The Murky Waters of IT Governance

Jacques Coertze
School of ICT
Nelson Mandela Metropolitan University
Port Elizabeth, South Africa
Email: jacques.coertze@gmail.com

Rossouw von Solms
School of ICT
Nelson Mandela Metropolitan University
Port Elizabeth, South Africa
Email: rossouw.vonsolms@nmmu.ac.za

***Abstract*—This paper conceptually explores the existing IT governance literature and reveals that the concept remains an evolving and 'murky' phenomenon. Specifically, it highlights that as IT governance continues to evolve, it emerges in ever-new forms with increasing complexity and confusion. This is especially true, when studying the various differing definitions and terms applied within current literature and the nature and breadth of discussion. Even more so, when taking into account the whirlpool of standards and best practices currently operating within this domain. All of this leads to a lack of clarity, having the potential to confuse and possibly impede useful development and research in the field. Using content analysis, argumentation and modelling, this paper sets out to review and model a possible reform to the IT governance landscape. Hereby, it aims to offer much-needed clarity, provide a frame of reference and guide future research in the field.**

***Keywords*—corporate governance, operational IT governance, board IT governance, corporate governance of IT, enterprise governance of IT, COBIT 5, ISO/IEC 38500, King III, ITIL.**

I. Introduction

For as long as information and IT has been important; so too has there been a need to manage and govern it properly [1]. This gave birth to the concept and necessity of IT governance, concerned with how organisations can best use IT to achieve ultimate business value [2].

The domain or phenomenon of IT governance has experienced tremendous growth since its inception, as the importance of information and IT has increased [3].

Initially, whilst organisations relegated IT to the back-offices, IT governance was primarily concerned with how to organise the IT function optimally [4], [5].

Over a decade later, IT governance now focuses on the board of directors and other senior officers, as many organisations view IT today to be a key strategic asset [6], [7].

Consequently, the concept of IT governance has evolved. Unfortunately, this evolution has sparked a new problem: that of confusion [8].

Current IT governance literature is ear-marked with publications focusing on different facets, using differing conceptual lenses and interests [8]. Not to mention, this literature has introduced a myriad of different terms and definitions [9]. If this was only so, but the concept has also sparked the creation of several standards, best practices and guides.

Today, the *King III Report* [10], *ISO/IEC 38500* [2], *COBIT 5* [11] and *ITIL* [12] are amongst the most cited and frequently used publications within the IT governance domain. Yet, they all differ in their terminology, focal points of discussion and target audiences [8].

Thus, the IT governance field is in turmoil, as a lack of clarity is rapidly becoming evident [9]. This has the potential to confuse, as mentioned above, and possibly impede useful research in the field [8].

Consequently, the field is in need of a common frame of reference that not only explains the differing concepts and terms, but that can orient and guide the reader and future research [13].

On this basis, this paper first conducts a content analysis of existing definitions, concepts and discussions from within the IT governance literature and discusses the results within the context of evolution in the field.

Herewith, it highlights the most critical literature in the field to draw specific attention to the confusion, and at times, conflict that they may have introduced. In addition, it details their usage of definitions, concepts and discussions to strengthen the argument further.

The paper then continues to offer a conceptual organisational reform of IT governance that may prove useful to orient the reader and offer clarity to the field.

In doing so, it first proposes a typical view of governance in an organisation. Afterwards, it uses this to investigate and assign where/at which managerial level the various IT governance literature, definitions, concepts and discussions are most likely to arise or be useful.

II. IT Governance: A Journey Through Time

A. Pre-1980s to 1990s

Early IT governance research initially examined the manner in which the IT activities were organised. Zmud [4], for example, examined the decentralisation of IT responsibilities in response to the demand by end-users for improved IT services. As the IT department decentralisation continued throughout the 1980s, researchers began to investigate the different forms of IT organisations that evolved from that decentralisation process [5].

The focus on the structural aspects of IT governance continued throughout the 1990s. It was during this period that Blanton, Watson, and Moody [14] introduced contingency

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theory to the IT governance field. Each subsequent study progressively provided a more nuanced investigation of contingency factors and structural forms [15]–[19].

Brown [16] investigated four antecedents that influenced whether a specific business unit adopted a decentralised governance approach for systems development. Unfortunately, Brown [16] and earlier IS studies into the factors that influenced whether an organisation centralised, decentralised or shared its IT decision-making responsibilities suffered from one important limitation. None of these works had taken a multiple contingency approach [17], [19].

Drawing on the work of Gresov [20], subsequent studies by Brown and Magill [17] and Sambamurthy and Zmud [19] used a multiple contingency perspective. These studies examined how multiple contingencies reinforced and conflicted with one another when shaping IT organisational design decisions.

The research into IT governance had become increasingly complex. Some works investigated a single IT function (e.g., systems development), whilst other multiple functions. Similarly, some took a single level perspective (enterprise), whilst others a multi-level perspective (enterprise and business unit).

By the late 1990s, research into IT governance structures and their antecedents had reached a critical point: that of consensus. Consequently, Sambamurthy and Zmud [21, p. 105] expressed concern and challenged the research community to adapt new perspectives beyond the structural. That is, since they viewed the accumulated wisdom to be inadequate in shaping appropriate insights for contemporary practice.

Whilst IT researchers naturally adopted a structural lens, IT practitioners during this period rather opted for a process perspective [22]. This led to the creation of Information Systems Audit and Control Association's (ISACA) most influential and most successful publication: *Control Objectives for Information and related Technology (COBIT)* [23]. Nonetheless, ISACA was not alone in its quest.

The IT Governance Institute (ITGI), established by ISACA in 1998 as a research "think tank", produced the influential publication of *Board Briefing on IT Governance* [24]. What transpired was that *COBIT* primarily targeted managers, auditors and users [23]. In contrast, the ITGI focused on the board of directors and senior executives [24].

In this light, much IT governance literature hereafter had differing definitions, terms and target audiences. Those following *COBIT* [23, p. 3] defined IT governance as "the leadership, organisational structures and processes that ensure that IT sustains and extends the organisation's strategies and objectives". Similarly, those following ITGI [24, p. 9] adopted the notion of corporate governance "the system by which companies are directed and controlled".

Ultimately, this led to the newfound notion that "IT governance was the responsibility of the board of directors and senior executive management" [24, p. 9]. This fact then forced the academic community to look at IT governance anew.

B. The Turn of the Century

In the preceding years, the academic community gave much attention to the structural perspective of IT governance. This, though, drastically changed with the turn of the century.

In this period, Peterson et al. [25] extended the conceptualisation of IT governance by investigating the complexity of hybrid configurations and the effects of governance arrangements on IT performance. In a follow-up study, he [26] continued to investigate the elements of IT performance, value realisation, and decision-making processes. Thus, the academic conception of IT governance began to shift towards that adopted by professional bodies such as the ITGI.

Ribbers, Peterson, and Parker [27] also shifted IT governance research from structures to processes. The author defined IT governance as "the mechanisms that enable business and IT executives to integrate business and IT decisions, implement and monitor decision implementation, and learn from their effectiveness" [27, p. 2].

Herewith, academia gave anew attention to decision-making in IT. Weill, together with a number of collaborators, produced several articles dedicated to the topic [28]–[30].

This series of publications represented a significant advancement in our understanding of IT governance. Yet, Brown and Grant [3, p. 708] noted, "Despite this increasingly prominent contemporary view, some disparity of viewpoints still remained".

The professional bodies also continued to evolve their conceptualisation of IT governance. The ITGI consolidated its authority in the field by releasing updated versions of its existing publications, among others a second edition of the *Board Briefing on IT Governance* [31] in 2003.

ISACA continued to release several updated versions of *COBIT*, ultimately culminating in *COBIT 4.1* [32] released in 2007.

Other professional bodies also introduced their own views and opinions. The Institute of Internal Auditors (UK and Ireland) released the report *The Corporate Governance Framework* [33] in 2003. In 2004, the Chartered Institute of Management Accountants (CIMA) released a report [34] defining the term 'enterprise governance', based on an earlier report by ITGI in 2001 [24].

The consultancy firm PricewaterhouseCoopers [35] also advocated the need to integrate three critical sets of business activities, traditionally viewed as discrete and separate functions: governance, risk management, and compliance. This gave rise to the term GRC.

The first national standard on IT governance incorporated many concepts identified in the professional stream of literature. In 2005, Standards Australia released *AS 8015: Corporate governance of information and communication technology* [36].

In 2008, the Australian standard, *AS 8015* [36], became the basis for the international standard *ISO/IEC 38500* [2]. Rather than being a prescriptive standard, it provided a "framework of principles for directors to use when evaluating, directing and

monitoring the information and communication technology (ICT) in their organizations" [2, p. v].

This principle perspective or approach, whilst certainly aiding directors, did little to clear the confusion that now gripped the IT governance field. Among others, few knew where *COBIT* resided in the IT governance landscape. Some questioned whether *ISO/IEC 38500* [2] operated at a higher level of abstraction and seniority. Then there was also the larger concern of how IT governance, corporate governance and enterprise governance related.

By the end of 2008, the ITGI realized that an integrated and holistic conceptualisation of the IT governance field was required to address this confusion [8].

C. The Recent Years (2009 - 2014)

During the recent years, the academic community gave much attention to the board of directors. This was perhaps resultant of its interest with *ISO/IEC 38500* [2].

In 2009, Van Grembergen and De Haes released their book titled *Enterprise governance of IT* [37]. Largely, it attempted to consolidate the IT governance field and offer a holistic framework for the implementation of enterprise governance of IT within an organisation.

Interestingly, the authors [37] argued that since IT was part of naming the IT governance concept, the debate mainly remained within IT. Yet, businesses increasingly found that IT did not in and by itself create business value any more. This then resulted in a shift towards enterprise governance of IT [37, p. 2–3].

Thus, the authors considered IT governance to have evolved into enterprise governance of IT [38]. Yet, other academic literature during this same period viewed it as possibly two disparate concerns.

Jewer and McKay [6] also introduced a new term 'board IT governance' when they published research dedicated to the board of directors. Unfortunately, the authors did not formulate their own definition for the new term. Rather they opted to use the existing definition of IT governance by the ITGI [32].

From their discussion it, however, did appear different. In fact, the authors argued that most IT governance literature to date had not focused on how the board of directors was involved. Hereby, they argued their term to reflect a possibly new perspective or perhaps higher-level conceptualisation of the IT governance concept.

Similarly, Valentine and Stewart [39] also argued towards a higher-level conceptualisation. The authors argued that the newfound importance of information and IT forced board of directors to get involved in IT oversight duties, which for a long time was non-essential.

Yet, they highlighted that because enterprise governance of IT and board IT governance was IT focused, it risked being potentially confused with operational IT governance. Thus, suggesting that the two terms reflected separate concerns.

Valentine [7] finally settled this argument, when she mentioned, "enterprise governance of IT includes the leadership and governance oversight of IT at an enterprise level" [7, p. 1]. The author continued to discern that enterprise governance of IT differed from operational IT governance in the same way as how strategic and operational management differ.

That said; no single academic or practitioner publication to date has made an effort to orient clearly this newfound wisdom within the larger IT governance literature. There was, nevertheless, some effort made by the practitioner community to consolidate and reorganise the existing IT governance literature published prior to 2009.

In 2009, the ITGI published the results of its *Taking Governance Forward* project [13], aiming to provide an integrated and holistic conceptualisation of the IT governance field. Whilst the results did provide some clarity, it failed in becoming the de facto overview guide.

Possible reasons include that it was a collaborative project, including different nationalities and stakeholders. Ultimately, this resulted in a whirlpool of differing views, opinions and, at times, contradictory definitions and even never before seen terms.

Another problem for the project was that it merely attempted to orient and organise the publications of ITGI, although a good deal of other literature existed at the time.

What resulted ultimately was more confusion: several new terms, little explanation and references to the theoretical underpinnings and a different way of viewing the field that contradicted many current beliefs and thoughts.

During this period, some authorities and commentators contended that *COBIT 4.1* [32] published by ISACA in 2007 had its main arguments and function in IT management not IT governance. Hence, they argued that it was not a 'true' IT governance framework, given current literature. This was confirmed later by the *Comparing COBIT 4.1 with COBIT 5.0* report [40] released by ISACA.

Given this, ISACA for several years attempted to re-conceptualise and restructure the content to take an IT governance stance. This resulted in ISACA publishing the *COBIT 5* framework [11] in 2012, featuring dedicated elements and processes on IT governance.

Of specific interest, it stated that IT governance was concerned with "evaluating, directing and monitoring IT within an organisation" [11, p. 32]. Meanwhile, the framework defined IT management to include "planning, building, running and monitoring the IT activities within an organisation" [11, p. 14]. Hereby ISACA differentiated IT governance from IT management.

A concern, though, was that *COBIT 5* [11] did not use the term 'IT governance'. Instead, it opted to use 'governance of enterprise IT'. In addition, it considered this to operate within the larger 'enterprise governance' domain.

Again, some started to question whether IT governance and governance of enterprise IT was the same concept. Others again questioned and raised concern about the correlation between enterprise governance and corporate governance. It was also debated whether *COBIT 5* [11] was an implementation of *ISO/IEC 38500* [2] or rather a framework

that operated below it in the organisational sphere. Thus, confusion resulted and, to date, still persists.

This section has recognised that the IT governance field experienced tremendous growth and evolution since its inception in the early 1980s. Throughout time, various authors have expanded the field by introducing new terms, concepts and differing their focal points of discussion and target audiences. Unfortunately, this has also caused much confusion, disparity and, at times, conflict among those operating in the field.

Therefore, not surprisingly, Vitale [41] notes that our understanding of IT governance varies considerably and that it remains an "unsettled" concept. Similarly, Peterson [42, p. 7] states it "to remain an evolving and 'messy' phenomenon, emerging in ever-new forms with increasing complexity".

Whilst past literature has delivered publications attempting to orient and reform the IT governance concept [9], [13], many appear to have been unsuccessful. Instead, they have only added to the confusion and led to further misunderstanding.

In this light, a publication is still much needed that can offer a model to interpret, orient and reform the IT governance field.

III. An Organisational Reform of IT Governance

The term 'governance' originates from the Greek word 'kybernan', meaning to steer or to be at the helm [43]. From an IT perspective, this suggests that IT governance is a phenomenon where managers of an organisation steers the current and future usage of IT by their subordinates [2].

Governance is a recursive function occurring throughout an organisation. Thus, not only does the senior executives or board of directors perform this duty, but so too their subordinates [1]. Yet, this recursion could cause confusion since the duties performed at each organisational level may differ not to mention whom performs it.

Consequently, Lewis and Millar [43] contends that only when we observe the entire organisational sphere can the true nature and phenomenon of governance, and in particular IT governance, be understood and interpreted.

Hence, this paper takes such an organisational perspective to orient and possibly reform the IT governance concept and its related terms and definitions.

A. Governance in the Organisational Sphere

The generic governance model, shown in Fig. 1, depicts how the concept of governance conceptually perpetuates throughout an organisation.

The direct-control cycle, as outlined by Von Solms and Von Solms [44], forms the model's basis. Hereby, it reflects the reality that governance involves management personnel at several levels of an organisation, right from the top, down to the bottom. That said; this is a simplified perspective. Often some activities do overlap between the managerial levels. This is normal, and reflects reality. Nevertheless, the direct-control cycle does offer a starting point for discussion.

The model also incorporates Tricker's [45] notion of a governance circle and management triangle, to discern the

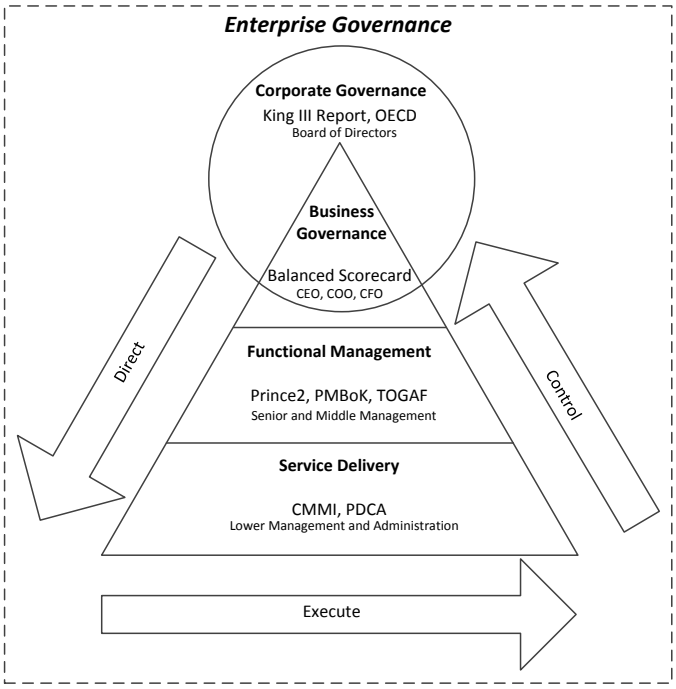

Fig. 1. The Generic Governance Model

separation between governance and management activities within an organisation. The circle depicts the governing body's duties, whereas the triangle (or direct-control cycle) represents the activities of management in the organisation. Once again, some overlap is discernible. This is normal, and reflects reality.

Governance typically originates with the governing body, whom decides 'what' the rest of the organisation should be doing [1]. The governing body is the highest authority responsible for the overall well-being of an organisation [10]. As such, they should take reasonable steps to both direct and control the organisational activities in a holistic and integrated manner [46].

This coincides with the definition of 'corporate governance', as outlined in the *Cadbury Report* [47], *OECD Principles* [48] and the *King III Report* [10]:

> "Corporate governance refers to the system of structures, rights, duties, and obligations by which the board and executive management direct and control a corporation."

Meanwhile, the processes that the governing body uses to achieve this oversight typically fall under the ambit of board governance [49]–[51]. In this light, board governance prescribes the manner by which the governing body members make strategic decisions among themselves to offer the required oversight [52].

Hence, this paper perceives the notion of corporate governance and board governance to describe collectively the governance activities performed by a governing body.

Two distinct groups often form within a governing body [53]. This is true of organisations following both a unitary and two-tier board structure [54].

When following a two-tier board structure, the first group includes a number of independent directors forming the supervisory board [54]. These directors should have no immediate ties to management and may not hold office in the organisation [53]. In contrast, the second group includes the executive directors forming the management board [54]. With a unitary board structure, the same separation applies, although this forms indirectly within a single board known as the board of directors [53].

Irrespective of the board structure followed by the organisation, the executive directors assist their colleagues either directly or indirectly. In particular, they contribute to the overall corporate governance activities [10]. Nonetheless, they also perform a related, yet separate, governance function internal to the organisation.

The executive directors, forming the strategic management of an organisation [44], also perform business governance activities [13]. Although appearing similar in nature to the corporate governance activities, of which these directors form part of, these activities serve different purposes.

Whereas corporate governance takes a holistic and integrated perspective, business governance operates according to a functional or business perspective [13]. That is, business governance considers each organisational function individually and governs it accordingly.

This does not suggest that business governance occurs independently of corporate governance in an organisation. On the contrary, Van Grembergen and De Haes [37] consider business governance to be a subset of corporate governance. That is, since the executive directors need to ensure alignment between their individual functions that they govern and the overall oversight and vision that the governing body has established. Not surprisingly, Epstein and Roy [55] developed the balanced scorecard concept specifically with this in mind.

Consequently, Fig. 1 depicts within the governance circle that the governing body performs corporate governance as a collective. It also notes that the executive directors, forming the strategic management, performs another related, yet separate, business governance duty as a subset.

Tricker [56] mentions that a distinction between governance and management exists. The governing body (including strategic management) regularly perform governance activities [10]. In contrast, Von Solms and Von Solms [1] state tactical and operational management personnel to concern themselves with traditional management activities.

As prescribed by *COBIT 5* [11, p. 14], these activities involves "planning, building, running and monitoring the activities within the organisation". Frameworks such as *Prince2*, *PMBoK* and *TOGAF* provide a basis for performing these activities [11, p. 60–61].

Hence, this paper perceives the changeover point between the governing body (including strategic management) and tactical management of an organisation to signify the transitioning from governance to management.

As outlined, both tactical and operational management personnel together plans, builds, runs and monitors the activities within an organisation [11]. Their respective focus, though, is different. Tactical management is usually the personnel whom decide 'how' operational management should execute the mission and vision, established by the governing body [1]. The authors consider this to coincide with the term 'functional management'. Meanwhile, operational management and staff ensure the actual execution hereof [44].

When viewing this execution within a service department, such as IT or HR, these activities depict 'service delivery' [12]. That is, the management personnel residing at this level delivers and improve the services required by the other departments' day-to-day activities within the organisation.

Consequently, the popular plan, do, check, act (PDCA) cycle is often exploited and discernible at this level. At the same time, a constant strive for process refinement and improvement. Therefore, service capabilities and process maturity is under perpetual scrutiny. Thus, the capability maturity model integration (CMMI) framework also often features at this level.

Therefore, this paper perceives a changeover point within the lower-levels of management itself. The authors observe the point between the tactical and operational levels of an organisation, to signify the transitioning from functional management to service delivery.

This separation from governance to management and ultimately to service delivery does not suggest that the tactical and operational levels will perform no governance activities. On the contrary, as mentioned earlier, governance is a recursive function in an organisation.

Thus, both management and governance activities reside at all levels of an organisation. The difference, though, is that the management personnel at the tactical and operational levels target specific lines of business or functions individually and manages them mostly in isolation.

Per example, the head of the HR department and his subordinates will govern and manage only their immediate departmental activities. In contrast, the director of HR takes a more holistic and integrated approach at the strategic level. That is, he governs HR in accordance with the vision and mission collectively established by the governing body.

The fact that governance is a recursive function in an organisation does raise a concern. Surely, all these types and forms of governance must operate under a single umbrella term; otherwise, they may introduce disparity and strive for different end goals.

Much debate currently exists within the governance literature, as to what this umbrella term should be. Both ISACA [11] and the ITGI [13] specify 'enterprise governance' to refer collectively to the recursive governance activities:

> "Enterprise governance is the overarching view of governance and applies to all enterprises. It is the highest-level view of the governance framework; all governance views within it must be constructed in such a manner as to support the outcomes it defines."

Other publications consider enterprise governance to coincide with corporate governance [1], [32], [37], [44]. These

often view enterprise governance to describe the governing body's responsibilities and actions. Interestingly, these same publications often then remain silent on what the collective term might be. Perhaps the generic term 'governance' might be most suitable in such situations [46].

To offer clarity, this paper takes a similar stance to ISACA [11] and the ITGI [13] in using enterprise governance to refer collectively to the recursive governance activities performed throughout an organisation. Fig. 1 illustrates this usage by the dotted line border that surrounds the model.

This paper, therefore, considers all governance activities to fall under the ambit of enterprise governance. Hence, it views the *direct*, *execute* and *control* actions, forming the basis of governance, and perpetuating through all managerial levels to depict enterprise governance. This does not void other publications, but simply requires the reader thereof to form an alternative mental model.

The proposed generic governance model, shown in Fig. 1, conceptually applies to all views of governance. Hence, it may apply equally well to HR, IT and all other functions of an organisation. This paper, though, aims to take an IT perspective as to reform the IT governance field. Therefore, the next section adapts this newly established model to the IT function.

B. IT Governance in the Organisational Sphere

The previous section proposed a generic governance model, presented in Fig. 1, depicting how the concept of governance conceptually perpetuates throughout an organisation. Building hereupon, Fig. 2 takes this newly proposed model and adapts it for the IT function within the organisational sphere.

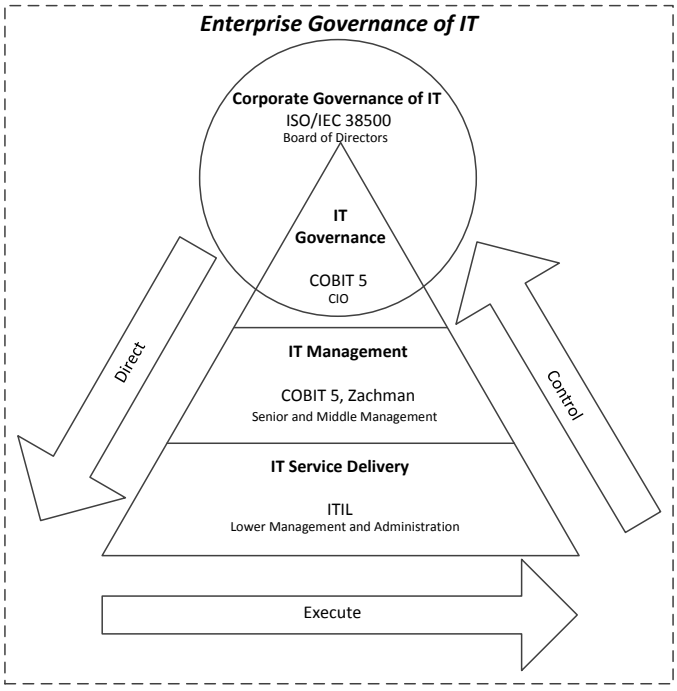

Fig. 2. The IT Governance Model

Hence, Fig. 2 echoes a similar conceptualization to the generic governance model, albeit this time in respect of IT.

As with the generic model, it depicts corporate governance of IT to describe collectively the governance activities performed by a governing body when viewing the IT function. According to *ISO/IEC 38500* [2] these activities involves "evaluating and directing the use of IT to support the organization and monitoring this to achieve its strategic plans".

Various publications have become available over the years to assist the governing body in properly implementing these activities. Among others, *ISO/IEC 38500* [2] established an internationally recognised model and corresponding principles for the directors to use. Additionally, the ITGI's *Board Briefing on IT Governance* publication [31] offered several best practices and recommendations. Lastly, ISACA has produced a report investigating the governing body's duty to investigate IT risks [57]. In another, it explained how the governing body could obtain ultimate business value from IT [58]. ISACA incorporated these into the new *COBIT 5* publication [11].

Nolan and McFarlan [59], however, note that the governing body's involvement may fluctuate depending on the importance of and dependence on IT within the organisation. Not to mention, Jewer and McKay [6] theorised that both institutional and board factors may affect this involvement as well.

That said; most current publications [2], [7], [11] do agree that the time is ripe for the governing body to get involved in IT oversight. If not, then at least the highest-ranking officer amongst the strategic level should invest time herein [10].

Jewer and McKay's [6] introduction of 'board IT governance' also coincides with the newly established model. The processes that the governing body use to implement the IT oversight activities appears to fall under the ambit of board IT governance. Therefore, a great similarity between board governance, per the generic model, and board IT governance exists.

The previous section mentioned that two groups often form within a governing body. It argued that the independent directors perform corporate governance. The executive directors may assist herewith. Still, they also perform another related, yet separate, governance function. This is also true when considering the IT function.

Valentine [7] argues that "corporate governance of IT includes the leadership and governance oversight of IT at an enterprise level" [7, p. 1]. This coincides with the term's usage in Fig. 2. The author, though, continues to discern that corporate governance of IT differs significantly from operational IT governance.

Resultantly, Fig. 2 shows, within the governance circle, that the governing body performs corporate governance of IT as a collective. Meanwhile, the executive directors, forming the strategic management, perform another related, yet separate, operational IT governance duty as a subset.

The *COBIT 5* publication [11], especially with its new governance elements and processes, and the IT balanced scorecard concept [60] may assist the executive directors with

this duty. That is, since both allow a smooth transitioning back and fro from the holistic and integrated vision and mission established by the entire governing body to the specific IT goals.

Operational IT governance, however, should not be confused with IT management [11]. Operational IT governance focuses on directing, evaluating and monitoring the IT activities at a strategic level. In contrast, IT management entails "planning, building, running and monitoring" these activities typically at a tactical level. This corresponds with the managerial elements and processes in the lower levels of *COBIT 5* [11].

Hence, the changeover point between the governing body (including strategic management) and tactical management of an organisation may conceptually signify the transitioning from operational IT governance to IT management.

That said, as mentioned previously, tactical management is usually only the personnel whom decide 'how' operational management should execute the mission and vision, established by the governing body. Meanwhile, operational management and staff ensure the actual execution hereof. The same notion applies to IT.

Whereas tactical management focuses primarily on IT management, operational management spends its days performing IT service delivery [1]. That is, since IT is considered a service function within an organisation [43]. Therefore, the *ITIL* publication [12] is most applicable to this level of management.

Consequently, operational management will continuously plan, do, check and act upon the day-to-day IT activities [12]. Therefore, process refinement and improvement is a primary focus.

Thus, Fig. 2 depicts a changeover point within the lower-levels of management itself. It proposes the point between the tactical and operational levels of an organisation to signify the transitioning from IT management to IT service delivery.

Lastly, once again similar to the generic model, the figure shows enterprise governance of IT to be the overarching view of governance. Hence, it uses enterprise governance of IT to refer collectively to all the IT governance activities that perpetuates throughout the organisation. This is in accord, among others, with the governance mapping of the ITGI [13], *COBIT 5* [11] and the arguments of Van Grembergen and De Haes [37], [38].

IV. Conclusion

Information and IT has become vital to the successful existence of nearly all organisations [1]. Yet, organisations can only achieve ultimate business value when it properly manages and governs this information and IT [11]. Hence, the concept and necessity of IT governance has become equally important [2].

IT governance has evolved tremendously since its inception [3]. Initially, much IT governance research examined the manner by which to organise the IT activities optimally within an organisation [4], [5]. Over a decade later, the field is now ear-marked with publications focusing on different facets, using differing conceptual lenses and interests [8]. Not to mention, this literature has now also introduced a myriad of different terms and definitions [9]. Thus, a new problem has surfaced: that of confusion [8].

Whilst past literature has delivered publications attempting to orient and reform the IT governance concept [9], [13], many appear to have been unsuccessful. Instead, they have only added to the confusion and led to further misunderstanding.

To address this problem, the paper first conducted a content analysis of existing definitions, concepts and discussions from within the IT governance literature. Herewith, it attempted to shed light on the field and the origin of confusion.

It then continued to offer a conceptual organisational reform of IT governance; see Fig. 2 that may prove useful to orient the reader and offer clarity to the field.

In doing so, the paper first argued towards and proposed a typical view of governance in an organisation; see Fig. 1. The existing works of Von Solms and Von Solms [44] and Tricker [45] featured prominently herein.

Afterwards, it used the proposed governance view to investigate and assign where/at which managerial level the various IT governance literature, definitions, concepts and discussions are most likely to arise or be useful.

This newly established IT governance reform, however, merely represents a conceptual contribution at this stage. That is, since this reform forms part of a larger research project.

That does not suggest, it to hold no validity or value. On the contrary, the authors of this paper envisage that the reform may prove highly beneficial to those operating within the IT governance field.

This reform may allow the relationships, dependencies, frameworks, standards, and guidance within the IT governance landscape to become more defined – and, consequently, may foster a better understanding and practical application of IT governance concepts itself.

Acknowledgement

The authors hereby acknowledge the financial assistance of the National Research Foundation (NRF) towards this research. Opinions expressed and conclusions arrived at, are those of the authors and not necessarily the NRF.

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