Abstract. Today the small and medium enterprises (SMEs) main objectives, just like those of large organizations, are directed towards increasing sales or minimizing cost. Thus, it is necessary to improve processes and service levels from all areas. The environment of the information technologies (IT) for SMEs is not as complex as that for large international organizations. Nonetheless, IT management is still a dynamic challenge. Additionally, it is ever more relevant to align the IT function with business requirements. To achieve this alignment, organizations need be prepared to change from an operational model (oriented to activities) to a service model (oriented to services). We introduce an alternative to offer solutions from the Information Technology Infrastructure Library (ITIL) framework to SMEs, and quality services according to the best practices of the information technology management. A methodology was developed, and then applied to a medium manufacturing company.

Keywords: ITIL, Small and Medium Enterprises, Service-Oriented Architecture (SOA)

1 ITIL FOR small and medium enterprises

Being a flexible model ITIL is adaptable to SMEs, It just needs to have distinct, specific and attainable objectives. It must be done by stages and it should clearly define the deliverables for each stage. Currently, the implementation of ITIL in big organizations its difficult and expensive. However, being ITIL a flexible reference, it allows us the opportunity to make and choose solutions for SMEs that foster the provision of quality IT services.
Initially, generic business needs were identified, as well as their relationship to SMEs, and the level of granularity applicable. The company used to test the model adaptation is a manufacturing business, with 7 people working in the IT function. These people receive plenty of users’ requests, but they do not have an efficient way to control requirements. They are working oriented to activities instead of services.

2 Case Solution

There are several stages in which this case was analyzed:

2.1 Initial Process

Based on the mandates of best practices, it is important to determine what was applicable to SMEs, so the following was done:
- Get to know your clients. Investigate what they do and their activities, their market, their customers, and their competition.
- Make a presentation. The ITIL framework was explained clearly, and with specific examples that could be understood clearly. This presentation included the benefits that customer may obtain with the implementation of best practices.
- Unify terminologies. A recommendation is to create a glossary so that the company members may become familiar with the most common terms of ITIL.
- Make meetings to involve all the team.

This process is really important to SMEs, so it could help understand the reference model and the reach, according to each organization.

2.2 Objectives

Once the client is known, general and specific objectives may be established.

2.2.1 General Objective

Define, according to a real case, a solution based on ITIL for SMEs. This should include the determination of the implementation methodology process to analyze the business and IT alignment, and a solution to control the service support and the service delivery areas.

2.2.2 Specific Objectives.

- To make an analysis of the IT and the business processes.
- To align the IT processes with the business processes.
- To align the IT processes with the best practices.
- To generate a web application prototype to provide a solution of Service Support and Service Delivery.

A diagnostic instrument was created to determine the efficacy of IT services management in the organization. The first part of the instrument refers to IT and business alignment.
2.3 Business alignment – IT and business analysis

- Identify the critical business processes. Identify with the business responsible and the IT area the most important processes to the company.
- Plan the analysis of IT process. Determine the work plan and the project activities according to the IT area.
- Business objectives vs. IT objectives. Make business objectives list and the IT objectives list, and then evaluate the IT objectives impact on the business objectives. This is important to assure that the IT objectives support the business requirements.
- SWOT analysis. It is important to identify the internal and external strengths and weaknesses. For small businesses, it is necessary to know the complete business environment to be more competitive.
- SWOT alignment with the objectives. When we align the SWOT with the objective we can identify the impact of the weaknesses or the strengths. This helps to define the right strategy to minimize the negative impact.
- IT areas. This list allows us to identify IT areas and the people responsible for them.
- IT services. This list allows the organization to identify the real services of the IT area, so that an IT planning oriented to services can be undertaken.
- IT Strategies. At this point, it is necessary this map strategies with the current and future projects.
- Organizational IT Structure. Make an organizational chart to identify resources, activities, positions and functions.

2.4 Assessment

To make an assessment we made a revision of each ITIL book and the OCG questionnaires. Based on this, questionnaires tailored to the SMEs necessities were created. Classifications and weights for questions were carefully considered to provide an appropriate assessment for the organization.

The areas under consideration are (1) Service Support, (2) Service Delivery, and (3) Infrastructure.

The following issues were considered in the questionnaire:
- The existence of the processes in the ITIL definition. The existence of the activities in the organization vs. the ITIL definition must be assessed.
- Maturity level. It is important to define the maturity level of each activity to allow the correct strategy definition for future improvement of services to the next level.
- Metrics existence. Every activity must have been evaluated. For this reason, metrics should be in place.
- Process owner. It is necessary to define if the process has a well defined process owner. With this evaluation one may know which processes are performed, and which activities must be assigned someone to be responsible for.
- Observation. During the process it is important to make some notes related to the most recent issues or important activities that affect the process. These notes will be a great aid for the final evaluation.
2.5 Evaluation

The next step is creating a formal document with the results of the assessments. This evaluation is comprised by: Result framework. In this framework we consolidate the results of the customers and a general overview or blueprint of the assessment may be appreciated. It includes the total score of the evaluation, and the status of each activity, the weight assigned by the customer and the result. A Service Support example is shown in figure 1.

<table>
<thead>
<tr>
<th>Level</th>
<th>Activity</th>
<th>Status</th>
<th>Wt</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 - Pre-requisites</td>
<td>PASS</td>
<td>15</td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>Level 1.5 - Management Intent</td>
<td>FAIL</td>
<td>15</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Level 2 - Process Capability</td>
<td>FAIL</td>
<td>15</td>
<td>20.00</td>
<td></td>
</tr>
<tr>
<td>Level 2.5 - Internal Integration</td>
<td>PASS</td>
<td>10</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>Level 3 - Products</td>
<td>PASS</td>
<td>15</td>
<td>35.00</td>
<td></td>
</tr>
<tr>
<td>Level 3.5 - Quality Control</td>
<td>FAIL</td>
<td>5</td>
<td>25.00</td>
<td></td>
</tr>
<tr>
<td>Level 4 - Management Information</td>
<td>FAIL</td>
<td>10</td>
<td>19.00</td>
<td></td>
</tr>
<tr>
<td>Level 4.5 - External Integration</td>
<td>FAIL</td>
<td>10</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>Level 5 - Customer Interface</td>
<td>FAIL</td>
<td>5</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

A Gap analysis graph is also included. This graph shows the area that covers the IT department, as shown in figure 2.

Figure 2. Gap Analysis.

The priorities graph shows the result of the current activities vs. the customer priorities for each area. This graph is shown in figure 3 below.

Figure 3. Priorities Graph.
A gap analysis is required to describe the results and the description between the current status vs. desirable status. Additionally, a document with the findings, conclusions and recommendations of the project is included.

3 Current status

According to the results of the assessments and the ITIL processes, the activities to align a SME with the ITIL framework are:

• Align the business objectives with the ITIL process. It is necessary to know which business objectives are related to the ITIL processes.
• Define the function and responsibilities according to the best practices.
• Align the business services with the IT Services.
• Define the logic design of the ITIL implementation for a SME. Including the mission, objectives, scope, processes, policies, reports, and metrics.

4 Next steps

According to the assessments for this project, the most important ITIL processes to implement are: Service level management, Service Desk, Incident Management, Release Management, Configuration Management and Change Management.

To manage these services, we are proposing a Web application for SMEs. This application could be access via internet in an easy and friendly environment. This application is under development at the moment.

5 Concluding Remarks

Small and medium enterprises have very strong needs for appropriate IT services management. This is especially true when we consider the fact that these companies are very vulnerable to market changes and stiff competition. This is exacerbated by the lack of resources and financial stability inherent to this type of organizations. The potential of IT to promote productivity and competitiveness is enormous. Nevertheless, appropriate IT strategy alignment to business objectives is rarely seen in SMEs, given the common family-oriented management of such organizations.

IT management models and applications are generally created to fulfill the needs of large international corporations. As a result, such models tend to be excessively complex for SMEs’ needs. This work attempts at providing SMEs with a flexible model. This should give the basis for a solid and simple management framework that allows SMEs a suitable IT management, aligned to business objectives, and with appropriate controls for requirements, and service delivery. This model needs to eliminate unnecessary levels of granularity and detail in the original ITIL framework, and focus only on what’s relevant to add value in an environment for SMEs.
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