A Method for Diagnosing Information Technology Governance Processes

Fabiana Freitas Mendes  
University of Brasilia - Brazil  
fabianamendes@unb.br

Abstract

The importance of Information Technology in guaranteeing the success of an organization has greatly increased; hence, many models and practices have been developed to improve its effectiveness and efficiency. In order to improve Information Technology practices, however, it is important to initially diagnose current practices and then decide what needs to be improved. This article describes a method which can be used to diagnose Information Technology Governance processes. Initially, a method for diagnosing software processes was used in order to assess Information Technology Governance processes. Then, by analyzing weaknesses faced, a specific method for Diagnosing Information Technology Processes was created, which had already been tested in another organization.

1. Introduction

Information Technology (IT) resources have become a critical factor for the success of an organization. In fact, it is hard to imagine a modern organization surviving without some IT infrastructure.

Despite the pivotal role of Information Technology Governance (ITG) in providing a proper infrastructure, it is a challenge for many organizations to control and deploy the great diversity of computation and communication resources they possess.

Moreover, IT development and enhancement must be aligned with the business goals in order to guarantee the return of investments in terms of aggregated value to business processes, reduced risks, and optimized utility and warranty of IT resources [22].

These resources can be roughly classified into hardware (including communication infrastructure), software, and people (who develop, test, deploy, operate, and maintain other types of IT resources).

IT services involve processes that use all three types of IT resources to provide value in client services. The IT service provider needs to acquire, manipulate, and, in many cases, develop and modify hardware and software. In order to do so, he must be able to hire, prepare, motivate and manage people.

Since IT services involve processes that deal with hardware, software and people, an IT Governance Process Improvement (ITGPI) initiative may be considered.

There has been much written about software process improvement, including approaches to implement it and the risks associated with such initiatives [3, 8, 20, 21]. Despite the many identifiable challenges in the area of software process improvement, it is reasonable to say it is a mature area, where many approaches have been already been proposed and empirically validated.

The ITGPI area, however, has neither received the same attention nor been equally consolidated. Basic concepts, such as the definition of ITG, remain under discussion [20, 21]. Thus, ITG requires greater research effort to establish concepts and techniques to deal with its increasing challenges.

Considering there are similarities between software process improvement and ITGPI, a method for diagnosing ITG process which relates to software process experience has been proposed.

Hence, this paper shows the evolution of a method for diagnosing ITG processes derived from a diagnostic method of software process.

The bulk of this paper is organized as follows: Section 2 discusses ITGPI analyzing quality models and ITG improvement approaches. Section 3 presents a method for ITG diagnosing derived from software process diagnose and user experience. Section 4 presents yet another method for ITG diagnosing, adapted considering the experience of derived method. Finally, Section 5 concludes this study and shows directions for future applications.
2. Fundamentals of IT Governance

There are many definitions for IT Governance [20, 21]. Each definition focuses on one or more important aspects of ITG, but the lack of consensus make it difficult to understand what the main goals of ITG are and which problems are most significant in this area.

This paper considers that the focus of ITG is to conduct IT by adding maximum business value to the organization. In order to attain this goal, it is necessary to consider the risks, performance, control, politics, people and objectives. Furthermore, monitoring the implementation of every decision made is quite necessary to ensure business alignment.

Others pertinent and important concepts must also be considered for instance approaches and models related to ITG. Section 2.1 discusses ITGPI main approaches. Since these approaches relate to the process, Section 2.2 analyses process models which can be useful in this context.

2.1. IT Governance improvement approaches

ITG implementation involves three main elements: structure, control framework and process [21]; an ITG Process Improvement project could use one of this elements do guide the implementation.

ITG structure defines roles, responsibilities, IT organizational structure, CIO (Chief Information Officer) board, IT strategic board, among others. An IT structure can be classified into several modes, such as a business monarchy, IT monarchy, feudal, federal, IT duopoly, anarchy, centralized and decentralized [7, 10, 21, 22].

An ITG control framework defines a set of processes, procedures and policies that allow organizations to measure, monitor, and evaluate their situation in relation to pre-defined factors and criteria [21]. COBIT (Control Objectives for Information and related Technology) [13], COSO (Committee of Sponsoring Organizations of the Treadway Commission) [5], and SAS 55/78 (Statement on Auditing Standards) [1, 2] are well known examples of control frameworks.

Processes describe the procedures by which a decision is made. They also describe how IT is monitored and which are the IT supporting mechanisms [6].

There are two main approaches to combine these two elements to implement ITG in an organization: the structural approach and the process approach.

The structural approach relies on the distribution of IT people into functions and responsibilities required by each organization department [6]. This structure is designed to improve the efficiency of the decision-making process and to align IT actions to corporate business goals.

The process approach defines and implements procedures to execute IT services [6]. These procedures include activities which are indirectly related to these services. The underlying goal is the same: to provide ITG alignment to business goals.

In real world projects, it is possible to mix these two approaches. These hybrid approaches implement ITG improvement by integrating structures and processes, obtaining the advantages of both approaches [6].

Works about method for IT Governance Process Improvement were not found. But, because an ITGPI initiative deals with, above all, process improvement, the IDEAL [15] method could be used.

IDEAL was conceived to be used in Software Process Improvement, but it can be used in ITG Process. The words of method name represent five phases of it: Initiating, Diagnosing, Establishing, Acting and Learning. Figure 1 presents method phases and the main activities of them.

![IDEAL method for Software Process Improvement](image)

Figure 1. IDEAL method for Software Process Improvement

The IDEAL method has a diagnosing phase after initiating and before the establishing phase. This diagnosing assesses good practices of software process used in an organization and, through it, identifies strengths and weaknesses by creating a report. At this point, it becomes possible to select processes and/or practices that need to be improved or defined, and plan their improvement.
Some examples of diagnosing activities are: defining areas and processes to be evaluated; planning and executing evaluation; presenting, communicating and writing a report with diagnosing recommendations.

2.2. IT Governance models

ITIL (IT Infrastructure Library) [16] and COBIT [4, 6, 17] (which is also a control framework – see Section 2.1) are the two most popular models in ITGPI.

ITIL is composed of five reference books that cover the IT service lifecycle: strategy (long term services orientation); design (planning services); transition (deployment of services); operation (actual performance and support to services); and continual service improvement (in a closed-loop feedback). These books, which are at their third version, describe best practices for each phase of the services lifecycle.

COBIT is a framework composed by seventeen documents, and each of them was written to a different ITG involved profile [14]. These documents are related to model description, implementation, management and audit. The model is composed by 34 processes classified into four domains: Plan and Organize; Acquire and Implement; Deliver and Support; and Monitor and Evaluate.

Each process has control objectives, which can be evaluated according a maturity model. These models classify ITG practices into six levels: from 0 (non-existent) to 5 (optimized).

On one hand, COBIT defines domains and processes that have to be considered by ITG without specifying how they will be executed. On the other hand, ITIL resumes good practices used to implement ITG process, especially those related with IT service management.

In this research, COBIT was used to create the diagnosing method because it is more structured than others models: ITG is divided into areas and each area into practices, metrics and others. Therefore, COBIT is easier to be used in a diagnosing method.

3. Method for diagnosing software process adapted to IT Governance process

There are several approaches to diagnosing IT Governance of an organization, among which is process diagnosing. The method for diagnosing IT Governance processes on this research was based on COBIT framework.

First, a method for diagnosing software processes, used by the author about four years, was utilized to diagnose IT Governance process by applying little changes to the method.

Thereafter, further modifications were made to the method, considering the difficulties faced during the first trial. Then, a method specifically designed for diagnosing IT Governance processes was developed and was used in an organization different from the first.

The set of phases, activities, questionnaires and templates needed for software process diagnosing has already been defined by [24] based on SCAMPI (Standard CMMI Appraisal Method for Process Improvement) [18] and ISO/IEC 15504 [11]. Such method is described in Section 3.1, as well as the modifications made to adapt it to diagnosing ITG processes and Section 3.2 reports the experience of using it.

3.1. Method description

The method proposed by [24] is not part of a software process improvement method, nor is it defined in this context. This means that it does not possess software process improvement activities to deal with weaknesses found during diagnosing, but mere activities related to diagnosing. Nevertheless, since its description is more detailed than that in IDEAL’s diagnosing phase, and considering previous experience using the said method, it was selected to be adapted into a method for diagnosing IT Governance Processes.

Three diagnosing phases are defined by [24]: Initial Assessment, Assessment and Assessment Report, as seen on Figure 2.

The Initial Assessment phase has nine activities: (1.1) Presenting diagnosing method; (1.2)
Distributing business questionnaire; (1.3) Analyzing business questionnaire answers; (1.4) Adapting questionnaire about software engineering practices; (1.5) Distributing software engineering questionnaire; (1.6) Collecting documents and others evidences; (1.7) Analyzing software engineering questionnaire answers; (1.8) Examining documents and others evidences; (1.9) Elaborating a diagnosing plan.

The second phase, called Assessment, includes five activities: (2.1) Collecting data through interview (2.2) Analyzing findings; (2.3) Re-planning collected data; (2.4) Characterizing practices; (2.5) Reviewing practice characterization.

Lastly, there are four activities to the Assessment Report phase: (3.1) Defining conclusions on assessment and identifying problems; (3.2) Concluding and delivering report; (3.3) Presenting diagnosing report to all employees; (3.4) Finalizing assessment, recording history base.

The business questionnaire was the same as proposed by [24] and its aim is to get an overview on the organization. The questions were grouped into the following four categories: features of the organization, quality management, human resource management, and quality visibility. The data collected provided information such as the number of employees, organogram, vision of quality, investments in employee training, etc.

The method also contains a set of software process questionnaires, and as the goal was to assess IT Governance practices, 34 questions were created for each of COBIT processes. Frame 1 presents a sample question for IT Governance.

<table>
<thead>
<tr>
<th>Level</th>
<th>ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad Hoc</td>
<td>0</td>
<td>The organization does not see the importance of IT process definition or initiatives to improve them.</td>
</tr>
<tr>
<td>Non-existent</td>
<td>1</td>
<td>Despite seeing the importance of IT process definition and improvement, the organization does not act to define or improve it.</td>
</tr>
<tr>
<td>Initial/Ad Hoc</td>
<td>2</td>
<td>The organization recognizes IT process importance, but there is some frustration to defining or improving it due to some technical difficulty.</td>
</tr>
<tr>
<td>Repeatale but Intuitive</td>
<td>3</td>
<td>The organization recognizes IT process importance, there are some actions taken to define and improve it, yet these actions are not formalized.</td>
</tr>
<tr>
<td>Defined Process</td>
<td>4</td>
<td>The processes are executed through procedures which are followed by different people. There is no training or formal communication to execute the processes.</td>
</tr>
<tr>
<td>Managed and Measured</td>
<td>5</td>
<td>Process procedures are documented and communicated through training.</td>
</tr>
<tr>
<td>Optimized</td>
<td>6</td>
<td>Process procedures are documented and there are metrics to evaluate the effectiveness of process execution.</td>
</tr>
</tbody>
</table>

**Frame 1: Example of an IT Governance question**

Each created question has eight options: three in the first level of COBIT maturity model and non-existent, as well as five for each of the following levels: Initial/Ad Hoc, Repeatable but Intuitive, Defined Process, Managed and Measurable, and Optimized. It was necessary to create two additional non-existent levels to define the immaturity of an organization IT Governance practices; it was important quantify the degree of immaturity. Table 1 presents a description of each one of these levels. Note the relationship between each option of the question presented in Frame 1 and the definition of each level.
The adaptation of [24] method involved the creation of a set of roles for defining who will answer each question. This was important to reduce the number of questions each employee would have to answer, thus decreasing budget and time to execute method.

The roles created were: executives, business manager, IT manager, and operational employee. A definition of each role is presented in Table 2.

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executives</td>
<td>They deal with the strategic level. They do not work directly with IT Governance concepts. They are responsible for managing the organization and are a bridge between IT strategy and the other parts of the organization.</td>
</tr>
<tr>
<td>Business Manager (CIO)</td>
<td>They work at the management level and represent the needs of IT resources to support the activities of the organization. If the organization has many units of business, this role will define all requirements for IT and the budget to implement them.</td>
</tr>
<tr>
<td>IT Manager</td>
<td>Holding the requirements for IT, this role creates objectives to define how to achieve them. The IT Manager takes care of IT projects portfolio and guarantees the correct execution of IT operations. This role links IT to the business.</td>
</tr>
<tr>
<td>Operational Employee</td>
<td>It represents the direct relationship between services and products IT supplies, and executes IT processes.</td>
</tr>
</tbody>
</table>

During the Initial Assessment phase, the organization organogram was analyzed to convey how the created roles were distributed in the organization. Then, a list of employees for each selected department was put together to participate in the diagnosing.

The diagnosing report for method [24] has a template with four sections: Introduction, Organization Features, Process Diagnose Results, and Conclusion. The first section presents diagnosing goals, processes diagnosed, and the parts which were analyzed in the organization. After that, every characteristics of the organization was summarized, as well as the background to which the diagnosing was executed.

The Process Diagnosing Results section conveys the conclusions on the practice of each process area selected. Finally, the last section summarizes the conclusions, highlighting the most important concepts of each process.

When the method was adapted to ITG process, the report had some modifications, mainly in Section “Process Diagnose Results.” The modifications are not related to the content, but to the way information is presented.

Previously, there were merely textual conclusions for each process. After the modification, however, the 34 processes of COBIT became a subsection into the third section. Each subsection has a graphic with percentages of responses for each one of the eight options. Hence, it became possible to define the level of maturity. For example, if 90% of the answers for a process point to level 0, that will be the concluded level of maturity. If during the interview, however, an employee answers differently from the majority, such findings will also be considered on the report.

3.2. Experience of using method

The assessed organization provides software and hardware for road traffic, employing 160 people among its five departments: finance and administration, purchasing, institutional relations, operations, and engineering. Only those directly related to IT activities and the head of each department were selected to participate of diagnosing. Only the Operations Department has people directly related to IT services; here are its sub-departments: Software Engineering, Infrastructure, and Research/ Development.

Data was collected through the following tools: questionnaires (Initial Assessment phase), document analysis (Initial Assessment and Assessment phases), and interviews (Assessment phase).

The questionnaires are managed by a tool proposed by [23] which distributed and collected the questions, storing and presenting the answers to appraisers.

Regarding to questionnaires created to analyze the maturity of each process, they could not collect details on IT Governance practices because the questionnaires were too generic. This impacted long interviews with nearly all people selected.

Because of these questionnaire limitations, the Diagnosing report was only able to explain COBIT processes and areas, and present the maturity level percentage for each one. Then, this information was analyzed over interviews and document analysis information.

The rate of “I do not know” answers was also taken in consideration. About 41.18% of the employees could not answer the questions presented.
Some processes received as much as 70% of “I do not know” answers. The high rate of this kind of an answer may be caused by the questionnaire’s limited detail in the practices of each process; it can also indicate a lack of IT Governance knowledge by the employees.

4. Proposed method for diagnosing IT Governance process

The first experience of IT Governance Diagnosing resulted in some need for improvement; once resolved a new method for diagnosing IT Governance Processes was developed. This process is explained in Section 4.1, as Section 4.2 conveys the experience of using it.

4.1. Method Description

As well as [24], the new method has three phases: Initial Diagnosing, Diagnosing and Diagnosing Report. Figure 3 presents phases and activities for the method.

![Figure 3. Phases and Activities of IT Governance Diagnosing Method](image)

The first modification concerns the name of each phase. Despite being quite similar in nature, the name in each phase was changed from assessment to diagnosing. The meaning of the word assessment is better used to evaluate whether a requirement is achieved; for instance, whether a student has learned something. The word diagnosing, on the other hand, conveys the meaning of an exam performed by a doctor to detect a disease and prescribe a medicine. Hence, the word diagnosing refers to an analysis deeper than that of an assessment, for it searches the root of the problem and prescribes a solution for it.

The first phase, Initial Diagnosing, has five activities: (1.1) Selecting employees to participate in diagnosing; (1.2) Presenting IT Governance diagnosing plan; (1.3) Collecting and examining information; (1.4) Elaborating first version of the plan; (1.5) Approving Plan.

The Diagnosing phase has five activities: (2.1) Re-planning diagnosing; (2.2) Adapting and distributing IT Governance diagnosing questionnaire; (2.3) Collecting new findings; (2.4) Examining findings; (2.5) Re-planning data collection.

Finally, Diagnosing Report has three activities: (3.1) Reporting diagnosing results; (3.2) Presenting diagnosing results; (3.3) Finalizing diagnosing.

During Initial Diagnosing phase, all employees associated with senior management and IT Governance process are identified and divided into two groups: Group of Senior Management, which will manage questions related to diagnosing goals and alignment between enterprise and diagnosing; and Group of IT Governance, which will manage questions related to the management of diagnosing activities.

In addition to this information, other matters pertaining to the needs and problems of IT Governance of the organization are also collected. Therefore, a questionnaire with five sections is distributed; the sections are: knowledge about the business, strategic goals, financial goals, senior management actions related to IT, and ITG goals. Although similar to business questionnaire of [24], these questions are more related to IT Governance concepts and needs.

Differently from CMMI model [19], COBIT does not have a staged representation in which all processes are put into a maturity level. This type of representation helps diagnosing process because once the maturity level is defined, a decision can be made on what processes to diagnose; this way, a better and detailed diagnosing of the processes can be made at this level. On the other hand, if an organization is starting to work with Software Engineering process and does not have maturity to choose what processes to improve, the processes of CMMI first maturity level can be used.

Thus, at the beginning of diagnosing, it is not clear what processes will be analyzed, and because of time and budget limitations, it is not possible diagnose all of them in much detail. Therefore, during Initial Diagnosing phase, there were problems
related to 34 COBIT process which are prioritized, and then some are selected considering its priority. Table 3 shows some problems to be prioritized.

Table 3. IT Governance Problems List Based on COBIT Process

<table>
<thead>
<tr>
<th>#</th>
<th>Problem</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IT does not execute actions aligned to strategic organization goals; hence, they cannot contribute to the goals the organization wants to achieve</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>IT services are not identified, analyzed or prioritized. They are not related to business goals</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Important organization information is not identified or improved to optimize use</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>There is redundant information stored</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Organization Information is not stored in a standard way</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>IT technology is adopted without any study</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows three columns related to each problem: P (priority), I (impact) and T (trend). Table 4 shows criteria used to punctuate and fill these columns.

Table 4: Punctuation for Problems Prioritization

<table>
<thead>
<tr>
<th>Grade</th>
<th>Impact – I</th>
<th>Trend – T</th>
<th>Priority - P</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Catastrophic</td>
<td>Becomes immediately worse if problem is not solved</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Major</td>
<td>Becomes worse in a short term (1 month)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>Becomes worse in medium term (from 1 month to 1 year)</td>
<td>P = I * T</td>
</tr>
<tr>
<td>1</td>
<td>Minor</td>
<td>Becomes worse in long term (more than 1 year)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Insignificant</td>
<td>No trend to become worse</td>
<td></td>
</tr>
</tbody>
</table>

These initial questionnaires and problem prioritization are necessary to understand why the organization asked for diagnosing, and the main problems related to ITG, mainly to select the process which will be explored in the next diagnosing.

After analyzing the problems and needs related to IT Governance, a plan is defined in activities 1.4 and 1.5. During those activities, the results for applying the questionnaire (presented in Table 3), and the problem priority is validated with Group ITG. Then, the processes which will be diagnosed are selected and documented into a plan. Furthermore, a list of people who will answer the questionnaire and be interviewed is defined, as well as items related to schedule, goals, assumptions, and constraints. These are then formalized into the same plan and presented for approval by the Group of Senior Management and the Group of ITG.

The next phase, Diagnosing, refers to collecting detailed information on the processes selected in the previous phase. The tools used to do this are questionnaires, interviews, documents, and ethnographic analyses.

First, the questionnaires are distributed; while they are answered, other information is gathered through documents and ethnographic analyses. Then, after analyzing the answers from the questionnaires, documents, and information from ethnographic analyses; if is necessary, interviews are scheduled with some employees.

Besides the questions related to each process illustrated in Frame 1, a detailed questionnaire it is distributed for each practice of each selected process. The number of questions is directly proportional to the number of selected processes and their respective number of practices. Moreover, it is important to notice that one practice may require more than one question to fully determine satisfaction of practices. Frame 2 presents questions related to PO 4.1 practice of PO4 COBIT process.

Note that on Frame 2, as well as on Frame 1, there are roles related to each question, as presented in Table 2. Therefore, as well as in the adapted method, employees will only answer questions that relate to their role in the organization.

Process PO4 – Define the IT Processes, Organization and Relationships

Define the IT processes, organization and relationships being agile in responding to the business strategy while complying with governance requirements and providing defined and competent points of contact

Practice PO 4.1: IT Process Framework

Define an IT process framework to execute the IT strategic plan. This framework should include an IT process structure and relationships ownership, maturity, performance measurement, improvement, compliance, quality targets and plans to achieve them.

1. Are there people ensuring that IT decisions are aligned with the organization strategy? If so, who are these people?
   a) No
   b) Yes
   c) I do not know
Rcles: all

2. Is defined investment a priority among organization
Frame 2. IT Governance Questions Example

While the questionnaires are filled, the method recommends the team to visit the work environment to analyze documents and observe how the team works. It is not necessary to notify employees that the visits are also intended to observe their ITG practices, for it may prevent them from carrying out their activities as they normally would.

If necessary, the diagnosing is re-planned to collect more information; otherwise, the next phase, Diagnosing Report, should start.

The purpose of this phase is to report all conclusions about COBIT IT Governance process. This report is the same as the template presented at Section 3.1. In other words, they have the same four sections, being that the third section has conclusions about COBIT IT Governance process. The report is firstly presented to Group of Senior Management and Group of ITG and, if approved, it is presented to all employees. If not, recommended modifications are made and the report is presented again to the groups.

Compared to method proposed by [24], most modifications are related to the different questionnaires used and the formalization of a diagnosing plan.

It is important to realize that the activities are similar to others diagnosing process methods, but this method differs the in the way each activity is executed, as well as in the templates created to support them.

4.2. Experience of using method

The organization in which the method for Diagnosing IT Governance was tested is a public company which provides services for society. IT services just answer organization internal needs.

The organization's structure is very complex; it has many departments with many employees, yet only one of them is directly related to IT area. This department has 50 employees distributed as follows:

- Thirteen in Systems Analysis and Development Sub-department, which coordinates and executes all activities related to Software Engineering;
- Ten in Customer Service Sub-department, which is responsible for coordinating the relationship between IT department and others department;
- Eleven in the Sub-department of Infrastructure, which takes care of hardware and services related to IT infrastructure;
- Seven in Technological Sub-department, responsible for IT strategy evolution and management of IT projects; and
- Ten in Data Security and Management, which controls activities related to all security issues and geographic information systems.

For data collection, there following tools were used: questionnaires (one in Initial Diagnosing Phase and other in Diagnosing phase), interviews (in Diagnosing phase), document analysis (in Initial Diagnosing and Diagnosing phase) and ethnographic analysis (in Diagnosing phase). Forty people participated of diagnosing.

Concerning the IT Governance problem prioritization, despite being a very important tool to select the main ITG processes, some problems were detected during the Diagnosing phase, which are not in the list. So, it is important to improve the ITG problems list adding some of them which was observed during using.

As well as previous experiences, a tool, proposed by [23], was used to hand out questionnaires, collect, store and present answers to appraisers.

Eleven processes were selected from 34 COBIT process to be analyzed during Diagnosing phase: PO2, PO4, PO7, PO8, PO10, AI04, AI17, ES3, ES7, ES8, ES9. Because of this adaptation, it was possible to collect more detailed information than in previous experience through questionnaires but eleven processes were yet so much to elaborate a detailed diagnosing.

Document and ethnographic analysis was made while the questionnaires were filled. Each management department was inquired in locco, asking for documents and analyzing how the employees worked. Moreover, meetings with the ITG group were carried out at the place of work, rather than in a conference room that is isolated from the rest of the crew. Since we were not limited by the walls of a conference room, it was possible to observe the manner the employees were working while the meeting went on. Nevertheless, it is important to notice that this was possible because each diagnosing crew was composed of more than three employees. All these tools are very valuable, collecting information that would otherwise not be collected through questionnaires and interviews. These tools are very valuable, collecting information that would otherwise not be collected through questionnaires and interviews.
The diagnosing report presented more detailed information about IT Governance practices. It made it possible to assess the maturity model of each one of the eleven processes selected. As in the previous experience, each selected process had a graph with the process level, and as the last experience, there were many “I do not know” answers.

Each process practice was characterized, making it possible to get better results than during the first diagnosing experience.

5. Conclusions

This article presented two diagnosing methods of IT Governance Process. The first being an adaptation of [24] method, and the second, a new proposed method based on experiences learned and improvements made.

Through these experiences, it became possible to notice the similarities between diagnosing software process and IT Governance, for with little modifications the method proposed by [24] was able to be used.

Despite these similarities, the modifications made between the first and second experiences were essential to obtain a more detailed diagnosing report.

Besides the definition of method for diagnosing ITG, other greater contribution to this work pertain to a deeper comparison between an area that have already been widely explored by researchers (Software Process Diagnosing) and an area in need of much research (ITG Diagnosing). This comparison proved quite important once the similarities were found to be true, as the experiences obtained from one can be also used for the other.

Also, the fact that only a few alterations were made to the method for Software Process Diagnosing and the success in this initiative expressly demonstrate the accuracy of such similarities.

The method for diagnosing IT Governance proposed in this paper, however, needs to be further used to demonstrate its effectiveness. Furthermore, the method presents questions for eleven COBIT processes, less than half of its total number. So, it is necessary to create more questions for the others processes.

It is important to develop a method that includes others points of view of IT Governance such as control objectives and structure. Hence, the method should regard the audit method proposed by [12].

Finally, it is important to elaborate a method or guidelines to support all IT Governance Process Improvement, including diagnosing, action plan and implementation of actions. A hypothesis that remains to be proved is the similarity between Software Process Improvement and IT Governance Process Improvement in their totality. If this hypothesis is true, it could be used as a method similar to the one proposed by [15].

6. References


the 41st Hawaii International Conference on System Sciences, 2008.


Acknowledgments

The authoress is grateful to the following people: Adriana Silveira, Juliano Oliveira, Patricia Fernandes and Victor Ribeiro, who collaborated with this research; and Robert Temoteo, who was the English revisor of this paper.