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A Method for Analyzing IT Service Strategy in Municipal Governments from Nicaragua

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ABSTRACT

The importance of IT strategy is generally accepted, though in practice this may vary from one IT organization to another. The design of a formal IT strategy may be required or not, depending on the environment, but, independently of this, strategic decisions still must be made and therefore strategic practices are performed. In order to make any improvement in strategic practices, awareness of their current state in the IT organization is needed. This paper proposes a method for analyzing IT service strategy in the context of IT organizations in municipal governments; the main issues considered are both people- and organization-related (e.g. internal service providers, prioritized cost-effectiveness, current practices oriented to tactical and operational activities, etc.). This method decomposes the analysis from two different perspectives: strategic practices in use and maturity level of such practices. The method was tested in two municipal governments from Nicaragua.

Keywords

IT Service Strategy, Information Technology Infrastructure Library (ITIL), Capability Maturity Model Integration (CMMI), Internal IT service providers, Nicaragua.

INTRODUCTION

According to Luftman et al. (2004), Information Technology (IT) is integrated in almost every part of business processes today; similarly, Tang and Walters (2006: 2) observed that “IT and IT-enabled systems are now indispensable in supporting business strategies.” Such arguments allow us to observe how evolved organizations have positioned IT as part of the business, which also implies that IT must integrate business aspects within its domain; therefore, aspects like strategy become a concern for IT to address.

Although most of the research emphasizes the importance of strategy, practitioners selectively use it depending on the environment (Eisenhardt and Sull 2001; Mintzberg and Waters, 1985), arguing that the use of an IT strategy is tied to how accountable such a practice is (Inkpen and Choudhury, 1995). Moreover, small/medium internal IT service providers, such as IT organizations of municipal governments, might not consider IT strategy accountable comparing the efforts required to formally design it vs. their priorities and limited resources. However, strategic IT decisions to support business goals still must be made and are the gist of IT strategy (IT Governance Institute, 2005; OGC, 2007), so the efforts must be balanced regarding the organization’s priorities and available resources. This situation indicates that independent of the existence of an IT strategy plan, strategic management practices must exist to help guide the IT organization. The analysis of their current state is required to improve such practices, which in the case of municipal government IT organizations requires

considerations such as non-market competency orientation and the need for a practical approach that considers not just the formal plan but practices that also guide their operations and act as an alternative to “competing for today” IT strategies (Luftman, 2003), i.e. strategies for the present. Therefore this paper proposes a method for analyzing IT strategy from a *service management perspective* in IT organizations of municipal governments.

This paper is based on a *service management* approach due to its practical character for addressing relevant IT management issues and benefits, as Winniford et al. (2009) observed when they suggested that this approach seeks the alignment of IT and business in “IT operations-related activities, and the interaction of IT technical personnel with business processes”. Pollard and Cater-Steel (2009) also observed other associated benefits, like cost effectiveness, flexibility and more adaptive IT organizations. Such benefits are introduced within the strategy discipline for proposals like Information Technology Infrastructure Library - ITIL (OGC, 2007) and are shared for other frameworks such as Balance Scorecard (Kaplan and Norton 2000); ISO/IEC 20000 (British Standard Institute, 2005-a; British Standard Institute, 2005-b); CMMI-SVC (Software Engineering Institute, 2009); and Cobit (IT Governance Institute, 2005), among others. These proposals converge in processes that provide valuable information for decision-making and strategic management practices, e.g. Client/Demands processes, financial process, internal processes and process improvement.

In this paper, ITIL’s best practices and CMMI-SVC capability/maturity levels are used in combination with other techniques to analyze IT service strategy, which means its decomposition into two perspectives, i.e. *best practices in use* and *maturity of such best practices*. Further sections present a brief description of the literature being used, the methodology and resultant method, and the testing of such method in two Nicaraguan municipalities.

LITERATURE REVIEW (KNOWLEDGE BASE)

The relevance of IT strategy is discussed in several sources (IT Governance Institute, 2005; Luftman, 2003; OGC, 2007) and there is also specialized literature on the topic, most of it with overlapped ideas, such as ITIL, ISO/IEC 2000, COBIT, CMMI-SVC, among others. This research work uses ITIL and CMMI-SVC as main references since they are complementary sources to cover the characteristics pursued; some such characteristics are: (i) detailed explanation of the practices, (ii) inclusion of process maturity and (iii) inclusion of tactical/operational concerns relevant for an IT strategy. ITIL is strong in the first and third points, while CMI-SVC is strong in the second. This work thus uses them as complementary; ITIL is used as a reference framework to gather evidence and CMMI-SVC to analyze the maturity of the process in order to facilitate potential improvements. Also, both proposals share concepts of the service management approach, which makes a consistent linked work. The ITIL and CMMI-SVC approach to IT Service Strategy is briefly presented below.

IT Service Strategy in ITIL

IT Service Management is about people, process and technology cooperating to ensure IT services quality, and fulfilling the agreed service levels with the customers. This approach emphasizes three concepts: service, quality and customers (Hochstein et al., 2005-b; Lijima, 2007; Pitt et al., 1995; Tan et al., 2009). ITIL provides a framework for IT Service Management through a set of best practices; its third version is organized around the service lifecycle, which considers Service Strategy, Service Design, Service Transition, Service Operation and Continual Improvement (OGC, 2007). It has generally been observed as a tactical and operations -level proposal (Iden, 2009; Microsoft Corporation, 2009); however this version starts to deal with IT service strategy. Specifically, IT Service strategy is understood as strategic thinking applied to service management and how service management is a strategic asset of an IT organization (OGC, 2007). ITIL suggests integrating a set of strategically important processes: *demand management* (managing customer requests and incidents), *financial management* (financial issues concerned with IT services) and *service portfolio management* (selection and structuring of IT services). Such processes generate valuable customer-oriented information for defining the *IT service strategy* (includes perspective, position, plans and patterns) of the IT organization. In order to analyze IT service strategy in an internal service provider, this paper uses the relevant ITIL-IT service strategy components summarized in Figure 1; such information was used to develop a set of data-gathering instruments for use in the method; they can be found at the following link: www.alopez.uni.edu.ni/research.

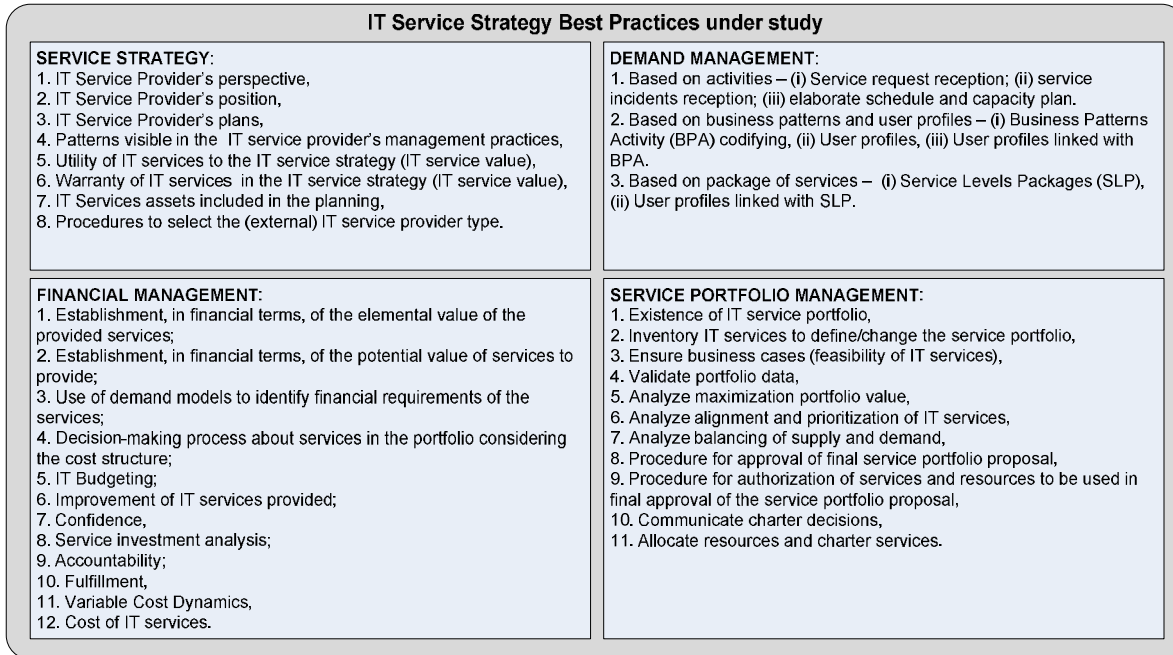


Figure 1. IT Service Strategy components details extracted from ITIL-Service Strategy

IT Service Strategy in CMMI-SVC

CMMI-SVC (Capability Maturity Model Integration for Services): This framework is intended for process improvement; its version 1.2 is specifically oriented to services and draws on concepts from other standards and best practices such as: ITIL, ISO/IEC 20000, Cobit and ITSCMM. CMMI models are collections of best practices that help organizations improve their processes. The developers of this framework observed the need for a CMMI model addressing the service industry, i.e. CMMI-SVC. This integrates the bodies of knowledge essential for a service provider to provide a comprehensive set of best service practices (Software Engineering Institute, 2009). CMMI-SVC proposes two improvement paths using levels: capability levels and maturity levels. These levels are selectively applied over the structure considered in CMMI-SVC: process areas,¹ generic goals,² generic practices,³ specific goals⁴ and specific practices.⁵ Among the CMMI-SVC process areas, one is dedicated to Strategic Service Management (STSM). The purpose of STSM is “to establish and maintain standard services in concert with strategic needs and plans” (Software Engineering Institute, 2009). Figure 2 shows the high-level relation between CMMI-Service Strategy Management and ITIL-Service Strategy as considered for the purposes in this paper; the figure summarizes from bottom to top: the first three levels are CMMI components and the last contains ITIL components (specific goals and practices related to equivalent practices in ITIL to later apply the generic goals, i.e. capability levels).

¹ A *process area* is “a cluster of related best practices in an area which, when implemented collectively, satisfies a set of goals considered important for making significant improvement in that area. CMMI-SVC contains 24 process areas” (Software Engineering Institute, 2009)

² A *generic goal* “describes the characteristics that must be present to institutionalize the processes that implement a process area” and “the same goal statement applies to multiple process areas” (Software Engineering Institute, 2009)

³ A *generic practice* is “the description of an activity that is considered important in achieving the associated generic goal” and “the same practice applies to multiple process areas” (Software Engineering Institute, 2009)

⁴ A *specific goal (SG)* “describes the unique characteristics that must be present to satisfy the process area.”

⁵ A *specific practice (SP)* is “the description of an activity that is considered important in achieving the associated specific goal” (Software Engineering Institute, 2009)

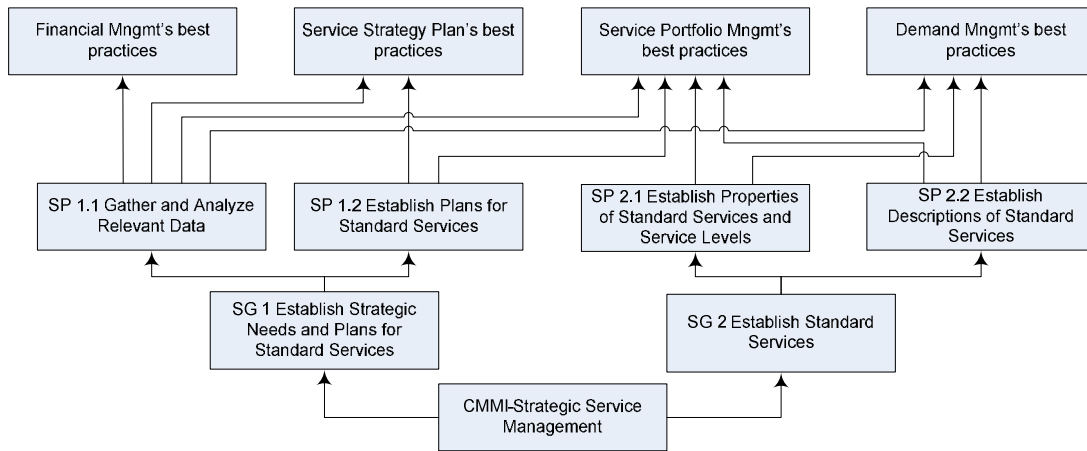


Figure 2. High-level relation between CMMI-Strategic Service Management and ITIL-Service Strategy used in this paper

METHODOLOGY

The design of the method for analyzing IT strategy in IT organizations of municipal governments was guided by design science concepts proposed by Hevner et al. (2004), since such framework includes required elements for this method such as the context/environmental characteristics and the use of existent literature.

To outline such elements for this work, a combination of (i) inductive logic (the construct or theory emerges from the data (Myers, 2009)) applied with qualitative methods - used to outline the environment (through interviews⁶) and test the method in real life (through case studies, (Yin, 1994))- and (ii) literature-based premises for defining a knowledge base. This is summarized in Figure 3 in terms of the framework proposed by Hevner et al. (2004).

The empirical data collected in the selected organizations was also useful to define characteristics of the instruments to be used and observe the availability and suitability of the organization to be studied. Such data was used to outline the characteristics of the IT organizations studied in this research⁷ (*environment* in Figure 3), which are: (i) the internal IT service providers that have (ii) cost effectiveness as a priority and (iii) tactical/operation oriented management. As part of their organizational culture, (iv) their business side has no special interest in an IT strategy and, consequently, (v) the IT value is hardly perceived, the customer's knowledge of IT is limited with priorities focused on cost effectiveness, and IT initiatives are promoted only by IT members; (vi) IT members are not familiar with best practices; there is a (vii) high changeover of IT decision-makers. Their (viii) processes are regulated by governmental laws, monitored by governmental entities and guided by institutional norms. Some assumptions based on these characteristics are: (a) strategy issues are not concerned with market competency (from i); (b) a practical approach is required, e.g. service management (from ii and iii); (c) practices about IT value may help IT organizations (from iv and v); (d) explanatory frameworks, e.g. ITIL, are needed (from vi); (e) good process documentation is useful to address high personnel changeover. Consideration of process maturity may contribute to this analysis (from vii).

The *knowledge base* (see Figure 3) supporting this work was already described in the literature review section. Both the environment and the knowledge base are used as input for the IS research.

Regarding the *IS research* (see Figure 3), this research work uses case study techniques in the designed method and therefore in its implementation to test the applicability of this proposal (Myers 2009). This paper considers the main characteristics of case study techniques suggested by Myers (2009) and Yin (1994): (i) use of empirical evidence from one or more organizations, (ii) study of the subject matter in context, and (iii) use of multiple evidence sources. Technique iii increases the

⁶ Interviews were conducted (with IT representatives) to collect data from the municipal government contexts; general information was collected such as: organizational chart, their IT services, centralization or decentralization of IT services, IT services they receive from other institutions, link of the IT services to the organizational goals of the municipal government, and type of relationship with other IT service providers.

⁷ Nicaragua has 153 municipalities with autonomous management but framed in the constitutional laws. Although these entities have shared management characteristics, their resource variability introduces differences.

validity and credibility of the results, although they may show divergences because not all participants are acquainted with the same information. Therefore, the method must provide an option to triangulate the results and remove divergences; this is considered in the method proposed.

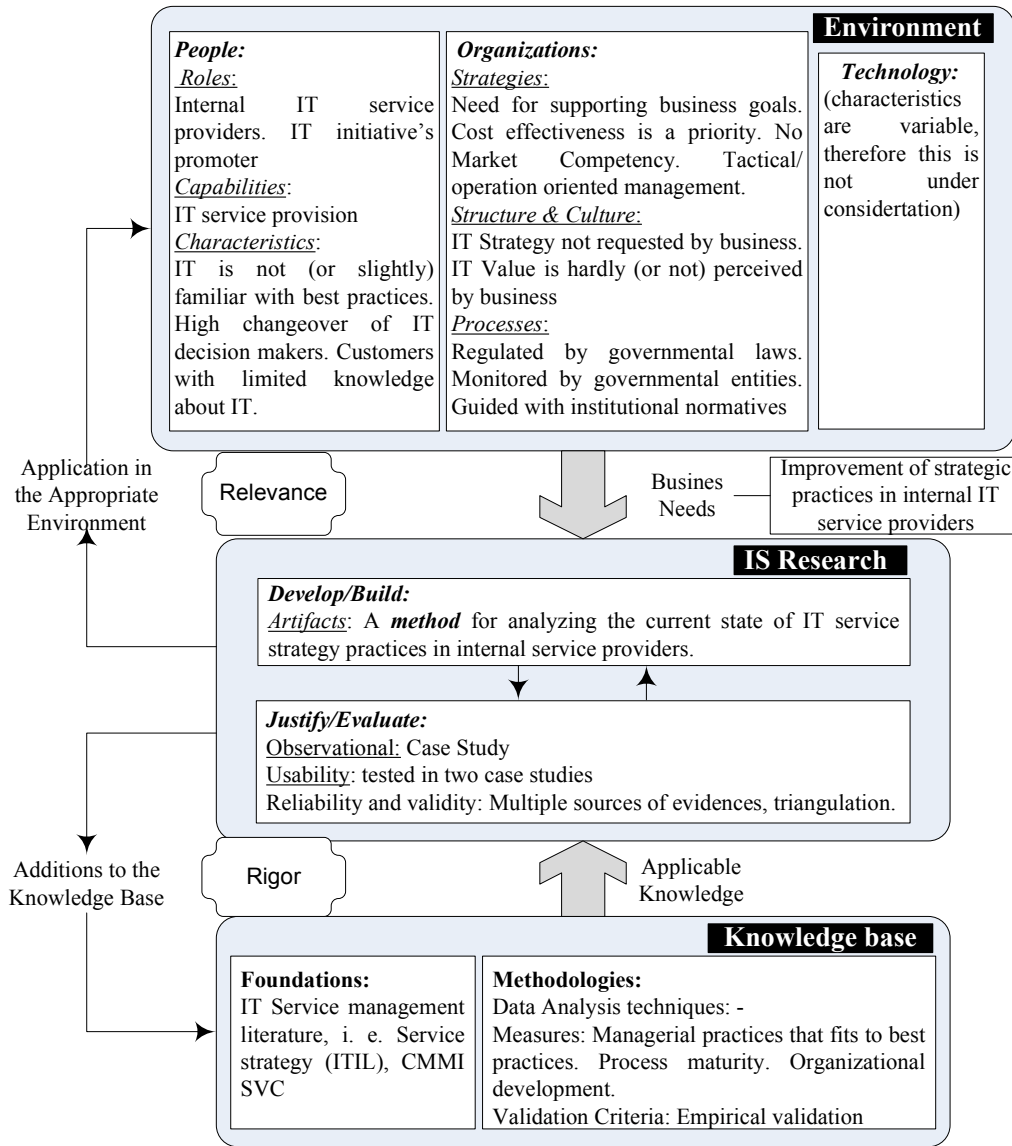


Figure 3. Characteristics of this research considering the IS research framework from Hevner et al. (2004)

For the analysis, the IT service strategy approach of ITIL and CMMI-SVC is used in a complementary way. The interest is to analyze strategic IT practices and not a whole complex process that is less likely to be found; as Hochstein et al. (2005-a) suggest, “the use of IT service management tends to be anchored in sub-areas of the IT organization.” Moreover, ITIL best practices are intended to be flexibly applied, so are used as a flexible framework of practices and plan to be studied. CMMI-SVC is originally intended to improve a structured process but in this case we understand improvement of ITIL practices from two different views: (a) increased number of best practices in use, and (b) increased maturity/capacity level of a practice, as defined in CMMI. The assumptions are included in the method detailed in the following section.

Method details (Guidelines)

With the previous considerations the method (Figure 4) described below was proposed:

1. Setting terms and conditions (between the organization under study and the researcher): This stage includes activities such as: (a) contact Business and IT representatives of the organization to explain the activities to be

developed; (b) sign secrecy agreements with the organization’s main representatives to protect organization's sensitive information; (c) plan the next activities for data collecting.

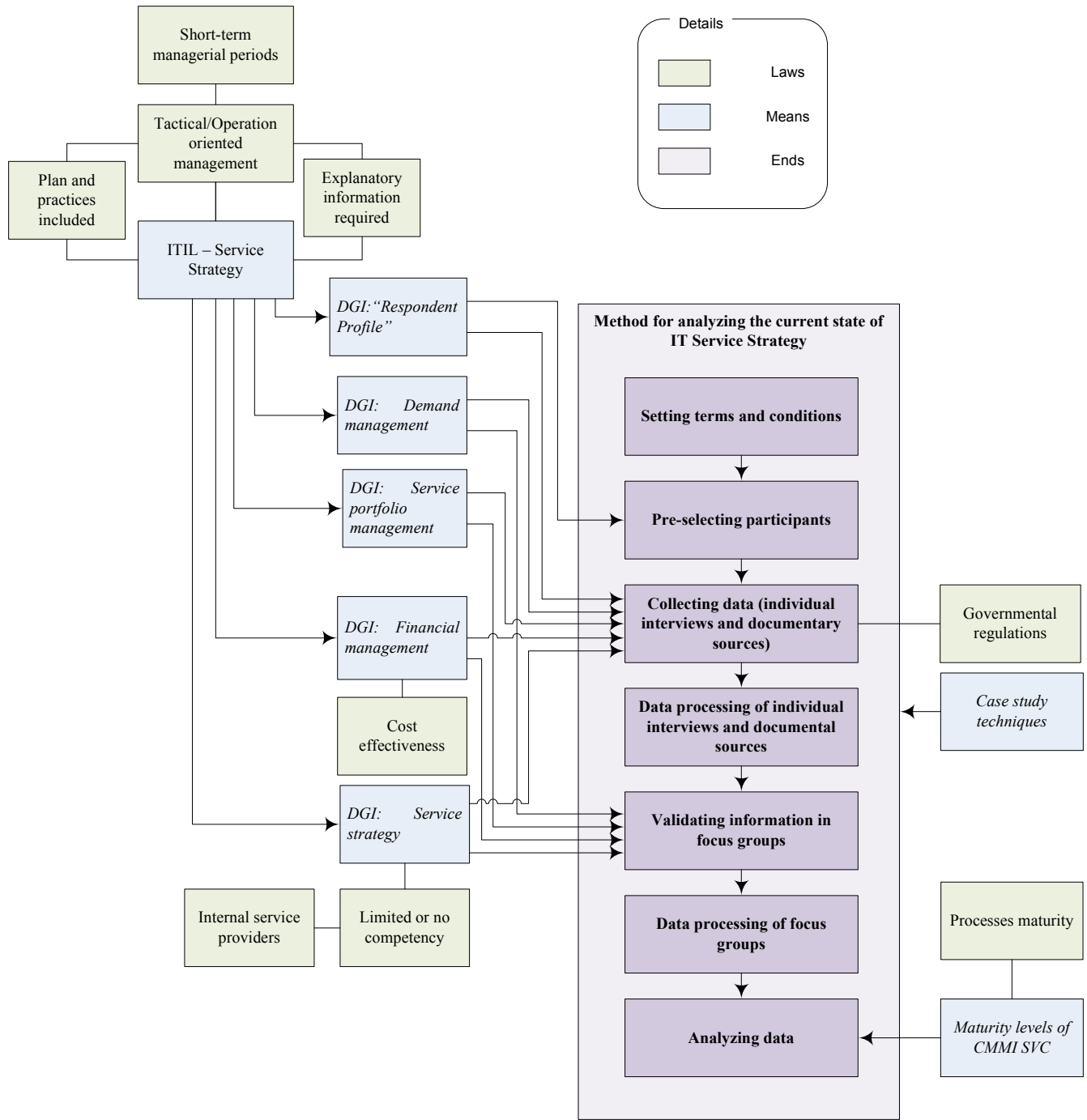


Figure 4. General overview of the method designed for analyzing current state of IT service strategy (Means: set of actions and resources available to construct a solution; Ends: goals and constraints on the solution; Laws: uncontrollable forces in the environment; DGI: Data Gathering Instrument)

2. Pre-selecting participants: Using the “Respondent Profile” Data Gathering Instrument⁸ (henceforward referred to as DGI), the interviewer must describe the roles of interest for the inquiry to an IT member knowledgeable about the IT personnel function (preferably top IT executive) and ask him/her for suggestions of respondents who fit the description (within and/or outside IT). The personnel suggested must be contacted to participate in the data-gathering process, which involves interviews, focus groups and document review.
3. Collecting data (individual interviews and documentation sources): Per selected respondent:
 - a. Ask if s/he recognizes his/her functions in one or more of the roles described in the “Respondent Profile” DGI.
 - b. According to the role(s) obtained in (3.a), the interviewer must select the corresponding questionnaire(s) to be used (“Service strategy” DGI, “Demand management” DGI, “service portfolio management” DGI, “Financial management” DGI).
 - c. Explain the corresponding topic(s) to the respondent to clarify terms and questions’ purpose. The introductory information in each DGI and the explanatory footnotes in the corresponding questions are useful for this.
 - d. Explain the confidentiality of the information provided and let the respondent know that a secrecy agreement was signed between the parties.
 - e. Conduct the interview recording the answers. The interviewer must collect information according to the requested type of answer in the DGI, i.e. (i) Seek closed answers (Yes, No, I don’t know). If the closed answer obtained for a question is “Yes” then: (1) Ask for explanatory data about why the respondent provided that answer; (2) Request documentation that might support the answer such as plans, policies, norms, reports, etc.
4. Data processing of individual interviews and documental sources: The data collected from interviews and documents must be processed as described below:
 - a. Transcribe the interviews.
 - b. Per element evaluated:
 - i. Separate the evidence obtained from interviews according to the answer they support, i.e. yes or no. Write the evidence in the corresponding category (see Table 1) without mentioning who provided the information; the evidence must be written in an impartial way to avoid easy association with the information provider.

<i>[Element evaluated]</i>	
Yes	No
1. <i>[Evidence obtained from respondent A]</i>	2. <i>[Evidence obtained from respondent B]</i>
	3. <i>[Evidence obtained from respondent C]</i>

Table 1. Example of format to present results of individual interviews and document review

At the end of this stage, divergent answers from different sources, if any, are clearly observable and must be considered in planning the next steps.

5. Validating information in focus groups: The number of sessions for this activity depends on the spread of the previous results, since larger divergences require more effort and time for clarifying the results; this is a decision to be made between the parties. The following activities must be executed:

⁸ “Respondent Profile” Data Gathering Instrument: This document contains a set of defined profiles to consider for the data collection, i.e. (i) A Strategy DGI profile (addressed to decision-makers in the municipal government IT field under study, within or outside the IT organization), (ii) A Service portfolio management DGI profile (addressed to decision-makers in the IT field explicitly regarding new IT services/projects or new initiatives, services changes and the like, e.g. IT manager, steering committee), (iii) A Demand management DGI profile (addressed to IT personnel who interact directly with customers, as well as key IT customers), (iv) A Financial management DGI profile (addressed to personnel involved in financial activities related to IT; it includes IT organization personnel as well as other business units personnel who might be specialized in financial issues related to IT).

- a. The focus groups are for the whole set of respondents who responded about the same topic. But all respondents may not be available at the same time, so the activity must be organized with the largest number of respondents possible.
 - b. The set of evidence obtained in 4.b is supplied to each participant.
 - c. For each element evaluated in the supplied document: (i) Explain the element and present the evidence obtained. Neither the identity of the person(s) who provided evidence nor the number of persons who agreed with such evidence must be revealed. (ii) To start a reasoning session the respondents must be asked their opinion of the answers and the divergences on them. (iii) The session must be guided to find consensus by the participants on a specific answer (yes/no) per element. The consensus is the criterion for establishing the existence or not of an element. (iv) The focus group participants must confirm any documental sources that support the answer.
6. Data processing of Focus groups: The focus group results must be processed as explained below:
- a. Specific answers (Yes/No) must be registered in a matrix that associates the element evaluated and the final answer obtained.
 - b. Detailed information is used to categorize the specific answers in the generated matrix (6.a) according to the type of practices in the organization. The category options are described below: (i) Implicit Practice (there is no document supporting this practice but the personnel are aware of it). (ii) Institutionalized but still not implemented practice (a document establishes this practice as mandatory but it is not yet implemented). (iii) Institutionalized practice currently in practice (a document establishes this practice and it is currently in effect)
7. Analyzing Data: Using the information processed in 6, the current state of service strategy may be analyzed from two perspectives:
- a. Percentage of best practices currently in use: Calculate the percentage of best practices in use per component: (i) the percentage of best practices formally in use and (ii) the percentage of best practices implicitly in use component.
 - b. Level of formalization (maturity) of the processes: The data collected on each IT service strategy's practice (shown in Figure 1) must be judged according to the following statements by the respondents: (i), if the process exists in the organization but is not formalized yet, the state is *performed*; (ii) if the process exists and is formalized (documentary reports show its existence for a specific project/service area), the state is *managed*; (iii) if the process exists and is formalized in organizational documents (organizational norms such as organizational functions and procedures manuals), the state is *defined*; and (iv) if the process exists and is formalized in organizational documents (see iii), its performance is quantitatively measured and some corrective actions are taken in specific cases, the state is *quantitatively managed*; (v) if the process exists and is formalized in organizational documents (see iii), the performance of this process is quantitatively measured and corrective actions are taken for problems with common causes, the state is *optimized*; (vi) otherwise the state is *incomplete*.

METHOD TESTING

To test and improve the designed method two cases studies were executed to collect empirical data and observe their applicability in a real context.

Generalities about Case A:

This IT organization provides services to a medium-sized (i.e. category B⁹) municipal government in Nicaragua. According to its manager, this IT organization provides services such as technical support, development of information systems and web site maintenance; its principal focus is technical support. It works as a centralized unit providing services within the municipal government and outside (citizen's training).

⁹ Category B: Considering the incomes of the municipalities, this category is the second highest position regarding their resources.

Generalities about Case B:

This IT organization provides services to the largest municipal government in Nicaragua, i.e. category A¹⁰. According to its IT general manager, this IT organization provides services such as technical services, informatics services and design and/or improvement of the methods and organizational structure of the whole institution. It works as a centralized unit providing services within the municipal government. It has a steering committee with the IT organization managers.

Execution of the method (Case A and B)

1. Setting terms and conditions: In both cases (A and B) a secrecy agreement was signed to protect sensitive municipal government information. This agreement was prepared by the researcher and supervised by the legal department of each municipal government.
2. Pre-selecting participants: Using the “Respondent Profile” DGI, the IT manager in each case was asked to define a set of participants. The pre-selected participants are shown in Table 2:

Topic	Pre-selected respondents (Case A)	Pre-selected respondents (Case B)
Service Strategy	IT manager	IT general manager, technical support manager, informatics manager, organization and methods manager
Demand Management	Technical support personnel (2 persons)	Technical support manager, analysts, technical support personnel.
Service Portfolio Management	IT head, municipal mayor, general municipal government secretary ¹¹	Manager of any user area, IT general manager, general municipal government secretary
Financial Management	IT head, municipal government financial manager.	IT administrative manager, business planning manager

Table 2. Pre-selected respondents in Case A and B

3. Collecting data (individual interviews and documental sources): In both, individual interviews were executed using the data-gathering instruments. Each respondent was asked to identify himself/herself within a category of the “Respondent Profile” DGI, and the results had some divergences (Table 3) from what was obtained in Table 2. The respondents were individually interviewed and their answers recorded. Personnel availability was an issue on this point, in case B the general secretary could not participate.

Topic	Respondents (Case A)	Respondents (Case B)
Service Strategy	IT head, municipal mayor, general municipal government secretary	IT general manager, technical services manager, informatics manager, organization and methods manager
Demand Management	Technical support personnel (2 persons)	Technical services manager, informatics manager, organization and methods manager, head of technical support, head of systems maintenance.
Service Portfolio Management	IT head, municipal mayor, general municipal government secretary	IT general manager, technical services manager, informatics manager, organization and methods manager, head of technical support, head of systems maintenance.
Financial Management	IT head, municipal government financial manager, head of accounting.	IT general manager, IT administrative manager, business planning manager, technical services manager, organization and methods manager.

Table 3: Respondents Case A and B

4. Data processing of individual interviews and documental sources: The interviews were transcribed and classified according to the guidelines. Case A had many more divergences than case B, given that the organization of Case A had not formalized most of its practices and norms, so if different persons were asked about a topic they frequently

¹⁰ Category A: Considering the municipal government incomes, this category is the highest position regarding their incomes.

¹¹ The general secretary is a leading position in a Nicaraguan municipal government.

had different perceptions. The transcription was done avoiding content that would associate the answer to the respondent.

- Validating information in focus groups: In Case B, the focus groups were executed in two meetings since several topics had common respondents and one of the topics had quite convergent results. The first meeting covered service strategy, demand management and service portfolio management; the second meeting covered financial management. The meetings were executed as planned, with a moderator and the group of respondents. The impersonality of the evidence helped protect the respondents, mainly when the evidence was not positive for the organization. However, the moderator had to know the details of the answers in depth and who provided them to guide the exercise properly when the participants were not eager to defend their point of view; the moderator tried to explain the viewpoint of the original respondent to let other participants understand and let the original respondent argue in favor with less probability of being associated to the answer. Consensus was reached in the topics under study with few difficulties.
- Data processing of Focus groups: The focus groups provided the data considered valid for this exercise. Results were then prepared as the guidelines suggest for further use in analysis.
- Analyzing Data: The processed data was used to show service strategy in the two perspectives of interest, Figure 5 summarizes the most relevant data about Case B; for instance, the results illustrate the situation of the IT organization, which is currently improving practices it has used for several years; such improvement is in the sense of the maturity level, it is concerned with optimizing, documenting and improving its processes, and also starting some new activities.

Id	Topic under study	Incomplete	Performed	Managed	Defined	Quantitatively managed	Optimized
1	IT Service portfolio existence	✓	✗	✗	✗	✗	✗
2	Inventory of IT services	✗	✓	✗	✗	✗	✗
3	Ensure business cases	✗	✓	✓	✗	✗	✗
4	Validate portfolio data	✗	✓	✓	✗	✗	✗
5	Analysis for maximization of portfolio value	✗	✓	✓	✗	✗	✗
6	Analysis for alignment and prioritization of IT services	✗	✓	✓	✗	✗	✗
7	Analysis for balancing of supply and demand	✗	✓	✗	✗	✗	✗
8	Procedure for approval of service portfolio	✗	✓	✗	✗	✗	✗
9	Procedure for authorization of services and resources to be used	✗	✓	✗	✗	✗	✗
10	Communicate charter decisions	✗	✗	✓	✗	✗	✗
11	Allocate resources and charter services	✓	✗	✗	✗	✗	✗
Total		18.18%	72.72%	45.45%	0.00%	0.00%	0.00%
Service Portfolio Management							

Id.	Type of practices	Topic under study	Incomplete	Performed	Managed	Defined	Quantitatively managed	Optimized
1	Based on activities	Service request reception	✗	✓	✓	✗	✗	✗
2		Service incidents reception	✗	✓	✓	✗	✗	
3		Schedule and capacity plan elaboration	✗	✓	✗	✗	✗	
4	Based on business patterns and users profiles	Business Patterns Activity (BPA) codifying	✓	✗	✗	✗	✗	
5		Users profiles linked with BPA	✗	✓	✗	✗	✗	
6	Based on packages of services	Service Levels Packages (SLP)	✗	✓	✗	✗	✗	
8		Users profiles linked with SLP	✗	✓	✗	✗	✗	
Total			25%	75.00%	25.00%	0.00%	0.00%	0.00%
Demand Management								

Id.	Topic under study	Incomplete	Performed	Managed	Defined	Quantitatively managed	Optimized
1	Elemental value of the provided services	✗	✓	✗	✗	✗	✗
2	Potential value of the provided services	✓	✗	✗	✗	✗	✗
3	Use of demand models to identify financial requirements of the services	✓	✗	✗	✗	✗	✗
4	Decision making process about services in the portfolio considering the cost structure	✗	✓	✗	✗	✗	✗
5	IT Budgeting	✗	✗	✗	✓	✗	✗
6	Improvement of IT services provided	✗	✗	✗	✓	✗	✗
7	Confidence	✓	✗	✗	✗	✗	✗
8	Service investment analysis	✗	✓	✗	✗	✗	✗
9	Accountability	✗	✗	✗	✗	✓	✗
10	Fulfillment	✗	✗	✗	✗	✗	✗
11	Variable Cost Dynamics	✓	✗	✗	✗	✗	✗
12	Cost of IT Services	✓	✗	✗	✗	✗	✗
Total		41.66%	25.00%	0.00%	16.66%	16.66%	0.00%
Financial Management							

Id	Topic under study	Incomplete	Performed	Managed	Defined	Quantitatively managed	Optimized
1	IT Service Provider's perspective	✗	✗	✓	✗	✗	✗
2	IT Service Provider's position	✗	✓	✓	✗	✗	✗
3	IT Service Provider's plans	✗	✗	✓	✗	✗	✗
4	Patterns visibility	✓	✗	✗	✗	✗	✗
5	Utility of IT services into the IT service strategy	✗	✗	✓	✗	✗	✗
6	Warranty of IT services into the IT service strategy	✗	✗	✓	✗	✗	✗
7	IT Services assets included in the planning done	✗	✗	✓	✗	✗	✗
8	Procedures to select (external) IT service providers	✗	✗	✓	✗	✗	✗
Total		12.5%	12.5%	87.5%	0.00%	0.00%	0.00%
IT Service Strategy							

Figure 5. General overview of results in Case B

The concrete results in the tables of Figure 5 show a high percentage of best practices related to Service Portfolio Management (in "performed" and "managed" maturity levels), which is an important element to the formal IT service strategy and was consistent with its vision of starting from practical activities until gradually increasing its maturity and its practices in use. Demand Management was also observed as a process undergoing continual improvement and a high percentage of its practices are in "performed" level and some in "managed" level. IT Service strategy has several elements in a "managed" level; although such an initiative is recent, it is consistent with the organization's improvement efforts. Financial management was the least mature process and most of the practices are in the "incomplete" level. All information obtained, together with the explanatory information of the

best practices prepared in the instruments used in this research work, is useful to have a better view of future improvements.

LIMITATIONS

This paper does not consider all municipal governments as homogeneous entities in their multiple perspectives, therefore the applicability of this proposal to other municipal governments or IT organizations must be appraised according to the characteristics described in this paper.

CONCLUSION

The paper presents a method for analyzing IT service strategy (from the perspective of current practices and maturity of the processes) and the execution of two case studies to test the method in a real context (IT service providers in municipal governments of Nicaragua). The method suggests elements for improving IT strategic practices, mainly (but not exclusively) designed to consider those cases where the existence of a formal IT strategy has low probabilities of being accountable. The application of such a method provides information about the current state of the IT service strategy practices to let IT decision-makers make informed decisions about improvements needed according to their context, i.e. maturity improvement of specific practices and increase in the best practices in use (to decide if current IT service strategic practices should be strengthened or the number of best practices in use should be increased). The case studies were useful to test both the applicability of the method and the suitability of the selected frameworks and techniques. Although an IT service strategy is not a success warranty, the existence of such strategy or supplementary strategic practices would indicate the starting point for further improvements.

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