

Information and Communication Technologies Viewed as a Determinant of University Performance: A Literature Review.

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ABSTRACT

We adopt the perspective of the resource-based view (RBV) (Penrose, 1959; Wernerfelt, 1984) to analyze university performance based on their internal resources, particularly information and communication technologies (ICT). ICT represents tangible resources encompassing information processing and communication techniques. They are involved in all areas of university activities, from pedagogy to management (human resources, finances, accounting, valorization, etc.). Their value depends on how stakeholders utilize them. Therefore, the university is an organization that leverages and combines its resources, especially ICT, to develop specific capabilities. These capabilities translate into distinctive organizational processes that facilitate decision-making, control, and value creation.

Value creation is notably evidenced by the enhanced value of the degree and consequently, the graduate student. The use of ICT has various effects, which we consider more as potential effects rather than established ones, given that organizational processes are influenced by numerous factors.

KEYWORDS: Performance, ICT, University

1. INTRODUCTION

The quest for organizational performance has always been a fundamental concern for organizational leaders and their internal and external partners. Studies on organizational performance have played a central role in the foundational work of strategy researchers such as Chandler A.D. (1962), Ansoff I. (1965), and Andrews K. R. (1971). Understanding the underlying mechanisms is a fertile domain for researchers in organizational sciences. Indeed, numerous studies have focused on analyzing the relationship between different aspects of the organization and its performance, with the main objective of identifying sources of organizational performance. However, results are not always conclusive. For example, the book “In Search of Excellence” by Peters and Waterman (1983) asserted that the most successful companies were those with a strong market position and high-quality products.

However, a few years later, it was observed that most companies considered “excellent” encountered numerous problems (Miller D., 1992). This led to the examination of various parameters from a deterministic perspective to explain and justify the sources of organizational performance. However, the one-dimensional approach to organizational performance was quickly surpassed by environmental evolution, transforming the concept of performance into a dynamic and relative one. Thus, an organization is neither definitively nor universally high-performing; it is high-performing at a specific moment and in relation to a given environment.

Furthermore, adopting a systemic approach to organizational performance has recognized that it cannot be reduced to a single variable but is rather the result of a number of diverse and complex variables. Therefore, it is necessary to consider the contribution of each variable and its interdependence with others. According to Lebas M. (1995), performance manifests as a balanced set of complementary, sometimes contradictory parameters that describe both results and the processes leading to those results.

In the literature, many researchers have focused on determining factors that can improve the performance of public organizations, particularly public universities (Andrews, Boyne, and Walker, 2011; Boyne, 2003; Forget et al., 1995; Pesqueux, 2006; Flizot, 2013; Bernier et al., 2000; Gomes et al., 2013; Labaronne, 2013; Song-Naba, 2016; Chan, 1994, etc.). Despite the diversity of theoretical work in this field, there is no unanimity among researchers regarding the full set of variables impacting public organizational performance. Some researchers emphasize the importance of external factors such as socioeconomic factors, rules, and laws

governing the functioning of public organizations (Andrews et al., 2005). However, other researchers believe this approach is limited (Boyne and Walker, 2005). Indeed, numerous studies have demonstrated the impact of management on the performance of public organizations (Andrews et al., 2005; Boyne, 2004).

To carry out our literature review, we first address the concept of performance within the academic context. We then discuss the theoretical foundation of ICTs as a determinant of academic performance, drawing on resource-based theory.

2. PERFORMANCE IN THE UNIVERSITY CONTEXT: ATTEMPT AT A DEFINITION

The concept of performance is difficult to define clearly, as it has multiple meanings, is imprecise, and encompasses various aspects. When discussing public organizations, it is even more challenging to understand this concept, as this field has particular characteristics and difficulties that make the concept vague and ambiguous.

The concept of performance in the public organization is not simple or unequivocal, as it depends on the context in which it is embedded, which is marked by many uncertainties. For example, there is a tension between the logic of management, economics, and politics, which can conflict. There is also a multiplicity of actors participating in the public organization, who may have different, even incoherent, objectives. Finally, it is necessary to consider the relationship between the performance of the public organization and the notions of general interest and social justice, which are difficult to define and measure. Thus, in the field of public management, performance is a notion with several dimensions and cannot be determined precisely. (Summermatter and Siegel, 2009; Maurel et al., 2014).

To define public performance, it is necessary to take into account its complexity, variability, and difficulty in being evaluated (Mazouz and Leclerc, 2008). It depends on several factors, such as the dimensions it encompasses, the resources it mobilizes, the actions it carries out, and the results it produces. It is also influenced by the context and the domain in which public organizations evolve, which are marked by the presence of many actors with sometimes contradictory expectations. Finally, it is difficult to apprehend due to the coexistence of different economic, political, and managerial logic (Carassus and Gardey, 2008 cited by Guenoun, 2009).

The concept of public performance is not clearly defined, as there are different approaches that overlap or are too vague. Sometimes, notions from other domains, such as the private sector, are used without adapting them to the public context. For example, we talk about profitability or productivity, but these terms do not mean the same thing and do not have the same consequences in the public sector as in the private sector (Pollit, 2001). Therefore, it would be necessary to find a specific and adapted definition of public performance, which takes into account its particularities and its objectives (Maurel et al., 2014).

3. ICT¹ VIEWED AS ONE OF THE DETERMINANTS OF PERFORMANCE

Our objective is to analyze the role of information and communication technologies (ICTs) in the performance of universities, based on the theoretical framework of the resource-based view (RBV).

3.1 ICT THROUGH THE RESOURCE-BASED THEORY

We adopt the perspective of the resource-based view (RBV) (Penrose, 1959; Wernerfelt, 1984) to analyze the performance of universities based on their internal resources, particularly information and communication technologies (ICTs). ICTs are tangible resources that encompass information processing and communication techniques. They are involved in all areas of the university's activities, from pedagogy to management (human resources, finance, accounting, valorization, etc.). Their value depends on how the actors use them. The university is therefore an organization that exploits and combines its resources, particularly ICTs, to develop specific competencies. These competencies are reflected in distinctive organizational processes that enable decision-making, control, and value creation. Value creation is manifested, in particular, by the increase in the value of the diploma and, consequently, the value of the graduate student. The use of ICTs has varied effects. We consider them rather as potential effects than as proven effects, as organizational processes are influenced by many factors.

4. POTENTIAL EFFECTS OF ICT IN UNIVERSITY

Our research is part of the stream that examines the effect of information and communication technologies (ICTs) on organizational processes, the individual and collective impact of work, and the performance and value creation of the organization. We rely on the

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integrated analytical framework developed by ICT management researchers, which takes into account the structure, activity, and strategy of the organization.

According to Zuboff (1988), ICTs have an essential duality: automation and information. The use of ICTs allows, on the one hand, more effective, faster, and less costly communication, and on the other hand, better exploitation of data to facilitate high-value-added decision-making. It also leads to improved coordination based on the formalization and standardization of procedures (Bharadwaj, 2000; DeLone and McLean, 2003). Furthermore, by modifying the conditions of access to information, ICTs influence the definition of roles within the organization. Indeed, the use of ICTs implies an enrichment of tasks with an aspect of self-control.

However, the use of information technologies (ICTs) is not without drawbacks, as Caseau (2007) points out. ICT users may encounter problems related to hardware, software, security, and so on. Moreover, the functioning of ICTs can be slowed down by mandatory controls, such as the establishment of access rights to applications. These controls aim to comply with a legal framework that includes various standards. Furthermore, these changes lead to transformations in the dynamics, content, and meaning of work, which have an impact on the final performance of our study (Elie-Dit-Cosaque, 2011). This can cause frustration in the end-user, who is no longer recognized as an actor holding knowledge and skills and practicing a profession, but as a user who must integrate technology into their practices according to imposed modalities (Lamb and Kling, 2003). This can be seen as the dispossession of knowledge. In this case, the structuring of tasks, thanks to ICTs, is perceived as a threat, which limits autonomy and leads to an impoverishment of work. These difficulties can be the source of a decrease in productivity and thus negatively affect performance.

Information technologies (ICTs) have become an essential element of the strategy of organizations. Higher education institutions are increasingly adopting a continuous improvement approach (from training to research, from pedagogy to professional integration, from the living and study conditions of students to the relationships with the socio-economic world). Thus, for the university, the objective of using ICTs is to structure the activities of the institution, increase its attractiveness, improve the quality of the service provided, particularly for students, better control costs, redefine the role and missions of staff, and facilitate the

sharing and dissemination of information... It is therefore a local exploitation coupled with internal integration according to Reix et al. (2011).

5. CONCLUSION

Research focuses on the impact of information and communication technologies (ICTs) within organizations, examining their effects on internal processes, the individual and collective impact of work, as well as on performance and value creation. It adopts an integrated analytical framework that takes into account the organizational structure, activity, and strategy, developed by ICT management researchers.

According to Zuboff (1988), ICTs present a duality: they automate processes while improving the flow and exploitation of information, thus enabling more informed decisions and better coordination of activities (Bharadwaj, 2000; DeLone and McLean, 2003). However, the use of ICTs is not without challenges, particularly in terms of security, access controls, and impact on organizational dynamics and the meaning of work (Elie-Dit-Cosaque, 2011; Lamb and Kling, 2003).

For higher education institutions, the integration of ICTs aims to structure activities, increase attractiveness, improve the quality of student services, while controlling costs and redefining staff roles (Reix et al., 2011). This reflects a strategy of continuous improvement that aims to locally and internally integrate the benefits of ICTs.

In summary, the study explores how ICTs influence various organizational aspects, while highlighting the potential benefits and challenges associated with their adoption.

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