Abstract:
Information Technology (IT) plays an important role in organizations, particularly in small and medium-sized enterprises (SMEs). These firms have a simple structure with less specialized tasks and tight human, financial and material resources, so it is particularly important to use an appropriate IT governance framework (ITG) to such enterprises. This paper shows the results of applying an ITG framework designed for SMEs in a case study focused on IT Human Resources (IT HR) and the lessons learned. Conclusions highlight the importance of the quality of IT HR along with the key role played by related enterprise policies.

Keywords: IT Governance; Human Resources Management, SMEs.

1 Introduction
In the global economic environment, small and medium-sized enterprises (SMEs) play an important role in promoting economic development (Chang, Chang, Ho, Yen, & Chiang, 2011). Recent studies show that SME development is closely linked to growth. Furthermore, in many economies the majority of jobs are provided by SMEs. In OECD (Organisation for Economic Co-operation and Development) countries, for example, SMEs with less than 250 employees employ two-thirds of the formal work force (Ardic, Mylenko, & Saltane, 2011). It is difficult to define what an SME is, though SMEs are commonly defined as registered businesses with less than 250 employees (IFC, 2009). In Italy, Japan and France, the number of SMEs accounted for 99% of the total number of enterprises. In the United States there were more than 15 million SMEs, accounting for 98% of the total number of enterprises, although America was famous for its large enterprises. In Germany, SMEs-related exports value accounted for over 60% of the country total. In China, SMEs accounted for 99.3% of total number of enterprises according to 2006 statistics (Liu, Li, & Zhang, 2012).

In addition, in EU-27 between 2002 and 2008, the number of jobs in SMEs increased at an average annual rate of 1.9 % while the number of jobs in large enterprises increased by only 0.8% (Ardic et al., 2011) and represented 99.8% of the enterprises, 99,9% in Spain (European-Commission, 2012). Nowadays, SMEs in the EU are operating their businesses in a difficult macroeconomic environment. In 2011 only Austria, Germany and Malta exceeded their 2008 levels of real value added and employment in their SMEs. One differentiation factor explaining these exceptions is that SME employment is relatively concentrated in high-tech and medium high-tech manufacturing and knowledge-intensive services in those countries. (ECORYS, 2012)

Information Technology (IT hereinafter) has been considered fundamental for the development of productivity and knowledge-intensive products and services (Soto-Acosta, Martinez-Conesa, & Colomo-Palacios, 2010). In European countries, high-tech SME activity is considered to be crucial for achieving
the desired structural transformation of economies (Nunes, Serrasqueiro, & Leitão, 2012). But, when compared to larger enterprises, SMEs usually have a simple structure with less specialized tasks and tight human, financial and material resources. Most SMEs have low levels of internal IS expertise, although this varies depending on industry sector. While there are many high-tech SMEs, many have no IS department, no staff with formal IS training, and no IS manager (Adam & O'Doherty, 2000; Cragg, Caldeira, & Ward, 2011).

In a highly competitive world, strategic decisions are a key element for achieving economic success and management excellence in the organizations (Van-Grembergen & De-Haes, 2007). Some of these decisions are related to IT, and in particular, to IT human resources. In any case, IT has become ubiquitous and essential in both ongoing operation and strategic development of almost all organizations (Toomey, 2009). In consequence, many frameworks have been developed, like Cobit 5 (ISACA, 2012) and Calder-Moir (Calder, 2008b). In particular, the IT governance standard ISO/IEC 38500 has been designed for company directors (or equivalents) in all sizes of organizations, making emphasis on the whole business context of IT use, not only technical, financial and scheduling aspects (ISO/IEC, 2008). Some authors conclude that both the foundations and the current application of IT governance suffer from serious limitations (Kooper, Maes, & Roos Lindgreen, 2011); however and according with Mark Toomey (2009), this limitations refer to the implementation of IT-management and IT-control frameworks like the ones mentioned above. The IT contribution to the business is widely recognized, with value creation of IT-investments being one of the most important dimensions of it (ITGI, 2011).

According to the literature (e.g. Colomo-Palacios, Casado-Lumbreras, & García-Crespo, 2011; Colomo-Palacios, Tovar-Caro, García-Crespo, & Gómez-Berbís, 2010), Information Technology work is highly intensive in human capital, which is a key factor in all life cycle of IT related activities; thus, many frameworks have taken human capital into consideration (ISO/IEC, 2008). In the business equation defined by people, process, structure and technology, the last one, technology, has become the enabler of transformation in organizations, but technology alone does not result in improved business systems (Toomey, 2009). People, who can fill different roles, are considered a strategic asset because they are simultaneously resources and capabilities (Taylor at al. cited by Gama, Nunes-da-Silva, & Mira-da-Silva, 2011).

The purpose of this paper is to provide an overview of the lessons learned and the issues that emerged from a project aimed at implementing an IT Governance framework within an SME, focusing the analysis in Human Resource Management issues. In agreement with P. Runeson and M. Höst (2009) the case study methodology is well suited to many kinds of research (Colomo-Palacios, Fernandes, Soto-Acosta, & Sabbagh, 2011), and this will be the approach adopted in this paper. In order to do this, the remainder of the paper is structured as follows. Section 2 defines IT Governance, the main principles and assets, and the relationship between them and Corporate Governance. Section 3 describes a framework for IT Governance focused in SMEs. Section 4 provides a description of the pharmaceutical laboratory (here called AAA) in which the case study was performed and depicts the project itself and its characteristics; we implanted the framework in Human Resources areas. Section 5 describes lessons learned from the process of implementing this IT governance framework in a Human Management business context. Finally, conclusions are drawn and future development work is presented in the final section.
2 IT Governance

For many organizations, making decisions about IT must involve assessing costs and benefits, business risk and new opportunities arising from IT (Sieber, Valor, & Porta, 2006). IT governance (ITG) provides the mechanism that associates processes, resources and information (from IT) with the enterprise strategies and objectives. ITG therefore integrates and institutionalizes good practices in planning and organization, acquisition and implementation and delivery services and support. ITG allows control and monitoring of IT performance to ensure that the information and related technologies supports business objectives.

IT managers decision making is affected by five main factors: increased capital investment in IT, executive perception of IT as a business enabler, regulatory pressure, IT operations increasing complexity and poor project performance. When these factors are analyzed, it arises that a regulatory framework is essential to establish a consistent behavior of generic IT policy in view of the mission, strategy, values, norms and culture of the organization. Elements such as proportion of insiders, board size, IT competency, organizational age, and role of IT are factors that influence the board’s level of involvement in IT governance (Jewer & McKay, 2012).

The IT Governance Institute (ITGI, 2007) defines ITG as "a structure of relationships and processes to direct and control the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes". Van Grembergen and De Haes (2009) define Enterprise Governance of IT as "...is an integral part of corporate governance and addresses the definition and implementation of processes, structures and relational mechanisms in the organization that enable both business and IT people to execute their responsibilities in support of business/IT alignment and the creation of business value from IT-enabled business investments" and ISO/IEC 38.500:2008 (2008) as "...the system by which the current and future use of IT is directed and controlled. [It] involves evaluating and directing the plans for the use of IT to support the organization and monitoring this use to achieve plans. It includes the strategy and policies for using IT within an organization". According to the above definitions IT is an enabler for implementing short and long term corporate strategies and both (corporate and IT strategies) must be integrated. Moreover, organizations recognize that IT services are strategic assets to support information and services management (Lucio-Nieto, Colomo-Palacios, Soto-Acosta, Popa, & Amescua-Seco, 2012). Organizations with unsuccessful and powerless IT governance will suffer due to poor performance of IT resources such as improper information quality, inefficient operating costs, runaway IT projects and even the demise of its IT department (Ali & Green, 2012).
Peter Weill and Jeanne Ross (2004) propose a framework to link corporate governance with IT governance, identifying a set of key assets that can generate value: human, financial, physical, intellectual, information and IT, and relationship. The governance of these assets will increase integration, performance, data integrity and reuse among others (Figure 1). An effective ITG must answer these three questions (Weill & Ross, 2004):

1. What decisions must be made to ensure effective management and use of IT?
2. Who should make these decisions?
3. How will these decisions be made and monitored?

These questions refer to the organizational structures that enable decision making, responsibilities assignment, and control. These elements together with those defined in the IT governance and management frameworks (ISO/IEC 38.500:2008 (ISO/IEC, 2008), Calder-Moire Governance Framework (Calder, 2008a), CobIT 5 (ISACA, 2012) and IT BSC (Van-Grembergen & De-Haes, 2009) are the main blocks of an ITG framework. In summary, the main elements to consider in an ITG framework are responsibility, strategy, acquisition, performance, conformance and human behavior, with the tasks of evaluation, management and monitoring and the focus on the three questions above.

Nowadays, in an interoperating marketplace, IT Governance becomes a powerful tool for companies. Understanding and choosing the right arrangements are key elements of success on strategic information management, in terms of Business-IT Alignment as well as in monitoring and controlling of inter-organizational information infrastructures, in a rapidly changing business environment (Zarvić, Stolze, Boehm, & Thomas, 2012).

### 3 Framework for IT Governance in SMEs

As mentioned in the introduction, the objective of this paper is to show the results and lessons learned from implementing an IT Governance framework with a SMEs focus (named SMEsITGF). This framework has the particularity of being linked to the areas and processes that characterize SMEs. It proposes a capability maturity model in five steps (Duffy, 2002) (otherwise proposed in six steps (ISACA, 2012)) that enables the business to quickly reach average levels of maturity.
The need for a specific IT Governance framework focused on SMEs justification is because the intrinsic characteristics of these enterprises (Table 1) and according with (Ayat, Masrom, Sahibuddin, & Sharifi, 2011) there are no specifics frameworks nor standards for SMEs, although ISO/IEC 38.500 was defined for any type of enterprise (ISO/IEC, 2008). SMEs have specific characteristics that distinguish them from larger companies, so is necessary the developed a specific framework for these enterprises.

Table 1 SMEs characteristics (Ayat et al., 2011)

<table>
<thead>
<tr>
<th>SMEs characteristics</th>
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<tbody>
<tr>
<td>1) Informal culture</td>
<td>2) Quick communication</td>
</tr>
<tr>
<td>3) Responsive</td>
<td>4) Flexible</td>
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<tr>
<td>5) Relying on individuals</td>
<td>6) Nowhere to hire</td>
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<tr>
<td>7) Wide organizational knowledge</td>
<td>8) Limited technological knowledge</td>
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<tr>
<td>9) High unit cost</td>
<td>10) Complexity interpretation</td>
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</table>

Figure 2 shows the static view of the framework. It presents four elements (Strategy, Strategic Portfolio, Projects and Operations/Services) and four dimensions (Responsibility, Risk and Compliance, Human Resources and Enterprise Architecture). The elements are the components that will result in measurable activities and processes, while the dimensions influence the type of governance practice adopted by the company.

![Figure 2. IT Governance framework for SMEs - SMEsITGF](image-url)
Responsibility refers to the decision-making structures and the business commitment to be the engine driving IT services (supply ↔ demand (Toomey, 2009)). Assessment directs and supervises activities; it must be present at all levels that allow the responsible structures to take corrective actions against problems. Risk and Compliance give a vision about the business risks associated with the incorporation of IT in its processes, and also enforce national and international regulatory standards. According with V. Stantchev, K. Petruch and G. Tamm (2012) there are two kinds of IT Resources: IT infrastructures and IT staff. Human Resources are a fundamental dimension in the framework as they relate to a sensitive resource in SMEs. People (as a valuable resource within the organization) must be managed properly, considering their aspirations and allowing development and training. Enterprise Architecture is an intrinsic feature of the business where the framework is implemented, and it will lead the way to achieve the IT governance goals, while influencing the rest of the dimensions.

IT strategy, integrated with business strategy (business pressures and requirements affect the entire model, especially IT strategies) enables obtaining business value and new opportunities. The Strategic Portfolio arises as a result of the IT strategy needs (from the business and aligned with its strategy). Projects are the components of the portfolio; they may be developed both inside and outside of business limits (SMEs usually outsource developments) in order to achieve the promised value (economic, strategic, quality product, security, compliance, etc.). Operations are proper IT operations, which must be performed to meet expected service levels.

The dynamic view of the framework shows the relationship between elements and dimensions and the activities direct – evaluate – monitor (figure 3). Elements will be valued from the perspective of the IT BSC (Customer orientation, Corporate contribution, Future orientation and Operational excellence), (Van-Grembergen & De-Haes, 2009) and linked with the five major decision domains (IT Principles, IT Architecture, IT Infrastructure, Business application needs and Prioritization and investment) (Weill & Ross, 2004). The outcomes must be registered in the Organizational Knowledge Database for future analysis.

In order to measure the maturity stage of the ITG, a maturity model is useful. The enterprise can establish “where it is” now, “where to go” in the future, and the steps needed to achieve the desired level (ISACA, 2012). Authors propose a five levels maturity model (Duffy, 2002):
Level 0 Immature: the organization has no effective implementation of ITG processes or it does not achieve its objectives. IT executives are disconnected from other members of the organization.

Level 1 Initial: the organization implements ITG processes that achieve the objectives. IT is seen as a cost, which is a consequence of the low value associated with it.

Level 2 Managed and Established: the organization uses defined ITG processes based on standards that it establishes, controls and maintains. The organization is aware of the value that IT brings, so IT is emerging as a strategic tool.

Level 3 Predictable: the organization manages the ITG processes quantitatively, recognizes the value of IT in all areas, from the operational to the strategic ones and considers it as an enabler of new business opportunities.

Level 4 Optimized: the organization implements continuous improvement of ITG processes to meet business objectives. At this level the organization and IT are integrated and the business depends entirely on IT performance. There is only one strategy that incorporates IT as an integral part of the organization.

Table 2 shows these maturity levels and practices, and actions recommended to achieve each described level of the model.

**Table 2 SMEsITGF Maturity Model and actions recommended to achieve levels 1 and 2**
<table>
<thead>
<tr>
<th>HR view</th>
<th>Future Orientation</th>
<th>User Orientation</th>
<th>Business Contribution</th>
<th>Operational Excellence</th>
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<tbody>
<tr>
<td><strong>HR view</strong></td>
<td>Organization must align IT HR policies with defined business processes and the scales to measure people performance. We suggest implementing industry proven standard models. The capabilities of employees must follow the evolution and needs arising from the management of the programs and projects portfolio. Expected and obtained results must be registered in the Organizational Knowledge Base (OKB), also plans and measures related to the contribution to the business and the quality of IT HR services.</td>
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| **Strategic Portfolio** | | | | |
| **Level 1: Basic** | Those projects that can automate repetitive tasks seeking to reduce costs are part of an emerging portfolio. | The portfolio includes user requests with more emphasis than other ones. An important characteristic is the absence of strategic assess. | The portfolio is oriented to operations instead to strategic contribution | Not always the portfolio is articulated to bring service expected levels. |
| **HR view** | The capabilities of IT HR must accompany projects and programs development needs. When organization does not have the necessary skills should evaluate the possibility of outsourcing the service. | | | |

| **Level 2: Managed and established** | Since IT Plans are aligned to business ones, the portfolio becomes a strategic element, in an incipient manner at this level. | There are defined processes to establish priorities for both, users and the business. The portfolio is strategically managed. | The portfolio reflects the alignment between business and IT. There is an important value contribution from IT to business. | Portfolio management is performed taking into account defined service levels set by defined processes, which have been defined according to the architecture and infrastructure of current and future IT. |
| **HR view** | The portfolio being to be strategic, so IT HR capabilities must be aligned to this development. Defined processes are implemented to manage IT HR, the capabilities of employees must accompany current and future IT infrastructure. Decisions related to portfolio and IT HR capabilities must be recorded in the OKB. | | | |

| **Projects** | | | | |
| **Level 1: Basic** | Implemented projects are those that have lower costs and/or automate repetitive processes. | Projects tend to be selected by the users pressures rather than their business value. | Implemented projects are not necessarily those that provide more value to the business. IT architecture is not necessarily taken into account. | Projects are not developed through a standard defined process. Each project is developed ad hoc. |
| **HR view** | Due to the implemented projects characteristics, is important that IT HR being trained in the business adopted technologies or define an ad oc. outsourcing politics. | | | |

| **Level 2: Managed and established** | Projects are selected according and consistent to business priorities and strategies. | Are defined processes to establish which projects will be selected taking into account both the needs of users and business strategies. | The selected projects must be within the range of those that contribute to business strategies (at this level business strategies and IT are aligned). | Defined processes are communicated and exists standardized and defined service level to be met. |
| **HR view** | Training policies are defined and accompanying projects needs. Just as, you should define and establish outsourcing processes to be used where appropriate. The OKB must register those policies. | | | |

<p>| <strong>Operations</strong> | | | | |
| <strong>Level 1: Basic</strong> | The operations are controlled one by one. There is no clear vision for the future of services. | Takes importance the operations quality of services, no defined standards. | Is meant that the business contribution is given by the completed service. | Services are managed ad hoc. |
| <strong>HR view</strong> | While the quality of services is not seen as strategic but rather operational, the staff should be train in IT services quality or outsource them. | | | |</p>
<table>
<thead>
<tr>
<th>Level 2: Managed and established</th>
<th>Future Orientation</th>
<th>User Orientation</th>
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<tr>
<td></td>
<td>Using defined and communicated standards to manage current operations, matching resources to architectures, principles and future IT needs.</td>
<td>Operations should meet the needs of the different users (internal and external) of IT services.</td>
<td>Operations should meet business needs, established through IT strategies.</td>
<td>Services quality is assured with the implementation of standards. IT HHRR training plans are implemented.</td>
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| HR view | Based on training should define expected quality service levels (we suggest using industry standards) to ensure that operations accompany defined strategies. The OKB record both, defined processes and the results of daily operations. |

### 4 Adoption project

#### 4.1 The Company

AAA began operations in 1950. Today it produces, markets and distributes more than 160,000 pharmaceutical units monthly, which means 1.5% of the local market. AAA was born with the mission of being a local leader in the pharmaceutical market, renowned for the quality of its products and the moral integrity of its members. It implements high international standards in production processes, technology and environmental care. AAA offers no more than 50 direct jobs and 25 to 30 indirect jobs out of a total of 61,706 in the human health sector in Uruguay (INE_Uy, 2011). AAA has maintained a permanent concern for employees’ quality of life, ethical development of business, responsible marketing of its products and services and environmental care.

#### 4.2 The project

There is an undeniable importance of people in IT in general and software development processes in particular (Colomo-Palacios, Fernandes, Sabbagh, & Amescua-Seco, 2012). Therefore, the main question behind the project was: How and why can SMEs organizations reinforce their IT HR? In consequence, a "single-case study" was designed, applying the ITG framework described in the former section to the IT human resources (HR) in AAA. Case study research is the most common qualitative method used in information systems (Myers, 1997). There are numerous definitions of this method, Robert Yin defines the case study method as follows: *A case-study is an empirical inquiry that: investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident* (Yin, 1984, 1994).

The design of this case-study project was holistic, because it examined the global nature of the HR division, in particular the policies related to IT staff.

The project has two stages. In the first one the enterprise implements those practices related to IT HR in order to achieve level 1 of the maturity model shown in Table 2, while the second stage has the goal to achieve level 2 in the maturity scale.

Selection criteria of the case-study were as follows:

1. The company is a SME with no more than 50 employees.
2. The company has HR policies.
3. IT staff consist of 5 people total.
4. The company has a deep interest to improve the quality of its IT governance practices and in particular those related with IT HR.
Data collection was performed mainly via interviews, direct observation of the events and examination of archival records.

4.3 First Stage
At the beginning, in AAA the IT HR politics were not clearly established, although there was a tacit understanding by the employees about them. Following the framework implantation guide, the project implemented:

1. Policies:
   a. To improve IT staff immediate capacities.
   b. Outsourcing.
   c. Quality of Service.
2. Training:
   a. Quality of Service.
   b. Requirements Engineering
   c. Outsourcing policies

This stage began on March 7, 2011 and ended May 20, 2011, with a total of 440 man-hour of work calculated at 8 hours per weekday.

4.3 Second Stage
At this stage IT practitioners are capacitated according to the organization needs. Some services were outsourced but there were no standard processes defined. Following the implantation guide of the framework, the next tasks are designed:

1. Enterprise must define:
   a. Expected service levels (suggest using industry standards) to ensure that operations accompany defined strategies.
   b. General training policies and procedures for current and future needs aligned with the business strategies.
   c. HR management processes
2. The OKB must register:
   a. Defined processes.
   b. Strategic plans and HR related results.
   c. Daily operations results.
   d. Capabilities of current IT HR and its evolution over time.
3. Must be measure the contribution made by HR to the organization and record them on the OKB.

This stage began on 1/8/2011 and ended 1/12/2011, with a total of 600 man/hour of work calculated at 8 hours per weekday.

5 Results

5.1 Results of the two stages
To measure the obtained results and to quantify them, authors use two sets of indicators. The first set is made of high-level indicators (Table 3) and their purpose is to give a global view of the situation in the
The evolution of the high-level indicators is shown in Figures 4 and 5. In the two stages of the project, indicators evolved in a different way. The *IT HR satisfaction* increased by 31% when ending stage 1 (the organization was at maturity level 1) but increased only 4% when being at level 2 (end of stage 2). The main reason of this gap was related with the deep dissatisfaction that IT personnel presented at the beginning of the project and the motivation that was achieved with the practices implemented. The *quality of response of contracted companies* had a significant improvement at the second stage, when the project implemented service level agreement policies and practices.

Figure 5 shows the positive variation of indicator *IT meet business needs* based on the percentage of business processes well supported by IT.
The system usability improved slowly because it involves deep changes in existing systems and in the organizational culture and capabilities, but at the second stage the perception improved 10%.

These set of used indicators are meaningful because of the relation with the policies and training activities implemented in the project. The intangible indicators were measured in a 1..5 Likert scale, where 1 means non-existent or very low and 5 means very developed.

Figure 6 shows strengths and weaknesses at the beginning of the study and the evolution along the two stages of the project. Education and training (numbered 1) is the lowest indicator with a value of 1 in the scale, the objective is grow it up to 3 (end value at stage 2), which was near the average of 3.4 obtained in a global survey (Ruiz, 2011). Other low value corresponded to the rotation of support personnel (numbered 10) - implying high rotation - which is consistent with the other indicator. Globally, there was
an improvement in almost all of the 18 intangible indicators; only *employee experience* (numbered 4) maintains the initial value, because the staff remained constant along the case study.

To summarize the results and to show the IT-BSC view of the case, in Figure 7 we display the evolution of the IT intangibles indicators (averages), clustered by IT-BSC perspectives (FO-Future Orientation, UO - User Orientation, BC - Business Contribution and OE - Operations Excellence). Better results are obtained in "user orientation" and in "operational excellence" perspectives. These results are consequence of short-term new policies and practices implemented in the project.

**5.2 Results seven month later**

With the purpose to validate the obtained results and to analyze its stability, the authors performed another survey seven months later. The results are shown in Figure 8. Some practices improved their levels over time, like usability quality, outsourcing quality contract and IT HR politics. The service quality perception is just below the previous results (1%) and the business value is stable. In conclusion, to AAA, the implementation of an IT governance framework based on the characteristics of the SMEs enterprises produced positive results, that have been maintained or improved.

![Figure 8 Project results seven month later](image)

**6 Discussion and Conclusions**

This case study highlights the importance of the quality of IT HR and the related enterprise policies. The results are positive but, as expected, are not definitive because the measuring period is only six months in total and the project included implementation practices to go up to level 2 of maturity. Higher levels would consume more time and budget, but also they would return more value to the business. As a future project, we will replicate the case study in other organizations (at least one more) in order to make the study stronger and to blunt the skepticism about the results obtained from a single-case study.

The results presented in the previous section are consistent with the literature, providing evidence about the value of implementing good IT governance practices especially in SMEs enterprises (ITGI, 2011). A particular point of view of these good practices is the IT HR in relation with IT-user satisfaction. Our project reveals that, in this organization, there was a positive relation between training budget and the other indicators analyzed. Ravichandran and Lertwongsatien (2005) found that intangible IT resources such as IT skills are decisive for effective deployment in the organization. According with Soto-Acosta,
Information technology training has been identified as a key factor for the success of IT applications and it is the most frequently applied coping mechanism to handle changing IT (Soto-Acosta et al., 2010).

Importantly, the application of the presented framework has strengthened intangible assets such as Know-how, Quality of Upper Management or Aligning of Middle Management, contradicting that IT governance carefully avoids the section of the business universe which hosts such vital elements as entrepreneurship, innovation, business development, creativity, improvisation, value creation and experiment (Kooper, Maes, & Roos Lindgreen, 2011).

Some studies, such as those presented by Devos, Landeghem and Deschoolmeester (2012) show that IT governance mechanisms are less important than trust (for example) in SMEs companies. However, the results from this case study are opposite, although they confirm the vision of these authors that frameworks designed for large companies cannot be applied in SMEs.

Finally, the indicator "IT meets business needs" grew up 11%. According to our vision and with other authors previously cited (Toomey, 2009; Weill & Ross, 2004, 2011), the implantation of an adequate IT governance framework in any organization enables value procurement. Most of published studies are related to large companies, but the results presented here confirm that a framework conceived for SMEs produces good results in companies that, because of their dimensions and resources, cannot implement complex and expensive models.

Future work must include the design of other case studies to re-test this part of the framework and to test the remainder part of the SMEsITGF presented in this paper.

References


