IT Governance and Small Medium Enterprises

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Abstract - In this decade Information Technology Governance (ITG) has become a hot topic between IT based companies. Since ITG status company is referring to an IT matured organization having six principles as expected by ISO 38500, there is no exemplar standard or framework to cover all of them. However, the most widespread existing frameworks in this area are COBIT, ITIL, and CMMI which not necessarily cover all of them. On the other hand, with respect to Small Medium Enterprises (SMEs) limitations, they have some constraints to implement all expected ITG principles by ISO 38500, completely. In this paper, the most comprehensive definition for ITG has presented and those most common ITG frameworks have been discussed(explained). Later, the SMEs definition and their characteristics have been explored. And lastly the relationship between ITG and SMEs has been discussed.

Keywords: IT Governance, ISO/IEC 38500, SME, Information Technology,

1 Introduction

Now a day, IT Governance (ITG) [1] is an important concept for IT organizations. IT- core business companies use different standard(s) and/or framework(s) as ITG and some of them believe that their implemented standard(s) and/or framework(s) have helped their organization to reach higher maturity levels [4, 5].

On the other hand, according to Sharifi *et al.* (2009) SMEs (Small Medium Enterprise) usually recognize with different factors such as number of staff, annual budget, amount of hardware and software (for IT companies), and number of customers [6]. There are countries that are using additional or different factors to categorize their companies' size, as well [7].

2 IT Governance

ITG [16] is a new area in IT management and strategic IT leadership. Hence, still there is not specific and well defined discipline for it. The best comprehensive definition for ITG can be presented base on ISO/IEC 38500 standard [22]. According to this definition ITG has been identified as the strategic alignment of IT with the business so that maximum business value is achieved though the development and maintenance of effective IT control and accountability, performance management, and risk management.

In 2008, the International Organization for Standardization introduced ISO/IEC 38500 as IT governance standard [17]. ISO/IEC 38500 is mainly based on the Australian AS 8015 standard [18] and is applicable to public and private organizations irrespective of their sizes and types. The current standard provides a reference framework for an effective IT governance to support the top management of organizations in understanding and fulfilling legal, regulatory and ethical obligations. This standard includes definitions, principles and a model. The most important part of ISO/IEC 38500 is six principles namely responsibility to address individuals and groups within the organization, understand and accept their responsibilities with respect to both the supply of, and demand for IT; strategy to take into account the current and future IT capabilities; acquisition to acquire requirements made for valid reasons, based on an appropriate and ongoing analysis; performance to analyze and decide appropriate levels and quality of service necessary to meet current and future business requirements; conformance to track policies and practices clearly defined, implemented and enforced and finally human behavior to observe policies, practices and decisions demonstrations with respect to human behavior. [19]

Yet, Directors should ensure that these principles are applied and they should govern IT through three main tasks:

i. Evaluating the current and future use of IT.

ii. Directing the preparation and implementation of plans and policies to ensure that the use of IT is aligned with the business objectives.

iii. Monitoring the conformance to policies and performance against the plans.

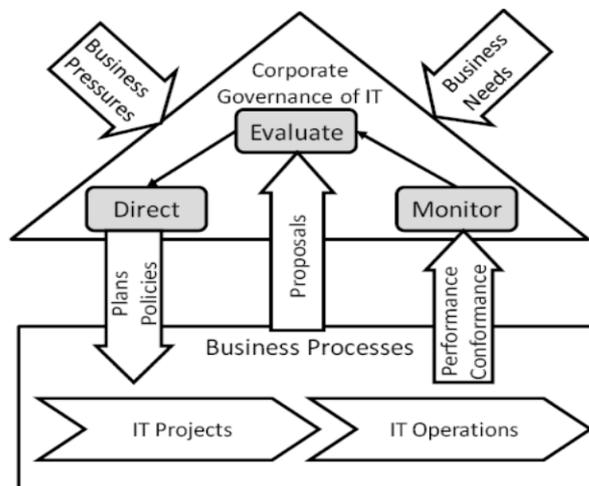Figure 1 shows the evaluate-direct-monitor cycle model of IT governance [20].

Figure 1 .Model for Corporate Governance of IT from ISO/IEC 38500 [20]

To support those mentioned principels some frameworks and standards have mentioned namely like COBIT, ITIL and CMMI.

2.1 COBIT

The Control Objectives for Information and related Technology (COBIT) is a framework that created by the Information Systems Audit and Control Association (ISACA) for information technology (IT) management. COBIT provides a set of measures, indicators, processes and best practices [2]. In its fourth edition, COBIT has 34 high level objectives that covers 215 control objectives categorized in four domains namely Plan and Organize to cover the use of technology and how best it can be used in a company to help achieve the company's goals and objectives[3]; Acquire and Implement to identify its IT requirements acquiring the technology and to implement it within the company's current business processes; Deliver and Support to manage and service activities related to delivery and support systems; Monitor and Evaluate to assess the needs of the company and whether or not the current IT system still meets the objectives for which it was designed and the controls necessary to comply with regulatory requirements.

2.2 ITIL

Information Technology Infrastructure Library is considered as a de-facto standard for IT management in organizations [8]. This comprises five distinct areas namely service strategy [28] that provides guidance on how to

design, develop and implement service management not only as an organizational capability but as a strategic asset; service design [29] that provides guidance for the design and development of services and service management processes. It also covers design principles and methods for converting strategic objectives into portfolios of services and service assets; service transition [30] that provides guidance for the development and improvement of capabilities for transitioning new and changed services into operations; service operation [24] that embodies practices in the management of service operation. It includes guidance on achieving effectiveness and efficiency in the delivery and support of services so as to ensure value for the customer and the service provider; and continual service improvement[31] that provides instrumental guidance in creating and maintaining value for customers through better design, introduction and operation of services. It combines principles, practices and methods from quality management, change management and capability improvement.

2.3 CMMI

Software Engineering Institute (SEI) as founder of Capability Maturity Model Integration (CMMI) at Carnegie Mellon University claims [11] that CMMI is a process improvement maturity model for the development of products and services. It consists of best practices that address development and maintenance activities that cover the product lifecycle from conception through delivery and maintenance. It can be used to guide process improvement across a project, a division, or an entire organization. CMMI helps integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes [12]. According to [25] process improvement have some benefits for businesses like: highly influences of the quality of a system by the quality of the process used to acquire, develop and maintain it; increases product and service quality by process improvement as organizations apply it to achieve their business objectives; the objectives of process improvement are aligned with business objectives [26,27]. It is clear that CMMI Product Suite is at the forefront of process improvement because it provides the latest best practices for product and service development and maintenance. CMMI-SVC consists of the 16 core Process Areas (PAs), one shared PA, and 7 service-specific PAs, 1 of which is an addition. These seven service-specific process areas and one of which is an addition has been described here [13, 23]:

1) Strategic Service Management (STSM)
This PA decides what services organization should be providing, making them standard, and letting people know about them [23].

2) Service System Development (SSD)
This is an addition PA that makes sure organization have everything it needs to deliver the service, including people, processes, consumables, and equipment [23].

3) Service System Transition (SST)
This PA gets new systems in place, changing existing systems, retiring obsolete systems, all while making sure nothing goes terribly wrong with service delivery [23].

4) Service Delivery (SD)
This PA sets up agreements, taking care of service requests, and operating the service system [23].

5) Capacity and Availability Management (CAM)
This PA makes sure organization has the resources it needs to deliver services and that they are available when needed—at an appropriate cost [23].

6) Incident Resolution and Prevention (IRP)
It handles what goes wrong—and preventing it from going wrong in the first place if staff inside the organization can [23].

7) Service Continuity Management (SCON)
This PA will be ready to recover the system from a disaster and get back to delivering organizations' service [23].

3 SMEs

At present, at least more than 90 percent of all companies in every country fall in SMEs' category [9] which emphasis on the importance of SMEs for national economies in every country. However, the term SME appears to have been defined variously by different parties and countries. In fact, different countries used different standards and criteria to measure the size of firms [10] as some of countries and their dedicated effective factors has depicted in Table 1.

Table1.Definition of SMEs in some countries

	Number of Employees	Capital	Asset	Sale	Productivity
Canada	499			√	
China	500		√		√
HongKong	100				
Indonesia	100		√	√	
Japan	300	√			
Korea	300				
Malaysia	150			√	
Philiphine	200		√		
Singapure	100		√		
Thiland	200		√		
Vietnam	200	√			

Simply, it can be said that those companies with small numbers of human resources which is normally less than 150 persons and small capital can be considered as SME. There are some common characteristics between all SMEs. These characteristics differentiate SMEs with big IT Enterprises like IBM and other such Incorporations. These characteristics are:

1) Informal Culture: It can be said that the most noticeable difference between Large and SMEs is informality of organizational culture in these sorts of companies [15, 14].

2) Quick Communication: Due to small business, every person will be responsible for several roles. Sometimes, when staffs follow formal communications procedures it would mean that they talking to themselves not some one else [15].

3) Responsive: SMEs staffs are responsive during developing and amending their plans and procedures as they go. The minimum level of organizational chart lets to managers and staffs for fast decisions in their small environment [7].

4) Flexile: SMEs able to react to changes and new ideas very quickly. If something is needed to be discussed or decided, all the major players can probably be brought together in the same room at the same time [7].

5) Relying on Individuals: SMEs are completely relying on heroes who may be the only one with the necessary combination of skill and experience to carry out a particular function in that SME [7, 15].

6) Nowhere to Hide: A small environment means that if things go wrong, there are fewer options for solving problems. As an example, when there is a personality clash inside of a SME, there is little chance that can be done to prevent them from causing damage [7].

7) Wide Knowledge: The village attitude is one kind of wide knowledge, encouraging those who can turn their hands to anything, or at least favoring those who can pick up new skills or apply familiar concepts to new areas [7, 15].

8) Limited knowledge: Since a few people cannot know everything, some gaps in the knowledge of small organizations can be appeared. In order to make the most of the skills available inside the SME, managers often have to combine several roles, even potentially separate job functions within a single position which causes to use staffs as generalists rather than specialists [15].

9) High Unit Costs :The total cost to the organization of employing and supporting each member of staff will be higher reflecting, among other things in SMEs because, staff need to have knowledge of more areas than enterprises; higher relative costs of essential software tools; hardware and software license costs and so on is added [7].

4 Discussion: SMEs and ITG

The structure and principles of ITG explained, during previous section. These mentioned principles express on the most important aspects which one organization should have to reach the highest expected maturity level. However, there are some institutions and companies which believe their proposed standards and /or frameworks cover all ISO/IEC 38500 principles. For example, ISACA put emphasis on COBIT as a reference framework for ITG [21]. This framework defines a spread range of objectives within four domains but it does not determine how to reach them. Information Technology Infrastructure Library (ITIL) V.3 is another framework that clearly explains service based processes in the service provider companies [24]. But, it is weak on KPI and CSF determination and security issues. CMMI also has high potential to cover majority of mentioned principles but in terms of security issues is very weak and almost do not have any disciplined specification for that. So, the best solution is to compile and implement some of the most applicable standards and frameworks together to cover all six ITG principles.

With attention to the combination of different common IT standards and frameworks, six ITG principles will cover but every one of these frameworks and standards have almost more than 20 processes. For example, CMMI has 25 components including 16 processes areas, or ITIL also has more than 26 processes. The SMEs specifications mentioned above. It is clear that, they have not much process in place. Moreover, their processes are simple and short as up to three to four steps. With these almost small and simple processes, there is no need to implement so many proposed processes as required by CMMI, ITIL, COBIT and so on. With implementing those required processes, every staff should play several rules and which means talking this staff to her/himself in the majority of times. Beside this, SMEs have so many limitations in terms of cost and human resource investment. So, the best solution is to customize and scale-down the existing frameworks to fit within that particular SME and at the same time cover those mentioned six principles as perquisites to reach ITG level organization. This issue will be discussed in next authors' paper.

5 Conclusion and Future Work

ITG is a growing important concept in IT companies and it acts as a benchmark to measure the maturity of IT organizations. Six major principles for ITG in organizations which are responsibility, strategy, acquisition, performance, conformance and human behavior have been defined and some framework and standard have named for it. Moreover, it explained that SMEs are companies with some specific characteristics like informal culture, quick communication, responsive, flexile and relying on individuals. At the same time, they have limited number of staffs and money to invest. They are organizations that are not able to accept so many changes accrued by different frameworks. They also do not need those giant frameworks that only make bureaucracy in their organizations and may cause loosing their core tasks. So, the best solution is to scale-down, combine and adjust them together to make a comprehensive customized solution to mature SMEs. Later, the authors will look at different introduced and considered frameworks and standards for organizations and will propose the most applicable scale-downed frameworks and standards for SMEs.

Acknowledgement

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