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# A model for the IT governance in business groups

Renata Paola Dameri  
Roberto Garelli

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## Abstract

Until now, companies belonging to groups have been managing their information system and their IT investments quite independently respect to the other companies in the same corporation. However, this IT governance model doesn't seem adequate to manage the group's IT investments aiming to the value creation.

Therefore, it is necessary to define IT governance models not referring to each sole company, but to the whole group. It needs both a different organization of the IT governance activity, and different processes for IT management, and also suitable metrics to evaluate the IT governance model contribute to the value creation.

The IT governance model should include several aspects: the definition of the group's value goals and the ways in which IT contributes to the pursuing of these goals; the classification of IT investments aiming to the group integration; the design of a Management & Governance Plan for the group's IT; the choice of an indicators map, to evaluate the IT governance model impact on the value creation.

The paper splits into two sections.

The first section, *IT governance for value creation*, defines the organization and the tools for a unified management of groups IT.

The second section, *indicators strategic map for IT governance*, identifies a balanced scorecard to evaluate the IT impact on the group's performance.

## 1. Introduction

In the actual world-wide economic environment, international business groups are the emerging organizational scheme (Grant 1991). International business groups have some fundamental characteristics:

- they have a multi-level hierarchical structure, implementing a complex waterfall scheme of subsidiaries;
- they work in several industries, also very different from each others;
- they work in several countries and geographical areas and sometimes really all over the world.

These characteristics create many managerial problems and difficulties; one of the more crucial is the need to harmonize the strategies of each subsidiary with the holding's goals and strategies. To harmonize so different strategies presents many conflicts, especially when one or more subsidiaries are quoted at the stock exchange and they aim to satisfy not only the main shareholder, but also the expectations of the other investors.

Similar problems emerge relating to IT governance (Broadbent, 2005). Indeed, Information Technology shows two opposite trends:

- on one side, IT plays a leading role of information and operational integration, crucial to maintain the integrity of the group and of all the companies belonging to it;
- on the other side, IT could create conflicts between the subsidiaries, owing to their different technological needs and priorities, deriving from their different processes, products, strategies (Hagel – Singer 1999, Strassmann 1999).

It is therefore necessary to define an IT governance model just for business groups, able to keep into consideration both the need of integration at the group level, and the need of alignment between IT and strategies at the subsidiaries level. Such an IT governance model should be able to find the right trade-off between two opposite trends:

- the *centralization of the IT management*, aiming to standardize processes and infrastructures, to reduce costs and complexity, but penalizing the specificity of the IT role in each business, that is the real source of IT competitive advantage;
- the *separate IT management* in each company of the group, aiming to the fulfilment of its own goals and strategies, with high benefits in terms of fit between IT and business, but negative returns in terms of IT costs and investments, portfolio applications management, operational and informational integration.

The IT governance model for business groups should therefore mainly aim to balance the two opposite needs – IT and business alignment at business level, but also standardization and integration at corporate level – considering the specific characteristics of each group and sustaining high performance for the corporation.

The development of an IT governance model starts from the group's vision and from the value propositions regarding at the same time all the companies belonging to the group. The value is the unifying goal for different strategies and

the main indicator to evaluate the effectiveness of the IT governance model. The model should also define in details:

- the IT governance goals, both at group level and at company level;
- the IT governance instruments to balance the IT specificity for each business unit and the IT standardization for the whole group;
- indicators and reports to evaluate the effectiveness of the implemented IT governance model.

In this paper all the main steps to design an IT governance model for companies groups are described, and the IT governance model evaluation instruments and indicators are defined. The aim of this work is to link the organizational aspects of an IT governance model to the results deriving from its implementation, focusing on the impact of the IT governance model on the strategic advantages and performance both of each business unit and of the group.

## 2. The IT governance goals

IT is an essential instrument for the functioning and the cohesion of the business groups (Davidow – Malone, 1992). Indeed, IT reveals several characteristics, useful to play some basic roles.

- *Informational and communicational integration*: thanks to IT, the different companies belonging to the group could be seen as a sole enterprise, both respects to the informational flows, and respect to the financial data; this permits a well informed management activity, able to face the strategic, economic and financial situation of each business unit and of the whole organization (Davenport 1998).
- *Processes standardization*: the applications development is more and more associated with Business Process Reengineering (BPR) activities, pursuing the analysis, rationalization and implementation of better business operations; the BPR and the standard IT solutions – such as ERP systems – are ever aligned and lead to simpler processes, but especially to the use of the same best practices for all the companies in the group (Davenport – Short, 1990).
- *Scale and scope economy*: the unified IT management permits to all the business units in the group to share suppliers, procurement operations, project management practices, IT infrastructure, applications, database, with high costs saves and an deeper automation of operational activities, aiming to the automation of the whole organization (Shapiro – Varian 1999).

These aspects are the direct consequences of the IT implementation in business groups. However, lacking a clear definition of the goals related to IT implementation and without a formal model for the group IT governance, these

benefits are not reached in a satisfactory manner and it is possible also to obtain negative effects or dis-benefits that reduce the positive impact of IT on the group performance.

Some dis-benefits are very frequent in groups.

- The “total” informational integration could create an *informational overflow*, that is, an excess of data, useless for the corporation management. Or these data are too synthetic, without sufficient details about some important managerial aspects. Moreover, the data could be too homogeneous, overlooking the specific aspects related to different business or geographical areas.
- The processes standardization causes a convergence to *abstract and generic business models*, without consideration neither for the specificity nor for the history of each company, determining the loss of path-dependent competences and specific knowledge based resources. Moreover, the implementation of standard IT solutions causes a decrease in the development of unique, specific, difficult to imitate IT applications, the only able to create sustainable competitive advantage (Davenport 1998 b).
- The centralized IT governance, particularly for sourcing and applications development, necessary needs to define *formal processes* for the choice of vendors and suppliers, the procurement of IT commodities, the IT project management, the outsourcing. If these processes are applied in a rigid manner, each company is forced to run IT management practices, not ever suitable to its business model (Forrester 2005 b).

There is another key element to understand why the current IT governance applied by the big corporations are inadequate for pursuing long term benefits and an effective value creation in business group. This element is the focus on a sole benefit, that is, the *IT cost control and reduction*. The prevalence of this goal of the IT governance emerges from a study of Forrester Research, regarding a large number of big international corporations, all over Europe (Forrester 2005). This research reveals that:

- the more applied formal IT governance model is the centralized scheme, only in a few cases decentralized or federated<sup>1</sup> IT governance model are applied;
- IT is considered like a cost centre for the group, without direct links with the business activities of each company;
- the IT governance powers and responsibilities are assigned to a CIO at the holding level, or to a board of CIO from the holding and the main companies belonging to the group, only in a few cases also the CEO or other business managers are involved;
- IT evaluation instruments are not applied, to align the decisions regarding the IT investments and the business strategies and goals of the business units, on the other side financial, synthetic indicators – such as ROI – are used to unify

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<sup>1</sup>In the federate IT governance model the decisional powers and responsibility about IT are distributed between the holding and the companies of the group.

in a sole monetary metric the values regarding costs and benefits of several, different business units .

Therefore, the lack of a specific IT governance model for groups, together with the focus on IT costs and financial indicators, determine the prevalence of short terms goals, to guide the IT management and choices; the alignment between IT and business has less importance, even if it is the only objective able to generate a distinctive use of IT, difficult to imitate from the competitors, and to create a sustainable competitive advantage (Remenyi et. Al. 1997) .

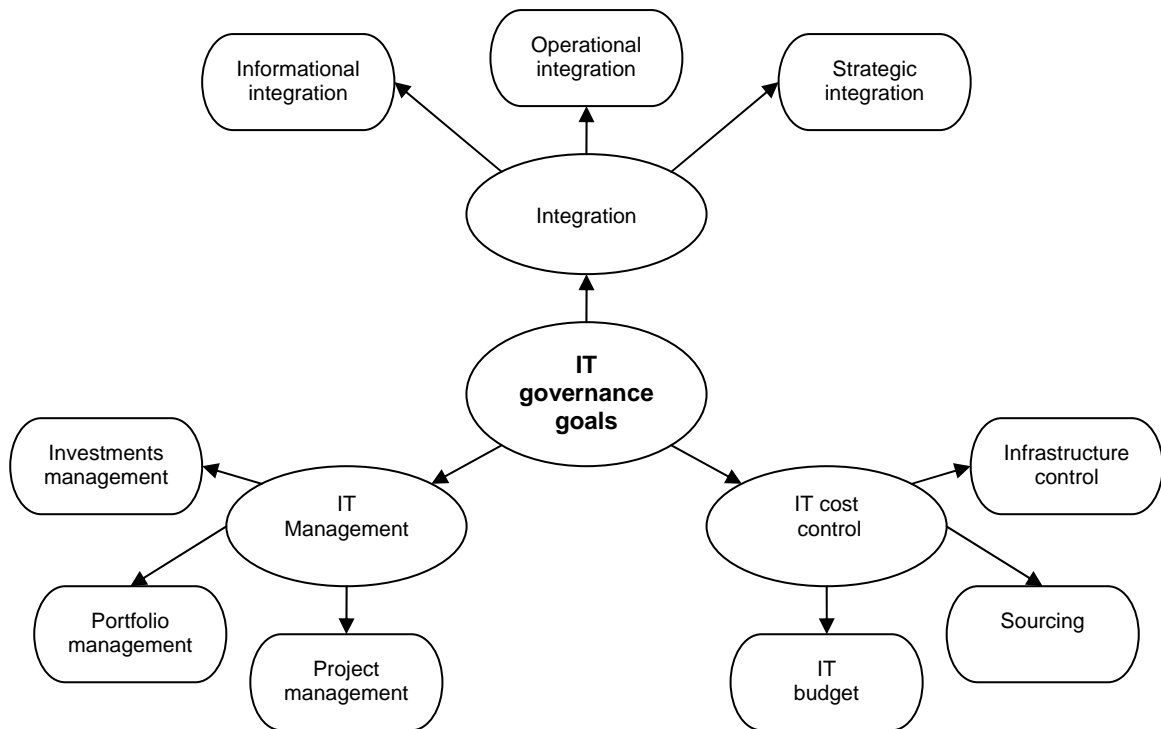
In addition, the design of an IT governance model for the group generally lack of a map of accountability and responsibility for the CIO, connected with the veritable strategic goals. This may create a misalignment between the IT governance model and the business and corporation strategic goals and performance.

The design of a formal IT governance model for groups should start from the clear definition of the IT governance objectives and goals; these goals are not only the IT costs control and reduction, but a multiple set of objectives (Peterson 2004). They could be grouped as follow:

1. group integration;
2. IT management;
3. cost control (Fig. 1).

1. The goal of *Group integration* regards the use of IT to coordinate the functioning and management of all the business units of the group. It is further split into several detailed objectives.
  - a. *Informational integration*: IT is applied to pursue the informational integration all over the organization, to obtain an integrated vision of the corporation management along with all the strategic lines defined at corporate level. The choice of the informational sector to consolidate depends on the strategic aims and organizational structure of the group. An important field regards the sharing of competences and expertise, developing corporate knowledge management applications.
  - b. *Operational integration*: it regards the convergence of the processes models and scheme implemented by the different companies in the group, to improve effectiveness and control of business operations and to offer a better IT services delivery.
  - c. *Strategic integration*: it regards the convergence of the technological vision of each company into a unified IT strategy, to support the investments decisions both at corporate and at business level.

Figure 1: The IT governance goals tree



Source: authors' elaboration

2. The goal of *IT management* regards the capability to provide reliable and effective IT service, at the lower cost, with an optimal allocation of the financial and IT resources. It is further detailed as follow.
  - a. *Investments management*: it should define the priorities regarding the financial resources allocation to IT solutions and design the metrics to evaluate the best projects to be carried on, balancing the investments between centralized and local applications.
  - b. *Portfolio management*: it regards the development of possible synergies between the companies of the group and the sharing of the IT infrastructure and applications, when possible, with the aim to rationalize the portfolio and to reduce duplicated software and technologies.
  - c. *Project management*: it regards the definition of common best practices, carried out by a group's IT team at disposal to all the companies, to develop and implement software, applications and solutions and reduce the risks of failure.

3. The goal of *IT cost control* aim to reduce the cost if IT both at corporate and at business level, without negative impact o the quality if IT service delivery. It is further detailed as follow.
- a. *Infrastructure control*: it aims to realize a common IT infrastructure and architecture, to simplify the IT management for each company and generate scale economy and a better exploitation of shared resources and technical competences.
  - b. *Sourcing*: it defines the same contractual clauses for all the companies, regarding IT commodities procurement, IT services, outsourcing. The goals are the cost reduction, a clearer definition of service levels agreement, the choice of the best suppliers and vendors.
  - c. *IT budget*: the drafting of a consolidated IT budget, taking into account both the IT expenses and the IT investments of each company, permits a better cost accountancy and understanding and therefore a more effectiveness information systems audit all over the organization.

As shown in Figure 1, the IT governance goals are more and more complex respect to the sole cost reduction. On the contrary, some aims – for example, the development of knowledge management solutions for the corporation – are source of more IT expenses, related to indirect benefits, very difficult to evaluate using ROI or other simple financial metrics. For these reasons, the definition of the IT governance goals is only the first step; to obtain a complete governance model, including also accountability for the IT decision making rights, it is necessary also:

- to determine the operational instruments for the IT governance implementation;
- to design an evaluation framework for the IT governance activities, performance and goals fulfilment.

### **3. The operational instruments for the IT governance implementation**

After defining the IT governance goals, it is necessary to create the operational instruments to implement the IT governance model. These instruments should describe:

- processes and operations;
- organizational units;
- links between instruments and goals

composing the IT governance model (Weill – Ross 2004, Peterson 2002).

In this way, a well-defined, formal IT governance model is created; for each IT governance process, there is:

- a goal to reach;



- an operational instrument to pursue this goal;
- an organizational unit that has the responsibility for the activities performed in the process.

In the following step, also performance indicators will be defined, corresponding to each IT governance process, to measure its effectiveness and to introduce accountability and responsibility in the IT governance model design process.

Regarding organizational aspects, it is necessary to define the operational units devoted to the IT management, both at group and at company level (Fig. 2). The best approach aims for the first to align strategies and IT, then to the control of IT. For this reason, it is necessary to foresee both a group IT vision coordinated with corporate strategies, and several business IT strategies coordinated with business strategies. Business IT strategies should take into consideration also the group IT vision (Tanriverdi 2006).

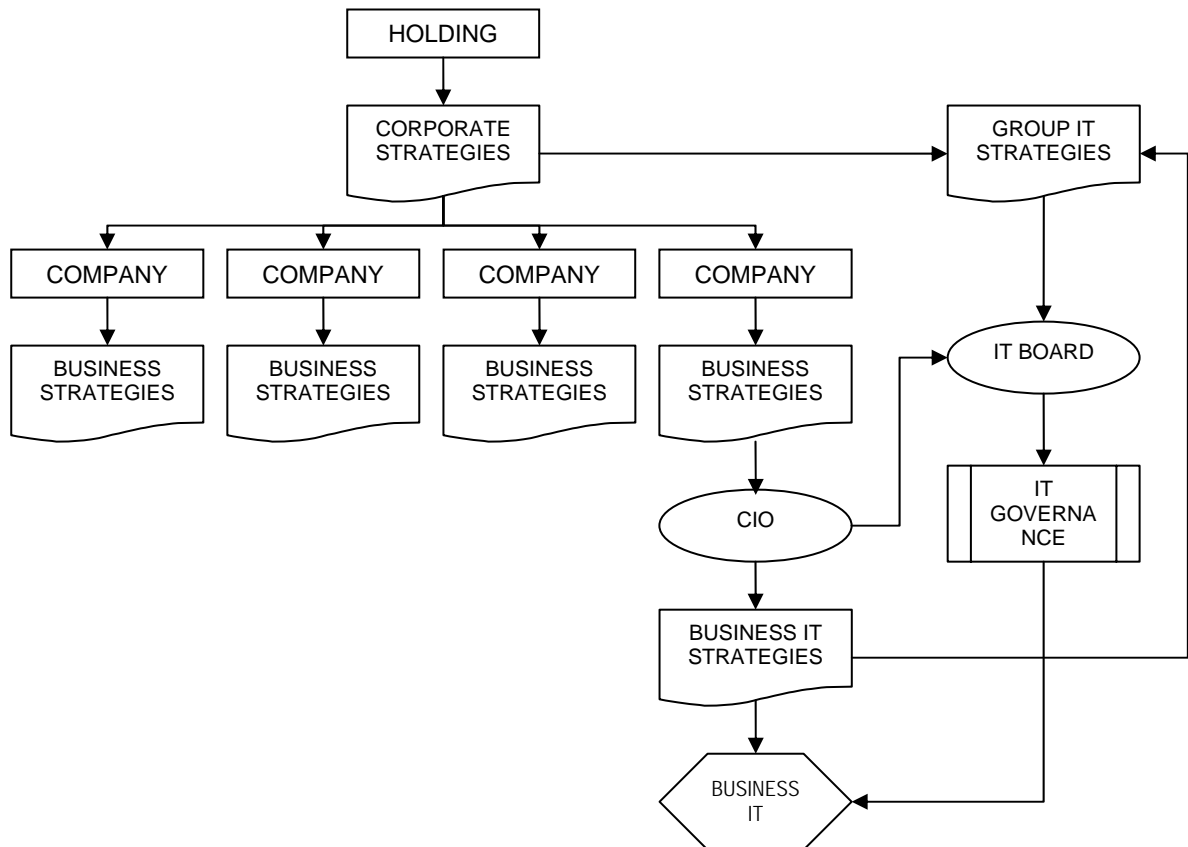
The IT management process owners are:

- at business level, the CIO and his staff;
- at corporate level, an ad hoc unit, the IT Board, composed by the group CIO and all the CIOs of the companies belonging to the group, applying a federated governance model and a distribution of decision powers and responsibility.

The IT governance model is defined by the IT Board and applied both to the centralized IT, and to the business IT. In this way, the two tiers of IT governance and management – group and business units – have a balanced importance, are coordinated and permit to achieve both the alignment between IT and strategies and centralized IT control.

As regard as the IT governance instruments, they are analyzed along three directions, already seen for the IT governance goals: IT integration, IT management, IT control (CobiT 2005).

**Figura 2: IT governance organization and operational instruments**

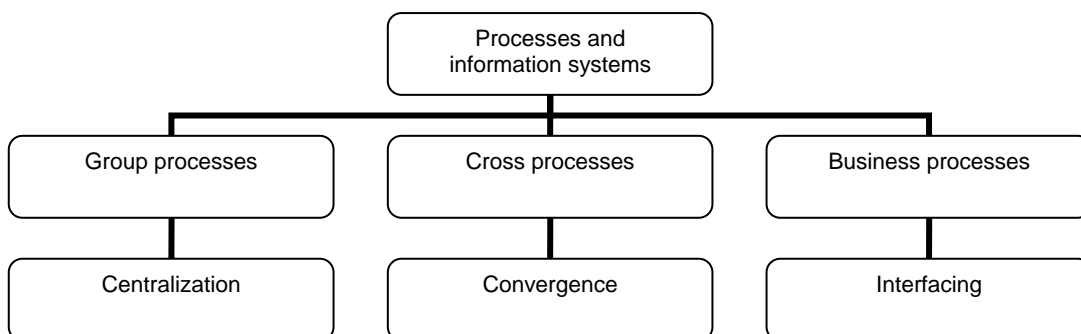


Source: authors' elaboration

1. *IT integration* is pursued considering at the meantime also the specificity of each company in the group. That is, to find the right trade-off between centralized applications and specific IT business solutions. To achieve this result, it is necessary to classify the corporate processes in to three categories (Fig. 3).
  - *Group processes*: they are the same processes for all the companies in the group. These processes can be automated using the same information systems. For example, the e-procurement activities can be implemented using the same software developed by the IT Board, then delivered to the companies, that customise them according with their own specific needs. The same is for knowledge management systems, communications systems, and so on.

- *Business area cross processes*: they cross the organization, but are specific for each business area. These processes have a high complexity rate, because on one side they should maintain their specificity, but on the other side they should converge to common applications and database. Logistics, accountancy, financial are comprised in this category. They are different in each unit, but should deliver consolidated information. The solution is to adopt the same standard software for all the companies and business units in the group (for example the same ERP system), then to customize them. However, some companies could not be open to change their own traditional information systems, because it means more IT expenses for software not useful for the business unit performance, but only for the interests of the holding.
- *Business processes*: they are specific for each business unit and need an ad hoc IT solution. These applications should then been interfaced with the group information system.

**Figure 3: Processes and systems integration**



Source: authors' elaboration

2. The processes classification permits to pursue the *operational, strategic and informational integration*, thanks to the applications centralization, convergence and interfacing. This classification is also the basis for defining the IT management instruments: investments management, projects management, portfolio management.

The processes classification defines an information systems architecture, as shown in Figure 4, in which we can see:

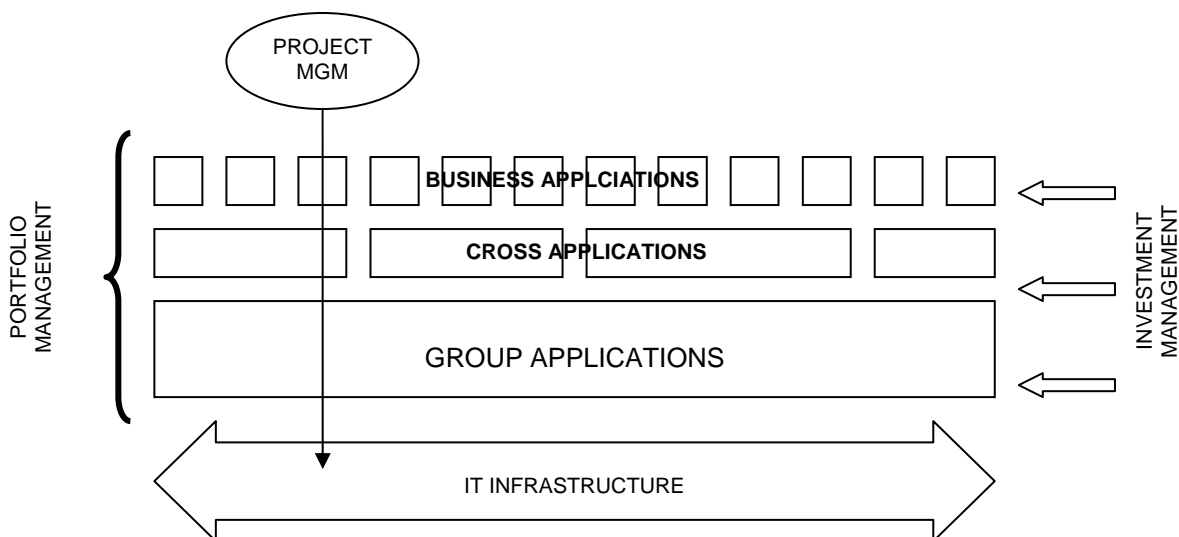
- the technological infrastructure and the group applications, shared all over the organization;
- the cross applications, that integrate the inter-companies processes;
- the ad hoc applications, located in each business unit.

In this architecture, we can introduce also the IT management instruments. For the first, *portfolio management*, that has now a clear view of all the processes, applications and information systems classified into their different categories; so that it is possible to apply the appropriate politics. For example, it is possible to evidence systems, to be shared all over the group, that are still fragmented; they need to be centralized. Or it is possible to refuse financial resources for an IT project of a subsidiary, if there is a shared application in the group's portfolio.

In the same way also the IT management works. Each new IT investment demanded by a single subsidiary could be evaluated as follows:

- if the project regards a shared application, each company cannot develop the application on its own, but it must use the group IT solutions; if this applications is not in the group's portfolio yet, then the IT Board evaluate if it is opportune to develop it at a centralized level;
- if the project regards a cross application, the system should be design to converge to the common model, avoiding to develop information systems not aligned with the group system;
- as regard as specific business applications, each company can develop them on it own, but engaging itself to interface the software with the group architecture.

**Figure 4: IT management and the group IT architecture**



Source: authors' elaboration

3. Last but not least, the third goal of the group IT governance regards the *cost control and reduction*. In a traditional IT governance model, this is the main or sole goal to pursue. In the IT governance model here defined, this is a goal to be aligned with the other: group integration and IT management. That is, the three goals have the same importance and should be pursued together. A crucial instrument to control the IT expenses is the consolidated IT budget. To improve the effectiveness of the budgetary control for IT, the budget is built having at the basis the group information system architecture, as described in Figure 4. Costs and expenditures are classified following two criteria:

- nature of costs and expenditure: hardware, software, networks, personnel, services, contracts/outsourcing, and so on;
- allocation object: the applications categories – group, cross, business applications – then detailed respect to sub-portfolio, till each application (Fig. 5).

The budget redaction should also distinguish between:

- OPEX, that is, operating expenditure, deriving from current expenses related to the ordinary management of information systems;
- CAPEX, that is, capital expenditure, deriving from the capital investments in hardware, software, IT solutions, calculated using the total cost of ownership model, along with the life cycle of each asset.

**Figure 5: The consolidated IT budget**

	NATURE					
	HARDWARE	SOFTWARE	NETWORKS	PERSONNEL	SERVICES	CONTRACTS
<b>OBJECT</b>						
GROUP APPLICATIONS Xxxx Yyyy Zzzz ....						
CROSS APPLICATIONS Xxxx Yyyy Zzzz ....						
BUSINESS APPLICATIONS Xxxx Yyyy Zzzz ....						

Source: authors' elaboration

This further classification is useful to a better understanding of different expenditure and to focus the efforts to reduce them, if possible.

Another instrument for cost and expenditures control is the Shared IT infrastructure management. In this case, the word “infrastructure” doesn’t regard only the physical facilities, but also a large set of technologies, competences, processes to be managed in a shared way, all over the corporate. The benefits derive from better quality in IT services delivery and expenses reduction.

Indeed, the shared infrastructure regards several applications and services, for example:

- operation systems and network systems;
- communications systems and identity management;
- front-end systems (web sites, web portals, and so on);
- ERP systems;
- Knowledge management and collaboration systems;
- security management;
- IT governance.

In all these cases, important scale economies are possible. The Shared IT infrastructure management creates a shared IT portfolio of applications; each company can demand the use of one or more applications, at a fixed internal price. The cost savings derive from the difference between the internal cost (that depends on the cost of IT applications delivery) and market price from the same solutions, with the same service quality levels. The benefits of a Shared IT infrastructure management derive also from less software customizations, an increase in software reuse, shared licences, and so on.

Moreover, the Shared IT portfolio applications could be offered not only to the subsidiaries, but also to the market, transforming the IT cost centre into a service or profit centre (Ventrakaman 1997).

#### **4. The evaluation framework for the IT governance**

After defining the IT governance model, it is necessary to design an evaluation framework (Dameri 2001), to respond to two different requirements:

- to support choices and decisions related to IT, in terms of group integration, IT management and control, aiming to the best value creation for the group;
- to verify the effectiveness of the IT governance model implementation, through the measurement of the governance activities performance.

Therefore, the evaluation framework is composed by two instruments.

- To evaluate investments and management decisions relating to the alignment between IT and business and corporate strategy, it is necessary to apply a *balanced evaluation*, able to link the strategic goals with the information systems architecture and organization.
- To evaluate the effectiveness of the IT governance processes, a *reporting instrument* is required, subdivided in several dimensions of measurement and control.

The implementation of a balanced evaluation instrument to support the IT governance in groups starts from the organizational and strategic requirements. Several aspects are to be considered:

- the IT goals related to business and corporate strategies; it is therefore necessary to ensure indicators, to support the best alignment between the group value propositions –that is, its strategies and the ways by which it intends to create value – and the support deriving from IT;
- the goals of the IT governance: group integration, IT management and control;
- then, the IT architectural dimensions: shared applications, cross applications, business applications.

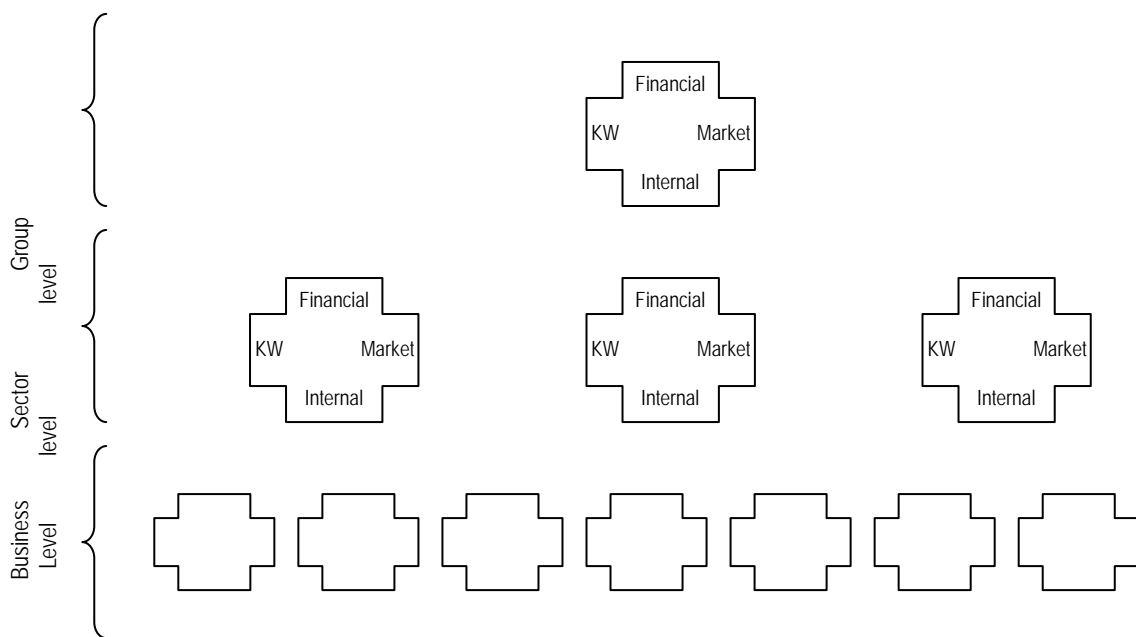
The alignment between IT and value propositions could be analysed revisiting the Balanced Scorecard, adapting it to the specific requirements of group IT governance. The traditional Balanced Scorecard perspectives are redefined as follows.

- *Internal perspective*: it evaluates the priorities of alignment between IT governance and group operations and organization, along with several requirements such as quality, efficiency and effectiveness of business processes, but also developing and IT management activities.
- *Market perspective*: it concerns the alignment between IT governance and business strategies, regarding internationalization, integration, mergers and acquisitions, process/product innovation.
- *Knowledge and competences perspectives*: it concerns goals such as a better internal communication, more effective organizational infrastructure, better distribution of roles and responsibility regarding the IT management, the improvement of professional families and their sharing across the group, the develop of cooperative instruments.
- *Financial perspective*: it evaluates the impact of the IT governance on the business performance such as amount and transparency of IT costs, direct returns deriving from IT projects, the optimal IT assets allocation and exploitation, the improvement and rationalization of applications portfolios, the number of IT patents.

These different evaluation perspectives are then detailed in several tiers. The detailed tiers are defined by the information system architecture (Weill and Broadbent 1998); on each dimension strategic indicators are defined, to evaluate – inside each organizational level and strategic perspective – the alignment

between group, sector and business goals and the IT solutions. This framework produces a real strategic indicators map, as shown in Figure 6, in which all the metrics are consolidated.

**Figure 6: The strategic indicators map**



Source: authors' elaboration

The evaluation of the IT governance effectiveness is realised using a reporting framework, linked with the IT governance processes implemented across the group. Performance key indicators (PKI) are used, to survey the goals fulfilment through the IT governance instruments described above. Also this framework is a multi-tier scheme.

- **Operational tier.** It includes both analytical and consolidated PKI, diving from the measurement of the operative performance of IT governance activities. Qualitative, quantitative and monetary PKIs are mixed, and then linked to the balanced scorecard perspectives.
- **Management tier.** It is focused on the comprehensive vision of the applications portfolios effectiveness, both group portfolio and business sub-portfolios. It includes all the PKIs related to the IT performance management, linked to the balanced scorecard perspectives.
- **Governance tier.** It is the higher tier, it aims to furnish a general view of the PKIs relating the alignment between IT and business goals. It is really useful if built applying a multidimensional scheme, that is, the possibility to query the



reports along with several different governance dimensions: products portfolios, executives responsibility, business and geographical areas, time periods (quarter, year, three years), companies, and so on.

## 5. Conclusions

During the latest years, the emerging IT governance model in business groups has more and more becoming the centralized one, owing to the main or sole goal of the corporations, that is, to reduce and control the increasing IT cost. However, the IT governance model should aim to coordinate three conflictual but crucial goals:

- the *need of integration*, to coordinate divisionalized and segmented firms, both along lines of business and geographic regions;
- the imperative of *reducing the IT cost*, without negative impact on the quality and effectiveness of IT services delivery;
- the *strategic alignment* of IT architecture and portfolio applications with both the business and the corporate strategic goals.

Moreover, the choice of the IT governance model should not be influenced only by organizational contingencies, but also by the impact of the IT governance scheme on the corporation performance. For this reason, it is necessary to define an IT governance design process, including organizational goals and performance indicators, to implement the best IT governance framework for maximizing the value creation both at corporate and at business level.

It requires also to define a process, to determine the best trade off of each of the conflictual goals, respect to the value creation at corporate level and also for each company belonging to the group. As there are several different objectives, distributed along different levels, it is necessary to implement an evaluation framework, able to take into consideration all the different dimensions of IT governance: the vertical dimension, that is, the organization of the group in corporation, companies, geographical divisions, business units, etc.; and also the IT dimensions, that is IT architecture, IT applications, portfolio an so on.

To accomplish these needs, a multi-tier balanced scorecard is suggested, including both several performance indicators and different organizational levels. This scorecard is useful to design an IT governance model taking into account the different goals of each organizational unit of the large corporation.

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**Renata Paola Dameri**

Ricercatore confermato in Economia Aziendale  
DITEA - Dipartimento di Tecnica ed Economia delle Aziende  
Facoltà di Economia - Università degli Studi di Genova  
via Vivaldi, 5  
16126 Genova  
e-mail: dameri @ economia.unige.it

**Roberto Garelli**

Ricercatore confermato in Economia Aziendale  
DITEA - Dipartimento di Tecnica ed Economia delle Aziende  
Facoltà di Economia - Università degli Studi di Genova  
via Vivaldi, 5  
16126 Genova  
e-mail: rgarelli @ economia.unige.it