
2.1 Introduction

Over the years, the financial and banking system has benefited from the evolving role of *information technology* (IT). Many financial institutions see IT as a strategic weapon that ensures efficient and quality controlled processes and improves capacity for product innovation and customer service.

The role of IT is no longer marginal: from simple support for the business it has become a *conditio sine qua non* of business. This chapter demonstrates its importance by reinterpreting the relationship between IT and competitive advantage and IT and innovation which are changing perceptions of IT and its crucial role in business.

One of the key issues to be addressed concerns the Governance of IT. It should be studied not only from a technological (and technical) perspective, but also with a strong focus on the management and business side (Kling and Courtright 2006). Nowadays, governing IT means addressing the business. Results in terms of performance, economies, and developments are driven with full awareness of the entire management of IT dynamics. It means harmonizing corporate strategies and IT evolution.

2.2 The Role of IT in the Financial System

In the financial industry, IT processes have strong impacts on business decisions and operations since IT plays a crucial role in financial business. According to Porter and Millar (1985) “Information technology is permeating the value chain at every point, transforming the way value activities are performed and the nature of the linkages among them. It also is affecting competitive scope and reshaping the way products meet buyer needs. These basic effects explain why information technology has acquired strategic significance and is different from the many other technologies businesses use. [...] Information technology not only affects how individual activities are performed but, through new information flows, it is also greatly

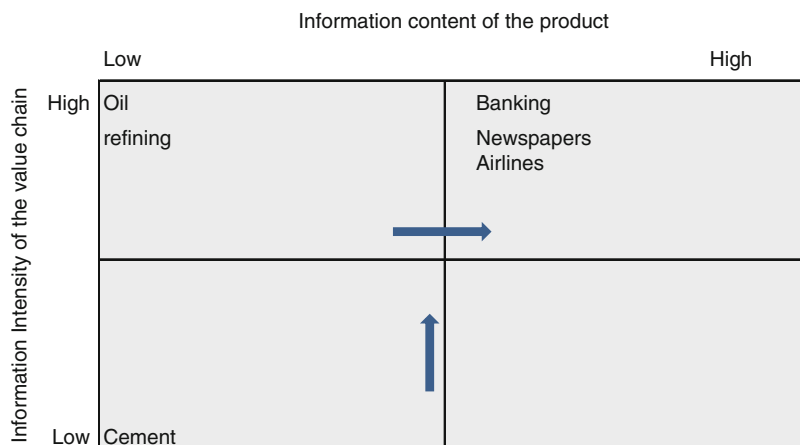


Fig. 2.1 Information intensity matrix (Source: Porter and Millar 1985)

enhancing a company's ability to exploit linkages between activities, both within and outside the company. The technology is creating new linkages between activities, and companies can now coordinate their actions more closely with those of their buyers and suppliers.[...] Although a trend toward information intensity in companies and products is evident, the role and importance of the technology differs in each industry."

According to Porter and Millar's (1985) Information intensity matrix (Fig. 2.1) banking and insurance companies have always been information intensive. In fact, financial institutions have both high levels of information intensity of the value chain and high information content of the product.

We could argue that we are observing a simultaneous strengthening of the content of automation in organizational processes and an ever more relevant presence of decision making and coordination processes.

The increased pervasiveness of automation in business functions is increasing the need for more sophisticated information systems able to handle high volumes of information, eliminating manual and intermediate stages that need control and adjustment, and thereby reducing costs. However, it should be noted that the criteria for evaluating information systems in terms of productivity and efficiency are gradually expanding to include also estimation of the value generated by these information systems for business purposes. Therefore, it is reasonable to expect that, in the future, the criteria that privilege economic aspects, tied to the automatic processing of information, should be reduced in favor of indicators such as level of customer satisfaction or commercial efficiency of various applications. The increased contributions from IT enabled automation are mostly occurring in areas where services type contributions are more relevant and where the business continuity, reliability and accuracy of data and availability of information are important for users and organizations. For these reasons, the role of the IT department is crucial for both the management of information systems and the development and maintenance of key business processes.

The adoption of intensive automation generates information assets that have become the basis for decision-making tools. The relevance of automated systems is evident in the diffusion of decision tools to every functional business area and related strategies. Specialized decision processes related to these applications, combined with developments that are making technology more understandable, are enabling users to play more active roles in the design of information systems.

These trends, in some cases, are leaving to IT departments the marginal role of administrative and technical day-to-day operations. IT is becoming a service function. In other cases IT takes on the business function to support product and process innovation strategies.

This shift in IT content is reflected in the historical relationship between IT and users (Kim and Kankanhalli 2009). The empowerment of users has not reduced the role and power of the IT function in business. On the contrary, in financial institutions IT organizational units have evolved in business departments responsible for administrative and decision making activities. The role of electronic data processing managers in the late 1990s, have been transformed into CIO (Chief Information Officer) requiring expertise in managing very complex operations and contributing to the strategic processes in banks. CIOs are required to promote and sustain the innovation process on the side of both technological evaluation and the business itself. Business innovation is driven by technology (Hansen and Hill 1991). The management of innovation, its life cycle and the definition of priorities are the fundamental tasks of the CIO.

2.3 Technology and Innovation

The strategic value of IT is manifested in the ability of IT to generate and produce value within a dynamic and emergent context. Value is often seen as synonymous with efficiency and understood as the ability to increase productivity by reducing resources, or synonymous with effectiveness or the ability to respond quickly and successfully to users' demand. A persistent item on the agendas of IT managers and CIOs of banks and financial institutions is the search for mechanisms to create value in both directions, which may seem dichotomous and obstructive but can be considered two parts of a single innovation strategy. The IT function is responsible for a continuous process of improvement and change through promotion of or reaction to stimuli from inside or outside the organization.

In this innovation process, two questions often arise: How do we recognize and manage innovation? What mechanisms should manage the process of innovation management between users and IT functions?

To answer these questions in our case we draw on academic studies that highlight theories of innovation. We deal first with the concept of innovation, which is understood differently in the literature and in practice.

The difficulty of ascribing meaning to the phenomenon of innovation is due to the subjectivity of innovation. Many of the contributions in the literature refer to frames, and focus on certain attributes or characteristics as being more important than others (e.g., Hyland and Boer 2006; Tytler et al. 2008; Wainwright and Waring 2007).

In trying to highlight the systemic context of support for innovation, some authors use the term innovation to describe the new effects that it causes. These effects may be related to the market, through the production of ideas and the adoption of new products or production processes (Brown 1957; Mansfield 1963) or organizations (Knight 1967; Carroll 1967) and consider innovation as a social process that leads to significant changes in structures, in organizational procedures or in tasks. This last concept is adopted by Mezas and Glynn (1993), who define innovation as discontinuous and significant organizational change, which is discontinuous compared to how the business was organized up to that time. If organization is to be considered an innovation, Rogers and Shoemaker (1971) point out that the output of the innovation process is all that is perceived as non-routine by those who use it.

Other authors adopt a less inclusive definition of innovation that focuses less on effects and more on the process that generates them. According to Evan and Black (1967) innovation is the organizational process of implementing new ideas or procedures. The situation described above persists until there is a change in the environment or in the organization when the routines that have been established to support the particular production process need to be changed. The improvements that characterize life cycle maturity cause minor shocks to the organizational context, but appear crucial for ensuring steady alignment with the context and the environment. They anticipate in part the effects of *disruptive* innovations deriving from the introduction of a new product or process (Tushman and Nadler 1986).

In discussing degrees of continuity with respect to earlier innovations and the status quo that has been consolidated, Robertson (1967) proposes distinctions between continuous, dynamically continuous, and discontinuous innovation. The first is characterized by substantial linearity compared to existing patterns which become more pronounced, and small changes based on maintenance of the existing model. This introduces the idea of marginal or increasing innovation. Continuous and dynamic innovation has more creative though not destructive effects. When these effects become destructive, they are described as discontinuous or revolutionary innovation (Herbig and Day 1995). They result in non-homogeneous or radical change compared to the established patterns and are likely to require new routines for their use, which will affect existing skills, knowledge, infrastructures, products and processes, and perhaps localization and the customer segments served.

Therefore the literature agrees on two types of strategies related to innovation: exploitation (improvement) and exploration (radical change) (March 1991; Holmqvist 2004).

Following the contributions of Katila and Ahuja (2002), what distinguishes exploitation from exploration strategies is not the radicalness of the effects of the innovation (Bierly and Chakrabarti 1996), but the existence of the resources and processes that allow the exploration of new opportunities and the exploitation of unexpressed potential (He and Wong 2004).

The literature assumes that comparison of these two innovation strategies shows substantial differences in organizational structures, processes, and organizational capacity (Marabelli et al. 2012). Specifically, a strategy of exploration is associated

with organic structures, improvisation, autonomy, new technologies and markets, while exploitation is associated typically with more mechanical structures, routines, controls, bureaucracy, markets and proven technologies. Successful companies are those that manage to become ambidextrous and balance the two types of innovation (March 1991; Tushman and O'Reilly 1996) and govern innovation processes and structures oriented in different organizational paradigms.

2.3.1 The Governance of Innovation Processes

The above discussion focuses on the meaning and scope of innovation. However, another cause of complexity is dynamics management in terms of the ability to manage and govern innovation performance. In an extended definition of innovation, governance becomes an important aspect. There seems to be a consensus in the literature that innovation processes are characterized by the contemporaneity of their forces, and unpredictability of their effects. The contemporaneity of the forces acting on the innovation process are seen as in line with the traditional view of sequential cycles of parallel innovations.

The content of innovation is often described in the literature as either product or process innovation, the former involving a change to the final product/service offered, and the latter to a change in the way the output is produced based on changes to IT and organizational systems. These types of innovation are often associated with different phases in the life cycles of sequential products (Tushman and Nadler 1986) (see Fig. 2.2).

Figure 2.2 shows the importance of product and process innovations in the life cycle of a new product. In the early life cycle stages, innovations are mostly related to products (with a view to achieving novelty and attracting customers through the provision of increased quality, performance, etc. of the product). Subsequently, process innovation is in line with the phase of growth and development, and directed to greater production efficiency. The stage of maturity is characterized by both product and process innovations aimed at maintaining the competitiveness of the product in the market. Some authors propose theories related to competition between both types of innovation in the same period.

With reference to the size of the unpredictability of the effects, many approaches consider this change as a phenomenon or process that allows progress from the current to a desired situation. Resistance to change or refusal of a new situation can be governed by the capacity to locate and recognize the forces of change that reduce or redirect signals of change. In the literature this is referred to as planned change and is based on the following assumptions:

- (a) The change is deliberate, its direction, its effects and its intensity are knowable a priori
- (b) Top management plays a leading role in defining strategies and managing the change (Galbraith 1973).

This perspective assumes that top management has more information and therefore better decision-making capacity and better ability to forecast trends. The information

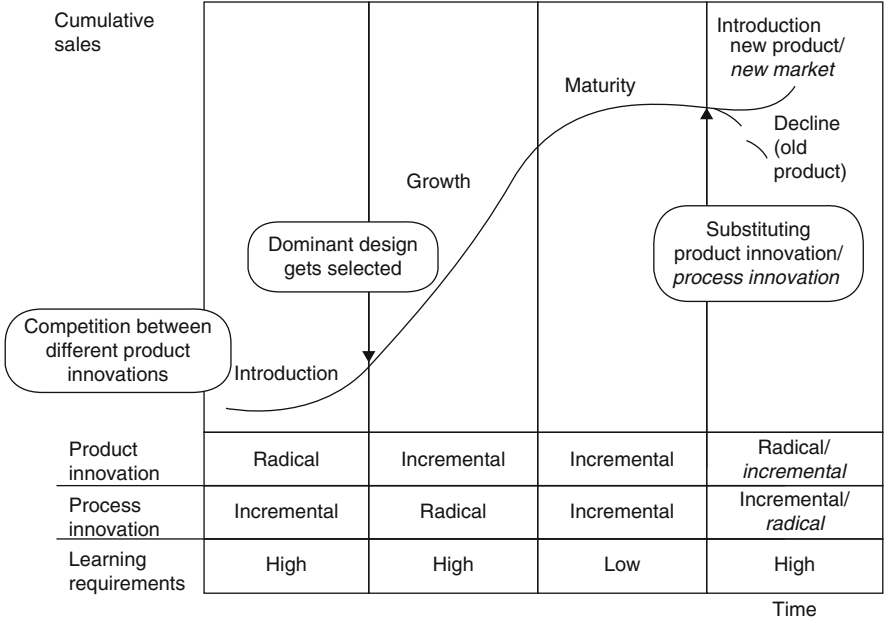


Fig. 2.2 Life cycle of the product: product innovation and process (Source: Tushman and Nadler 1986)

is related to the change objectives and to the situation that needs to be adapted to the environment and to apprehension of the forces facilitating and hindering the process that management knows because of its independent and supervisory role in organization.

The opposite school of thought associates the adjective emergent with situations of change (Mintzberg and Waters 1985; Barley 1986; March 1991). Emerging change results from unintended change or change defined a priori, but improvised and enacted by organizational actors (Weick 1969; Orlikowski 1996). It analyzes change to actions in a given situation. According to this approach, the role of top management is relevant in the process of change (Tourish and Pinnington 2002). The agents of change are those responsible for governing the direction of the change. The change is driven by a force of leadership that can be distributed among actors not necessarily part of the organization’s management (Woorward and Hendry 2004). This perspective goes beyond the simple mechanisms of communication and participation applied by top management to the actors that are experiencing the desired change even in the context of planned change.

The concepts of planned and emergent change can coexist within the same innovation cycle. In the initial phase, change may be partly planned; during the development of innovation, contingencies or programmed changes lead to situations that require plans to be modified (Orlikowski 1996). These changes may be intentional or decided by the innovators, conscious or unplanned and implemented by behavior that ex post identifies them as agents of change.

A simple example of this concept is the introduction of e-mail in corporate communications. In the initial phase of this project many organizations planned the technical aspects (number of users of the information system, technological support infrastructure, etc.) and aspects that they saw as having an impact on organizational dynamics. These included training for users, organizational structures and roles allowed to use electronic mail, and some general rules for its use, and criteria for its replacement of other modes of communication, as well as content, targets, etc. of messages. In the implementation phase, some items had to be revised to suit more promising alternative hypotheses. For example, the number of email users and uses were increased. It is during the use phase of new information system that unexpected changes may occur, which often are entirely opposite to planned use. For example, in electronic mail codes of behavior and modes of composing messages have been established informally by the virtual community that communicates via email. The sets of formal rules are enriched or replaced by sets of rules that are established directly by users, in emerging structuring processes, and are unintentional.

In this situation of emerging dynamics during the innovation process, it is necessary to have tools and methods that allow operators to understand how the innovation is evolving. Traditional techniques and tools can support the process of innovation in its initial planning and through some intended change. However, they do not always provide a valid approach to the identification and assessment of emerging changes.

Teece (1998), in supporting the systemic theories described above, distinguishes invention and the creative process in independent and systemic innovations. While the first derives from a process of innovation undertaken independently by a single entity, systemic innovation requires constant cooperation and effective coordination between the numerous actors involved, directly or indirectly, in the innovation process. Social networking theory points to the importance of belonging to a network or community of actors in order to achieve the creative chaos of different but complementary bodies of knowledge.

2.4 The Priorities of CIO in the Financial System

We conclude this chapter by highlighting the huge influence of technology—especially in the service industries. From being an additional tool, it has evolved to become an essential part of corporate governance. This development, which has affected all business industries, has imposed significant changes, both technological and organizational. These changes are promoted by the need to keep pace with the evolution and to provide customers less familiar with IT, with a banking product that satisfies their demands.

Therefore, in this changing environment, one of the responsibilities of the CIO is developing the capacity for systemic and ambidextrous innovation, which goes beyond particular business functions to satisfy the community of users, based on radical and incremental change. The ten business priorities identified by CIOs and

Business strategies		Ranking of business strategies CIOs selected as one of their top 3 in 2011 and projected for 2014				
Ranking		2011	2010	2009	2008	2014
Increasing enterprise growth	1		*	*	*	1
Attracting and retaining new customers	2		5	4	2	3
Reducing enterprise costs	3		2	2	5	6
Creating new products or services (innovation)	4		6	8	3	4
Improving business processes	5		1	1	1	13
Implementing and updating business applications	6		*	*	*	12
Improving the technical infrastructure	7		*	*	*	7
Improving enterprise efficiency	8		*	*	*	10
Improving operations	9		*	*	*	2
Improving business continuity, risk and security	10		*	*	*	23
Expanding into new markets and geographies	11		13	10	4	5
Attracting and retaining the workforce	12		4	3	6	8
Introducing and improving business channels	15		15	*	*	9

*New response category

Fig. 2.3 Top business priority of the CIO (Source: Gartner 2011)

depicted Fig. 2.3 show that support for improving business processes and reducing costs were priorities in 2008–2010 while support for business growth and the development of the new products were priorities in 2011. Support for business growth continues to be a main priority up to 2014, together with improving operations activities.

If IT is business, the role of IT in the financial world will continue to grow to support business strategies. An important future challenge will be to provide IT department expertise and systems. It means becoming the business, it means having a deeper knowledge of the business processes that are completely re-engineered and not just of the technology.

The increased importance of IT in decision-making related to financial processes is aligned to an increasing awareness that IT is no longer a support, but is a variable in business and innovation. Although great efforts are being made in the financial sector to govern this alignment, it is mainly related to expertise in process to support ongoing business.

2.5 Extended IT Governance: Performance and Operational Models

2.5.1 Business, IT and Strategy in Banks

In planning their marketing strategies, organizations are paying increasing attention to the external environment and possible future scenarios. Managers try to anticipate market changes. In this context, information technology (IT) can be seen as a business enabler. It requires constant alignment with business in order to generate added value and competitive advantages. The capacity to align IT and business

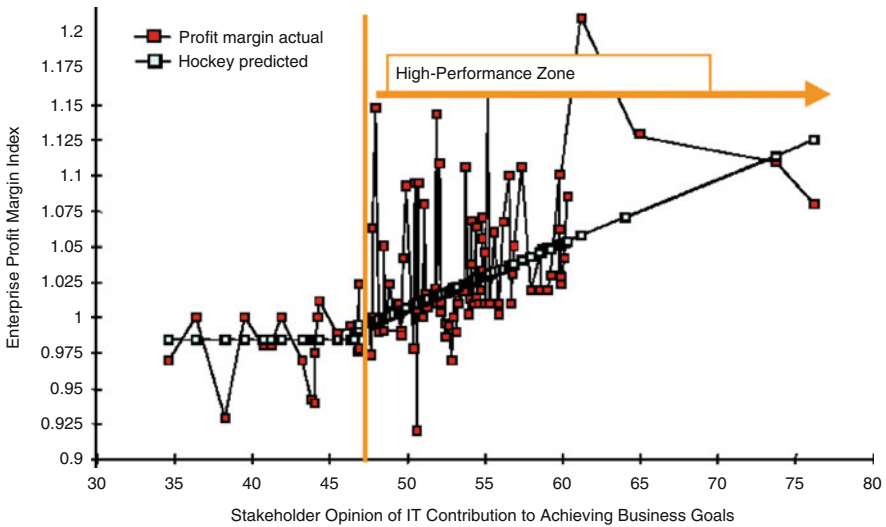


Fig. 2.4 IT contribution and business results (Source: CogniTech Services 2004)

adopting a holistic view of the relationship between technology and its governance is IT governance. “IT governance is the responsibility of executives and the board of directors, and consists of the leadership, organizational structures and processes that ensure that the enterprise’s IT sustains and extends the organization’s strategies and objectives”(Cobit 2007).

To achieve these goals, IT should be governed in effective way. IT governance is a complex topic that includes interdependent, interrelated and highly critical activities. The pervasiveness of IT in business processes is making it difficult to separate IT management (governance) from business management, while technological innovation is requiring dynamic governance practices. Generally, the complexity of these practices increases with the intensity of the information influencing the business decisions. In the case of banks, which rely heavily on information systems, IT governance is crucial.

The results of research carried out by Cognitech Services in January 2004 on a sample of more than 200 companies from various sectors, show the contribution of IT to the achievement of strategic goals.

Figure 2.4 shows that there is a strong correlation between high profit margins and a high score for the level of interaction between business and IT in strategic activities. Analysing the values that contribute to increased profit margins, it emerges that the highest performance is achieved by organizations that are able to reduce costs and optimize investment through effective governance of IT resources. IT is essential to manage transactions and produce the information required to plan economic and financial activities.

IT has become a crucial part of banking business and a key enabler of business activities. It allows the creation of new business models and the improvement of

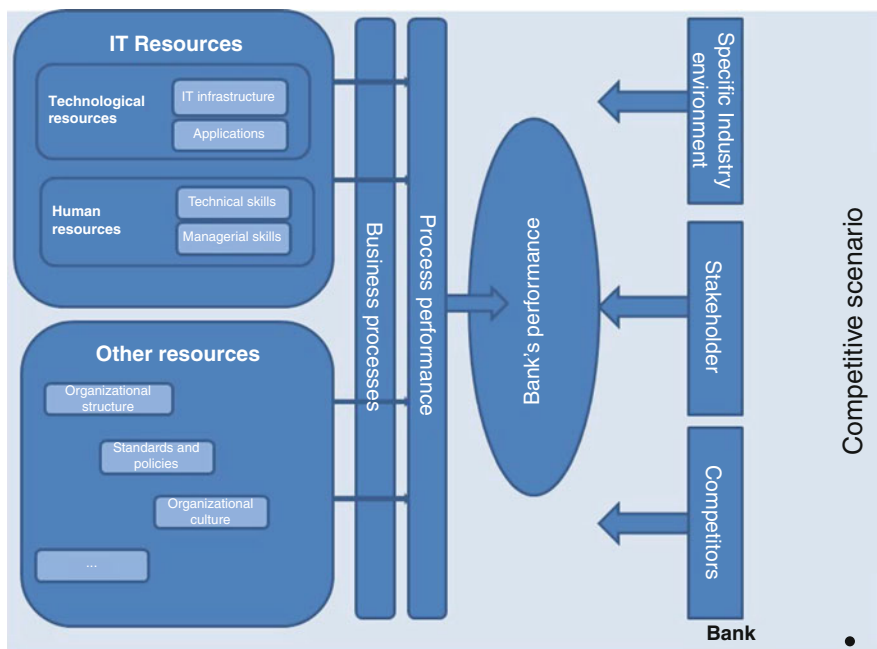


Fig. 2.5 IT resources and business value (Source: CeTIF 2007)

existing ones. Although the relationship between technology and business is generally accepted, how much banks see IT as generating business and providing a real IT contribution that generates value, is less certain.

2.5.2 IT Business Value

Some research (CeTIF 2007; Cipa-Abi 2012) highlights that IT is used and valued by Italian banks in line with a short-term perspective that prioritizes a *tactical approach* aimed at increasing efficiency and reducing costs, but in some case does not consider the potential long-term benefits (so-called IT business value).

IT business value refers to the impact of IT on organizational business performances in relation to operational processes and the market, aimed at greater efficiency, lower costs and improved market penetration. (CeTIF 2007)

Awareness (and assessment) of the value of IT for business, at different levels of the organization need to be considered when deciding on a new governance approach that will improve bank performance.

Figure 2.5 shows a framework that explains the contribution of IT to the value chain of a bank and its performance.

The relationship between business and IT influences the entire performance: economies of scale and scope, process performance, individual productivity and

performance (new business models, market differentiation and penetration, relationship with stakeholders, product innovation, capacity to satisfy customer needs, acquisition of potential customers). Figure 2.5 shows that value generated is achieved through the use of two types of resources:

1. IT resources: technological resources (shared infrastructure and business applications) and human resources (technical and programming skills, skills in system integration, data management, etc. and management including skills that involve collaboration with business units, external organizations, management projects, demand, etc.).
2. Other resources (related to IT) that are intangible assets, such as organizational structure, the service model, policies and regulations, guidelines and best practice, corporate culture.
3. Exploitation of the resources mentioned above is achieved through the execution of business processes consisting of activities that create value by delivering the expected output (banking service or product) optimizing the inputs.
4. Business process performance can be measured using various criteria. They can refer to economic value but also to the quality of new information acquired, etc. Process performance influences bank performance.
5. Bank performance can be measured by Return on investment, Return on equity, level of efficiency, profitability indicators, market value, market share, etc.

The link between IT and business in terms of resources, management practices and processes is now more evident. Lack of understanding of the benefits associated with effective use of IT and lack of communication regarding these benefits, a not fully involved management and lack of governance of information systems are among the main causes of failure in the strategic use of IT and creation of strategic value from IT.

2.5.3 The Role of IT Governance and the Cultural Gap

When IT becomes part of an organization's governance, the importance of its strategic role in the company becomes clear. In this perspective IT cannot be considered as either a running cost or a simple support to business. It is a vital issue for the banking business. It is an essential component and a strategic trigger that facilitates business growth. Effective IT governance models should be adopted to inspire the business.

The competitive advantage of IT as a lever can be established on the following basis: the ability to use technology adapted to the changing organizational context and its requirements and the attribution to IT of an important role in the bank, with business inspiring performance the aim.

It is not obvious how this can be achieved and there are significant potential obstacles including cultural barriers, incentive problems, lack of know-how, lack of management commitment. Although technology can be physically replicated and may be accessible at low cost, information systems require skilled management and an appropriate organizational environment. For example, companies may be able to

afford to invest in high-capacity data storage, but may not have the skills to exploit the data to benefit the business.

Despite the need for a convergence between effective use of IT and business strategies, studies of implementations of IT governance in the banking sector often experience cultural barriers, with many people sceptical or passive about the benefits. There is a gap between IT investment and its expected benefits. Some banks have appointed people with expertise in both business and IT to act as interfaces and resolve problems and misunderstandings.

2.5.4 Towards the Concept of Extended Governance

Starting from the ideas of several authors (Luftman 2003; Luftman and McLean 2004) and existing empirical evidence, we identify some conditions for a transition to an extended approach to IT governance:

1. The information systems adopted must be appropriate for the needs of the entire organization (employees, customers, partners, competitors, etc.). This implies interaction between organizational units, use of a common language and effective use of IT to identify business opportunities;
2. Within banks, the organizational culture and a culture of technology may be in contention. Building competitive advantage using technology effectively requires the pure technologist to be secondary to the businessman who is also responsible for the technology and for production efficiency.
3. Adopting a technology without changing business processes can reduce the economic value of IT effectiveness. It is necessary to have a culture of innovation for effective use of technology promoted by CIOs and IT Managers. Employees of business units must receive adequate training to enable them to develop appropriate skills and expertise and interact with the providers of the technological solutions within a long-term relationship;
4. The role of information systems in the company and high levels of involvement among organizational members (leadership, motivation, confidence) must be promoted. This will involve the creation of a simple integrated and horizontal technological platform (accessible to and understandable by all), able to satisfy the diverse needs of the organizational units involved in the governance process. Centralizing the technology in terms of administration not use, will allow efficient monitoring, cost control, avoidance of information duplication and harmonization and integration of components;
5. A culture of an Extended IT governance should be spread throughout the whole organization. Projects addressing innovative uses of technology must be aligned with company strategy, which implies aligning business and IT performance (using similar metrics to evaluate and prioritize projects) and implementing appropriate processes and technologies to manage needs and communication and support business units to define their needs.

On this basis the approach to governance can be shown in Fig. 2.6.

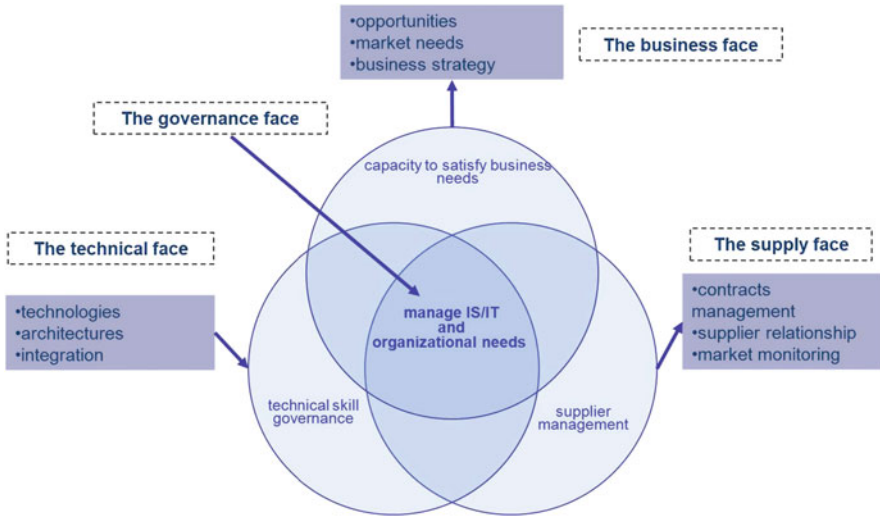


Fig. 2.6 Extended IT governance (Source: Kern and Willcocks 2001)

The model includes three main aspects involved in governance (governance face): the business operation, the technology operation face, and the supply management face. The business operation suggests strategies for IT systems that respond to market opportunities and demands while maintaining interdependence between processes at high levels of integration among subsystems. The technical operation addresses technical reliability, price/performance characteristics, flexibility and integration. Supply management involves analysis, selection and management of the external services provided by the IT industry.

IT governance should coordinate these three areas by defining governance criteria and managing human resources, processes and technology required to support information mechanisms. It should support business strategies, definition of evaluation metrics for IT investment, preparation of guidelines, definition of standards, demand management, and IT projects, etc.

The inclusion of these three aspects in the model implies the integration of a number of resources and specific processes in a single framework. The intersections in the areas depicted in Fig. 2.7 represent the elements of overlap among the three areas, involving complementary and coordinated capabilities in relation to matches between fields (business-technology, technology-suppliers, suppliers-business) and converging governance of the entire framework.

Figure 2.7 shows a possible distribution of the skills involved in the model of extended governance. It is not an exhaustive list nor does it represent the organizational structure of a bank. It is a logical representation of the skills of each banking entity and identifies the most appropriate distribution for the organizational structure.

Business Manager (business area): the manager is generally responsible for promoting business innovation and projects through IT. He or she must understand

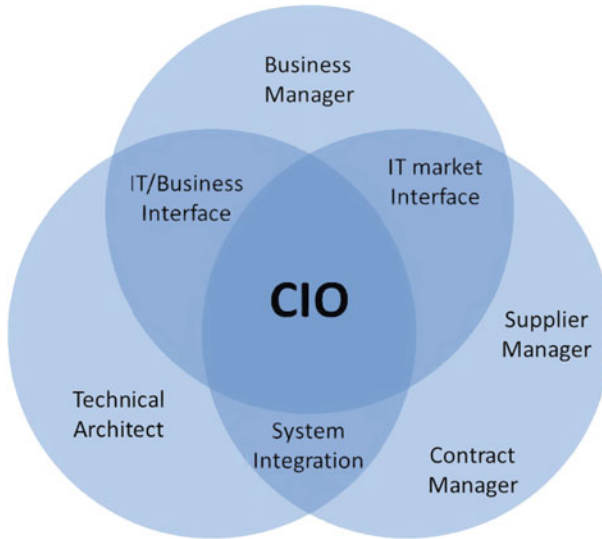


Fig. 2.7 Competencies of the extended governance (Source: Kern and Willcocks 2001)

business needs and have a technological knowledge. He/she will be the bridge between the IT department and the business units. The Business Manager will negotiate projects, budgets and timing of deliveries with functional managers and ensure business results through IT innovation.

Procurement and contract manager (Supply area): management of suppliers and technologies in the market can represent a significant opportunity for banks.

The provisioning of external resources for projects or services should be managed to ensure the company has the same service levels and costs in the long run. In this way contracts will be consistent and possible conflicts with suppliers avoided.

IT/Business Interface: we have referred to people acting as interfaces. It is necessary to improve the understanding between the two functions and to create a common language. Shared information systems will support assessment and requirements analysis by allowing an integrated view of the process, using metrics related to business values, for purely technical projects.

IT market Interface: the requirements related to business-IT are characteristic also of the management-vendors relationship, where requirements analysis is important.

Systems integration: the third area of overlap is related to the need to integrate and manage in a unique and consistent way, technologies developed in-house and those bought on the market. Too many different technologies can result in complexity in functionality and architectural structures, and result in inefficiencies and duplications.

Technical Architect (the technical face) is responsible for the definition of the technical infrastructures and architectures of the company able to support

the whole technical environment. He/she should also ensure the integration layers with several applications and different systems. The architecture adopted must be compliant with accepted standards and allow effective processing response time.

CIO: At the core of the model is the CIO who has ultimate responsibility for IT. The definition of IT strategies and the overall firm governance is based on the assessment of IT linked to business indicators; these indicators are based on the impact of the information systems related to the market positioning of customer services. The goal must be to use technological and organizational innovation to generate value: a CIO must be proactive, able to anticipate change and suggest new technologies, new processes (or modifications to existing ones) and promote new business strategies.

The perspective represented in the framework described above is not an approach that is widely practised. Most organizations are not actively involved in IT evaluations of business processes and exploitation of their potential. Investment in efficient use of technology to support operations is usually aimed at reducing costs. There is an absence of enabling technologies and an extended approach to IT governance to meet needs and to promote business. It is important to understand the contribution of IT to business strategy; it is necessary to launch projects related to the adoption of appropriate technology solutions that support this approach and focus on technologies aimed at the following objectives:

- Enabling a collaborative approach between different areas of the framework, ensuring effective communication and information sharing among the model's actors;
- Providing a comprehensive view of the areas and activities of IT management to support the process end to end;
- Providing clear shared metrics and evaluation criteria for different policy areas (and different functions), allowing assessment of IT through typical measures of the business, with the aim of quantifying the contribution (actual or expected) of IT to the bank's results;
- Supporting the planning of interventions with detailed information (time, costs, resources used, technological constraints to change, etc.) and monitoring the progress of projects (planning and realization, and maintenance phases).

Critical activities that require integrated support include demand management, IT portfolio and lifecycle management. The first involves technology to collect and manage different types of requests from the business units, making them comparable and allowing prioritization with respect to selection criteria and the bank's rules. It is important that requests are mapped uniquely, using a single system to track the full range of proposals and requests for projects (tactical, strategic, compliance) and to recall features useful to support related assessments.

The second (IT portfolio and lifecycle management) requires technology that can support the governance of the projects in place (new and already implemented initiatives) in real time, update resources, budgets, costs, and provide benefits both in aggregate (entire portfolio) and individually.

References

- Barley, S. R. (1986). Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order in radiology departments. *Administrative Science Quarterly*, 31(1).
- Bierly, P., & Chakrabarti, A. (1996). Generic knowledge strategies in the U.S. pharmaceutical industry. *Strategic Management Journal*, 17.
- Brown, W. H. (1957). Innovation in the machine tool industry. *Quarterly Journal of Economics*, LXXI.
- Carroll, J. (1967). A note on departmental autonomy and innovation in medical school. *Journal of Business*, 40(4).
- CeTIF. (2007). *Extended IT Governance: il valore per la banca—Technology Outlook*. Milano: Università Cattolica del Sacro Cuore. www.cetif.it.
- CIPA-ABI (2012). Rilevazione dello stato dell'automazione del sistema creditizio. Profili economici—Anticipazioni. www.cipa.it.
- Cobit (2007). It governance framework. www.isaca.org.
- Cognitech (2004). Services, www.cognitechcorp.com. January.
- Evan, W. M., & Black, G. (1967). Innovation in business organizations: Some factors associated with success or failure of staff proposals. *Journal of Business*, XL(4).
- Galbraith, J. (1973). *Designing complex organizations*. Reading: Addison – Wesley.
- Gartner Research (2011). Top CIO priorities. www.gartner.com. January.
- Hansen, G. S., & Hill, C. W. L. (1991). Are institutional investors myopic? A time-series study of four technology-driven industries. *Strategic Management Journal*, 12, 1–16.
- He, Z., & Wong, P. (2004). Exploration vs exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, 15(4).
- Herbig, P. A., & Day, R. L. (1995). Putting technological innovation into a historical perspective: A quest for better understanding and implementation of the innovation process. In M. W. Lawless & L. R. Gomez-Mejia (Eds.), *Advances in global high—technology management* (Vol. 5, pt. A). USA: Jay Press.
- Holmqvist, M. (2004). Experiential learning processes of exploitation and exploration within and between organizations: An empirical study of product development. *Organization Science*, 15(1).
- Hyland, P., & Boer, H. (2006). A continuous innovation framework: some thoughts for consideration. *Proceedings of the 7th international CINet conference—CI and sustainability: Designing the road ahead* (pp. 389–400). The Netherlands: Continuous Innovation Network.
- Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behaviour and new product introduction. *Academy Management Journal*, 45.
- Kim, H. W., & Kankanhalli, A. (2009). Investigating user resistance to information systems implementation: A status quo bias perspective. *MIS Quarterly*, 33(3), 567–582.
- Kling, R., & Courtright, C. (2006). Group behavior and learning in electronic forums: A sociotechnical approach. *The Information Society: An International Journal*, 19(3), 221–235.
- Knight, K. E. (1967). A descriptive model of intra- firm innovation process. *Journal of Business*, 40(4).
- Kern, T., & Willcocks, L. P. (2001). *The relationship advantage*. Oxford University Press, New York.
- Luftman, J. (2003). Assessing it/business alignment. *Information Systems Management*, 20(4), 9–15.
- Luftman, J., & McLean, E. R. (2004). Key issues for IT executives. *MIS Quarterly Executive*, 3(2), 89–104.
- Mansfield, E. (1963). Size of firm, market structure and innovation. *Journal of Political Economy*, XLI, December.
- Marabelli, M., Frigerio, C., & Rajola, F. (2012). Ambidexterity in service organizations: Reference models from the banking industry. *Industry and Innovation*, 19(2), 109–126.

- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1).
- Mezias, S. J., & Glynn, M. A. (1993). The three faces of corporate renewal: Institution, revolution and evolution. *Strategic Management Journal*, 14.
- Mintzberg, H., & Waters, J. A. (1985). Of strategies deliberate and emergent. *Strategic Management Journal*, 6, 257–272.
- Orlikowski, W. J. (1996). Improvising organizational transformation over time: A situated change perspective. *Information Systems Research*, 7(1).
- Porter, M. E., & Millar, V. E. (1985). How information gives you competitive advantages. *Harvard Business Review*, 63.
- Robertson, T. S. (1967). The process of innovation and the diffusion of innovation. *Journal of Marketing*, 31(1).
- Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of innovation: A cross—cultural approach*. New York: The Free Press.
- Teece, D. J. (1998). Design issues for innovative firms: Bureaucracy, incentives and industrial structure. In A. D. Chandler et al. (Eds.), *The dynamic firm*. Oxford: Oxford University Press.
- Tourish, D., & Pinnington, A. (2002). Transformational leadership, corporate cultism and the spirituality paradigm: An unholy trinity in the workplace? *Human Relations*, 55(2).
- Tushman, M., & Nadler, D. (1986). Organizing for innovation. *California Management Review*, 28(3). Spring.
- Tushman, M., & O'Reilly, C. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review*, 30(4).
- Tytler, R., Symington, D., Smith, C., & Rodrigues, S. (2008). *An innovation framework based on best practice exemplars from the Australian School Innovation in Science, Technology and Mathematics (ASISTM) project*. Canberra: Dept. of Education, Employment and Workplace Relations.
- Wainwright, D. W., & Waring, T. S. (2007). The application and adaptation of a diffusion of innovation framework for information systems research in NHS general medical practice. *Journal of Information Technology*, 22, 44–58.
- Weick, K. E. (1969). *The social psychology of organizing*. Reading: Addison-Wesley.
- Worward, S., & Hendry, C. (2004). Leading and coping with change. *Journal of Change Management*, 4(2).

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