

# Implementation of ITIL in a Moroccan company: the case of incident management process

Said Sebaoui<sup>1</sup>, Mohamed Lamrini<sup>2</sup>

<sup>1</sup> Quality Statistic Computing Laboratory, Faculty of Science Dhar el Mahraz,  
Fes, P.O. box 1796 Atlas, 30000, Morocco

<sup>2</sup> Quality Statistic Computing Laboratory, Faculty of Science Dhar el Mahraz,  
Fes, P.O. box 1796 Atlas, 30000, Morocco

## Abstract

IT<sup>1</sup> departments were viewed as a cost center and not as an entity in the service of strategy. But this has changed in recent years because of market competitiveness and also due to the fact that the adoption of a management approach focused on the customer and driven by IT is no longer a luxury but a real necessity. This gave rise to several approaches that recommend best practices for improving IT service quality, including the ITIL framework. This paper proposes a method of implementing the ITIL approach with a practical implementation of the Incident Management process in a Moroccan firm.

**Keywords:** *ITIL, IT services, IT service quality, incident management.*

## 1. Introduction

Until recently, IT departments were viewed as a cost center and not as an entity in the service of strategy. But the situation has changed dramatically in recent years. According to Gartner, "... more and more companies are abandoning vision of service-centric IT costs as they become aware of its power to transform business processes [15].

It seems more appropriate to adopt a vision of IT efficiency closer to the concepts of quality of service rendered to the client instead of considering only the standpoint of cost of equipment and resources [1].

This phenomenon owes much to the increased competitiveness of the market and the idea that adopting a management approach focused on the customer and driven by IT is no longer a luxury but a real necessity. The company now expects the IT department to function as a commercial entity and this brings new challenges: improving performance, reducing operating costs, introduction of effective organizational change (addition

of new processes and new technologies), all of which will help the IT department succeed in his new role and demonstrate its impact on business operations.

This type of problem and these recurrent issues have aroused various reactions among computer professionals, but also the quality specialists or organization. To solve problems related to efficiency and response to customer needs what better response than the use of best practices? [1].

ITIL (Information Technology Infrastructure Library) provides a framework of best practice guidance for IT service management and since its creation, ITIL has grown to become the most widely accepted approach to IT service management in the world [2].

Basing IT processes on ITIL guidelines, companies can effectively manage assets, staffing, changes and IT service levels, and thereby transcend the simple asset management and help desk for proactive improvement of IT activities. A good implementation can reduce the occurrence of IT failures, improve service levels and customer satisfaction, and reduce both fixed and variable costs. It allows IT service to gain credibility, improve performance, reduce cost and maximize efficiency in the company by a more productive use of information system.

## 2. Overview of ITIL

ITIL (Information Technology Infrastructure Library) is the result of years of experience and reflection on the problems posed by information technology. ITIL is a framework of best practices for IT service delivery; this framework helps companies achieve their goals of quality and cost control [3]. ITIL was developed in the late 1980s by the CCTA<sup>2</sup> at the request of the British government, which sought to increase the quality of the provision of its

---

<sup>1</sup> Information technology

---

<sup>2</sup> Central Computer and Telecommunications Agency, now called OGC, Office of Government Commerce

information systems and wanted to have a coherent framework for contracting and evaluation to outsource operations [4].

The initial version of ITIL consisted of a library of 31 associated books covering all aspects of IT service provision. This initial version was then revised and replaced by seven, more closely connected and consistent books (ITIL V2) consolidated within an overall framework. This second version became universally accepted and is now used in many countries by thousands of organizations as the basis for effective IT service provision. In 2007, ITIL V2 was superseded by an enhanced and consolidated in third version of ITIL, consisting of five core books covering the service lifecycle, together with the Official Introduction [2].

The main new features of version 3 of ITIL are [5]:

- Introduction of the concept lifecycle of the services management, with a focus on service quality IT and services IT "end to end."
- Organization service oriented so that the efforts go towards the customer and the user, rather than towards the technology.
- Awareness by project managers of the importance of ITIL.
- Refocusing very strong around the company's business, source of profit and differentiation.

The five core books cover each stage of the service lifecycle (Figure 1), from the initial definition and analysis of business requirements in service strategy and service design, through migration into the live environment within service transition, to live operation and improvement within service operation and continual service improvement.



Fig. 1 the service lifecycle.

underpinning the practice of service management those are useful for developing service management policies, guidelines and processes across the ITIL service lifecycle [6].

- Service design: provides guidance for the design and development of services and service management processes. It covers design principles and methods for converting strategic objectives into portfolios of services and service assets. The scope of service design is not limited to new services. It includes the changes and improvements necessary to increase or maintain value to customers over the lifecycle of services, the continuity of services, achievement of service levels and conformance to standards and regulations. It guides organizations on how to develop design capabilities for service management [7].
- Service transition: provides guidance for the development and improvement of capabilities for transitioning new and changed services into operations. It's a set of guidance on how the requirements of service strategy encoded in service design are effectively realized in service operations while controlling the risks of failure and disruption. It provides guidance on managing the complexity related to changes to services and service management processes, preventing undesired consequences while allowing for innovation [8].
- Service operation: 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. Guidance is provided on how to maintain stability in service operations, allowing for changes in design, scale, scope and service levels. Organizations are provided with detailed process guidelines, methods and tools for use in two major control perspectives: reactive and proactive [9].
- Continual service improvement: provides instrumental guidance in creating and maintaining value for customers through design, better introduction and operation of services. It combines principles, practices and methods from quality management, change management and capability improvement. Organizations learn to realize incremental and large-scale improvements in service quality, operational efficiency and business continuity [10].

- Service strategy: provides guidance on how to design, develop, and implement service management not only as an organizational capability but also as a strategic asset. Guidance is provided on the principles

### 3. Method proposed for the implementation of the ITIL

Companies are increasingly dependent on IT services to achieve their business goals. This has led them to search for best practices for improving IT services. As part of this work, we propose a method of implementation of the ITIL approach with a practical implementation of the incident Management process in a Moroccan company. This approach is based on a set of previous work aimed at improving the processes (Table 1) and on our experience as a consultant in organization and process in a consulting firm that assists companies in the process of improving the quality of IT service.

Table 1: Process Improvement by the authors

Author	Initialize the project	Assess the current situation	Define the process	Implement tools	Implement process	Assess and evolve
[14]	Business Objective High Level	Analysis of the Processes Gap	- Process Design -Application design		Implementation	
[13]	Workshop on Process	Gap Analysis	Design of project plan	Implementation and measurement	Implementation and measurement	Establishment of the processes governance
[11]	initializing	initializing	Development	Implementation	Operation and maintenance	
[12]	initializing	Evaluation	Planning	Implementation	Operation	Review Sustainability

- The first line of table 1 gives the steps of the proposed approach;

- The other lines give the steps by each author. The proposed method is divided into a series of phases, each phase contains a set of activities to implement and require a number of deliverables. The different steps of the method are:

#### 3.1 Initialize the Project

- Identify areas for improvement and processes to improve: document defining the IT service to improve and the goals to be achieved.
- Define the project: a document giving a description of the project phases (works and resources).
- Obtain direction commitment: presentation the project to the direction and the benefits to be gained for the company.
- Stakeholders awareness: represent the interests of the process and ensure training of stakeholders on the ITIL process.

#### 3.2 Assess the current situation

- Conduct an inventory: a document giving a vision of IT department society (documentation, application, infrastructure, organization, and interfaces with other departments).
- Establish the findings and analysis: a document that outlines the findings and analysis of the current situation.
- Position the current practices of IT department compared to ITIL best practices: a document outlining areas for improvement.

#### 3.3 Define the process

- Design and document the process: define the process activities, procedures, actors and responsibilities.
- Document the new roles and responsibilities: to establish the new organization chart of the new organization.
- Define the action plan for implementation of the process: action plan approved.
- Define the communication plan: a document describing the communication tools to put in place to ensure the implementation process.

#### 3.4 Implement tools

- Implement tools to manage the process: install the platform and tools.
- Set up and prepare documentation process management tools: setup guide, user's Manual.
- User training on process management tools.

### 3.5. Implement process

- Implementation of the communication plan: execute communication activities of the process launch.
- Launch the new process into practice: procedures.
- Start reports and reviews.
- Measure progress.

### 3.6. Assess and Evolve

- Conduct an audit six months after starting.
- Define improvement actions.
- Prepare the next step, to enter a cycle of improvement.

## 4. Implementation of the ITIL in a Moroccan company: the case of incident management process aim

The company (our case study) is a large company with a workforce of 500 employees organized in the form of a head office and 8 sites in 8 cities.

The aim of this project is the implementation of incident management process based on ITIL and the establishment of a tool for incident management and supervision of the network infrastructure.

### 4.1 Initialize the Project

The objective of this phase is to define the project boundary. It takes place in the following steps:

- Presentation of the different phases of the project to the IT department;
- Presentation of the approach to the direction of the company and the benefits to be derived for the enterprise;
- Awareness and training the IT department on the ITIL processes.

### 4.2 Assess the current situation

#### 4.2.1 Inventory

For the company after an initial phase, where the mission of IT department was to implement applications which support business activity, deploy the network and secure it, now she wants to organize the IT team to better meet the expectations of its internal customers and establish a management by the processes.

In this context, the aim of the inventory is to:

- Visit technical facilities, conclude interviews with employees of IT department and 3 staff from other departments;

- Review the applicable documentation;
- Take into account the special constraints of the business, the trades and interfaces with other departments;
- Inventory of applications in production.

#### Interviews of employees:

This phase consist, firstly to take a tour of technical facilities to get an idea about the organization of facilities adopted by the IT department to manage enterprise infrastructure.

Secondly, to meet the staff of the IT department and 3 employees in other departments. The objective is to analyze the practices of IT department, list the equipment used and have an idea of users satisfaction in other departments.

To accomplish this mission, two questionnaires were based on the type of interlocutor. The first questionnaire's aim is to detect the level of users satisfaction (figure 2).

The second questionnaire used to define the practices of the IT department, it consists of two parts (figure 3 and figure 4).

What is your level of satisfaction on:

	Very satisfied	satisfied	Somewhat satisfied	Not at all satisfied
Information on IT strategy used by your company				
Communication you receive from your IT department				
The information you receive on the software you use				
The quality reception of the help desk				
Listening to and understanding of your request				
Consideration of your emergency				
The information on the status of your request				
The quality of the solution				
Resolution time				
The quality of the intervention				
The adequacy of material in relation to your use				
The adequacy of software in relation to your use				
Speed of access to the internal network of your company				
The quality and functionality of your intranet				

Figure 2: Questionnaire1 (for others departments)

-How many are there of employees in IT department ?	<input type="text"/>
-How many people in the IT department are in charge of IT research and development?	<input type="text"/>
-How many people in the IT department are responsible for incidents treatment?	<input type="text"/>
- Are you able to assess the impact of each incident on the service?	<input type="radio"/> Yes <input type="radio"/> No
- If not, how do you prioritize the resolution?	<input type="text"/>
- And if so, is there a way to prioritize the resolution?	<input type="radio"/> Yes <input type="radio"/> No

Figure 3: Questionnaire2-part1 (for IT department)

-Solutions to these incidents are recorded to serve?  Yes  No

-If yes, where and who has access? .....

-What type of incidents treat you?  Equipment  Phones  Office  Network  
 Business applications  Others , specify.....

-How long is the processing of incidents?  Urgent:.....  Major:.....  Minor:.....

-Other departments can they directly involve IT providers?  Yes  No

-How many incidents you treat an average monthly in the IT department? .....

-And what percentage of each type?  
 Equipment:.....  Phones :.....  
 Office:.....  Network:.....  
 Business applications:.....  Others :.....

-The users have a single point of contact for calls to help desk?  Yes  No

Figure 4: Questionnaire2-part2 (for IT department)

**Documentary analysis**

All documents which were the subject of a study and analysis are:

- The organization chart of the company which helps to know the various components of the company and the position of the IT department in the business organization;
- The organization chart of the IT department;
- The change management process;
- The backup management process;
- The form request of change;
- Jobs descriptions of staff IT department.

**4.2.2 Findings and Analyses**

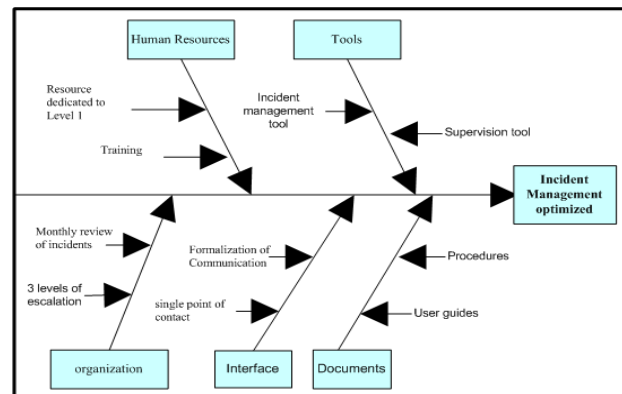
- Whether a request for assistance, a hardware problem, office automation, messaging, network or application, the technician assesses the impact of the incident, diagnoses, treats or redirects the incident to the employee able to handle it. But no solution is noted for being able to capitalize.
- For unresolved incidents, two scenarios are possible: either they are being processed or that the claim is lost and the user receives no feedback.
- No indicators can presently reflect the actual number of incidents treated by the IT department, but the staff estimated the daily average is about 10 incidents of application type and 30 of infrastructure type. Which consumes a large portion of the resources of IT department (no indicator of the time allocated to the support function).
- The lack of traceability has a negative effect on the incident management and causes loss of some queries.
- The lack of capitalization on solutions and a single point of contact are causing a considerable loss of time in the treatment of recurring incidents.
- Limited human resources and the number of incidents, which occupies a large part of resources, impact the success and timing of other projects in the IT department.

**4.2.3 Incident Management: Best Practices**

The analysis of current practices in IT department of company regarding incident management allows us to position it in relation to ITIL best practices. The areas of analysis are:

- Prerequisites or the necessary minimum level to support process activities;
- Management vision and business objectives;
- Ability to implement the process or the minimum set of activities performed;
- Internal integration to verify whether activities are integrated enough to accomplish the process objective;
- Products or the actual performance of the process;
- Quality or quality control;
- Information Management, or level of information generated from the process, to support management decisions;
- Interface with other processes or external integration;
- Customer focus or customer relationship to ensure satisfaction of customer needs.

Starting from this situation, and in order to establish an effective incident management, the graph 1, summarizes the various areas for improvement, and for which an action plan is defined to accompany the implementation



Graph 1: Areas for improvement

**4.3 Define the process**

**4.3.1 Organization**

Based on the current organization chart of IT department and following our discussions of diagnosis, three scenarios for the organization's help desk are proposed. Each proposal has its advantages and disadvantages and the factors of its success.

The choice of the organization's help desk is the starting point for the implementation of incident management process.

**4.3.2 Action plan**

The following table presents the action plan adopted to implement the process:

Action	Details
Define process	Define process
	Define associated procedures
Implementation of incident management tool	Install the platform
	Designing the incidents as required by category
	Conceive the knowledge base
	Define the reports emerged through the application
	Implement the procedures in the application
Implementation of the network supervision tool	Install the platform
	Integrate servers and peripherals of society in the application
	Test operation of the application tools
	Implement application modules
	Installation of modules for remote sites
Training	Training on incident management tools and network supervision tool
Implement process	-Implementation of communication plan -Launch of new process -Steering the process
Asses and evolve	- audit after 6 months -define improvement actions. -Prepare the next step, to enter a cycle of improvement.

#### 4.3.3 Communication Plan

The communication plan to adopt in order to achieve the objectives of the project is to list the media to put in place at the disposal of the IT department of the company to ensure the implementation of incident management as well as the help desk.

For the IT department:

- scripts for the Help Desk;
- response models;
- forms of diagnosis.

For the final users:

- the awareness raising;
- information posters;
- awareness to incident management,
- the communication tools to keep the final user informed.

#### 4.4 Implement tools

##### 4.4.1 Implementation of incident management tool and the network supervision tool

This step consists to implement the various actions outlined in the action plan mentioned above concerning the network supervision tool and incident management tool.

##### 4.4.2 Training

This phase consists of training the staff of the IT department on the incident management process defined and tools incident management and network supervision.

#### 4.5 Implement process

This phase involves the implementation effective of incident management process with the tools of incident management and network supervision.

##### 4.5.1 Implementation of communication plan

This phase involves the implementation of the communication plan below during the launch phase of the process of incident management

How	What	Who
Mail	Notify and inform on the incident	Incident Management Tool
Mail	Advise on the establishment of the help desk of the company, communication activity, service levels,	IT department
Stickers, posters, screen savers, mouse pads, t-shirts, memo	Inform the single point of contact (Helpdesk: telephone number and services offered)	IT department
Intranet	Page dedicated to the service desk, services, contacts, statistics, FAQ, ...	IT department
Newsletter IT department (1 to 2 pages, distributed with The payment bulletin)	Presentation of the Help desk, news, ITIL terminology, an image of the Help Desk...	IT department
Breakfast of IT department	Being near to the final user	IT department 2 times a year
Suggestion box	Collect feedback from users, suggestions for improvements:	IT department Permanently

#### 4.5.1 Launch of new process

This phase is to implement the new process which consists of a set of procedures, among which we quote:

- Qualify and save an incident;
- Make the diagnosis and Treatment;
- Closing ;
- Control, monitor and communicate.

This phase is the launch of the help desk work team with incident management process and new practices using the incident management tool.

- Evolution of incidents created by day,
- Evolution of incidents resolved by day,
- Distribution of incidents by level,
- Distribution of incidents resolved by level,
- Distribution of incidents by category,
- Distribution of incidents by status,
- Distribution of incidents per site.

#### 4.5 Assess and evolve

After six months of launching the process, comes the development stage through an audit process to determine what worked well and what worked less well.

This will allow describing the state of practices in relation to original goals and emerging with a set of recommendations to be implemented to improve the quality of the process of incident management.

### 5. Conclusion

The proposed method gave its fruit through an apparent improvement in the company in several aspects, among which we quote:

- Standardization of good practice in the enterprise;
- Significant improvement of IT service quality;
- Traceability and visibility of incidents;
- Improved visibility of the responsibilities of help desk,
- Capitalization of knowledge of the help desk.

It should be noted that we were able to implement this method in other companies and it worked, but its success requires a large Commitment of direction (commitment of the management team) as well as the awareness of the staff in order to join in the success of the approach.

### References

- [1] C. Dumont, ITIL for optimal service, Eyrolles edition, 2007.
- [2] The IT service Management Forum, An Introductory Overview of ITIL V3, ItsMF UK, 2007.
- [3] M.Otter, and J.Sidi, and L.Hanaud, IT certification guide, Dunod, 2009.
- [4] Y.Gillette, and M.Bia-Figueiredo, and C.Morley, Business process and information system, Dunod, 2011.

- [5] G.Teneau, J.Ahanda, Guide commented standards and frameworks, organization editions, 2009.
- [6] Office of Government Commerce, ITIL V3 Service strategy, The Stationery Office, 2007.
- [7] Office of Government Commerce, ITIL V3 Service design, The Stationery Office, 2007.
- [8] Office of Government Commerce, ITIL V3 Service transition, The Stationery Office, 2007.
- [9] Office of Government Commerce, ITIL V3 Service operation, The Stationery Office, 2007.
- [10] Office of Government Commerce, ITIL V3 Continual service improvement, The Stationery Office, 2007.
- [11] S.Alter, "Pitfalls in analyzing systems in organizations", Journal of Information Systems Education, Vol. 17(3), 2003, pp.295-302.
- [12] Y.B.Desfossés, and C.Y.Laporte, and A.April, and N.Berhouma, "Method to improve IT services, ITIL-based, in Québec companies", Software Engineering Journal, September 2008, Issue 86, pp. 47-59.
- [13] K.Litten, "Five steps to implementing ITIL", International Network Services, 2005.
- [14] BMC Software, "ITIL for the Small and Mid-sized Business (SMB)", 2005.
- [15] C.Young, "Become and remain the IT provider of choice", Gartner report on IT service management, 2005.

**Said Sebaoui** is a PhD student at USMBA-Fez University. Also he worked from 2006 to 2009 as a consultant in organization in a firm. Currently he works in a public institution. His main research interests include quality in information system (ITIL, Cobit, CMMI, ISO 9001...) and quality approach.

**Mohamed Lamrini** received the PhD degree from the Claude Bernard-Lyon University in 1993. He is currently a professor of computer science at USMBA-Fez University. He is also a member of the LISQ Laboratory. His research interests include quality in system information (CMMI, Six sigma, ITIL, ISO 9001...), Industrial Engineering (Methods and statistical tools).