Università
Ca'Foscari
Venezia

**Department
of Management**

Working Paper Series

**Daria Arkhipova, Giovanni Vaia,
William DeLone and Carolina Braghin**

IT Governance in the Digital Era

**Working Paper n. 12/2016
October 2016**

ISSN: 2239-2734

IT Governance in the Digital Era

Daria Arkhipova
daria.arkhipova@unive.it
Department of Management
University of Venice

Giovanni Vaia
g.vaia@unive.it
Department of Management
University of Venice

William DeLone
wdelone@american.edu
Kogod School of Business
American University

Carolina Braghin
carolina.braghin@unive.it
Department of Management
University of Venice

(July 2016)

Abstract: As companies progressively rely on mobile, social media, cloud and big data in their business, the very nature of IT function within an organisation changes from providing reliable and cost-effective IT support to actively searching new ways to leverage technology and create customer value. For scholars and practitioners alike, the question then arises as to which extent the well-established IT governance models still apply in the new digital context and, if they no longer do, what new models can be proposed to account for the changing demands placed on IT. Through an explorative case study, this paper provides insights on emerging IT governance models within a digital enterprise. Our findings seem to suggest that the role of IT has expanded beyond a robust infrastructure provider to the one a strategy and technology partner. In order to harness the full power of IT in this capacity, companies need to make their IT department more business-aware, incentivize lateral communication and cross-functional learning, and promote integration of previously disconnected functional units.

Keywords: Governance, Digital transformation, Governance structures, Governance mechanisms.

Correspondence to:

Daria Arkhipova — Dept. of Management, Ca' Foscari University of Venice
San Giobbe, Cannaregio 873
30121 Venice, Italy
E-mail: daria.arkhipova@unive.it

1 Introduction

In the past decade, digital technologies have substantially transformed the role of IT within a firm (McDonald et al., 2014; Gottlieb and Willmott, 2014; Hirt and Willmott, 2014; Tannou and Westerman, 2012; Westerman et al. 2011). As companies progressively rely on mobile, social media, cloud and big data in their business, the very nature of IT function within an organisation changes from providing reliable and cost-effective IT support to actively searching new ways to leverage technology and create customer value. For scholars and practitioners alike, the question then arises as to which extent the well-established IT governance models still apply in the new digital context and, if they no longer do, what new models can be proposed to account for the changing demands placed on IT.

Although there has been no agreement in the IS literature on a single definition of IT governance, many IS and IT researchers advocate a shared view that IT governance includes structural, process and outcome metric dimensions (Weill and Broadbent, 1998; Bowen et al., 2007). According to this definition, IT governance delineates the roles and responsibilities for making IT-related decisions, designs effective decision-making processes and establishes performance assessment mechanisms. Over the past decades, several conceptual models of IT governance have been developed in order to capture empirically observed governance arrangements in a more structured fashion (Sambamurthy and Zmud, 1999; Henderson and Venkatraman, 1993). In particular, Weill (2004) proposes a classification of six IT governance "archetypes" based on the degree of involvement of corporate stakeholders from different functional areas and hierarchy levels in IT-related decision-making: (1) business monarchy, (2) IT monarchy, (3) feudal, (4) federal, (5) IT duopoly and (6) Anarchy.

Notwithstanding the importance of Weill's (2004) contribution, it stands to reason that traditional understanding of IT governance might not adequately reflect the realities of a digital world. First, products and services become increasingly more "digitalized", and it blurs the boundaries between IT and business (e.g. marketing, sales, manufacturing) processes (Bharadwaj, 2013). Much decision-making thus happens jointly in cross-functional teams as opposed to traditional autonomous functional-level or bilateral decision-making. Second, the common way of thinking about IT as being subjected to business authority changes as IT becomes more business-aware and, consequently, more involved in "high-level" strategy-making. On the other hand, lack of internal digital competence and legacy IT infrastructures may push businesses to acquire IT services from third-party service providers, often

bypassing in-house IT. Finally, high speed of technology development incentivizes companies to develop governance arrangements deliberately aimed at simplifying and accelerating IT-related decision-making processes. Taken together, these digital trends suggest that IT governance models based on distinctive separation of functional responsibilities and inherently hierarchical decision-making may need to be revisited.

This study seeks to contribute to the literature on IT Governance and strategic alignment (Wu et al., 2015) in the context of evolving digital organization. To that end, we have embarked on an explorative case study of a large Italian bank that has recently undergone a digital transformation. We have conducted a series of interviews with 12 managers of the bank and then classified their governance-related statements using the IT governance framework (Weill, 2004) as an analytical tool.

The paper is organized as follows. We start by reviewing the model of IT governance proposed by Weill (2004) and its key dimensions in more detail. We then introduce a case and discuss the methodology. We then present and discuss our findings. We finish with preliminary conclusions and avenues for future research.

2 Models of IT Governance

IT governance has been widely discussed in IS literature and traditionally concerned with IT project selection and prioritization, IT resource allocation and division of responsibilities between multiple stakeholders (Wu et al, 2015; Huang et al., 2010; Karimi et al., 2000; Brown and Magill 1994). Early research in the IS field has distinguished between three broad IT-related decision categories – IT infrastructure, use and project management (Sambamurthy and Zmud, 1999). Sambamurthy and Zmud (1999) propose three major governance types - centralized, decentralized and hybrid - based on organization's IT-related authority patterns.

Recent studies have also investigated the definition of IT governance mechanisms. IT governance mechanisms are represented as a set of structures, processes, and relational mechanisms to enhance business/IT alignment (Ali and Green, 2012; Wu et al, 2015).

Until today, we have obtained substantial empirical evidence about types of governance mechanisms/models and their relationship with strategic alignment, and factors that influence the choice of governance (contingency view).

Combining these different perspectives, Wu et al (2015) delineate the necessary

elements of an IT governance framework. Based on Peterson (2004), Van Grembergen et al. (2004), and Weill and Woodham (2002) studies they propose "*IT governance can be deployed via a mix of structures, processes, and relational mechanisms […] Structures involve clearly defined roles and responsibilities and a set of IT/business committees such as IT steering committees and business strategy committees. Processes refer to formal processes of strategic decision making, planning, and monitoring for ensuring that IT policies are consistent with business needs. Finally, relational mechanisms which include business/IT interaction, shared learning and communication are crucial to the IT governance framework*" (Wu et al, 2015, p. 502).

The influential study by Weill and Ross (2004) supports that effective IT governance deploys three different types of mechanisms: decision-making structures (such as committees, executive teams, and business/IT managers responsible for IT decisions), alignment processes (such as IT investment proposals and evaluations), and communication approaches (channels that spread principles and policies of IT governance and decision-making outcomes).

In this study we are not interested on the relationships of IT governance and business performance as well as its implementation mechanisms. We discuss if the traditional definition of IT governance is still valid in today new digital enterprises. To this end, we used Weill's (2004) seminal framework, which has influenced subsequent studies, as a reference model to compare with our findings.

Weill (2004) describes five major IT decisions (include IT principles, IT architecture, IT infrastructure strategies, business application needs, and IT investment and prioritization) and three performance measures such as asset utilization, profit and revenue growth (Vaia and Carmel, 2013).

The five decision categories with respect to IT governance are:

- IT Principles –relates to the role that IT plays in the business (from tactical support function to strategic enabler);
- IT architecture – describes how individual components of a single IT system relate to each other and how to integrate them to achieve performance benefits;
- IT infrastructure – this includes hardware and software choices, describes responsibilities of IT utilization and includes protective and safe-guarding policies to enhanced security on multiple devices. Relates also to shared services across the company;

- Business applications – relates to specifying the business needs for purchasing from the market applications or internally develop them.
- IT investment and prioritization – focuses on procurement and cost analysis, project assessment and approval.

On this basis, Weill frames six governance classifications available to IT organizations based on the ideal of political archetypes (Vaia and Carmel, 2013) (Figure 1). While the Business Monarchy and IT Monarchy archetypes represent a centralized decision making structure, IT decisions are made by Chief Officers (CxOs) in the former and Corporate IT professionals make the IT decisions in the latter, Feudal archetype reflects a decentralized structure where business unit owners are the primary decision makers within their dominion of control (decisions are made by autonomous business units). The IT Duopoly archetype, instead, represents a two-party arrangement between a business group and IT executives and is more restrictive and specialized than the Federal model. The Federal functions as an "hybrid" decision making model. IT Duopoly model seems to allow for creative business solutions within agreed-upon controls. Weill also considers anarchy as model, where each small group can makes decisions.

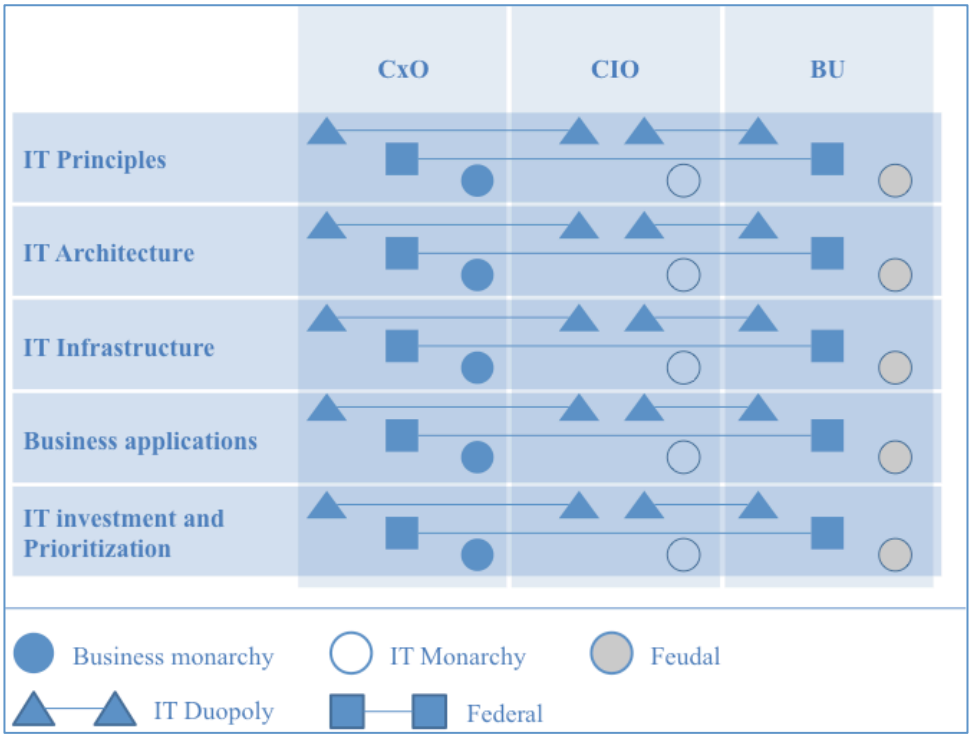

Figure 1: IT Governance Archetypes proposed by Weill (2004)

Source: Adapted from Weill (2004)

Notwithstanding the importance of the model proposed by Weill (2004), it shares several common traits with the prior models that impose significant limitations on their applicability in the digital realities. Namely, they overemphasize the role of hierarchy, propose robust structures that lack agility, do not account for cross-functional synergies. Different studies in the IS field claim that effective governance and subsequent strategic alignment requires centralized governance structures (Sambamurthy and Zmud 1999; Kearns and Sabherwal, 2007) and vertical communication (Martinsons and Davison 2007). That is, *IT governance is characterized in the IS literature by an alignment on the top of the organization, by vertical communication and a hierarchical culture, searching to fill the gap continuously on the shared understanding between IT and business.*

In the present study, we focus how IT governance might change and adapt in a digital organization, pointing out the main differences with IT governance in traditional organizations.

In what follows, we use six decision categories of Weill (2004) to analyze how these decisions are being taken by a digital organization, enriching and expanding this framework to account for new realities. Next, we discuss how digital challenges can be integrated and used to envision a future digital governance model.

3 Method

3.1 Research setting

The research design is a qualitative case study of digital transformation initiatives at a large Italian financial institution with headquarters in Italy. The bank was founded in 1997 as a *"branchless" retail bank* and, since its inception, has exclusively specialized on provision of online financial services via multiple channels (telesales, Internet and mobile) with the support of the banking centre and a network of independent bank representatives. During the period from 2007 to 2015 the bank has pioneered a series of innovative banking solutions and, by 2015, has digitalized most of its client-facing activities and internal operations.

During the course of 2011, in the light of customer preferences shifting towards mobile channels, the range of digital banking services was expanded to accommodate the needs for more interactive communication and immediate information availability. The launch of the new web-site in 2011 was followed by the creation of the new mobile applications featuring GPS option to locate the nearest ATM or an independent bank representative. Furthermore, subsequent introduction of the on-line chat and the internet

calling VOIP allowed connecting three key stakeholders - the Banking Services Centre, an independent bank representative and the customer - simultaneously in order to increase the efficiency of customer problem solving. As a result of the enhanced functionality of the mobile application coupled with the increased product offering the volume of mobile transactions more than doubled from 88.7 million in 2011 to 228 million in 2012. The introduction of a digital signature in 2012 was another important technology-enabled step towards digitalisation of the bank initially aimed at making the notoriously bureaucratic procedure of opening an account more efficient while preserving its legal value in digital channels. Since 2012, the digital signature has extended to other additional types of operations and products, favouring paperless procedures. In 2012, the bank has officially established its presence in social media. Subsequently, a number of digitally-enabled innovations followed that gave the bank customers the ability to transfer money online through PayPal (2012), to open their bank accounts online (2013) and to use contactless technology when paying at POS (2014).

This innovative approach to customer-related operations was reflected in the way the bank operated internally. In 2007, the intranet-based was created for the sales network representatives, management and employees to get a shared access to all technological tools, information, rules and procedures used across the entire organisation. In 2010, the several platforms were integrated into a single web-based platform which additionally featured the Corporate TV that made broadcasting of educational and informational programmes possible on any digital device.

Finally, two important organisational projects were launched in 2014: the SMART Program and the Digital Workplace project. The SMART Program was aimed at defining innovative and transformational initiatives for the bank's operating model, with distinct attention towards digital supports for the sales network. The Digital Workplace project (still ongoing), was born with the intent of driving the organisation towards more open and transparent forms of collaboration capable of disrupting organisational silos in order to reach higher levels of efficiency and knowledge sharing. Whereas the SMART Program leveraged the knowledge potential of the organisation for "ideation" purposes, the core idea behind the Digital Workplace project is to create a unique digital space that helps employees carrying out their daily activities by providing open access to work-related information and by facilitating collaboration and document sharing within the company.

3.2 Data collection

In summer 2015, we have conducted 12 personal in-depth semi-structured interviews with the members of the bank's senior management team as well as several lower level and project managers who were directly affected by the digital transformation. Senior management team members interviewed included four senior managers of areas such as Digital Workplace, Innovation, Human Resources (HR) and IT Governance. Our five middle- and junior level informants were responsible for Digital Marketing, IT Architectures, Social Media, Channel Integration, Training and Learning areas. Finally, our study involved managers responsible for execution of three specific projects related to Mobile Payment, Knowledge Management and Idea Management projects, respectively. The tenure period of our interviewees within the bank ranged from six months to over 15 years.

Each interview lasted approximately 45 minutes and consisted of two parts: (1) digital transformation initiatives and (2) IT governance. For the first part, we asked a series of open-ended questions related to the motivations, major results and benefits of the digital transformation as perceived by the respondents (e.g., What benefits and results did you expect to obtain? What were the five most important factors that defined the success of digital transformation?) The interviewees were also invited to reflect on their negative experience obtained in the course of the transformation and outline potential paths for further improvement (e.g., If you were to run another digital transformation, what would you have done differently this time?). For the second part, we predominantly focused on the facts related to IT Governance within the bank (e.g., What are the key IT-related decision categories? Who is responsible for making these decisions?). The interviewees were then asked questions pertinent specifically to their units, for example, to describe current relationship of their unit with IT and to share their thoughts as to how this relationship may transform in the future. All interviews were recorded and transcribed *verbatim*. The interview data was triangulated by using archival data (e.g. internal presentations, public reports, and company press releases) and field observations (e.g. attending company presentations).

3.3 Data analysis

Data analysis proceeded in two stages. At the first stage, we have identified IT governance-related quotes on the interviewee level and classified them based on the six governance archetypes proposed by Weill (2004). We relied on categorizations provided by two independent coders that were familiar with the governance framework and its elements. Categories were assigned to the selected statements based on the information referring to (a)

types of decisions, (2) functional area (or business unit) responsible for making decisions in question and (3) levels of hierarchy involved in the decision-making process. At the second stage we classified the statements based on whether an interviewee described pre- or post-transformational state of governance, or, alternatively, envisioned an emerging governance structure that it not yet in place.

As most of the technology-driven governance changes occur within the realm of business applications and IT investments, we focused on these two IT decision categories for our analysis. The application-related category includes decisions and rights related to customization of software to local business needs, ownership and control over digitalized tools and information, operational exploitation and maintenance. In a similar manner, we treated decisions to allocate financial resources and to prioritize the order of deployment of technology projects as a part of IT investment decision category.

For instance, if an interviewee stated that he or she can choose, adapt and manage software for the local needs without consulting top management and with no IT involvement, that instance would be assigned "Feudal" archetype. Conversely, if an interviewee articulated that projects in his or her business area need to be approved by the top management team prior to receiving funding, the statement was classified as an instance of "Business Monarchy".

As interviewees alternated between discussing how IT governance used to work in the past, describing the current state and envisioning the future, at the second stage of the analysis we accounted for these differences by additionally encoding each statement in terms of its timeframe. To that end, we encoded a statement as "pre-transformation" if it contained explicit references to the old governance model which was no longer in-place. We coded statements as "post-transformation" if they described and provided examples of the current decision-making patterns. Finally, a statement was encoded as "future state" if it externalized interviewee's mental representation of an optimal "to-be" IT governance model and contained suggestions for improvement.

Once we had classified interviewee-level statements, we started to look for the emergence of similar themes across multiple informants. To understand which governance mode has prevailed at different stages of digital transformation of the bank, we calculated the frequency of occurrence of specific governance instances observed in interviewees' discussions and mapped them on the transformational timeline. See Table 2

As a result, we have obtained 20 quotes from the 12 interviewees that describe the Bank's IT governance models before, during and after its digital transformation and are distributed as demonstrated on Table 1.

IT Governance Archetypes	PRE-TRANSFORMATION (AS-IT-WAS)	POST-TRANSFORMATION (AS-IS)	EMERGING (TO-BE)	DESTINATION (TO-BE)
Business monarchy	2	1		
IT duopoly	1	4		
Feudal		2		
IT monarchy		2		
Arbitrator		3		
Community			1	1
Digital governance				3
Total	**3**	**12**	**1**	**4**

Table 1: IT Governance Archetypes identified within the Bank

4 Findings

Out of 20 quotes that we have selected, 12 fit neatly under business archetypes as per Weill's model. The eight remaining quotes could not be classified in terms of Weill model for two main reasons (1) in some instances we observe hierarchical decision-making structure with new roles that have emerged as intermediary, (2) in other instances; we observe that the locus of decision-making shifts to lower levels of the hierarchy thus rendering obsolete the traditional top-down approval mechanisms.

4.1 Pre-transformational stage

During the pre-transformation period, *business monarchy* approach was used to govern *investment and prioritization* decisions at the stage preceding the digital transformation. The role of IT was confined to providing technical evaluation and cost assessment of a project; and final decisions as to whether the initiative fits the bank's overall strategic agenda and how much funds to allocate to the project had to be authorized by the bank's management and investment committees, respectively. The management committee (officially named General Management Project Committee) was composed of the bank's General Manager and C-level executives (including CIO) whose goal was to ensure that the proposed IT-related project was aligned with the bank's business goals and consistent with the existing project portfolio. By taking a holistic perspective, the management committee

could establish the priorities clearly and assess to which extent the expected project benefits could be potentially shared across multiple organisational areas.

Once the project was approved, the members of the investment committee - comprising General Manager and CEO - jointly estimated financial, human and technology resources required for successful project completion and, based on the assessments made, determined whether the project will be granted the funding or not. As investment decision-making was highly centralized at the top, IT function had limited influence on the order and type of the projects that it was required to carry out, as IT Governance manager recalls: *"Being [IT] a staff function and not a business function..., we [IT] were not entitled to filter the projects and had to manage whatever project was passed on to us"*.

Being subordinate to business in its "staff" capacity, IT was predominantly concerned with finding cost-effective solutions which often resulted in making suboptimal technology choices that did not fully accommodate the business needs, as evidenced by Channel Integration Manager: „*There were many misalignments in the past…IT has a strategy geared towards cost efficiencies, and was choosing a cheaper platform while another supplier, although at a higher cost, would have allowed us to implement additional features and generate better results"*. As scope and volume of IT-related business applications increased, the inefficiencies of the pre-digital IT Duopoly governance system became more apparent. As Innovation Manager stated in his interview: *"Until recently the business demanded 100% customization and IT did it, overloading the architecture, generating complexity, with long lead times, maybe questionable performance and high costs"*.

The *IT duopoly* governance model was used for decision-making related to *business application* development. That is, each time a business unit needed to develop a specific application; it was required to liaise directly with IT department. Based on the initial business request, an IT representative was assigned to manage the application project. Whereas technical development, testing and deployment were the responsibility of IT, most of the choices related to software business requirements and functionality were made jointly with each business user. Such „hub-and-spoke" model of governance had its merits at the time because it allowed IT to concentrate its efforts specifically on the needs of individual business users and accelerated the decision-making processes as only two parties were involved. On the downside, excessively customized IT service came at the expense of consistency across multiple projects as stated by the bank's IT Architectures manager: *"There were different IT reference persons based on different organizational areas. A client talked directly with the IT*

reference person who took on the entire project … so we took care of everything [all projects], not in a standardized manner, there was no coherence between different documentations."

To sum up, pre-digital stage of the bank's development was characterized by a combination of business monarchy and IT duopoly approaches. Whereas investment-related decision-making power was concentrated at the top level of the bank's organizational hierarchy, the process of business application development was based on bilateral interactions between business units and IT. The degree of IT involvement and its authority over business thus varied depending on a decision-making context: IT was compelled to accomplish project tasks initiated by the bank's executive team but within the defined project scope, it had considerable latitude in making technical choices pertinent to its domain of expertise.

4.2 Post-transformational stage

As the bank was moving along its digital transformation journey, its governance arrangements were being re-examined to accommodate ever-increasing internal demand for technology projects. If "pre-digital" governance approaches were primarily geared towards delivering episodic IT-related projects "once and for all"; post-transformation IT governance, conversely, was supposed to support the effective and concurrent development of multiple digital initiatives on a continuous basis. In our interviews, we find evidence that during the "post-digital transformation" stage five different IT governance approaches were used under different decision-making scenarios: IT duopoly, feudal, IT monarchy, business monarchy and a newly emerged archetype which we term as "arbitrator" governance type.

IT duopoly was referenced as a dominant approach to governing business application development during the transition to a digital organization (see Table 2). To that end, the nature of two-way relationship between IT and business remains highly collaborative but the perception of IT from a business standpoint has gradually shifted from the one of a service provider to the one of a technology partner, as stated by Mobile Payment Project Manager (PM): *"Business performs strategic assessment of a service, defines user requirements and the overall setting, and IT is the main collaborator for implementation"*.

The degree of IT involvement and the intensity of communication with internal business customers varied depending on the type of a project. In some cases, IT was actively involved in all stages of a project development and complemented business perspective by bringing in a technical expertise, as it was observed by Idea Management PM: *"…IT still has*

a strong ownership on technological elements […], but it is me who has to provide all functional input. … I see both favorable and critical points, and I bring everything to IT so we could work together".

On the other hand, in instances when a business unit preferred to rely on a third-party technology, IT was involved only to the extent it could assist the unit in choosing a vendor and drafting service-level agreements (SLA), and much of the technology-related knowledge and decision-making resided within the business unit itself. The latter point is best exemplified by Social Media Manager of the bank: *"My relationship with IT, when it comes to technology-related interaction, is minimal. […] Technologies are provided to me by external vendors that are selected together with IT, in accordance with security policies and organization-level SLA"*. Even though the Social Media – IT partnership was still structured in a IT duopoly-like fashion, this example indicates that a business unit's reliance on in-house IT is likely to decrease as the unit continues to build its own technology capabilities.

The interview data seems to support our claim that organizations progressively transition to more decentralized governance forms as business units are becoming more technology-aware. To that end, we have observed two instances in which post-transformational application-related governance was characterized as *feudal*. In the first case, a business unit was granted a wide range of decision rights related to managing, exploiting and modifying an internally developed digital tool, as was revealed in the statement of the bank's IT Architectures Manager: *"For one of our internal clients […] we have created a cloud-based service, set it up and told them: "ok, now you manage it - you can publish, you can do whatever you want, it is yours". That is, […] our internal clients move by themselves, and IT does not even see them."*

In the second case, the Bank's Digital Workplace and Innovation Manager mentioned a possible situation in which a business unit would be empowered to make technology choices autonomously without any involvement of IT: *"A business area can decide to resolve its issues without even taking IT into consideration. For example, if I want to make an app to provide sales network with information related to a certain market, I probably will buy an app from an external provider, personalize it and connect it to our legacy systems"*. Although the informant was describing a hypothetical scenario rather than referring to his actual past experience, it stands to reason that the current governance model entitles business units to bypass IT in cases when a project does not have enterprise-wide repercussions and is funded from the local budget.

Furthermore, two interviewees alluded to IT monarchy as a characterization of the post-transformational governance. For example, IT Governance Manager has enumerated the decisions that fall under exclusive "jurisdiction" of the IT department as *"the choice of enabling technologies, technological and application architectures; evaluation of the expenditures related to IT; and choice of vendors, supported by procurement department"*. Although using IT monarchy is a common practice for architecture decisions, making technology and vendor choices with little consideration for business needs may produce suboptimal results and add unnecessary complexity to the decision-making process, as the example given by Channel Integration Manager illustrates: *"Inside the [home-banking] platform, there is a layer of software that was chosen autonomously by IT. This software was supposed to give us, business users, full autonomy in managing web content. But the requirements were not fulfilled and we are not fully independent."*

Albeit explicit reference to IT monarchy might appear fairly contradictory especially in the light of the "feudal" evidence analyzed earlier, there could be several possible explanations to the fact. On the one hand, the fact that IT still considers itself entitled to impose its own technology choices on a business unit can be a manifestation of the vestiges of the old approach when IT's primarily responsibility was essentially to make those choices for the business. On the other hand, the expectations of the business as to how much decision making power it can exert in technology-related decisions have changed. As business units become more adept at interacting with software, they expect to have a certain degree of freedom when it comes to choosing and operating a digital tool. Excluding business from the decision-making process is thus perceived as a limitation of that freedom.

As regards investment decisions, we found that no existing archetype maps onto the post-transformational governance model adopted at the Bank. Most of the interviewees concur that at the post-transformation stage most of the digital projects still need to be authorized at the top management level. To that end, the Bank has retained the centralized two-stage approval process, as noted by Innovation Manager: *"IT spending is centralized. Operational things are delegated but when decision implies costs, resource acquisition, when it affects other areas of the business, affects clients, affects sales network, affects project scope and costs, then it should be approved on the top level of the hierarchy".* Differently from the pre-digital period, however, the filtering, prioritization and planning of the projects is no longer done collectively at the executive level as a typical business monarchy arrangement would imply. As digital transformation spurred the number of IT-related

projects, a new role of Demand Manager has been created to assist top management in administering the enlarged digital project portfolio. In doing so, Demand Manager gathers and collects information related to each single technology-related project in the bank and analyzes projects' contents as an aggregated whole. Taking a holistic perspective allows the Demand Manager to identify synergies between different projects, rank them in the order of relative importance and streamline implementation in a more effective way, as stated by Digital Marketing Manager: *"The Demand [Manager] is not an IT person. Demand collects requirements of all business projects that need to be integrated or implemented with the help of technology. The Demand [Manager] revises project planning, decides which ones have the priority, and at that point the IT focuses its efforts on the most "urgent" projects…"*

Furthermore, the role of Demand Manager can also be considered as the one of an "arbitrator" since he or she is supposed to mediate the relationship between IT and business. To that end, the new governance process is structured in a way that any business unit that initiates a project proposal has to provide Demand Manager with all project-related information first. After having defined business requirements jointly with the business unit, Demand Manager interacts directly with IT to evaluate the technical side of the project. Once business and technical aspects are analyzed in the context of the entire project portfolio, the analysis performed by Demand Manager serves as an input for the Project Committee in taking the final decision. The aforementioned process is best captured by the quote of It Governance Manager: *"As for the contents of projects portfolio, we [IT] are not involved in it. In this case our role is to support the function of Demand manager: Demand comes to us with the requirements, we evaluate how much it will cost from IT's point of view but the decision of whether to authorize the project or not is not made by IT, it is made by the Project Committee"*.

To summarize, part of the responsibility for making prioritization decisions has been transferred from the senior executive level to the newly created function which also plays the role of intermediary between IT and business at the stages preceding the final project approval. In our view, neither of the existing archetypes proposed by Weill (2004) can fully reflect this specific IT governance arrangement adopted at the bank and we believe so for several reasons. First, the existing framework does not account for the case in which the part of the investment-related decision-making is made by a party other than C-level management, CIOs or business unit manager. Second, none of the traditional models is representative of the case when relationships between IT and business are mediated by an independent "arbitrator".

We would therefore argue that the observed model – which we hereafter refer to as "Arbitrator Model" – can be included as an additional IT governance "archetype" of the companies undergoing digital transformation.

4.3 Emerging and future state

Some interesting findings have emerged as we analyzed the interview data that relates to a prospective view of IT governance within the Bank. We distinguished between two types of the forward-looking statements based on whether our informants referred to (1) an "emerging" governance pattern that so far has manifested itself only in isolated instances, or (2) a "destination" governance state that was envisioned as a desirable but remote future possibility (Table 2).

One example of an "emergent" governance model was articulated by Idea Management PM: *"[Our relationship with IT] is team-based, [teams are] formed ad hoc as agile task forces, focused on a project or platform. And it is exactly what IT should become: an active element of the agile team, and not just a contact or reference person [...]. And we are moving in this direction."* Put differently, this post-transformational philosophy rests on the assumption that shifting more responsibility to the level of a single project team will result in much higher degree of agility in decision-making and foster experimental mindset within the organization. At the same time, the proposed governance setup blurs the boundaries between IT and business as their respective areas of responsibility become more overlapping and loosely defined. One possible way of implementing such "community-based" governance could be to set up relatively autonomous teams within the Bank to work on specific digital projects, as it has been already done in case of Idea Management project. Each team's composition will be cross-functional with IT members involved on equal terms in both business and technical decision-making. Furthermore, irrespective of the fact that community-based teams are largely self-regulating, a set of governance mechanisms will be nevertheless put in-place to set the right course and track teams' progress.

We would argue that, even though the proposed "community-based" governance model does incorporate some individual elements of one or more Weill's models, it does not, however, fit any single hitherto known governance archetype. Whereas the bottom-up nature of the "community-based" decision-making naturally excludes highly centralized governance models (e.g. Business Monarchy, IT Monopoly) from our consideration, we believe that "feudal" and "anarchy" types – although capturing the decentralized nature of the

"community-based" model – fail to adequately represent the full specifics of it. "Community-based" and "feudal" models share some common traits when it comes to the level at which most of the decision-making processes unfold but, differently from the latter, "community-based" decision-making is not confined by the boundaries of a single business function and involves extensive lateral communication with peers across the organization, IT function included. Finally, "anarchy" and "community-based" models may appear similar in that both demonstrate higher degree of autonomy and agility on the lower levels of hierarchy but, unlike the "anarchy" model, "community-based" governance rests upon a set of high-level control mechanisms and is coherent with an overall strategy on an organization. We would therefore reserve the term "*Community*" for those governance models that are characterized by simultaneous co-existence of multiple self-governing cross-functional teams that are subjected to a high-level guidance from the top of an organization.

Although we do not have any additional evidence of community-based governance model being actually adopted in functional domains other than Idea Management as of 2015, it appears that the need for future alternative "agile" governance structures reverberates in other areas of the Bank. For example, when contemplating on the Bank's "destination" future governance state, Digital Marketing Manager envisions a community-based model that places responsibility for project delivery in hands of IT professionals and nurtures a "DevOps"-like collaborative mentality, as stated is his quote: *"We would like to move towards a situation in which the head of systems [CIO] no longer exists, but instead there are developers and technicians that are taking care of their specific area as a part of a project. There would be a coordinator of DevOps but he or she would not have the same role of the CIO. Now CIO is an important boss in the hierarchy … Such figure will remain but it will be more confined to technical role, more related to architecture. Instead, inside the operations, generally there will be people that are capable of developing projects together with operations. Unfortunately, we are not there yet."*

In addition to the community model, we have surfaced another perspective on the "destination" governance that has been recurring in several interviews. That is, in their reflections upon the future of the Bank's IT governance several respondents have emphasized the importance of the increased involvement of IT in business-related decision-making across the entire organization. In doing so, these informants have not specifically articulated any preference for a community-based governance (and hence their statements cannot be categorized as such) but rather focused on the need to strengthen the collaboration between

different functions and to increase transparency in horizontal communications between them. For instance, Channel Integration Manager has shared his view on the prospective role of IT within the Bank: "*For me the company's IT governance should have a 360 ° view of all the activities that come from any business sector in order to promote synergy and reuse of processes and the technology used in other areas.*" That is, as the Bank follows its digital transformation path, there is a growing expectation for IT to become a central element of the governance system that takes a consolidated view on all digital activities within the organization and promotes development of shared solutions across different functions.

Along the similar lines, HR Training and Development Manager underlines the importance of IT collaboration with those organizational functions that were traditionally considered as support functions: *"In my opinion, there is a need to link the innovation structures that are more in touch with the business with the service structures (organization , IT and HR). Today I see that you are building the links but I cannot see a structured cooperation system"*.

Finally, our interviews provide some anecdotal evidence that IT's involvement on a business-unit level should be accompanied by the corresponding involvement in high-level strategy-making at the top level of the Bank, as stated by Innovation Manager: *"IT governance is critical. We need IT to be very close to the business, even in the definition of programs, strategies, because it cannot only be a business vision. Since it is precisely the IT that influences how the business is carried out, I think we need a strategy that envisions these two areas (IT and business) to be become increasingly linked together"*.

Even though each of the themes our interviewees have touched upon has emphasized slightly different aspects of the future IT governance, the common thread between them is the unified view of IT and business that are fused together to the extent the two functions become indistinguishable. This view challenges the core logic of the traditional governance models based on the functional division of roles and responsibilities and offers an alternative IT governance approach in which IT and business are amalgamated as an integrated whole. We refer to this new governance type as *"Digital Governance"*.

5 Discussion and Conclusion

The key research question we were trying to address in this paper was related to the applicability of the traditional governance frameworks in the digital age. Our findings seem to suggest that the role of IT has expanded beyond a robust infrastructure provider to the one a

strategy and technology partner. In order to harness the full power of IT in this capacity, companies need to make their IT department more business-aware, incentivize lateral communication and cross-functional learning, and promote integration of previously disconnected functional units. As a consequence, IT governance needs to evolve accordingly to account for the fundamental digitally-enabled shifts and so do the models that describe it.

To that end, we have uncovered three major digitally-driven organizational trends that appear to motivate IT governance changes within the bank: (1) horizontal communication, (2) democratic culture, (3) unified understanding between IT and business (see Table 2). First, as both customer-facing and internal processes become more empowered by digital technology, a necessity to integrate multiple functional perspectives in developing new applications and processes have evidenced the need for the increased transparency between different organizational units. The traditional models that formally prescribed employees in different units to communicate through their superior representatives are no longer considered to be viable in a digital environment, and governance models enabling smooth horizontal communication across peers appear to be more suitable. Second, as business decision-makers become more IT-aware and vice versa, they start to demand a certain degree of autonomy in managing processes that may not directly fall into their domain of expertise. As a result, the hierarchical models that have historically envisaged top-down line of command start to be perceived as ineffective as they preclude employees at the bottom of the hierarchy to take fast and informed decisions. Finally, the theme that has re-echoed several times within the bank was related to blurring the boundaries between IT and business as any business process in a digital organization becomes enabled by technology and thus is inseparable from IT. In this regard, new "digital" IT governance models need to account for an ever-increasing overlap between functional responsibilities of business and IT and a unified understanding that comes with it.

Traditional perspective	**Digital perspective**
Vertical communication	Horizontal communication
Hierarchical culture	Democratic culture
Shared understanding between IT and business	Unique understanding between IT and business

Table 2: Governance trends from traditional and digital perspectives

The transition from traditional to digital governance does not happen "overnight",

however, and there will be a temporal stage during which an organization will still have the vestiges of the old governance co-existing with the new digital governance elements. As we observe different instances of governance under different decision making scenarios within a single company in our case study, we offer several potential explanations to the fact.

First, as an organisation undergoes a transformation from traditional to digital, its governance systems are in perpetual flux as well. For a certain – and possibly, prolonged period of time – a company will have decision-making processes that would combine the elements of a legacy governance structure and new roles and mechanisms characteristic of digital organisations. In this regard, our case appears especially interesting because, unlike fresh start-up companies that can build their digital governance structures anew, an established company has to accommodate for both worlds, at least temporarily, until it can understand which IT governance model suits its needs better.

Second, it is through experimenting that a company is able to understand to which extent new governance models are applicable in its specific organisational context. By subjecting a particular business unit to an experimental treatment, a company "simulates" a new governance model that remains operational in a particular domain and not in others. By testing new governance models, company refines its approach to digital governance and prepared for rolling it out in other domains.

Third, at the stage of transition, governance types may be very much idiosyncratic to each individual unit. Some units may require more autonomy, due to the nature of their work or their life-time, they differ in the extent they are able to use and integrate third-party technologies in their operations. Projects in different domains will be managed differently. Areas that are more adept at different technologies platforms or have persons that are more technology competent will push their own agenda and bypass IT. Conversely, areas that are more dependent on IT and do not have affordable technologies that could be easily integrated or used without local IT support, will continue heavily relying on IT and governance changes will be less noticeable.

Finally, the observable co-existence of several models may reflect different respondents' perception of timeframe when talking about digital transformation. While some respondents might consider the current mode of working as an "end state" and treat it as such, others might actually be cognizant of the fact that the relics of old approach will be gone and envision the future state of how their unit's work will be organized eventually.

References

[1] Ali, S., and Green, P. 2012. “Effective Information Technology (IT) Governance Mechanisms: An IT Outsourcing Perspective,” *Information Systems Frontiers* (142), pp. 179-193.

[2] Bowen, P. L, Cheung, M-Y. D., and Rohde, F. H. 2007. “Enhancing IT Governance Practices: a Model and Case Study of an Organization's Efforts,” *International Journal of Accounting Information Systems* (8:3), pp. 191-221.

[3] Brown, Carol V., and Sharon L. Magill. "Alignment of the IS functions with the enterprise: toward a model of antecedents." *Mis Quarterly* (1994): 371-403.

[4] Gottlieb, J., & Willmott, P. (2014). The digital tipping point: McKinsey Global Survey Results. McKinsey & Company, McKinsey Quarterly.

[5] Henderson, J. C., & Venkatraman, H. (1993). Strategic alignment: Leveraging information technology for transforming organizations. *IBM systems journal*, 32(1), 472-484.

[6] Hirt, M., & Willmott, P. (2014, May). Strategic principles for competing in the digital age. McKinsey & Company, *McKinsey Quarterly*. Retrieved from McKinsey Insights & Publications

[7] Huang, R., Zmud, R. W., and Price, R. L. 2010. “Influencing the Effectiveness of IT Governance Practices through Steering Committees and Communication Policies,” *European Journal of Information Systems* (19:3), pp. 288-302.

[8] Karimi, J., Bhattacherjee, A., Gupta, Y. P., and Somers, T. M. 2000. “The Effects of MIS Steering Committees on Information Technology Management Sophistication,” *Journal of Management Information Systems* (17:2), pp. 207-230.

[9] Kearns, G. S., and Sabherwal, R. 2007. “Strategic Alignment between Business and Information Technology: A Knowledge- Based View of Behaviors, Outcome, and Consequences,” *Journal of Management Information Systems* (23:3), pp. 129-162.

[10] Martinsons, M., and Davison, R. 2007. “Culture's Consequences for IT Application and Business Process Change: a Research Agenda,” *International Journal of Internet and Enterprise Management* (5:2), pp. 158-177.

[11] McDonald, M., McManus, R., & Henneborn, L. (2014). Digital double-down: How far will leaders leap ahead? Accenture Strategy.

[12] Sambamurthy, V., and Zmud, R. W. 1999. “Arrangements for Information Technology Governance: A Theory of Multiple Contingencies,” *MIS Quarterly* (23:2), pp. 261-291.

[13] Tannou, M., & Westerman, G. (2012). Governance: A central component of successful Digital Transformation. MIT-CDB and Capgemini Consulting Joint Research Program on Digital Transformation.

[14] Vaia, G., & Carmel, E. (2013). Reshaping the IT governance in Octo Telematics to gain IT–business alignment. *Journal of Information Technology Teaching Cases*, 3(2), 88-95.

[15] Weill, P. 2004. "Don't Just Lead, Govern: How Top-Performing Firms Govern IT," *MIS Quarterly Executive* (3:1), pp. 1-17.

[16] Weill, P., and Ross, J. 2004. IT Governance: How Top Managers Manage IT Decision Rights for Superior Results, Boston: Harvard Business School Press.

[17] Weill, P., and Ross, J. 2005. "A Matrixed Approach to Designing IT Governance," *MIT Sloan Management Review* (46:2), pp. 26-34.

[18] Westerman, G., Calméjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). Digital Transformation: A roadmap for billion-dollar organizations. MIT-CDB and Capgemini Consulting

[19] Wu, S.P.J., Straub, D.W., Liang, T.P., (2015) How information technology governance mechanisms and strategic alignment influence organizational performance: insights from a matched survey of business and it managers, *MIS Quarterly* Vol. 39 No. 2, pp. 497-518