

Toward a Shared View of IT Governance

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Abstract—Effective IT governance is today a necessity and not an option. IT can go further sustaining the organization's strategies and helps shaping new competitive ones. Given that the concept is relatively new, literature still can't get to a consensus point. Researchers and practitioners, when studying IT governance, are facing a storm of definitions, approaches, frameworks and standards. This paper dives deep into recent IT governance literature and aims to build a shared view of the concept and its ecosystem to help orient future research in the field.

Index Terms—IT Governance, enterprise governance of IT, IT/business alignment, COBIT 5, ISO/IEC 38500.

I. INTRODUCTION

In a context of digitization, most organizations consider information technology (IT) as an essential business tool and depend on it in their daily functions [1]. In the last two decades, IT has become fundamental in the sustainability and competitiveness of enterprises [2]. In fact, IT can go beyond supporting business strategies and participate actively in framing future strategies [2]. A McKinsey report published in May 2014 by Hirt and Wilmmott states that: "Digital capabilities increasingly will determine which companies create or lose value" [3].

This emerging strategic importance of IT calls for big investments in the acquisition and support of IT resources. In order to ensure the creation of value from these IT investments, IT decisions should be taking regarding the organization's business strategies, priorities and needs [4], [5].

It is widely accepted that organizations depend more and more on IT. This critical IT dependency placed the organization in a position where business is exposed to IT vulnerability which pushes toward IT risk management [2].

IT governance emerged, and gain more focus in the context of all the issues above-mentioned. The ultimate objective of IT governance is to ensure the creation of value from IT investments and to mitigate the IT associated risks [2]. Peter Weill [5] in his book point out eight reasons why organizations need to establish good IT governance.

The concept of IT governance has known several reforms and changes since its first emergence in literature [6]. This evolution has led to a lack of consensus and clarity that can create disorientation and disruption in the good development of the concept in both academic and professional field [7]–[10].

In parallel with the IT Governance evolution, practitioners

and academics alike, tried to assist organizations to implement good IT governance by developing new IT Governance approaches, control frameworks and standards. The most popular are COBIT (Control Objectives for Information and related Technology) [11]–[14], ITIL (Information Technology Infrastructure Library) [14]–[16], ISO/IEC 38500[1], etc.

In his article, [10] outlined that regardless of this large diversity of approaches, the confusion and lack of clarity in the domain of IT governance are still persisting.

The purpose of this paper is to help orient and guide future research in the field of IT governance by providing an overview of existent literature. And for the same perspective, this paper aim to shed the light on the most shared definition of IT governance through a quantitative study of current literature.

To do so, this paper is structured as follow. Next section gives a review of IT Governance literature. Section III summarizes the methodology and results of a quantitative study conducted on cited definitions through a large selection of articles. In Section IV, we present the best-known IT governance frameworks or standards. Conclusions and research perspectives are presented in Section V.

II. LITERATURE OVERVIEW

A. IT Governance through Time

It is not easy to track the first time the term IT Governance appeared in literature. Although, academics agree that the concept emerged in the late 1990s [1]–[5]. Yet, Brown[2] states that IT Governance is in fact a consequence of the progress in studying governance that goes to the 1960s. Indeed, IT Governance literature is highly connected to prior information system research such as Strategic Information Systems Planning (SISP) [6].

IT Governance researchers firstly studied the structural forms of IT Activities. After that came the contingency theory, research start to study, in parallel to IT Governance forms, the factors that determine which form is convenient for which type of organization [2], [4].

During this period, practitioners opted for a process lens to study IT. The ISACA published the first edition of COBIT in 1996; The ITGI published the first edition of "Board Briefing for IT Governance" in 2001. The academic body, then, began to shift toward the professional perception of IT Governance [4].

Lately, with the increasing strategic importance if IT, both academics and practitioners, involve more the board of directors in IT Governance. Van Grembergen [1] in the second edition of his book called for a move from IT Governance to Enterprise Governance of IT. He states that "due to the focus on IT in the naming of the concept, the IT governance discussion mainly stayed as a discussion within

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the IT area, while of course one of the main responsibilities is situated at the business side”. Jewer and N. McKay [7] switch to the term “Board IT Governance”. On the other side, ISACA released COBIT 5 in 2012 [8] that uses the term “Governance of enterprise IT” instead of IT Governance. Also, to give more importance to the governing body, the standard ISO/IEC 38500 [9] uses the term “Governance of IT”.

B. IT Governance Targets

Literature [1], [6], [10], [11] defines five IT Governance targets:

- Strategic Alignment: “the fit and integration among business strategy, IT strategy, business structures, and IT structures”[1]
- Value Delivery: is about fulfilling business’ expectations from IT investments while mitigating risks.
- Risk Management: aims to ensure the protection of the enterprise’s IT assets by improving risk awareness among all stakeholders.
- Resources Management: is about optimizing the investments, use and the allocation of IT resources which encompasses people, application, infrastructure and information in order to meet the need of the enterprise [10], [11].
- Performance Management: is concerned by the monitoring process of it delivered value in contrast of the business’ objectives.

The ITGI [10] Classify them into drivers (Strategic alignment, Resource management, Performance management) and outcomes (Value delivery, Risk management). In other words, effective IT Governance align the IT and business objectives, improve resource management and continuously or periodically measure IT performance in order to deliver expected business value through IT investments while managing IT related risks.

C. IT Governance Implementation

Literature consent that IT Governance can be implemented using a combination of structures, processes and relational mechanisms [12].

Structures were the first focus of IT Governance studies. It describes how the IT department is organized. Samamurthy and Zmud [13] defines three IT Governance modes: Centralized, decentralized and federal. Weill [14] came after

and proposes a six modes model: Business monarchy, IT monarchy, feudal, federal, IT duopoly and anarchy. Weill define also five key IT decision types (IT principles, IT architecture, IT infrastructure, Business application needs and IT investment and prioritization) that he link to the six IT Governance authority patterns creating the “Governance Arrangement Matrix”.

IT Governance processes describe the formalization and standardization of IT decision making and performance monitoring procedures [15]. While relational mechanisms consist of structures and processes [11] that ensure a good communication and collaboration relationship between business and IT [12].

III. IT GOVERNANCE DEFINITION

Practitioners and academics both agree that IT Governance is an unclear concept. Several definitions appear in different publications[3]–[5]. In this section, we are trying to guide and orient academics and practitioners to the most shared ones through recent literature. To do so, a quantitative study was conducted on 84 articles that cite an existing IT Governance definition.

A. Methodology

We first started by selecting the articles published between 2005 and 2015, that represent the state-of-art of recent IT Governance literature. To do so, we used the most important academic search engines and digital libraries like Springer Link, IEEE Xplore, Science Direct, Google Scholar, ACM Digital Library, etc. Most of the selected articles were published either in journals like the International Journal of Accounting Information Systems, MIS Quarterly or leading conference like the Hawaii International Conference on System Sciences. At the end, from 98 articles selected, 84 comported at least one definition of IT Governance and were retained for our analysis.

B. Results

From the 84 selected articles, 26 distinct definitions were extracted. Table I present these definitions and shows how many times they were cited.

Table I point out that the most prevalent definitions of IT Governance are those developed by the IT governance Institute (ITGI) [10] and Weill [14].

TABLE I: IT GOVERNANCE DEFINITIONS

Definition	Source	Cited by
IT governance is the responsibility of the Board of Directors and Executive Management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategy and objectives	[10]	[4], [11], [12], [16]–[47]
Specifying the decision rights and accountability frameworks to encourage desirable behavior in using IT	[14]	[2], [3], [5], [11], [24], [29], [34]–[37], [39], [41], [43], [48]–[64]
IT governance is the organizational capacity exercised by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT.	[65]	[5], [12], [16], [25], [34], [39], [41], [44], [50], [66]–[71]
IT governance is the definition and implementation of processes, structures, and relational mechanisms in the organization that enable both business and IT to execute their responsibilities in support of business/IT alignment and the creation of business value from IT enabled investments	[72]	[6], [70], [73]–[77], [78, p. 5]

IT Governance is 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.	[3]	[5], [36], [77], [79]–[81]
IS/IT governance concentrates on the structure of relationships and processes to develop, direct and control IS/IT resources in order to achieve the enterprise’s goals through value adding contributions, which account for balancing risk versus return over IS/IT resources and its processes	[82]	[3], [11], [23], [83]–[85]
IT Governance describes the distribution of IT decision-making rights and responsibilities among different stakeholders in the organization, and the rules and procedures for making and monitoring decisions on strategic concerns.	[86]	[11], [36], [87]
Preparation, development and implementation of decisions on goals, processes, people and technology at tactical and strategic levels	[88]	[37], [43], [89]
The organizational capacity to control the formulation and implementation of IT strategy and guide to proper direction for the purpose of achieving competitive advantages for the corporation	[90]	[3], [91]
IT governance is the selection and use of relationships such as strategic alliances or joint ventures to obtain key IT competencies. This is analogous to business governance, which involves make- vs.-buy choices in business strategy. Such choices cover a complex array of inter-firm relationships, such as strategic alliances, joint ventures, marketing exchange, and technology licensing.	[92]	[5]
IT governance is the system of structures and processes for directing and controlling information systems	[93]	[3]
At the conceptual core of IT governance processes, is an organizational model of decision making, defined as the process of identifying and solving problems	[94]	[3]
The IT related structures or architectures (and associated authority pattern) implemented to successfully accomplish (IT Imperative) activities in response to an enterprise’ environmental and strategic imperatives	[13]	[3]
The mechanisms that enable business and IT executives to integrate business and IT decisions, implement and monitor decision implementation, and learn from their effectiveness	[95]	[4]
The IT governance of an organization comprises the rules or guidelines that determine the division of IT roles and responsibilities, and how decisions on IT are made.	[96]	[3]
IT governance refers to how a firm assures its IT strategy and practices are used to support organization strategy and implement information practices	[97]	[3]
IT governance refers to the patterns of authority for key IT activities in business firms, including IT infrastructure, IT use and project management	[98]	[3]
The process for controlling an organization’s IT resources, including information and communication systems and technology	[99]	[66]
The policy development, to integrate best practices for IT control and to implement compliance, all determined by a strategic IT plan	[15]	[100]
IT governance is a structure of relationships and processes for controlling the IT role in the organization in order to achieve its business goals and add value to the organization.	[101]	[40]
The system by which the current and future use of IT is directed and controlled. Corporate governance of IT involves evaluating and directing the use of IT to support the organization and monitoring this use to achieve plans. It includes the strategy and policies for using IT within an organization	[9]	[75]
IT Governance is the organizational measurements exercised by the Board, executive management and IT management to control the preparation and implementation of IT strategy and in this approach ensure the combination of business and IT	[102]	[47]
Application of governance to an IT organization and its people, processes and information to guide the way those assets support the needs of the business	[103]	[104]
Regimes of IT-related standards, agreements, methods, rules, and practices that constrain, prescribe, and enable the implementation and use of ICTs to support government activity	[105]	[106]
A dynamic, goal-directed, performance-driven, adaptive, and relational process that seeks to bring congruence between organizational and IT strategies, structures, systems, processes, and practices in pursuit of valuable, risk-reduced, and measurable returns on IT investment	[107]	[106]
IT Governance is a responsibility of top-management and an integral part of corporate governance, encompasses the decision rights and the accountability framework for encouraging desirable behavior in the use of IT, and ensuring that IT goals and objectives are realized in an efficient and effective manner	[75]	[108]

C. Analysis

Literature contains at least 26 different definition of IT Governance; the lack of consensus is crystal clear here.

Webb [3] took 8 different definitions and conducted a content analysis in order to create a definition that will include all the elements of studied IT Governance’s definitions. This methodology started from 8 definitions and creates a 9th which add more confusion and increase the lack of consensus.

In this paper, we try to push toward a shared view of IT Governance. The results outline that two IT Governance definitions are approximately equally cited in recent literature, the ITGI’s and Weill’s Definition. In a first step toward a shared view, we can resume the no-consensus problem to these two definitions.

ITGI [10] defines IT governance as “the responsibility of the Board of Directors and Executive Management. It is an integral part of enterprise governance and consists of the leadership and organizational structures and processes that ensure that the organization’s IT sustains and extends the organization’s strategy and objectives”. This definition focuses on the strategic alignment of IT and considers IT Governance as all the mechanisms that lead to it. In “the board briefing on IT Governance” [10], the ITGI states that IT Governance occurs through different layers in the organization. The role of board of directors is to set the IT goals and strategy that should be diffused among the IT organization. IT activities should be directed by these goals and provide the board of directors by performance measurement that should be translated into redirections [10].

On the other side, Weill [14] defines IT Governance as “specifying the decision rights and accountability frameworks to encourage desirable behavior in using IT”. This definition considers IT Governance as being the answer of the questions: Who should be making each IT related decision? Who is accountable for it and how? In his book [14], Weill gives a distinction between IT Governance and IT management: Governance determines who makes the decisions while management is the implementation of decisions. IT governance stops at determining who should make IT related decision and who is accountable for it. In its second part, the definition states that IT governance is here to encourage “desirable behavior in using IT” in other words, the ultimate objective for IT Governance is for IT to be used in a perfect harmony with the organization’s orientations. In Weill’s definition, a good dispatching of decision rights in accordance with the company’s objectives will ensure the business/IT alignment. In his article [109] Weill gives examples of how the decision rights dispatching will help the company’s IT to create business value.

TABLE II: IT GOVERNANCE SCOPE

IT Governance elements	ITGI	Weill
Decision rights		X
Strategic alignment	X	X
Value creation	X	X
Processes	X	
Organizational structure	X	X
Performance management	X	
IT Management	X	

Both definitions agree that IT governance is an integral part of corporate governance and should be considered by the highest level of the organization. They also agree that the ultimate IT Governance objective is to align IT with business strategies in order to create business value. The difference between them is the scope of IT Governance. Table II gives a look on what are the elements considered by each definition.

IV. IT GOVERNANCE CONTROL FRAMEWORKS

A control framework is “any set of processes, procedures and policies that enable an organization to measure, monitor and evaluate their situation in relation to predefined factors, criteria or benchmark” [3]. IT Governance control frameworks are abundant in the academic and professional existing literature. Many national and international organizations produced different frameworks for different purposes (Control the alignment of IT with the business strategy, regulatory or financial control, ensuring information security, etc.) [3], [110]. Some of the most prevalent ones are COBIT : Control Objectives for information and related technologies”, ITIL: Information technology Infrastructure Library and ISO/IEC 38500 [24], [110], [111]. A brief description of each of the above-mentioned framework is presented below.

A. COBIT

Developed by the ISACA, COBIT is at its 5th edition [8]

released in 2012. COBIT 5 manual [8] states that COBIT is a framework that “helps enterprises create optimal value from IT by maintaining a balance between realizing benefits and optimizing risk levels and resource use”[8] (Information Systems Audit and Control Association 2012, 5) [8], [19]. COBIT 5 is based on five principles:

- 1) Meeting Stakeholder Needs
- 2) Covering the Enterprise End-to-end
- 3) Applying a Single, Integrated Framework
- 4) Enabling a Holistic Approach
- 5) Separating Governance From Management

B. ITIL

ITIL’s main concern is the IT Service Management (Delivery and support). It is a set of best practices published the first time in 1989 by the Office of Government Commerce (an office of the UK government). The last version (ITIL V3) was released in 2007 and revised in 2011. The objective of ITIL is to guide IT people to provide IT services that meet the needs of business formalized as Service Level Agreements(SLA) [46].

C. ISO/IEC 38500

Published by ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) in 2008 and revised in 2015, ISO/IEC 38500 is standard for corporate governance of IT and its ultimate objective is to “provide principles, definitions, and a model for governing bodies to use when evaluating, directing, and monitoring the use of information technology (IT) in their organizations”.

V. CONCLUSION AND RESEARCH PERSPECTIVES

Today’s organizations are facing a digitization transformation that places IT in a strategic associate position. IT cost are increasing, a so IT related risk. A McKinsey report published in May 2014 by Hirt and Wilmmott [1] states that: “Digital capabilities increasingly will determine which companies create or lose value” [1]. In this context, IT Governance gains more importance and consequently more academic and professional interest.

IT Governance is a relatively new concept [2]. The lack of consensus through literature is crystal clear. This paper studied the IT governance state of art, confirm that the concept is still a “murky water” [3] and tried to make a first step toward a shared view of IT governance.

This work is part of an ongoing project that aims to consider IT governance from an integrated lens. Then, propose a holistic approach for implementing effective IT Governance into public organization. The next research step will be to look for consensus and non-consensus areas among IT Governance practitioners (CEO, CIO, IT Expert, IT auditors, etc.) and confirm or develop this paper’s findings.

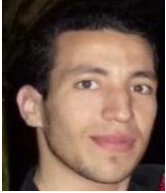
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