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10-2008

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Abstract

The wide use of technology and the high technology innovation have arisen strategic opportunities from ICT investments. To support the strategic role of technology different ICT governance practices and frameworks have been designed.

This paper makes a comparison between two case studies. The principal source of evidence has been the interview. It has been structured to evaluate the ICT governance maturity level of an organization through the answers given by its principal decision makers.

The first interviewees have been two CIOs. They came respectively from a public and a private Italian organization.

The surprising conclusion is that different motivations have shown the same barriers against ICT governance for both the organizations.

In this paper, after some considerations on the research background, method and purpose, we make a comparison between the two CIOs points of view. Then we give our first findings and their motivations. They represent a starting point for a future analytical generalization.

Keywords: ICT governance, decision-making, public and private sector, CIO.

1 INTRODUCTION

The wide use of technology and the high technology innovation have arisen strategic opportunities from ICT investments. ICT has gained a strategic role over the world (Anttiroiko 2001) and also in Italy it represents an important enabling factor for implementing the Information Society (MIT 2008).

To support the strategic role of technology different ICT governance practices and frameworks have been designed. Some of them (e.g. ITIL (IT Infrastructure Library, OGC), (Control Objectives for Information and related Technology (COBIT) (ITGI 2007, AIEA et al. 2007), Balanced Scorecard (BSC) (Kaplan and Norton 2006)) have been recognized on an international level.

Our competency background on ICT governance has allowed the realization of a structured questionnaire to evaluate the ICT governance maturity level of Italian organizations. The potential interviewees are the ICT governance key actors inside an organization.

Following a case study research method we have identified the best candidates for our interviews, i.e. all those Italian organizations characterized by ICT governance enabling factors, that have been identified in complexity and ICT wide use (Peterson 2003, Van Grembergen et al. 2004, Hamaker 2003). To measure complexity we looked for organizations with more departments (or business unit) and more decisional levels. To evaluate the ICT wide use we looked to the organization's mission and to the presence of an ICT function. These information have been easily retrieved on web.

Our first interviews have lead to a comparison between the answers of two Italian Chief Information Officers (CIOs): they work respectively in the private and in the public sector.

Therefore, we have noticed homogeneity of opinions between the two interviewed figures, although their environments are quite different. Actually, they both suggested customizing the questions to the specific contest (respectively private and public) but in answering the specific questions they always empathizes quite similar observations.

Our findings constitute a starting point for an analytical generalization: they help to identify others Italian cases to evaluate the generalization degree of the results that we have been given.

2 BACKGROUND

2.1 ICT governance and control frameworks

The need of ICT governance has arisen in those organizations characterized, principally, by the following "driving factors": *strategic value of ICT for business* i.e. high strategic business opportunities from ICT investments caused by an expanding role of ICT and proliferation of technology solutions; *complexity* such as big dimension, more business units and/or enterprise partners, globalization, increased competition, increased news coverage (Hamaker 2003, Peterson 2003, Van Grembergen et al. 2004).

On one hand, the first factor involves that ICT investments are an important source of value for the entire business, on the other one complexity increases investment risks and effort (Hamaker 2003).

ICT governance is a recognized discipline that represents an integral part of the enterprise governance (Hamaker 2003); the following ICT governance definitions describe the ICT governance objectives and instruments:

"ICT governance is the organisational capacity exercised by the board of directors, executive and ICT management to control the formulation and implementation of ICT strategy and in this way ensure the fusion of business and ICT" (Van Grembergen 2000).

"ICT governance involves specifying decisions right and accountability framework for important ICT decisions. The goal is to encourage "desirable behaviour" in the use of ICT" (Weill and Woodham 2002).

These definitions identify the main ICT governance actors (that are the board, executive and ICT management), fix its objectives (ensure the fusion of business and ICT, encourage "desirable behaviour" in the use of ICT) and underline the need of clear decision rights and accountability frameworks.

The strategic objective of an organization has always been the creation of value. The novelty is the increasing contribution of ICT to gain this objective so that ICT investment doesn't impact just on local organizational activities or department objective but have become very important for the organization's health and competitiveness.

To support the strategic role of technology different ICT governance control frameworks and practices have been designed (e.g. ITIL (IT Infrastructure Library, OGC), (Control Objectives for Information and related Technology (COBIT) (ITGI 2007, AIEA et al. 2007), Balanced Scorecard (BSC) (Kaplan and Norton 2006)).

A control framework is "a recognised system of control categories that covers all internal controls expected in an organisation" (IIARF 2002). They help to identify were the evaluations should be done and to verify if the implementing path is efficient and able to produce the expected results (Van Grembergen 2000). In addition, the aware use of control frameworks enables the diffusion of best practice, takes transparency to the decision making process underling motivations and responsibility, increases confidence from stakeholder (Hamaker 2003).

2.2 Public and Private ICT governance

IT governance in the public sector is quite different to that in the private sector due to characteristic differences between the two sectors (Arcangeli 2000, Caudle et al. 1991, Lenk 1994).
- Differences apparent in the public sector when compared to the private sector include:
- Differences in environmental factors (for example, less market exposure, more legal and formal constraints and higher political influences)
- Differences in organisation-environment transactions (for example, more mandatory powers, wider scope of concern, higher level of scrutiny of public officials and greater expectations)
- Differences in internal structures and processes (for example, more complex criteria, managers' power and roles, more frequent rollover of top managers, and greater difficulty in creating incentives for effective and efficient performance). (Rainey et al. 1976)

Despite these environmental differences a public and a private version of the CIO position are similar (Padilla 2003).

3 RESEARCH METHOD AND MOTIVATION

This exploratory paper has drawn its findings using the case study methodology (Yin 2003). Case study research is the most common qualitative method used in Information Systems (Orlikowski & Baroudi 1991, Alavi & Carlson 1992).

The following four tests are relevant to judge the quality of any given research design, such as in doing case studies (Kidder 1981).
- *Construct validity*: it concerns establishing correct operational measures for the concepts being studied. To increase construct validity we have chosen multiple source of evidence. The sources of evidence of these two case studies have principally been documentation and interviews. Documentation has been helpful in verifying the correct name, turnover, dimension, sector, activity, products and organization chart of both the organizations. This information has corroborated the specific interviews data. In addition we would implement a chain of evidence through a wider collection of structured data in our next research steps. For this purpose the case study questionnaire has been composed by structured questions. The researcher skill, knowledge and experience together with the literature review on the research target allowed this

formalization. Moreover, interviewees were encouraged to comment and to raise, reveal and suggest issues and problems to improve the goal of the specific question.

- *Internal validity*: basically, the internal validity may be extended to the broader problem of making inference. A case study researcher makes an inference every time he observes that a particular event has resulted from some earlier occurrence based on related interview and documentation. The exploratory nature of this research phase principally allows descriptive findings that constitute a vehicle to examine other cases.

- *External validity*: it concerns establishing the domain to which a study's findings can be generalized. Survey research relies on statistical generalization, whereas case studies (as with experiments) rely on analytical generalization. In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory (Yin 2003). The procedure of selecting a new case for study will take to identify other organizations within which the resulting case study considerations, i.e. the theory, should occur. The procedure for selecting the organizations has principally taken into account the organizational complexity together with a wide use of ICT. These driving factors have been measured principally by organization dimension and by the presence of an ICT management function.

- *Reliability*: it concerns demonstrating that the operations of the study can be repeated with the same results. For this purpose the interviews have been carried out through structured questions. This will facilitate the repetition of the interview and the creation of a formal and retrievable case study database, so that in principle, also other investigators will be able to review the evidence directly or produce new findings. In particular our questionnaire is composed by five sections: the first one refers to the *profile of the organization* (e.g. sector and dimension) and interviewed subject; the second one refers the *recognized ICT value* (e.g. expected benefits, outsourcing policy, investment philosophy); the third one concerns *the most recent ICT investments*, the fourth one investigates the *key actors of ICT decisions*, finally the fifth section refers to the *use of methods and instruments of ICT governance*.

4 RESULTS

Here below we give more details on the most aspects that the interviews have highlighted.

Profile of the organizations: both the CIOs work in organizations of big dimensions with more than three organizational levels, departments and strategic business unit. There is a wide use of ICT.

Recognized ICT value: in the private organization there is a certain resistance against ICT innovations that could change the way of working or that could require new competences. The perceived dimension of the effort overcomes the perceived dimension of the benefits: according to the private CIO the High Direction sees the ICT investments like an actual cost whose gain is not so sure. Also in the public organization ICT investments are perceived principally as added costs. "If I can reduce the processing time tanks to technology this is not perceived as an added value since the result of the related service is always the same", said the public CIO "so why I should invest money and effort to do the same think?": as a consequence the effectiveness of the objective is supposed more high than the efficiency related to the related enabling processes.

The most recent ICT investment: private CIO described an Information System Integration with a strategic business unit. He referred high resistance and internal conflicts. Public CIO referred about a normative conflict against ICT investments: "on the one hand the eEurope Directives state efficiency and innovation objectives that could be implemented through new investments, on the other one the voices of the Italian Accountability State (IAS) constrain the public expenditure in dimension and nature. Consequently, ICT investments do not match the actual voices of the IAS while a reform of the IAS meets high constraints by the legislative powers".

Key actors of ICT decisions: the principal decision-making levels are Heads of Department, General Directors and Chief Officers in the Public Organization and Board of Directors, Executive Direction, Chief Officers in the Private one. In the private organization the management skill is principally based on a life-long experience in the same organization. Private CIO considers this aspect like a barrier

against innovation. He judges that the main chance of cultural innovation could be promoted introducing multi-experienced new minds rather than trying to change the way of thinking of the "historical" decision makers. In addition he refers a high collaboration between CIO and CEO, high awareness of ICT value but less awareness of ICT risks. Also public CIO refers a high collaboration between CIO and the general director but a low awareness of ICT value and ICT risks. The collaboration is implemented through traditional way of communication in the public organization while also through web in the private one. With reference to the main *stakeholder*, both the CIOs assert that the final client can promote a more awareness of the ICT potentiality: according the public CIO, consumer associations should show more power in this direction. The private CIO defines the client as the principal driving force such as he requires ICT support, in the supplying contract.

Methods and instruments of ICT governance: there is no use of any ICT governance frameworks. Public CIO has described a decision making approach that sometimes doesn't take into account users' expectations. Sometime the internal key actors take decisions that according their sole opinion should be highly appreciated by customer; always this has not been true. On the other hand, sometime, some pessimistic choices of investment have found high success among users.

5   CONCLUSIONS AND PERSPECTIVES

The two CIOs came respectively from a public and a private organization. Both the organizations have been chosen for their complexity and for the wide use of ICT. Differences are principally referable to environmental factors.
The surprising conclusion gained from these first interviews is that different motivations have shown the same barriers against ICT governance for both the organizations.
The private CIO said that the main constraint against ICT investments is the *conservative approach* of the executive team. According with the public CIO the main constraint against ICT investments is the conservative approach of the legislative powers. There is a conservative interests exercised by the executive team that contrasts with an innovative interest exercised by the CIO: a high technology competency that doesn't mach a high business competency in a constructive manner.
Resistance and internal conflicts have also been the main obstacles against important private ICT investment. Some investments have been made *without any involvement of the user community* (customers or employees). The interviews have also highlighted a *lack in adoption ICT governance* frameworks.
The evidence that we have drawn from this results is that the main interests of ICT governance are sometime in contrast or are not involved and that no ICT governance framework has been adopted.
In ICT governance approach all the fundamental interests are driven to converge: for this purpose, ICT control frameworks enable meaningful communications since they collect a comprehensive set of control measures that are recognized by all the key actors. Meaningful and documented communications avoid frustrating lack of understanding, allow the diffusion of best practice, take more speed and transparency to the decision making process and increase confidence from stakeholder. A *proactive approach* of the ICT governance key actors (decisions makers and stakeholders) is recognized to be another important driving factor toward this direction.
Finding of these first case studies will help to identify new cases to investigate. In this way we could evaluate if there are the conditions for generalization and/or if other finding must be evaluated. The final issue will be the evaluation of the ICT governance maturity level of Italian organizations through a case study data base.

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