How Does IT Governance Improve Firm Performance? A Dynamic Capabilities Perspective

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Abstract— **While researchers agree that IT Governance (ITG) positively affects business performance, there is still a lack of consensus on how IT Governance improves firm performance. Many studies have used the Resource-Based View (RBV) to analyze and interpret this question. However, RBV offers a limited perspective on firm performance by associating it with static resources and does not capture the role of dynamic capabilities in enabling firms to adapt and succeed in evolving environments. This paper argues that ITG should be conceptualised as a combination of ordinary and dynamic capabilities, wherein dynamic capabilities improve and support ordinary ones, ultimately maximizing business performance. Based on a comprehensive literature review, this paper provides a deeper understanding of how ITG contributes to firm performance by breaking down ITG into specific capabilities rather than treating it as a single concept. The model extends RBV theory by demonstrating how combining dynamic and ordinary capabilities enhances an organization's ability to both innovate and sustain competitive advantage.**

Keywords- IT Governance (ITG); firm performance; Dynamic Capabilities.

I. INTRODUCTION

While the importance of IT in organizations is uncontested, it represents significant spending for organizations and its costs are rising every year [1]. Increasing the value of IT investments is therefore crucial for firms to remain competitive in the marketplace. IT Governance (ITG) has gained attention in this regard. Indeed, companies that have good ITG reap up to 40% higher return on their IT investments [2] and could get an increase of up to 20% in profits [3]. While the literature seems to be adamant that ITG has a positive impact on firm performance, the reasons why and how are still unclear [4]. The objective of this study is thus to shed light on the question that has been asked many times, but has still not been answered in a satisfactory way, i.e., how does ITG improve firm performance?

In the literature, the impact of ITG on firm performance has often been studied using the Resource-Based View (RBV). Several authors argued that ITG is a valuable resource that can lead to sustainable competitive advantage and, therefore, to increased firm performance [5]. We argue that this conceptualization is problematic for two reasons. First, ITG is a complex construct composed of organizational structures, processes, and relational mechanisms [6]. Hence, considering it as a single concept limits our understanding of how it impacts firm performance. Second, RBV does not account for today's dynamic and competitive marketplace. Indeed, according to the theory, a firm that has a valuable resource acquires a sustained competitive advantage [7]. That said, good IT Governance is not just about "effective IT control and accountability, performance management and risk management" [8], but also about seizing opportunities and encouraging and leveraging "the ingenuity of all enterprise personnel in using IT" [3]. Hence, simply controlling IT, although a type of ITG, does not capture all the ITG's benefits. Instead of assuming what ITG entails, we must be able to distinguish its different capabilities and the different effects that they can have on firm performance. Furthermore, because of the increasing interest in the importance of organizational agility, firms can no longer settle simply on past traditional ITG mechanisms.

To overcome these limitations, we adopt a dynamic capabilities perspective, which is referred to as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" [9]. We suggest breaking down ITG into two groups of capabilities, i.e., ordinary and dynamic capabilities, and studying the impact of each of those groups on different dimensions of firm performance. We therefore adopt a theory building approach to synthesise the literature on IT Governance and develop a new conceptual framework on the impacts of ITG on organizational performance.

The paper is structured as follows. In the second section, we establish our definition of IT Governance and show how previous authors have linked ITG to firm performance. This theoretical background leads to the third section of the paper, where we define dynamic capabilities, show how the concept has been linked to ITG in the past, and discuss the limitations of previous research. The fourth section presents our conceptual model and hypotheses, as well as ways to validate our model. Finally, we conclude by assessing the implications of our work for organizations and future research.

II. THEORETICAL BACKGROUND

A. IT Governance (ITG)

ITG was introduced in the literature nearly three decades ago [10]. Since then, it has been defined in a number of ways and there is still no shared understanding of the construct in

the literature [1]. ITG has been defined in numerous ways, including but not limited to: 1) "the strategic alignment of IT with the business such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management" [8], 2) "the firm's governance mechanisms that enable both business and IT people to execute their responsibilities in support of IT-related decision making and the creation of business value from IT-enabled business investments." [11], and 3) "the capacity of top management to control the formulation and implementation of the IT strategy via organizational structures and processes that produce desirable behaviors, which will ensure that IT initiatives sustain and extend the organization's strategy and objectives" [12].

Some authors [1][2] use Weill's [3] definition by describing ITG as a "framework for decision rights and accountabilities to encourage desirable behaviour in the use of IT". Some also refer to specific frameworks used in the industry, such as COBIT or ISO/IEC 38500 [5][13]. Buchwald, Urbach and Ahlemann [10] add that "ITG refers to an actively designed set of mechanisms that encourages behaviors consistent with the organization's mission, strategy, and culture.". Huang, Zmud and Price [14] also add that "the goal of IT Governance is to direct and oversee an organization's IT-related decisions and actions such that desired behaviors and outcomes are realized".

According to Kude, Lazic, Heinzl and Neff [5], ITG is composed of IT roles, IT groups, IT processes, and relational capabilities. Similarly, Webb, Pollard and Ridley [8] mention structures, control frameworks, and processes. Most agree that it is composed of organizational structures, processes, and relational mechanisms [1][4][6][15]. Some authors also describe the decision domains in which ITG is concerned. They report IT principles, IT architecture, IT infrastructure strategies, business application needs, and IT investments [2][3][8][15].

In this study, we will refer to ITG as the integrated set of organizational structures, processes, and relational mechanisms that enable to direct and oversee an organization's IT-related decisions and actions such that desired behaviors and outcomes are realized [14][15].

B. IT Governance and firm performance

Models theorizing the relationship between IT Governance and business performance are scarce and they all agree that ITG has a positive impact on firm performance. Some studies look at ITG antecedents to try to explain the effect of ITG on firm performance. For instance, Bradley et al. [12] study the effect of the level of CIO structural power, the degree of mutual participation between IT and other lines of business, as well as the degree of entrepreneurial culture on ITG in hospitals. Jewer and McKay [16], for their part, examine the impact of board attributes and organizational factors on board ITG. More specifically, they consider the proportion of insiders, the board size, and the IT competency of board members, as well as the organization size, its age, and the role of IT in the organization. While these studies bring insight into what could affect ITG, they don't help us understand how ITG can improve firm performance.

A significant portion of the literature examines the relation between ITG and business/IT alignment. While some stop at the effect of ITG on alignment [17], others argue that IT alignment in turn leads to improved business performance [4][18]. There is in fact a substantial number of studies showing how alignment can lead to increased performance [4]. Several mediators of the relation between ITG and firm performance have been identified. To name a few, resource relatedness – defined as the "usage of common IT resources and common IT management processes across business units" and business process relatedness – defined as the "usage of common business processes across business units" [1], strategic alignment [4], IT capability – defined as the "firms' ability to innovatively implement and deploy IT resources to obtain IT/business alignment and create competitive advantage" [11], and IT operating capability – defined as "the ability of a firm to effectively and adequately use IT tools and functions to support ordinary processes and operations" [19].

Some authors also explain the relationship between ITG and firm performance by studying the effect of moderators. For instance, Liu, Turel and Bart [20] consider the board governance style and the environment dynamism. They discover that while an authoritative governance style, which refers to a high engagement from the board in monitoring and advising roles, has a positive impact on firm performance, it is not the case in dynamic environments. The effect of both the need for fast and reliable IT and the need for new IT are also studied by Turel and Bart [13]. These authors found that the two variables led to a higher level of ITG enactment at the board level, which in turn had a positive effect on perceived organizational performance. However, their moderating effect on the relation between ITG and organizational performance is not supported, giving us no further understanding of how ITG impacts firm performance.

Huang, Zmud and Price [14] go in more depth and study the effect of two ITG practices, i.e., senior management involvement through IT steering committees and IT Governance communication policies. One of their key findings is that employing formal steering committees and using a greater number of communication channels, as well as the use of electronic channels, are both successful practices. However, those results provide only limited insight into how ITG increases firm performance. Moreover, the data used in their study is limited and calls for further research to generalize their findings [14].

Regarding the measure of firm performance, the majority of studies considered one or more financial indicators, such as return on investments, net profits, or management perceived financial performance [1][4][13][16][19][20]. While some studies examined other aspects, such as the firm's reputation or the frequency of new product or service introduction, the effect of ITG is generally examined on performance as a whole, with no distinction between the different measures of performance [1][16].

Most studies investigating the link between IT Governance and business performance do so using RBV [1][4][5][11][13][19][20]. RBV states that certain resources

possessed by an organization are a source of competitive advantage and that they can lead to sustained superior performance. To do so, a resource must abide by four criteria, referred to as "VRIN", i.e., valuable, rare, imperfect imitability, and non-substitutability [7]. Indeed, resources must add value to the firm, not be prevalent among the firm's competitors, and be difficult to copy. It is also important that no other resource could allow a competitor to achieve the same performance.

A recent development in the literature pertains to the emergence of a new approach to IT Governance: Agile Governance (AG). This concept emerged in the early 2000s and was initially associated with software development governance, given its connection with the Agile project management method [21][22]. However, the movement has since been linked with ITG [21][22][23][24][25]. This innovative approach to governance aligns with our conceptualization of the construct, as agility is inherently dynamic. Agility is linked to several benefits, including a reduction in lead times, an enhancement in quality and added value, an increase in success rates, and a more efficient decision-making process. These benefits collectively contribute to enhance the competitiveness of organizations [21][22][25]. According to Vaia, Arkhipova and DeLone [24], agility is defined as a dynamic capability that describes the ability to sense and respond to environmental change. In their article, they present an analysis of the extant literature and case studies, demonstrating how traditional approaches to ITG regarding structures, processes, and relational mechanisms can either amplify or hinder agility. In contrast, Zhen, Xie and Dong [25] employ the concept of IT ambidexterity as a capability intricately linked with IT Governance, with the objective of enhancing and encouraging organizational agility. They present ambidexterity as the firm's capacity to simultaneously leverage existing IT resources while exploring new ones. Vejseli, Rossmann and Garidis [26] also make an interesting contribution by studying the indirect impact of both Agile ITG mechanisms and Traditional ITG mechanisms on firm performance through Business/IT alignment.

III. PROBLEMATIZATION

While the literature demonstrates the positive impact of ITG on business performance, the mechanisms involved remain unclear. Yet, in order to increase the benefits gained by ITG, we need to reach a better understanding of how it improves business performance. As we mentioned, the impact of ITG on firm performance has mostly been studied using RBV. Under this theory, authors argue that ITG is a valued organizational resource that leads to firm performance. However, as we noticed, ITG has been conceptualized in various ways in past studies. Both the definitions of ITG and the way it is measured are not consistent in the literature. Indeed, while some only measure the simple presence of an ITG in an organization, others describe the components of ITG without addressing what are the effects of those specific components on business performance [1]. Since ITG is a complex construct, considering it as a single resource limits our understanding of how it affects firm performance. Indeed, since ITG refers to different types of organizational structures, processes, and relational mechanisms [1][4][6][15], it would be more appropriate and insightful to consider the different capabilities shaping ITG, as well as the different effects of each of those capabilities.

Furthermore, using only RBV is not appropriate anymore considering the current environment. Indeed, RBV is static and does not consider the fast-changing competitive landscape. According to RBV, a valuable resource will lead to a sustained competitive advantage [7]. However, today's dynamic environment calls for innovation. Even at the employee level, it is not enough for employees to simply perform their tasks anymore. Indeed, for a firm to remain competitive, employees are expected to "anticipate trends and needs" and to adapt their work accordingly [27]. Therefore, "effective IT control and accountability, performance management and risk management" [8] are not enough anymore to qualify a good ITG. Seizing opportunities and encouraging and leveraging "the ingenuity of all enterprise personnel in using IT" [3] is also crucial. Not only do we need to consider the different capabilities shaping ITG, we must also consider the type of capabilities. We might have an idea of what ITG should entail, but we cannot assume that every ITG in every organization does entail the same elements. This distinction can help us understand how ITG improves firm performance and how to maximize the potential benefits of ITG.

To take this into account, we suggest using the dynamic capabilities perspective. Dynamic capabilities have been defined as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments." [9]. While RBV assumes that a resource that allows a firm to have a competitive advantage at a certain point in time will lead to long-term performance if this resource is valuable, rare, inimitable, and non-substitutable, the dynamic capabilities perspective argues that the capabilities of the firm must change over time to remain relevant in the firm's rapidly changing environment [7].

Dynamic capabilities are also different from ordinary capabilities. While ordinary capabilities allow for the exploitation of the firm's current resources to ensure the continuity of day-to-day operations, dynamic capabilities allow for exploration [28]. Indeed, since dynamic capabilities focus on change, they permit firms to renew and reconfigure their resources and ordinary capabilities to innovate and explore "beyond their current market and technological domains" [28]. Therefore, they can also upgrade the firm's ordinary capabilities and increase the value that those ordinary capabilities generate [29].

To our knowledge, only two studies examining ITG have used the dynamic capabilities perspective before. First, Mikalef, Pateli and Van De Wetering [30]studied the relationship between IT flexibility and IT-enabled dynamic capabilities. They argue that a certain structural form of ITG, i.e., decentralized, moderates the effect of IT flexibility on IT-enabled dynamic capabilities. Second, Liu, Turel and Bart

[20] study board-level ITG specifically and state that it can be perceived as a dynamic capability because boards can reconfigure lower-lever capabilities, such as changing the structure of a department.

IV. Conceptual Model, Hypotheses and Future Research Avenues

A. Conceptual Model

Past studies using RBV conceptualize IT Governance as being one capability. We suggest that IT Governance is rather composed of different capabilities, which in turn can impact different dimensions of business performance. As already mentioned, IT Governance often refers to frameworks that help executives to control and ensure compliance with digitized business and mitigate IT-related risks and threats [5][13][15][20]. On the other hand, IT Governance is also described as supporting the creation of business value [8][11]. It raises IT opportunities for executives [20] and "encourages and leverages the ingenuity of all enterprise personnel in using IT" [3]. According to Weill [3], good IT Governance is both empowering and controlling.

Taking this into consideration, we conceptualize IT Governance as being composed of two groups of capabilities (Figure 1): (i) dynamic capabilities (i.e., sensing, seizing and transforming capabilities) as well as (ii) ordinary capabilities (i.e., controlling and complying capabilities). Sensing is the ability to identify opportunities outside of the organization, seizing is the ability to mobilize the resources to capture value from those opportunities, and transforming is the ability to realign the organizational structure and culture [29]. They are conceptualized as a group because together, they form an iterative process. Therefore, we argue that all three are necessary to persistently capture value. The second group of capabilities refers to the ability to control and comply. Controlling has to do with determining how things should be, while complying has to do with the ability to meet the determined standards. Hence, those two capabilities go hand in hand. We consider those capabilities as ordinary capabilities. Indeed, their purpose is to "exploit the existing resource base to ensure continuity of current operations" [28], which is exactly how ordinary capabilities are defined in the literature.

As previously mentioned, it is important to distinguish both groups of capabilities because while the literature suggests that a good ITG has sensing, seizing and transforming capabilities, we cannot assume all firms are equally good at governing IT. Indeed, a firm that simply uses a framework such as COBIT engages in a form of ITG [5]. However, the use of such framework without dynamics capabilities will result in a failure to leverage all benefits associated with IT Governance. Moreover, considering ordinary capabilities as exploitative and dynamic capabilities as explorative, Qaiyum and Wang [22] raise the fact that exploitation and exploration are considered to be both important in the organizational ambidexterity literature.

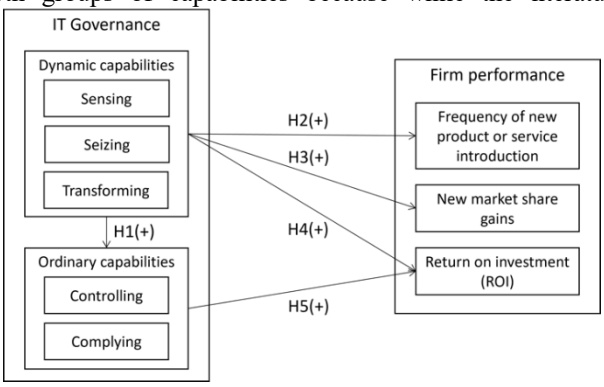

Figure 1. Conceptual Model.

B. Hypotheses

Consistent with past studies, we suggest that IT Governance has a positive impact on business performance. However, we argue that the capabilities constituting IT Governance will impact different types of business performance.

First, consistent with the premise of dynamic capabilities theory stating that dynamic capabilities can upgrade ordinary capabilities and increase their payoff [29], we suggest that the sensing, seizing and transforming capabilities will have a positive effect on the controlling and complying capabilities. Indeed, dynamic capabilities allow the firm to use and reconfigure its existing resources and capabilities in new and different ways [7]. For instance, they could drive an organization to reconfigure its organizational structure, thereby improving its ability to control its technologies, i.e., its controlling and complying capabilities. They could also give rise to innovative and more efficient operational processes related to controlling and complying capabilities. Those new operational processes would in turn increase the impact of ITG on firm performance and, more precisely, on ROI.

Hypothesis 1: Sensing, seizing and transforming capabilities are positively related to controlling and complying capabilities.

Second, dynamic capabilities call for change. They give the ability to use the firm's resources and capabilities in different ways and to reconfigure them [7]. They also allow for the creation of new resources and capabilities and are believed to procure the ability to innovate [29]. Therefore, we suggest that sensing, seizing and transforming capabilities will drive a firm's ability to innovate. We measure innovation by the frequency of new product or service introduction. An ITG that is only composed of controlling and complying capabilities will most likely focus on the firm's actual products and services and on mitigating the risks. It will thus probably miss the opportunity to innovate and introduce new products or services that could help increase the firm's performance.

Hypothesis 2: ITG sensing, seizing and transforming capabilities are positively related to the frequency of new product or service introduction.

Third, dynamic capabilities don't limit themselves to the exploitation of current resources. They also allow firms to "explore beyond their current market and technological domains" [28]. They give organizations a significant

competitive advantage by enabling them to respond to the fast and frequent changes in the market, going so far as to change the market themselves [29]. Moreover, their value goes beyond cost reduction and revenue increase [7]. Therefore, we advance that sensing, seizing and transforming capabilities not only improve ROI, but also allow firms to acquire market share gains.

Hypothesis 3: ITG sensing, seizing and transforming capabilities are positively related to market share gains.

Fourth, building on the dynamic capabilities' perspective, we suggest that sensing, seizing and transforming capabilities will also have a positive impact on ROI. Indeed, while ordinary capabilities help create value, dynamic capabilities will explore new ways to create value and ensure to adapt to the changing environment [9].

Hypothesis 4: ITG sensing, seizing and transforming capabilities are positively related to financial performance.

Finally, the controlling and complying capabilities will have a positive impact on financial performance, more specifically on return on investment (ROI). This hypothesis is consistent with the literature that found that ITG positively impacts a firm's financial performance. Drawing on RBV, controlling and complying capabilities will increase the business value of IT, which is either reflected as a reduction of the costs or an increase in revenues [7], measured hereby as the ROI.

Hypothesis 5: ITG controlling and complying capabilities are positively related to return on investment.

C. Future research avenues

To validate the proposed conceptual model, we suggest conducting surveys and using Partial Least Squares (PLS) method to analyze the collected data. We propose not only testing the effect of both dynamic and ordinary capabilities but also testing the individual effects of each of the five capabilities identified in the model.

Table I presents some ITG mechanisms found in the literature that could be used to operationalize each capability. First, *IT strategy committee at level of board of directors* and *Strategic information systems planning* would allow a firm to identify new opportunities. Second, *Architecture steering committee* and *Portfolio management* would assist the firm in addressing these new opportunities and integrating them into the firm's current landscape. Third, *Project governance methodologies* and *IT project steering committee* would enable the firm to conduct the necessary changes to its structures, processes, products and services, etc. Fourth, *IT Governance framework (e.g., COBIT)* and *IT budget control and reporting* are mechanisms meant to dictate what standards to follow. Finally, *IT audit committee at level of board of directors* and *IT steering committee* are structures that are meant to ensure that said standards are indeed followed.

TABLE I. CONSTRUCT OPERATIONALIZATION PROPOSITION

Capability	Proposed ITG mechanisms	Ref.
Sensing	IT strategy committee at level of board of directors	[31][32]
	Strategic information systems planning	
Seizing	Architecture steering committee	[32][33]
	Portfolio management	[32]
Transforming	Project governance methodologies	[32]
	IT project steering committee	[32][33]
Controlling	IT Governance framework (e.g., COBIT)	
	IT budget control and reporting	
Complying	IT audit committee at level of board of directors	[32], [33]
	IT steering committee	

V. CONCLUSION

It is well established in the literature that ITG leads to superior organizational performance. However, there is still a lot of uncertainty regarding the mechanisms involved. Indeed, studies on the subject often use RBV and conceptualize ITG as a single resource or capability, thus limiting our understanding of how ITG impacts firm performance. Moreover, RBV does not consider today's highly dynamic environment and does not capture the importance of dynamic capabilities in a good ITG.

To remediate those issues, we propose a conceptual model of the relation between ITG and firm performance based on the dynamic capabilities perspective. More precisely, we suggest that ITG encompasses sensing, seizing and transforming capabilities, as well as controlling and complying capabilities, and that each group of capabilities will have a different impact on different dimensions of firm performance, i.e., innovation, new market share gains, and ROI.

We believe that breaking down ITG into different capabilities instead of looking at it as a whole is a good step toward reaching a deeper understanding of how ITG improves firm performance and how organizations can maximize the potential benefits of their ITG. We therefore believe that this study could be beneficial in moving forward the research on the impact of ITG on organizational performance.

In terms of practical contributions, the proposed model raises the importance for organizations of having a holistic view of their ITG, rather than blindly relying on industry framework. To reap all the potential benefits of their ITG, some organizations may need to change their structure. For instance, they may benefit from putting an IT strategy committee at the level of the board of directors into place.

Nonetheless, in order to achieve a more profound comprehension of the model, further empirical research would need to be conducted to validate our hypotheses and build on the model.

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