Digital IT Governance

William DeLone, Demetrio Migliorati and Giovanni Vaia

Abstract This chapter presents how IT governance approaches are evolving to drive corporate transformation in this digital era. Today we are learning that new digital firms, embracing the digital transformation, are able to speed up and automate decision making processes, and build more agile, collaborative communities among internal resources, suppliers, customers and external experts. Consequently, the traditional view of IT governance may no longer be valid in today's digital enterprises. The question that arises from many scholars and practitioners is: to what extent do the well-established IT governance models still apply in the digital era? And, if they no longer apply, what new models and mechanisms can be proposed to address the changing demands placed on digital companies? This chapter reveals through the case of Banca Mediolanum how the traditional "functional" separation between business and IT is insufficient to support digital transformation. Digital initiatives must be well integrated into all organisational functions, as part of a unique, digital company DNA. Indeed, "Digital" Governance plays a critical role by supporting the change of organizational behaviours, pushing down digital decision-making, activating pervasive, horizontal, and collaborative communications, and supporting a shared decision-making culture.

W. DeLone
Kodog School of Business, American University, Washington D.C., USA
e-mail: wdelone@american.edu

D. Migliorati
Banca Mediolanum, Milan, Italy
e-mail: migliorati@mediolanum.it

G. Vaia (✉)
Ca' Foscari University, Venice, Italy
e-mail: g.vaia@unive.it

1 Introduction

In the past decade, digital technologies have substantially transformed the role of IT within firms (Westerman et al. 2011; McDonald et al. 2014; Gottlieb and Willmott 2014; Hirt and Willmott 2014). As companies progressively rely on mobile social media and cloud and big data, the very nature of the IT function within an organisation changes from providing reliable and cost-effective IT support to actively searching for new ways to leverage IT to create customer value.

The topic of IT governance has been widely discussed in different communities as a tool to multiply the benefits of IT in a business. The importance of past contributions notwithstanding, it stands to reason that a traditional understanding of IT governance might not adequately reflect the realities of a digital world. A more contemporary understanding of IT would need to take into account a number of recent developments; first, products and services are becoming increasingly more "digitalised," thereby blurring the boundaries between IT and business (e.g. marketing, sales, manufacturing) processes (Bharadwaj et al. 2013). Decision-making thus happens jointly in cross-functional teams and not by traditional, autonomous functional-level or bilateral decision-making. Second, the common way of thinking about IT as being subject to business authority is changings as IT becomes more business-aware and, consequently, more involved in "high-level" strategy-making. Finally, the high speed of technology development incentivises companies to develop governance arrangements deliberately aimed at simplifying and accelerating IT-related decision-making processes.

For scholars and practitioners alike, a question arises regarding the extent to which the well-established IT governance models still apply in the new digital context. Or else, if they no longer apply, what new models and mechanisms could address the changing demands placed on digital companies?

In this book, we state that new digital firms, in embracing the digital transformation, must accelerate and automate the decision-making processes (making them *quasi* real time decision making processes) and interactions, and build more agile relational paths among internal resources, suppliers, customers and external experts, to continuously improve the time to market and the capacity to introduce fast track innovation. Consequently, the traditional view of IT governance may no longer be valid in today's new digital enterprises.

Digital Governance (IT Governance in digital companies) plays a critical role in supporting the change of organisational behaviours, by pushing down digital decision-making, activating pervasive, horizontal, and collaborative communications, and supporting a shared decision-making culture.

2   Past, Present and Future Concepts

IT Governance

Although the academic and practitioner literature does not agree on a single definition of IT governance, many 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, designing effective decision-making processes and establishing performance assessment mechanisms.

Early research in the Information Science field has distinguished three broad IT-related decision categories—IT infrastructure, use and project management (Sambamurthy and Zmud 1999). Sambamurthy and Zmud (1999) proposed three major governance types, centralized, decentralized and hybrid, based on an organisation's IT-related authority patterns (Brown and Magill 1994).

Combining different perspectives, Wu et al (2015) delineate the necessary elements of an IT governance framework: "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 and 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), states 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);
– five major IT decisions (IT principles, IT architecture, IT infrastructure strategies, business application needs, and IT investment and prioritization);
– three performance measures such as asset utilization, profit and revenue growth;
– six governance classifications available to IT organisations based on the ideal of political archetypes (Vaia and Carmel 2013). 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 in the latter. The Feudal archetype reflects a decentralized structure where business unit owners are the primary decision makers. The IT Duopoly archetype represents a two-party arrangement between a business group and IT executives. The Federal archetype functions as a "hybrid" decision making model and allows for creative business solutions within agreed-upon controls. Anarchy, where each small group can make decisions, is the sixth archetype (Fig. 1).
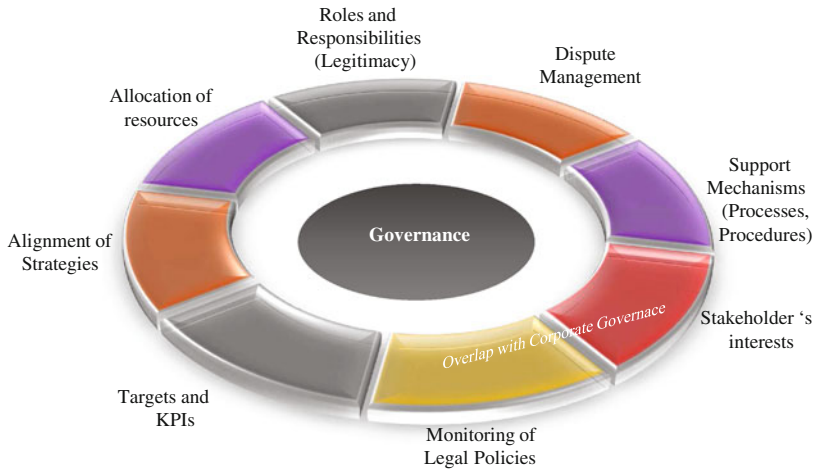
Roles and
Responsibilities
(Legitimacy)

Dispute
Management

Allocation of
resources

Support
Mechanisms
(Processes,
Procedures)

Alignment of
Strategies

Governance

Stakeholder 's
interests

Overlap with Corporate Governace

Targets and
KPIs

Monitoring of
Legal Policies

Fig. 1 Governance characteristics

Despite the importance of the IT Governance model proposed by Weill (2004), it shares several common traits with prior models; these traits significantly limited the applicability of these models in digital organisations. Namely, they overemphasize the role of hierarchy, propose robust structures that lack agility, and 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 by an alignment at the top of the organisation, by vertical communication and a hierarchical culture, continuously searching to bridge the gap between IT and business.

This mechanistic approach to IT governance is inappropriate for firms today because Digital Transformation is much more than simply a transformation of technologies. The term Digital Transformation not only requires a new interaction between the technology and its user, but also a change in how people contribute to the creation of value and how a company organises its business.

Digital Transformation

Hirt and Willmott (2014) present an effective categorization of opportunities and consequences related to the digital transformation:

– Increasing pressure on margins and prices. Comparison between prices, in fact, has become easier through digital channels, particularly social media and the numerous websites aggregating different vendors' price information. This

particular factor is driving the market to a convergence in terms of prices and offerings, making competition fiercer;

– New competitors emerging from different industries. Digitalisation is removing entry-barriers and feeding product differentiation. Thus, new competitors can be represented by small start-ups, as well as by established players exploring new potentially revenue-generating businesses, such as Alphabet Inc. or Apple Inc., which are both stretching company boundaries (e.g. the Google Wallet or the future Apple Car). In the 2015 PwC Annual Global CEO Survey (PwC Italy 2015), 56% of the CEOs interviewed (728 CEOs out of 1300) responded that the some of their strategic moves for the next three years would be competing in new sector;

– Automation versus talent seeking. On the one hand, thanks to digitalisation, companies are more capable of automating processes, even in some more knowledge-intensive analytic areas (e.g. oncology diagnostics). This will inevitably increase the demand for data-literate human resources by large and medium-sized companies. On the other hand, there is an urgent need for digital talents who are able to use new technologies in areas where automation is not possible;

– Plug-and-play business models. The reduction in transaction costs due to digitalisation has provoked the disaggregation of value chains. In fact, nowadays third parties find it easier to provide their services to other companies in order to fill the gap that companies have in their chains;

– Worldwide standardization of demand and supply. There has been an increase in the number of systems that function across borders, of distribution on a global scale, and of a customer experience tending to uniformity;

– Continuous evolution of business models at higher velocity. Since the digital models continue to expand very quickly, companies must quickly adapt their models in order to satisfy the market's requests and continue to be profitable.

In other words, Digitalisation represents a cutting-edge re-organisation of the company's resources and customer relationships, as well as its products and services, with the ultimate aim of boosting revenues, improving efficiency and increasing the overall value of the company (McDonald et al. 2014). Furthermore, through new technology-enabling solutions, the digital transformation incorporates strategies and capabilities that change the rules of competition (McDonald et al. 2014).

Digital Governance

Governing this digital transformation requires the development of new abilities, new ways for managers to interact, and new mechanisms to generate innovation and support creative processes. Companies need to rethink IT governance in the context of the digital transformation. Leaders need to identify and resolve all the issues regarding the implementation of digital projects, and provide new polices, roles and responsibilities (Who is in charge? Who owns the digital processes? Who and what legitimize the allocation of responsibilities?).

"Digital" Governance should reflect these characteristics:

- *future proof*, adapt to continuously changing user needs, new technology adoption, and new markets. Governance is not a static framework based on company characteristics; rather, it is embedded in the constant flux of organisational re-design. Therefore, company history and culture shouldn't influence governance modes. Organisations need to be more liquid and attribute decision making responsibilities to employees who are closest to trends and customers.
- *cross-boundaries*, provide a frame for all digital initiatives. Digital governance needs to enable different perspectives across internal functions and external actors. The leadership must cross boundaries to empower employees to upset the traditional way that business is driven.
- *prone to innovation*, increase the pace of innovation and stay ahead of the competition. Digital governance should ensure that new technology investment decisions involve system users. Everyone in the organisation needs to be encouraged to work on relevant innovations, improve core processes, introduce new revenue sources, scout new products, search for new distribution channels etc. Digital governance offers a platform to balance incremental innovation and breakthrough projects, where risk taking and failure are encouraged. Innovation has been managed differently in many contexts, using top-down or bottom-up approaches. IBM or 3M have supported and used "idea killers" from the bottom to change the rules of competition. Others, such as the auto industry, have preferred to centralize the visioning and the development of new products and services. Governance today combines thorough rules and enhancing platforms (organisational and technological) and balances (top) management inspired innovation with the ability of the bottom to initiate front-end innovation.

To achieve and maintain these characteristics, digital governance needs to manage the following forces effectively over time.

2.1 The Power to Crowd

Modern technological advances are transforming the workplace. Crowdsourcing is one of the most disruptive phenomena that uses the power of collective intelligence combined with new digital opportunities. Crowdsourcing is built on the wide reach of the Internet, which connects a diverse group of individuals with a wide range of expertise, abilities, and problem-solving skills. "Crowds" can bring together more data, leading to a more accurate and intimate understanding of an environment. Researchers (Malone et al. 2010) have demonstrated how large, loosely organised groups of people can work together electronically in effective ways. They have shown how shared or group intelligence that appears in consensus decision making, like Wikipedia or Google, has already been proven to work.

Although online community users play the role of producers, innovators, and problems solvers, they are not part of established employee networks, as would be the case in traditional organisations. They are only temporarily connected to the organisation for a specific task or project.

Many digital companies are using hundreds of their own employees in crowd-sourcing contests to encourage and challenge problem solvers to develop solutions from different perspectives, using a diversity of skills and knowledge. These workers experience increased enjoyment in the process of developing a solution to the contest challenge.

For example, in 2014, Banca Mediolanum, an Italian financial institution,[1] set up a collaborative platform hosting all the organisational projects that require multiple interactions between team members. An individual (called the sponsor), for instance, can launch a business challenge and everyone inside the Bank can contribute to the challenge and enrich it with new ideas. During the testing phase, the Idea Management project involved, on a voluntary basis, more than 600 employees, resulting in more than 20 challenges being activated and more than 170 ideas being shared. As reported by the Project Manager of the Idea Management platform "for twenty-five years, the Mediolanum Group has organised small groups of voluntary people focused on organisational improvement initiatives, but now the potential is incredible…something we could rename crowd-problem-solving."

2.2 Democracy

Digital media have the power to reconfigure the coordination of work across the organisation. By sustaining dialogue within and between organisations, digital media foster collaborative relationships and create transparency, connectivity, and sharing (Wollan et al. 2014).

Facebook, Twitter, LinkedIn, and smart mobiles, used by customers, employees and other company stakeholders are driving the cultural revolution promoted by digital. Today, we are fortunate to witness a spectacular transition towards democratic companies. Digital brings freedom and equality "in the pursuit of novelty and change" (Deschamps and Nelson 2014, p. 92).

One such change is the possibility for groups of employees coming from different functions to collaborate on a specific project, from beginning to end. The value of these groups, called "squads," is in their heterogeneity. Having people from different departments collaborating allows the team to consider elements from different point of views. This is the ING Bank approach. The company considers

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[1]The bank was founded in 1997 as a "branchless" retail bank and, since its inception, has exclusively specialized in the provision of online financial services via multiple channels (tele-sales, Internet and mobile). During the period from 2007 to 2015, the bank pioneered a series of innovative banking solutions and, by 2015, had digitalised most of its client-facing activities and internal operations.

squads as a portion of a bigger entity that operates along similar lines. Squads involved in the same area of work are part of an overarching "tribe."

Shifting from a hierarchical/functional based organisation to a more liquid community based organisation requires a new type of coordination or governance.

Digital governance seeks to support democracy within a framework of rules. The concept of democracy is quite close to the "managed anarchy" at IBM. Rules and control mechanisms, in this scenario, guarantee individual participation in the community, and the opportunity to take part in the decision-making process.

This new perspective on organisational decision-making has potentially negative consequences. Personal interests and participation in all subjects could lead to rigidity, slowness, conflicts, and competence dilution, hence the importance of the aforementioned rules.

2.3 Inclusion

Another key motivating factor for undertaking a digital path is represented by the perceived need to strengthen the relationship with customers, suppliers and partners —the so-called stakeholders—and engage them in the activities of the company itself. Social media and new communication technologies in general, are opening cross-communication amongst these groups, allowing them to interact more freely and directly than companies and executives experienced in the past.

Customers give more prompt and direct feedback to companies, offering user-generated ratings and comparing products and prices. Companies, in turn, need to be as quick and direct as their customers. So, in order to establish a unique competitive advantage, producers must never stop engaging customers in the value creation process (Wollan et al. 2014).

Regarding the relationship with the other stakeholders, organisations today seem to be less aware of the potential of engaging their suppliers and partners. Currently, the dynamics occurring in the business-to-customer sphere, especially the need to establish long-lasting relationships and share knowledge, are underestimated. Indeed, more and more, organisations must digitally engage suppliers as well as integrate operations and the product development process.

Our research (Moretti et al. 2014) has shown how the adoption of a digital collaboration tool can mediate and support a more trust-based relationship between a client and his suppliers, and foster collaborative relationships that result in both operational and strategic innovation outcomes. We found that the exchange of high quality information and the use of effective communication tools are essential facilitators for process integration and for building trusting relationships in collaboration agreements. In our case study, client and supplier personnel perceived reciprocal professionalism, competencies and a willingness to share information to complete the task. In fact, the use of a digital collaboration tool changed relational governance in a short time, as trust between client and suppliers switched swiftly from affective attitudes to a more objective relation based on competencies.

2.4 Augmented Rationality

Organisations that experience positive returns on big data (1) pay attention to data flows as opposed to stocks, (2) rely on data scientists and product/ process developers rather than data analysts, (3) take analytics into core business, operational and production functions (Davenport et al. 2012).

As Davenport et al. claim (2012), "IT applications need to measure and report transparently on a wide variety of dimensions, including customer interactions, product usage, service actions and other dynamic measures. As big data evolves, the architecture will develop into an information ecosystem, a network of internal and external services continuously sharing information, optimizing decisions, communicating results and generating new insights for business."

The massive volume of data is changing technology infrastructures, competences and the IT organisation. Cloud technologies and virtual data marts, which allow data experts to use and share existing data sources—often not proprietary— without replicating them, enhance capabilities to effectively execute and automate real time decisions.

IT capabilities and architectures will evolve into an information ecosystem, based on a network of information stretched to provide support to managers, share performance results, and provide insight on business results, trends, changes.

3 New Models of IT Governance[2]

Digital transformation raises questions about the applicability of traditional governance approaches. As discussed above, companies need to make their IT department more business-aware, incentivize lateral communication and cross-functional learning, and promote the integration of previously disconnected functional units. Consequently, IT governance (Arkhipova et al. 2016), along with the models that describe it, need to evolve accordingly to account for the fundamental, digitally-enabled shifts.

In our research, we found three major digitally-driven organisational trends that appear to be driving IT governance changes within organisations: (1) horizontal communication, (2) democratic culture, (3) unified understanding between IT and business (see Table 1).

First, as both customer-facing and internal processes become more empowered by digital technology, the integration of multiple functional perspectives in developing new applications and processes has evidenced the need for increased transparency between different organisational units. The traditional models that

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Table 1 Governance trends from traditional and digital perspectives

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

formally prescribed employees in different units to communicate through higher level representatives are no longer considered viable in a digital environment; 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 a top-down line of command are now being perceived as ineffective as they preclude employees at the bottom of the hierarchy to make fast and informed decisions.

Finally, the theme that consistently appears in the literature suggests a blurring of the boundaries between IT and business, as any business process in a digital organisation becomes technology enabled and thus is indistinguishable from IT. In this regard, new "digital" IT governance models need to account for an ever-increasing overlap between the functional responsibilities of business and IT and a unified understanding that comes with it.

The transition from traditional to digital governance does not happen "overnight," however, and there will be temporal stages during which organisations will still have the vestiges of the old governance model co-existing with new digital governance elements.

As an organisation undergoes a transformation from traditional to digital, its governance systems are in perpetual flux. For a period of time (perhaps prolonged), a company will have decision-making processes that combine the elements of a legacy governance structure with new roles and mechanisms characteristic of digital organisations. In this regard, unlike fresh start-up companies that can build their digital governance structures anew, an established company has to accommodate both worlds, at least temporarily, until it can understand which IT governance model best suits its needs.

It is through experimenting that a company is able to understand to what 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, a company refines its approach to digital governance and prepares for rolling it out in other domains.

During an IT governance transition, governance types may be very idiosyncratic to each individual unit. Some units may require more autonomy, due to the nature of their work or their digital lifecycle; they will differ in the extent to which they are

able to use and integrate third-party technologies in their operations. Projects in different domains will be managed differently. Units that are more adept at different technology platforms or have people that are more technology competent will push their own agenda and may bypass IT. Conversely, areas that are more dependent on IT and do not have technologies that could be easily integrated or used without local IT support, will continue to rely heavily on IT and governance changes will be less noticeable.

The type of governance structure adopted within an organisation will depend on the degree of its digital maturity. That is, as an organisation moves along its transformation path, its IT governance model undergoes corresponding changes, thus reflecting the requirements at each stage of the transformation. Based on our research, we propose a stage model of IT governance in which we theorize that governance models transition from traditional to digital through a series of six distinctive stages (Fig. 2).

Stage 1 represents a point of departure from the traditional governance models, such as Business Monarchy, that were widely adopted during the period preceding the digital revolution. This initial stage is characterized by clearly delineated roles and responsibilities between IT and Business, in which IT serves primarily as a service provider subordinate to the business. IT's involvement in high-level business-related decision-making is formally limited to occasional interactions.

At Stage 2, first steps towards collaboration between business and IT are being taken as IT becomes gradually involved in business-related decision-making
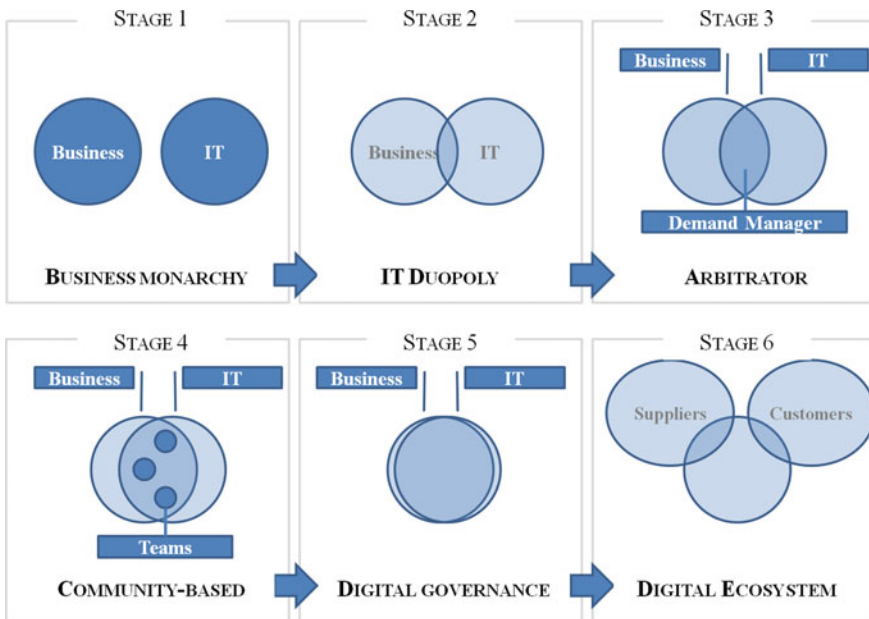

Fig. 2 Stage model of Digital IT Governance

processes and the two jointly manage technology projects. At this stage, IT and business interactions are designed on a bilateral basis so that IT becomes a key point of contact in technology-related communications for business units across the organisation, akin to the IT Duopoly model proposed by Weill et al.

Stage 3 is characterized by an increased volume of digital projects and growing overlap between IT and business. As the number and intensity of interactions between IT and business progressively increase, the governance model envisages a role of "Arbitrator" that is supposed to mediate this relationship and take pressure off IT and business in administering the company's digital project portfolio. Although it might involve an extra step in the decision-making process, the arbitrator's role is essential in taking a consolidated view of all digital activities taking place within an organisation, prioritizing and streamlining project workflow.

Stage 4 is defined by a gradual shift towards a more democratic mode of governance. The IT project organisation is team-based and the locus of decision making for most IT-related project issues moves down to the level of a single team; this mode is described as a Community-based governance model. Teams are composed of members with different functional backgrounds, thus fostering cross-functional communication and knowledge sharing.

At Stage 5, the notion of "business process" becomes synonymous with "digital process" and boundaries between IT and business are blurred as IT becomes entirely subsumed into the business process. Digital Governance blends its organisational units by eliminating *silo*-like work flows in favour of more transparent communication and knowledge sharing. The adoption of more collaborative work processes allows for the demonstration of a cohesive vision aimed at building an entirely new digital organisation in an orderly fashion.

Finally, we argue that there could be a point in time in which IT governance will span outside the traditional boundaries of an organisation and digital technologies will enable the involvement of consumers and suppliers in organisational decision-making. To that end, the governance becomes externally impacted and will be defined by the actions of the actors of a Digital Ecosystem.

4   Governing the Digital Transformation

Digital governance includes all those corporate mechanisms that allow coordinated actions and sharing of resources across organisational boundaries (Bonnet and Westerman 2014). Coordination across units would consist in aligning their multiple digital initiatives, while sharing refers to the use of common resources—such as technologies and people—and capabilities in order to enable digital change.

According to MIT and Capgemini Consulting research, governance represents one of the success factors in Digital Transformation (Tannou and Westerman 2012).

Digital transformation requires a balanced top-down/ bottom-up approach to motivate the coordination of various disaggregated digital investments. These represent the goal that an organisation should set in terms of the governance and leadership of the transformation.

As far as the mechanisms that can be used to make Digital Transformation work, three patterns have been identified: (1) the creation of shared digital units, (2) the arrangement of organisational-level committees, and (3) the establishment of new digital roles and relationships.

Shared digital units consist of independent units developing digital services for the entire company. For example, one of their responsibilities would be the development of needed digital technologies and services. These units would eliminate or, at least reduce, the redundancy of digital initiatives across the organisation, creating unique operations centres, such as an analytics competency centre, aimed at increasing the efficiency of digital efforts. Shared digital units are more agile; therefore experimentation is easier and innovation is more effectively stimulated. Another important responsibility of shared digital units is the design and development of company digital competencies necessary to overcome one of the most important obstacles to the transformation, the shortage of digital skill sets. As transformation processes require the right people, shared digital units would combine new human resources—experts in data analytics, social media, mobile technology and cloud computing—with existing staff, to create a balanced digital team. In addition, shared digital units would select employees from different business units for training and involvement in the transformation (Tannou and Westerman 2012).

Organisational-level committees represent another transformative governance mechanism. The established committees are primarily of two types: steering committees or innovation committees. Steering committees are in charge of determining the strategic and digital objectives, making investments, approving policies and defining priorities. Innovation committees, on the other hand, are more focused on a specific objective and concentrate on evaluating the business potential of emerging technologies. These committees have the critical goal of strengthening the relationships between the business and the IT department (Tannou and Westerman 2012).

New digital roles and relationships lead the Digital Transformation far beyond organisational structure. New roles might be established at the C-level, such as the Chief Digital Officer, who would be in charge of leading the digital units and aligning digital strategies from the top of the company with the requirements of the local units (Tannou and Westerman 2012). Others roles might be informal and focused on connecting digital units, e.g. the digital champions. They would be empowered based on their digital capabilities, attitudes and social roles inside an organisation, and would be effective at increasing employee engagement and commitment (Welch and McAfee 2013).

5   Causes of Failure and Related Remedies in Governing the Digital Transformation

Lack of urgency. Motivating people, giving them a goal to be accomplished urgently, is fundamental to a successful transformation process. If people are not motivated enough or not focused on the opportunity before them, they will not be persistent at carrying out their tasks and, thus, any effort to change would be in vain. Sometimes, leaders need to provoke a sense of fear about the present and the future of the firm if they want to obtain the desired reaction from management and employees, i.e. making them active participants in the organisational change. In other words, in some cases leaders need to make the current situation of the firm seem more dangerous than undertaking an unknown path, such as the one of transformation.

Failure to form a powerful group to guide the organisation transformation process. Involving employees and management is fundamental to their cooperation in a large-scale change. Nevertheless, the guiding coalition should certainly include influential leaders and managers and the full, active support of the CEO.

Absence of a strategic vision. A strategic vision consists of easy-to-communicate and emotionally appealing ideas drawing a picture of the future of the firm. The vision needs to clarify in which direction the organisation must move and the broad goals it needs to achieve in order to realise a successful transformation. The vision creates the destination and road map for the transformation. Without a strategic vision, a digital transformation is reduced to a simple list of confused and misaligned initiatives, resulting in the company missing its goals.

Failure to communicate the vision across the organisation. Without a credible communication plan, employees are not able to understand the reasons they should move from their comfort zone and commit to change. Moreover, communication by C-level executives must be consistent with their behaviours, because inconsistency between leader's words and actions are detrimental to employee buy-in.

A vision, to be powerful and to drive the transformation process, must to be communicated properly, using all possible available channels. Executives should not just talk about numbers and growth, but also about success stories and people in organisations that contribute to change in a positive way. If these messages are diffused effectively, employees will be more inspired to commit to the change and thus be engaged in the digital transformation. If such messages are passionate and transmitted from the guiding coalition to all colleagues, as peers, this could involve even more people on a voluntary basis, empowering the guiding group even more.

Failure to remove the barriers to reaching the new vision. Very often, the right communication of the vision itself is not sufficient to guarantee the desired results. It is necessary to remove the barriers that impede the realisation of the new vision. These barriers include the organisational structure and managers who decide not to commit to change. At the beginning of the transformation process, organisations need to eliminate the largest barriers, as they might undermine their digital path.

Missing short-terms goals. Without short-term goals to reach and celebrate, employees may become dissatisfied and the digital transformation will lose momentum. It is important to actively plan for and communicate short-term successes that are clearly linked to the strategic vision. In addition, the short-term horizons aligned to meeting the transformation goals will increase the expectations for managers, thus being a positive factor in a transformation effort.

Deviation from the final goal due to early apparent success. Declaration that the transformation has been achieved based on early success could be very dangerous, and could nullify all the change efforts. Digital transformation, in fact, implies a very long and complex process that requires years of work. Losing the right organisational tension and commitment to change would result in a failure to transform successfully.

A company must continue to promote new strategic initiatives, adapt to market changes and continuously innovate. Therefore, celebrating victories is particularly important for boosting employee engagement and for maintaining a sense of urgency throughout the organisation. However, employees must be reminded of the ultimate goals and vision.

Failure to institutionalize change into the organisational culture. Failure to change organisational culture could be one of the biggest detriments in the organisational transformation. In fact, no strategic change is to be considered complete if it is not incorporated in the company's daily activities. It is fundamental to root change into the organisational culture, celebrating the benefits of the new approaches adopted and making sure that the next generation of managers adopt and personify these new methods of working.

6   Governing Digital Transformation at Banca Madiolanum

Background and Role of IT & Innovation

Banca Mediolanum S.p.A. was established in 1997 in Basiglio (Milan, Italy) and today is part of the Mediolanum Group, founded in early 1982 by Ennio Doris, in partnership with Fininvest Group under the initial name Programma Italia S.p.A. The founders' initial idea was to create a financial group that was a bank, an insurance company, and a retail investment company.

Since the beginning, Banca Mediolanum proved to be an innovative omni-channel bank, leveraging information technology (digitalisation) to provide unique services and minimize costs. The bank initially employed 200 people with no branches in its distribution model, and therefore no fixed costs. At that time, customer management was handled via call-centres and television teletext, a rather advanced distribution channel at that time. In the early 2000s, Banca Mediolanum

adopted the relatively unknown commercial use of the Internet and expanded its offerings with an on-line trading services platform called "My Trade." The Internet strengthened this innovative business model characterized by a multi-channel network without physical branches. For example, the bank became a frontrunner in home banking through extensive investments in its home banking service. In 2004, the Mediolanum Channel was born, representing the first Mediolanum Group's digital satellite TV channel, an evolution of the then-existing Corporate TV.

The first corporate web-site (www.mediolanum.com) was created in 2005; it serviced primarily the corporate and financial community. New services for the sales network were created, allowing Family Bankers to be updated on corporate news anytime, anywhere, by simply connecting with their laptops. In addition, the bank created a web-based vendor portal which enabled vendors to be connected with the bank and participate in on-line bidding. Through this portal, it was easier for the Group to manage and evaluate electronic offers in near real-time.

In 2007 the bank launched its first mobile service, B.Med Mobile, for what was then cutting-edge mobile phones, e.g. Nokia, HTC, and Blackberry. The bank introduced Interactive Voice Response (IVR), an automatic telephone response service active 24 h a day, in response to the requests of customers who wished to be more independent in executing their transactions, using consultants' support only when strictly necessary. Additionally, the bank introduced the electronic submission of official documents by e-mail, a further step forward in the digitalisation of its internal processes.

The bank created the Innova Portal of the Mediolanum Group, an intranet gateway containing all the technological tools, information, rules and procedures used both by call-centre operators and Family Bankers to retrieve information and deliver customer services. The gateway was also used by management and employees to work and "live" the organisation. The bank next introduced the Mediolanum Personal Marketing (later called Mediolanum Personal Branding Platform), basically a tool aimed at allowing the company to understand the best advertising method for each customer.

In the following years, the bank started to interact with customers on a global scale. New models of interaction and collaboration with customers were employed and digital relations started playing a key role in retail banking. During this period, the Mediolanum Group improved its training and learning area, inaugurating its Corporate University, defined as "a company inside a company," with the objective of training professionals to achieve excellent results in the relationships with customers. The Corporate University included the novel MedBrain, an on-line portal offering access to courses and documents for personal training.

The web-based platform B.MedNet was introduced in 2010, integrating Banca Mediolanum's four main areas—MedIntranet, Family Banker web-site, MedBrain and Corporate TV—and containing all the useful information and tools the sales network needed to operate at its best. The integration of the Corporate TV, allowed programs and videos to be broadcast directly on the portal and viewed from the sales network on any digital device.

From 2011 to 2013, the bank focused on two main streams: mobile apps and social networks. New apps were developed with a geo-positioning option able to find the location of the nearest ATM or Family Banker. Furthermore, the bank introduced on-line chat and the internet calling VOIP, with the benefit of multiple-calling which could connect three key stakeholders, the Banking Services Centre, the Family Banker, and the customer, getting higher efficiency and effectiveness in customer problem solving. Also, new mobile services were added, giving customers the ability to buy and sell government securities, to manage credit card accounts, to obtain information on life insurance policies and investments products, and to pay utility bills. The number of mobile transactions increased from 88.7 million in 2011 to 228 million in 2012.

Another important technological innovation introduced was the digital signature, which allows for more efficient processes while preserving legality. Since 2012, the digital signature extended to additional types of operations and products, increasing paperless procedures. The digitalisation of the subscription procedures has been successful, representing, in August 2015, 53.4% of total customers' subscriptions at the bank, Fig. 3 demonstrates the growth of digital subscription procedures.

Facebook, Twitter, YouTube and LinkedIn were introduced with specific editorial plans for each targeted audience. Indeed, social networking is a precious source of information and feedback from customers, but it also supports one of the Banca Mediolanum principles: support human relations. "Our company is a bank, developing its business starting from relations with people," reported the Social Media Manager, "it is a very simple concept, but critical for the bank success today." The Facebook fan page continues to be the most popular in the Italian banking sector with "fans" increasing by 77% since 2013 and registering a total number of 53,000 followers on Facebook.
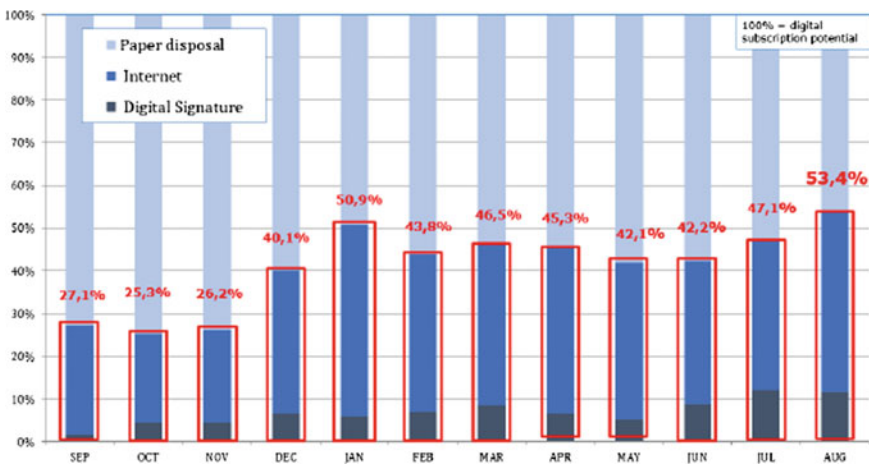

Fig. 3 Digitalisation of the subscription procedures from 2014 to 2015

The Digital Transformation Era

In this context, Banca Mediolanum started its comprehensive Digital Transformation program in 2013. The bank gave birth to a broader unified organisational plan, supported by a true digital vision. From being the main driver of commercial innovations at the bank, Information Technology became a tool for Banca Mediolanum employees to improve internal communications, collaborations and a sense of belonging to the organisation. The real innovation of the digital era is therefore the shift from technology as a stand-alone tool to an enabler of collaboration and relations among people, thusly augmenting human assets.

Digital initiatives launched since September 2013 were: the Digital Workplace program, the Collaborative Improvement, encompassed in the Idea Management project, the Knowledge Management, and the Digital School, as well as a research and monitoring unit on the Digital Transformation. Figure 4 summarizes the Bank's digital initiatives.

The Digital School was the tool through which the bank motivated employees with specific and timely goals, to be reached during the transformation process.

	Name	Description	Digital Workplace projects
1st area	Communication	**Information sharing tools and transparency** • Favouring transparency of corporate information • Redefining internal communication flows to overcome the use of e-mails • Enhancing corporate communication and the sharing of people's roles and responsibilities	Corporate news and comments ("Following"), Content access ("Inform myself")
2nd area	Collaboration	**Environments for carrying out interactive activities, listening and talking with people** • Redefining processes and internal project management • Sharing of the advancement in a project • Suggesting experts for problems resolution • Knowing priorities and activities advancement • Sharing of experience and colleagues best practice	Idea Management, "Let's collaborate" programmes
3rd area	Activities	**Self-service applications and end-to-end services, management of the business processes and data** • Enhancement of the performance • Processes automation • Work and mobility	To-do list ("Organise myself")
4th area	Knowledge	**Repository and content research, capitalisation of people and organisational know-how** • Enhancing research and access to internal know-how • Access to people competences • Management and sharing of specialised information and issues • Training and giving assistance to people	Knowledge Management

Fig. 4 Digital initiatives since 2013 at Banca Mediolanum

This large scale engagement,[3] which included influential leaders, supported the dissemination of the digital strategic vision and clarified the direction in which the organisation was moving. People were therefore engaged and committed to a concrete road map. Moreover, in 2014, 30% of the digital budget was devoted to communication and advertising campaigns, demonstrating the great emphasis that Banca Mediolanum placed on its digital transformation.

Two additional important organisational projects started in 2014: the SMART Program and the Digital Workplace project. The SMART Program aimed at defining innovative and transformational initiatives for the bank's operating model. The Digital Workplace project, on the other hand, 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 a more proactive approach to customer stimulus and knowledge sharing. According to the Digital Workplace Senior Manager, from the beginning, the main goal of the project was "[…] increasing the level of trust between people, in order to trigger a mechanism of mass collaboration and, thereby, enhancing the organisational performance." The purpose of the Digital Workplace is to create a unique digital space through which people can work better, having at their disposal all the information they need for carrying out their daily activities and through which they can collaborate and share information, ideas, and documents. This electronic collaborative tool helped to remove barriers to the successful implementation of the transformation.

The Digital Workplace is the natural evolution of the intranet platform of the company, integrating all the Web 2.0 functionalities—e.g. content creation tools, comments, status updates, tagging, etc.—with the Enterprise Resource Planning (ERP) platform—sending notifications and tasks to people based on their project role or activities. This active planning and monitoring was a powerful tool to increase expectations and maintain the organisational tension to change.

Subsequently, the bank realized that the tension to change needed a boost in order to engage more people while celebrating victories, leaders, and champions of the transformation. Therefore, the change management team conducted an Organisational Network Analysis (ONA)[4] aimed at amplifying the Digital Transformation process and discovering those who, inside each network, have the characteristics to sustain the transformation. These key change agents are also known as pivots or digital champions and are named "vertices" or "nodes" in graph theory (the area of mathematics that formalizes the study of models to allow pairwise relations between objects). Specifically, the analysis consisted in asking 2044 users four specific questions related to their relationships with other people inside the company. The output was a list of digital champions to involve in the design and leadership of digital projects. Starting with these results, the digital

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[3]In 2013 the catalogue of on-line courses doubled in number, with an increase of 164% for courses related to digital projects. As a consequence, the total number of participants increased by 71% from 2012.

[4]ONA is a quantitative technique for studying and graphing the relations within an organisational network.

transformation team set the groundwork for the unified company platform: the Digital Workplace.

The two main initiatives contained in the Digital Workplace project are represented by the Idea Management and by the Knowledge Management projects. While the former was initiated in 2014, the latter started in 2015.

As presented above, the Idea Management project consists in a collaborative improvement platform (both on-line and off-line) that can host all the organisational projects that require multiple interactions between team members. An individual, also called the sponsor, can launch a business challenge and potentially everyone inside Banca Mediolanum can contribute to the challenge and enrich it with new ideas. These challenges can generate a real organisational project, with human, technological and economic resources. The Idea Management project started in 2014 with a "pilot" version involving 83 pivots (or digital champions) on a voluntary-basis and then continued in 2015 with the involvement of more than 600 pivots, covering 60% of employees across organisational departments. These employees experimented with innovative techniques for improving collaboration, proposing projects, increasing operational efficiency and organisational initiatives, and using advanced technological tools. This resulted in the activation of more than 20 challenges, the sharing of more than 170 ideas and the generation of 3000 associated comments. Moreover, more than 20 projects were launched based on positive cost-benefit analyses.

As reported by the Project Manager of the Idea Management, "…the concept at the base of the Idea Management it's the same… but in this case the potential is incredible because it is not only about involving small groups, but rather, the entire organisation." Therefore, the long-term benefits of the Idea Management platform in terms of augmented intelligence are impressive.

The second most important digital project in 2015 was the Knowledge Management platform. The Knowledge Management platform at Banca Mediolanum consists of a digital platform serving as a unique organisational knowledge repository, which is useful to both the front-office and the back-office, as well as to the sales network and anyone needing access to the company's information and data. The platform is built in Office 365$^{®}$, which has been integrated with other tools and Microsoft applications—e.g. e-mails, Skype$^{®}$, Word$^{®}$, Excel$^{®}$, etc.—linked to a database. Banca Mediolanum's management expects that, by the end of 2016 the project will be generating savings of about 600.000 € per year.

Taking into consideration the bank's many digital projects, the HR Senior Manager reports that, "the use of technological assets has differential elements representing one of the main pillars on which the business of Banca Mediolanum is based, thus being part of its DNA."

The bank, indeed, was born with the idea of exploiting cutting-edge technologies and putting them at the service of customers' in every given technological "era." These technologies, however, provide a value in establishing and managing the relationships the bank has with its stakeholders (customers and employees primarily). Human relations have thus been shaped with the use of digital technology as enabler and facilitator. Another motivation for the bank to capitalise its efforts

towards Digital Transformation arises from the necessity to maintain and enhance its position in the market. Nowadays, the bank is performing well, not only economically but also operationally, and it is determined to achieve even higher levels of responsiveness, flexibility and speed. These improvements must be reflected in better customer services and products, which are the real focus of Banca Mediolanum. "As Ennio Doris says", reported the Project Manager of the Idea Management, "any firm that sits on its current wealth will be wiped off by the next generation of companies," and he continued, "[…] because those who will survive, will be the ones that would be able to ride this Digital Transformation wave."

All these digital-driven changes have provided the bank with the following benefits (Thomas et al. 2014):

– the ability to be creative, test various ideas and, through the support of the new digital tools, see what works and what does not in real-time, avoiding recurrent errors;
– the ability to learn, i.e. retain knowledge acquired through experiments and a propensity for self-learning;
– the ability to judge, i.e. to balance the facts, the potential future drawbacks, risks and opportunities in order to make informed decisions;
– the ability to cooperate with other bank employees intensively, in order to create new value.

Therefore, according to the HR Senior Manager, "the future benefits are expected to be perfectly aligned with the ones that we are today generating and on which we are currently working …so the main goal is to change our mind-set and making today's approach at Banca Mediolanum an end-to-end approach."

From our perspective, Digital Transformation should be considered more as a transformation of people's behaviours and the organisational culture rather than just a technological change. Technology is in fact often defined as an *enabler*, i.e. an instrument used to make things happen. This aspect was clearly emphasised by Banca Mediolanum's *Innovation Senior Manager*:

> The main motivation that spurred Banca Mediolanum to undertake the Digital Transformation path has been the one of creating a company that would reflect the new way of working together, built through a change in people's behaviour, as well as through the use of new technologies. These new behaviours would imply a set of new rules involving the collective intelligence, the mass collaboration.

However, all the projects and activities carried out from 2013 to 2016 were implemented on the old governance structure, creating a sort of organisational magma. No new deliberated organisational forms and mechanisms have been implemented during the transition. Thus, we are now observing new emergent forms that will be consolidated and institutionalized in the following years.

Indeed, the IT department is assuming new roles, essential for supporting the digital transformation. In some cases, it is the CIO who drives the digital initiatives, whereas in other cases, ad hoc teams, formed by both IT and business personnel, are in charge of drawing up the digital agenda (Westerman et al. 2011). However, it is

not just IT's role that must change and adapt to technological and organisational transformations, but also the structure of the IT function, which needs to be reshaped in order to allow the company to be more reactive and respond to market challenges.

Governance leverages the change triggered in people's behaviour and the culture by funnelling the digital efforts towards a more structured organisational transformation.

Banca Mediolanum is using *digital* to bring about a cultural and social transformation first, recognising how a comprehensive change will only be realized by engaging people and pushing them to take actions towards change. For the bank, this requires blending its organisational units by eliminating *silo*-like workflows in favour of a more transparent, community based organisation. The adoption of more collaborative ways of working will allow for the broadcasting of a cohesive vision aimed at building an entirely new organisation in an orderly fashion.

Banca Mediolanum's digital transformation would not have been possible without parallel changes in digital governance. Digital IT Governance at Banca Mediolanum has become more liquid and more widespread across the organisation. For example, HR managers are leading IT teams, local business units are empowered to use and maintain information technology, and IT personnel are disseminated across many corporate functions. Today, IT is melded into the bank's functions and processes. The Banca Mediolanum case demonstrates the rise of new IT governance models, including integration of governance roles and a prototype of a community-based governance. In the future, we expect that the bank will adopt a governance model that spans beyond the traditional boundaries of the company, enabling the participation of external actors, such as consumers and suppliers, in the Bank's IT decision-making, resulting in the creation and development of a Digital Ecosystem.

The bank realized that digital transformation, innovation and the evolution of new governance modes and mechanisms must move together. The Bank has learned that the implementation of new governance modes is critical to the success of the digital transformation journey. Naturally, this journey doesn't happen overnight (especially for a bank!).

Until the early 2000s, Banca Madiolanum adopted a traditional governance approach, i.e. a *Business Monarchy*. During that period, IT was a service provider subordinate to the business, and limited to technological evaluations. A management committee—General Management Project Committee—composed of the bank's General Manager and C-level executives ensured the alignment of business goals with IT projects. Once the project was approved, the members of the investment committee, i.e. the General Manager and the CEO, jointly estimated financial, human and technology resources required for successful project completion. As the Bank moved toward a digital transformation phase, an *IT Duopoly* governance model was adopted in which the business and the IT department created a liaison for business software projects and an IT representative was assigned to its management. While 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 unit. Briefly, the pre-digital stage was characterized by a collaboration of IT specialists and business users on software business requirements and functionality.

Since the Bank's digital transformation required a rapid increase in IT projects (especially from 2013 forward), the Bank created a governance structure that supported continuous application delivery. To ensure rapid development, the Bank created the integration role of Demand Manager to approve and manage the growing number of digital projects. The Demand Manager has the responsibility to gather and collect information related to each individual digital project and to evaluate the strategic alignment of the project to the enterprise strategy. This governance approach has helped to identify synergies between different projects and to mediate the relationship between IT and business. The Demand Manager defines business requirements, evaluates technical features, and supports the Project Committee in its decision-making. Navigating toward a new organisational form, the independent "arbitrator," mediates between the business and IT culture and priorities and is the initial new digital governance form of future digital enterprises, where widespread technologies are fully integrated and fused in all corporate units.

Eventually, continued digital transformation will require heterogeneous agile teams that make governance boundaries between business and IT more blurred and overlapping. For instance, at Banca Mediolanum, a community-based governance structure drove the Idea Management project. Cross-functional, self-regulating community members were involved in application planning and development. These community members were responsible for budget spending, technology choices, and services to be delivered. So, the IT decision-making is not determined by the boundaries of a single business unit or IT function but rather, it involves extensive, transparent, lateral communications with peers across the organisation. The bank envisions a digital governance organisation where developers, technicians and functional employees take responsibility for their specific parts of a project and a strong hierarchical control is no longer needed.

To conclude, Banca Mediolanum has enhanced IT's role in business-related decision-making across the entire organisation. IT has become a central element of the corporate governance system that takes both a ground level and consolidated view on all digital activities. This approach challenges the core logic of the traditional governance models, revealing new governance models under the umbrella term "*Digital Governance.*"

7   Concluding Remarks

Banca Mediolanum's case demonstrates that the evolution of an organisation's culture and governance models is critical in order for a company to benefit from the digital revolution. Indeed, the Bank's digitisation is the most dramatic and irreversible corporate transformation in recent decades. The lesson learned from the Bank's experience is that mechanistic, hierarchical governance structures are

inadequate in a digital enterprise, where values and mechanisms such as democracy, inclusion, and continuous engagement across different digital communities are fundamental.

Accordingly, staff and management interactions have changed in order to remove the barriers that interfere with motivating progressive groups and their ability to guide an organisation's transformation process and to accomplish goals quickly. Yes, speed is critical now for two reasons. First, the rapid introduction of new disruptive technologies has changed the perception of time in society: we can grow, learn and live faster than in the past and we embrace this change. Second, digital companies such as Uber or Airbnb can exploit the value of information technology and rapidly organise and create new business models. This fast track to success is attractive to companies. To quickly exploit the value of technological advances, company employees must share a common vision, the same short-term goals and be acclimated to continuous change (we don't know if and when a new steady state will be reached, so continuous change is the new norm).

The traditional "functional" separation between business and IT is detrimental today. Digital initiatives must be well integrated into all organisational functions, as part of a unique, digital company DNA. After initial efforts to bring the business and IT closer together through integration roles such as Banca Mediolanum's Demand Manager, companies should move toward greater overlaps between business and IT, until digital competences are widespread in all business functions. Actions that can facilitate an organisation's digital transformation include (1) steadily moving IT professionals across the organisation and (2) creating small IT units in other functions. The result is the creation of heterogeneous digital communities of peers. After creating digital communities within the organisation, the next step toward becoming a digital organisation is the addition of external actors, including customers and suppliers, within these digital governance groups and communities.

The implementation of a digital enterprise calls for a "behavioural shift" that recognizes internal digital champions and digital customers and creates a seamless digital experience for all stakeholders. The active involvement of the Human Resources (HR) function is critical to this shift. The HR function should define the engagement action plan, incentives for participation and the strategy to propagate the digital transformation across the entire enterprise. The launch of a training and education program through a dedicated organisational unit is key to creating compelling content and leveraging dissemination dynamics in order to help employees (1) adopt new digital communication methods (beyond e-mail), (2) manage communication overflows (for instance educating people to correctly perform tagging and document archiving) and (3) use social-media strategically.

As a first step toward digital governance, managers should create an employee experience of "being connected" by organising information, applications and services into one single environment with easy end-user access. This internal digital experience also requires new corporate communication services, such as tweet-walls and blogs as well as a social knowledge platform (a Knowledge Management System 2.0). Mobile access to information services, both inside and outside the company, is fundamental to the launch of a company's first digital

communities, with their own social profiles, policies, and facilitation roles. With these technology advances, employees will feel comfortable with the informal and socially oriented communication styles, which encourage learning.

As a next step toward digital governance an organisation encourages digital protagonists! Search for digital champions with high potential and enable full collaboration among customers, the sales network and the company social network by extending multimedia communication features to all. Personal objectives, KPIs and support from a 2.0 intelligence system are vital to the cultivation of digital talent. Digital talent across the enterprise is the foundation of a truly shared and democratic digital governance program capable of yielding timely digital innovations. Full digitalisation and socialisation of strategic internal and external processes will then result in the optimization of operations and enable digital communities to innovate company products and services, thereby achieving an impactful digital transformation.

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