prioritize the allocation of resources in order to introduce new ways of working, new products, services or technologies.

Following this introductory section, the article is structured into four further chapters. Chapter number two presents a conceptual review of organizational culture as a means of promoting sustainable innovation. Chapter three describes the research methodology and this paper limitations. Then, in chapter four, the analysis, implications of the research are presented and a general framework is proposed to support organizational culture change. The final chapter presents the conclusions and future research opportunities. Of course, the paper presents and bibliographic references that served as a scientific foundation.

2. Literature review

The study of organizational culture debuted at the beginning of the 1980s (Hofstede, 1980, Sathe, 1983; Smircich & Stubbart 1985; Schein, 1985) and has intensified since the 2000s (Zhang & Liu 2005; Ahmadi et al., 2012) as a result of its importance awareness', in the context of organization - strategy - performance. Despite the numerous definitions found in specialized studies, they are not antagonistic, they do not exclude each other but only complement each other and emphasize its

extremely complex character, resulting from the very complexity of the human resources that determine it. Hofstede (1980) defines it as a collective mental programming that differentiates members of a group or a certain one, Sathe (1983) appreciates it through the prism of mutual and significant understandings of a group regarding beliefs and values and Smircich & Stubbart (1985) consider it the "social glue" that binds different groups of people. For Schein (1985) this represents the deepest level of beliefs about oneself and one's environment unconsciously shared by an organization members. The culture of an organization is represented by its unique personality like the individuals who compose it (Martins & Terblanche, 2003).

In recent years, companies have been subjected to unexpected external pressures: the Covid-19 pandemic, the Russian-Ukrainian conflict, the energy crisis, pressures that companies cannot control, but what falls to the company's management is to handle the internal factors that are crucial for performance and survival and which, in turn, react to these external pressures (Barney, 1991). OC is what mobilizes the organization's resources and directs them toward the external challenges responses (Zhang & Liu, A., 2005; Cheung et al., 2011). This includes a complex system of social values and organizational norms with a determining role in the organization's results and in establishing the competitiveness level, succeeding in modelling the employee's behaviour, in improving operational routines, in increasing the development of specific skills aspects that generate innovation, respectively performance (Zhang & Liu, 2005). In order to establish the links between OC and performance, researchers exploited the mediating roles of different factors: motivation (Hartman, 2006), competitive strategies (Dadzie et al., 2012; Han, 2012), quality management (Panuwatwanich & Nguyen, 2017), national culture (Chang et al., 2021), innovation (Naranjo-Valencia et al., 2016; Aboramadan et al., 2020; Munir, et al., 2022; Liying & Ismail 2023) and sustainable development (Shin et al., 2023; Metz et al., 2020; Liying & Ismail, 2023). Among them, we focused our study on the last two factors, namely the emergence of organizational culture in innovation and sustainability activities.

Technological innovation emerged and developed as a consequence of the need to improve productivity and efficiency, social and environmental well-being having a determining role in complying with the philosophy of sustainability (Sinha et al., 2020; Yang & Yang, 2015; Kemp & Pearson 2007). On the way of research and promotion of innovation within organizations, an important contribution is made by OC, in its capacity as conductor of norms, values and members attitudes (Scaliza et al., 2022). Through its intrinsic power to direct the human resource behaviour, the CO based on innovation brings performance (Chang & Lin, 2007; Mortara & Minshall, 2011). Buschens et al. (2011), Hogan & Coote (2014), Wiener et al. (2018) studied the components of innovative CO that can negatively affect companies' performance: employees' resistance to novelty, reluctance to exchange knowledge between employees, lack of desire to promote innovation within the organization. In the adoption of technological innovation at the organizational level, an extremely important role is attributed to the responsiveness of stakeholders within the organization (Scaliza et al., 2022). Innovation within the organization can take different forms: product innovation (advancement of product offering), process innovation (concerns improvement of production processes with effect on efficiency), organizational innovation (implementation of business policies and strategies), marketing and advertising innovation (improvement of marketing strategies) (Zeb et al., 2021). At the same time, the implementation of technological innovations to achieve sustainability is a basic tool for improving the organization performance on the three levels: economic, social and environmental (Chege & Wang, 2020). Thanks to the developed technologies, new products and services appear on the market that comply with the requirements of sustainability, aimed at meeting the needs of consumers and increasing the organizations performance level (Chege & Wang, 2020). The philosophy of sustainable development and corporate social responsibility incorporation has as an immediate but also long-term consequence the expansion of innovation in the product offering (Reverte, 2015; Briones et al., 2018), the improvement of social and environmental performance, the implementation of ecological practices and the migration to cleaner production (Besser, 2012). The organization overall performance is improved thanks to the implementation of technological innovation that has the effect of increasing productivity, efficiency, the capabilities of using all the company' available resources, reducing the level of waste and the level of pollution (Chege & Wang, 2020).

3. Research methodology

In order to identify the most appropriate ways of innovative technologies and sustainability implementing within the organizational culture, we performed a systematic review of the specialized literature, based on the methodology proposed by Webster & Watson (Webster, J., Watson, R, 2002).

The searches were conducted in the scientific databases Elsevier, Emerald, ProQuest, SpringerLink, Web of Science and Wiley Ebooks and we aimed for a comprehensive coverage of publications especially in the last 10 years. The search used terms were "organizational culture & innovation" and "organizational culture & Sustainability", limited to the title, abstract and keywords, considering them relevant. The works selected for analysis are books, conference and journal publications, doctoral theses, sources of international legislation, reports of international organizations, all in English.

Selected works were analysed and then the results considered useful for research were registered in areas of interest. The paper takes into account the specialized literature's view on the ways in which the organizational culture can be oriented towards technological innovation and sustainability, aiming to highlight inter-conditional relations between them. We have synthesized the direct implications and causal links between the analysed phenomena by means of the study and the antithesis.

Like any other work, this also has its own limitations, related to the high degree of theorization for the addressed concepts, to the lack of empirical studies carried out at the national level in order to confirm the results from studies in different geographical areas.

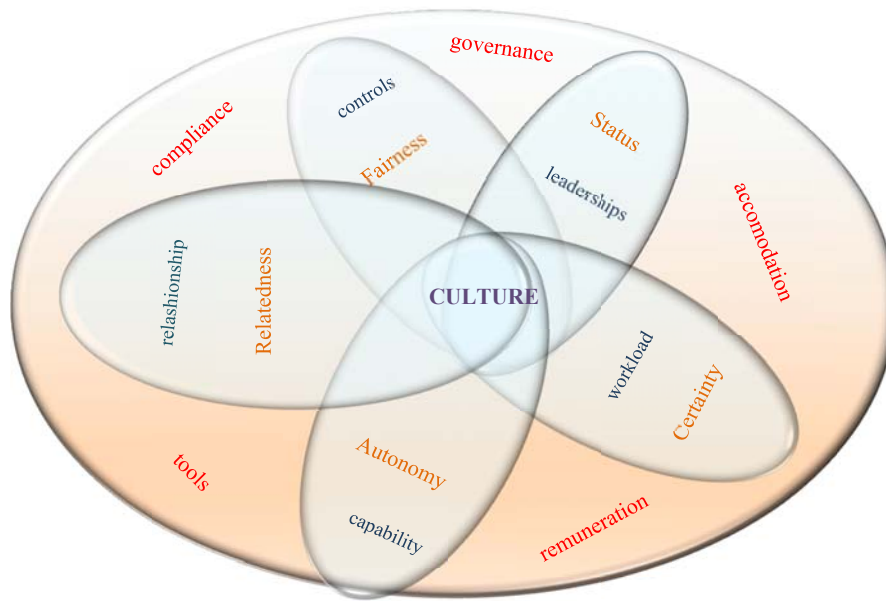
4. Findings

4.1. Valuating organizational culture in strengthening sustainable activities and technological innovations

Organizational culture is presented as an enabling factor of innovation and modern business models, perceived through intangible challenges, consisting of symbolic reminders (visible artifacts), beliefs, mindsets, symbols, behaviours values (Yan et al., 2021) shared by its members implicitly or explicitly. We have identified seven notable features that can determine the construction of a healthy, effective and sustainable OC: company structure, management support, risk appetite, performance reward policy, individual employee autonomy, identity, conflict tolerance (Weeks & du Plessis, 2011). OC can be oriented in four directions regarding the competing values framework: support orientation (focused on the organization internal support and emphasizing the structure' flexibility), innovation policy (contracted organizations towards the external environment), regulatory orientation (focused on the internal environment with emphasis on its control) and goal orientation (externally focused with an emphasis on internal control) (Solomon & Brown, 2020). Epstein (2008) emphasizes the need for a stable connection between OC, the strategic objectives and business practices, and to achieve these objectives it is imperative that all organizational and management processes to be properly implemented.

Hofstede (1980) highlights the existence of certain "cultural models" that characterize the different nations and considers that the cultural endowment that they possess and that wears specific manifestation forms is reflected in the social compartment and the national culture represents one of the strongest determinants of an organizational culture. Many other determinants of organizational culture have been revealed in the literature: current culture development, organization strategy, governance, control, managerial commitment, decentralization (Dadzie, et al., 2012; Chang et al., 2021; Panuwatwanich & Nguyen, 2017), collaboration, communication, knowledge sharing to individual attributes, rituals, internal beliefs, digital leadership (Shin et al., 2023) these being graphically represented in fig. Not. 1. OC represents the driving force that sets in motion the whole mechanism of an activity directed on customer, through appropriate managerial practices, common values, which is transposed, in the end, into competitive advantage. (Metz et al., 2020).

Figure no. 1 The key factors that determine organizational culture



Source: Authors' contribution

The innovative culture of the organization is determined by the innovative behaviour of its members (innovative professionals), influenced in turn by a number of factors: autonomy, risk preference, adaptability, multidisciplinary, high error tolerance, low bureaucracy (Moraes & Cunha, 2023).

The ways, processes and methods that an organizational culture is implemented directed towards technological innovation and sustainability but also those that improves the existing one, found in the studied literature are summarized as follows: innovative factors, that can support change identification (Lienert, 2015; Yanet et al., 2021), professionals involved in change identification (Peillon et al., 2018), new employees integration (Ahmadi et al., 2012), empowering employees (Buschgens et al., 2011), accountability employees and their involvement in change processes (Munir et al., 2022), connecting and supporting stakeholders responsible for strategic management, design thinking approach (Wiener et al., 2018), promoting innovative behaviour, establishing individual performance indicators, involving all the organization members in its change, communicating change decisions among stakeholders, promoting a customer-oriented perspective (Zeb et al., 2021), training employees in the communication process development, in negotiation, crisis management skills, follow-up, adaptation and the communication about all the changes that take place within this process and the communication process development at each organizational level (Scaliza et al., 2022), figures no. 2.

Along with all the challenges that have appeared in recent years on the socio-political level, the specialized literature highlights the tendency of organizations to focus on social responsibility, as an integral part of this world; social responsibility is considered, in second place, as a factor of social importance, after the products quality (Hartman, 2006). Sustainability does not mean reducing companies' earnings, but achieving this in a socially and environmentally responsible way (Pirnea & Popa, 2015). Sustainable development cannot have the desired effects if it is implemented individually, the imperative condition is that it to be based on cooperation and collaboration, on partnerships (Mansour, L., Spătariu, C.E., 2023). In the same time, it can be hit, within the various organizational structures, by inflexible barriers of some organizations or by the management resistance to change. Promotion of innovative OCs, based on information technologies and sustainability can remove the danger of all these obstacles. Organizational culture leaves its mark on sustainability reporting practices, being a determining factor of different financial and non-financial reporting (Mansour & Spătariu 2023; Mansour et al., 2023; Mansour et al., 2023).

Figure no. 2 Organizational transformation for innovation and sustainability



Source: Authors' contribution

Green organizational culture comprises the set of principles and assumptions that lead the organization towards a sustainable one, that tends to bring about a series of major changes in the way of approaching sustainable business issues (Sinha et al., 2020).

The existence of high performing strategic objectives focuses on strong organizational cultures, whose goals are well determined on all three dimensions – economic, social and environmental – oriented towards the client and based on a values system shared by all members (Metz et al., 2020).

4.2. Digital culture, the innovative component of organizational culture

The fast innovations movement, accelerating the degree of moral attrition of the technologies and information puts additional pressure on the human factor, which requires a series of skills and knowledge, measures, techniques, policies to be able to facilitate overcoming these pressures, aspects that depends on the organizational culture involved, in the literature referring at this time to a new form of culture - digital culture (Shin et al., 2023) which manifests both in the online environment as well as offline. The latter is defined as an emerging complex of values, practices, expectations regarding the way that people interact within different computer networks (Deuze, 2005), capable of innovation and to generate new knowledges, without affecting the employee's performance (Muniroh et al., 2022), being able to provide to the members the isolation they need but also the feeling of belonging, of connection with other system members (Deuze, 2005).

The digitalization of information, of all processes, of business models, of interactions between human resource and technology are results of technological innovation (Solomon & Brown, 2020) and are also reflected in the organizational environment (Shin et al., 2023). To quickly meet these ongoing challenges the organization must be oriented towards adaptability and innovation. For innovation, it is necessary to ensure employees room for manoeuvre, decision and risk, to show tolerance towards errors, to promote the emphasis on teamwork, and to have an idea management that promotes employees' new ideas, be open to bottom-up platform communication for individual voices, against of top-down messaging to the organization collective masses (Shin et al., 2023).

5. Conclusions

The organizational culture concept highlights the soft components, being under the pressure of the changes dictated by international competition, the exchange of values in society, those dictated by the information society. Although each organizational culture is unique, a series of fundamental characteristics specific to this phenomenon experienced by its members can be identified.

OC cannot be the object of direct observation, it has no physical, material existence, it is the result of an indirect deduction of its members' values system, its mediatisation takes on forms specific to each organization, being informal and unofficial. However, its implications on the company's

performance are profound, its orientation and organization model strongly influence all the company's activities. A series of implicit, deep mechanisms sets the cultural tradition in motion, the process of socialization of new members being the one that ensures its unconscious but permanent and profound transmission.

The culture of innovation is an integral part of the organization with deep roots in his history, promoted by members, regardless of the hierarchical level. Collaboration, communication, respect, openness to risks and opportunities govern the organization values. Forward-looking OC promotes innovative solutions, has capabilities to identify its weaknesses and accept its errors, and devises innovative measures for analysis.

At this moment, a migration of research interest can be observed from the phase of disseminating the advantages offered by the fundamentals of strong organizational cultures, directed towards innovation and sustainability, to studying the impact of these implementations at the levels of different corporations so as to research theories from this area alongside of companies that have already implemented strong organizational cultures based on sustainable technological innovation practice can facilitate the process of widespread expansion.

Over this society directed towards sustainability, which has access to information and innovation as its basic economic resource, informational technologies emerge and make a strong impression, all of which led to a *green informational organizational culture*.

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