

## **A Study on the Maturity of Organisations in the Service Management Environment**

**Rob van der Burg**

University of Liverpool, UK

E-mail: rvdburg@bmc.com

**Raul Valverde**

Concordia University

Canada

E-mail: rvalverde@jmsb.concordia.ca

### **Abstract**

*Service management has undergone as many changes in the history of Information Technology as the industry itself. In today's world companies are not so much looking at monitoring and managing the IT components but they want to see how these components support the layers on top. At first these were the applications but in today's world the focus lays on supporting the business. This paper describes the results of the research on the maturity of the organisations and gives in the form of a case study a way to demonstrate a way how organisations can move forward in their strive to grow to a higher maturity level.*

**Keywords:** Business Service Management, maturity model, IT Management,

### **1. Introduction**

Back in the beginning of the nineties the way IT was delivered to the customers was by way of a "technology push". The IT department delivered a 'state of the art' piece of new technology and the customer would then use this to create a new service. This has changed in the last couple of years by 180 degrees. Customers require a service which brings them closer to their market and the loyalty of customers in an Electronic Business environment is only 8 seconds, which is about the time people will wait before they go to the next site which delivers the same service (Zona, 2001).

In the last couple of years this technology push is changed to a demand (business) pull, which brings the biggest dilemma we face today in the Information Technology discipline in the spotlight (Ende, 2005):

- An Information Technology department is static by nature
- A Business department is dynamic by nature

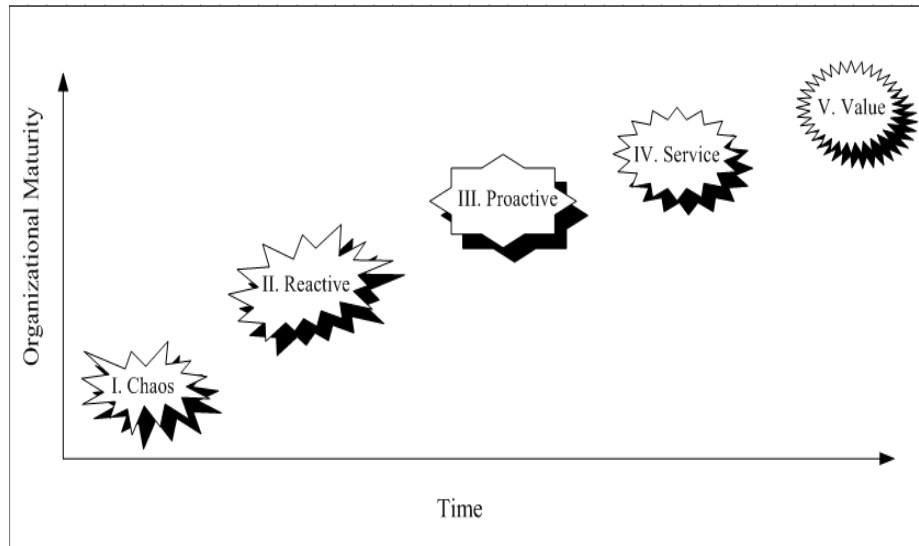
The IT departments want to keep their environment in the current situation. Stability is important to them. The business side of a company needs to adapt the latest market trends and has to follow them or even lead the field. This challenge is what we see these days when we discuss Business Service Management (BSM): The need to provide a robust but flexible environment to manage the business.

Because of this dilemma some organisational aspects need to be cleared before the process as described below can start. This has to do with the maturity of the organisation and the level of maturity the organisation wants to grow to. The way this is described is based on the Nolan curve (Nolan, 1974) and Gartner's Maturity model (Gartner, 2003).

Five stages are identified:

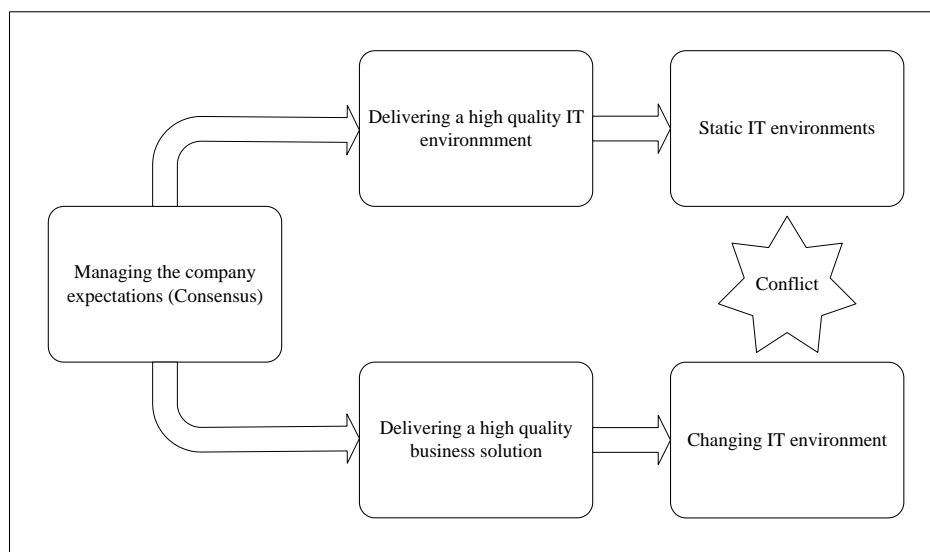
- Stage I, Chaotic
- Stage II, Reactive
- Stage III, Proactive
- Stage IV, Service
- Stage V, Value

**Figure 1:** Organisational Maturity Model (Nolan, 1974, Gartner 2003)



In today’s world we see that there are now conflicts between the way IT supports the business and the way support is expected from the business side. Some opinions are there in a sense that they define the IT as commodity, more like a railroad or electrical power, and not supporting the business any more (Carr, 2003), while others provide strong standpoints on the fact that even when technology becomes a commodity it still supports the business (Smith & Fingar, 2003).

**Figure 2:** Today's conflicting world (van der Burg, Grignet, 2004)

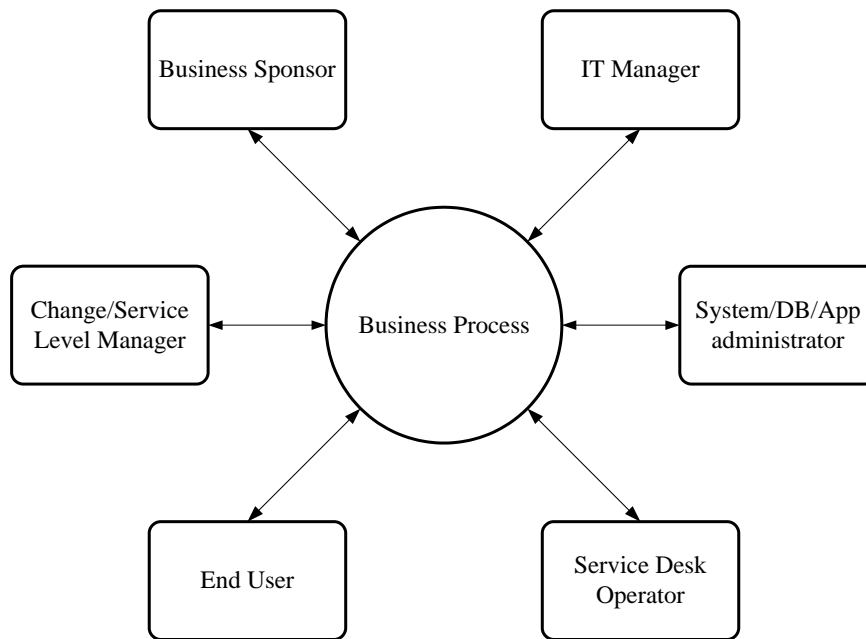


In figure two this paradigm is shown:

- The IT department wants to change as little as possible (if it isn’t broken don’t fix it) which makes them static by nature.
- The business side of the company want to adopt changes in the market as fast as possible which makes them highly dynamic by nature.

When it all comes down to the functional decomposition of a Business Process which will be supported by the Systems Management Solution, there are six different input variables to this process These functions give a 360 degrees view on the support organisation and provide the architect an extremely valuable source of information. The functions which have to be included in this process are the following:

- The Business Sponsor
- The IT Manager
- The Change Manager, The Service Level Manager
- The Database Administrator
- The Service Desk Operator
- The End User

**Figure 3: The six forces on the business process**

## 2. Problem definition and Scope

The objective of the paper is to determine the level of maturity of organisations by performing a research survey on the maturity model and to determine how organisations can reach a higher level of maturity by using a case study. The scope of the paper is limited to the interaction between the business, the IT infrastructure and the operational processes. The aspect of people is touched but will not be covered in depth. The paper aims to give in the form of a case study a mean on how to support organisations to grow to a higher maturity level.

## 3. Research methodology

Case study methodology was chosen to emphasize and explore factors, which may lead to directions for the question on how to increase the level of maturity in an organisation. In addition, a survey was conducted in order to determine the level of maturity in organisations. The maturity model (Gartner 2003) was selected as the main research framework because it allows comparing organisations with each other and helps to identify an organisation's maturity level before you can proceed in defining the steps they need to take to grow to the new desired stage. Overall there are four steps an organisation has to go through when they want to go from one stage to another. These steps are defined by the BS 15000 standard (British Standard, 2002) and are:

- Plan to define a Business Service Management solution it is important that the needs of the business are aligned with the deliverables of the IT department. This has to be accomplished through an ongoing dialog to provide a maximum interaction between these two organisations. Agreements between these organisations are being defined in Service Level Agreements which can be used by both sides to see if the requirements were met.
- Do a model has to be defined to map the Assets to IT components and both combined to the service they provide to the Business organisation. Because of this model the service organisation can reflect the state of the business and can react on changes in that model based on changes coming from the procedures as being in place by the company.
- Act the IT departments can meet their individual goals without satisfying the end users. By not only providing a monitoring and management solution, but also include a way to pro actively monitor the end user experience the Service model can give accurate information on the state of the business in regard to only the state of the IT.
- Check to make sure that all aspects are being met the organisation needs to be sure that monitor, manage, analyse and predict on the performance of the IT SLA's from the perspective of the business requirements.

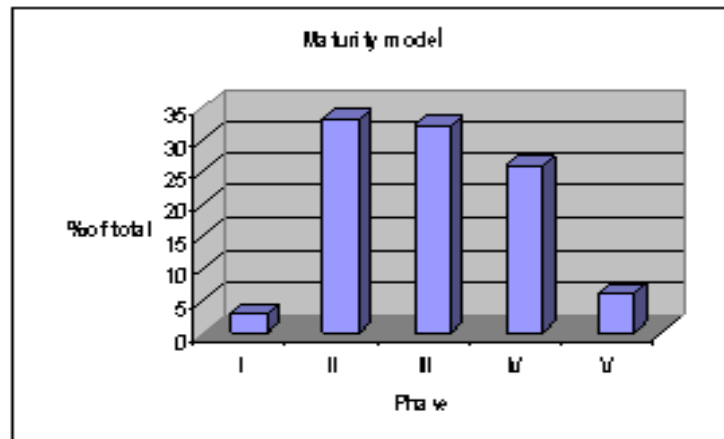
## 4. Survey results

A survey was conducted in July 2009 and the results show a couple of aspects:

In one of the initial questions it shows that the majority of respondents answers that they are in Maturity level two, three and four. Looking at the fact that most organisations want to grow to a higher level in the maturity model they need support by the three supporting factors:

- People
- Processes
- Products (Tools)

Figure 4 Survey results



The first supporting factor, people, is a matter of training,. This is an important aspect because according to the majority of the responses, prioritizing is still being done based on experience and not on the impact on the business. A reason for this can be the fact that while most organisations have adopted a methodology to support this most of it is still a manual task.

For the second supporting factor one, processes, over 80% responded that the processes methodology adopted by the organisation is ITIL. After careful analysis the research shows that only 30% of ITIL is implemented and automated at organisations.

The third supporting factor, the products, is described in detail in the following chapter where a case study is being conducted to support the organisation in question to gain better profits from their IT department and give them a way to manage the environment based on end to end business priorities.

5. Case Study

The objective of the case study prepared for this research was to determine how an organisation can be supported to grow to a higher level maturity. The background of this case study comes from an organisation with a project where the IT physical infrastructure was undergoing a major redesign to bring it up to date for the current state of technology and provide a flexible and easy design to support 40.000+ end users in a flexible, cost effective way. The scope was not only to have a monitoring and management solution on a technical level but also the need to monitor, manage and report on a more abstract level based on Service Level Agreements and Business Drivers. The project itself will physically not go to level five from the maturity model but will strive to reach level four. The reason for that is that the project will deliver a monitoring and management solution building on top of the technical infrastructural components, consolidation of information and at the top a service model which delivers the more abstract information for Service Level Agreements and provides information on the Business level.

Figure 5: Architectural Diagram

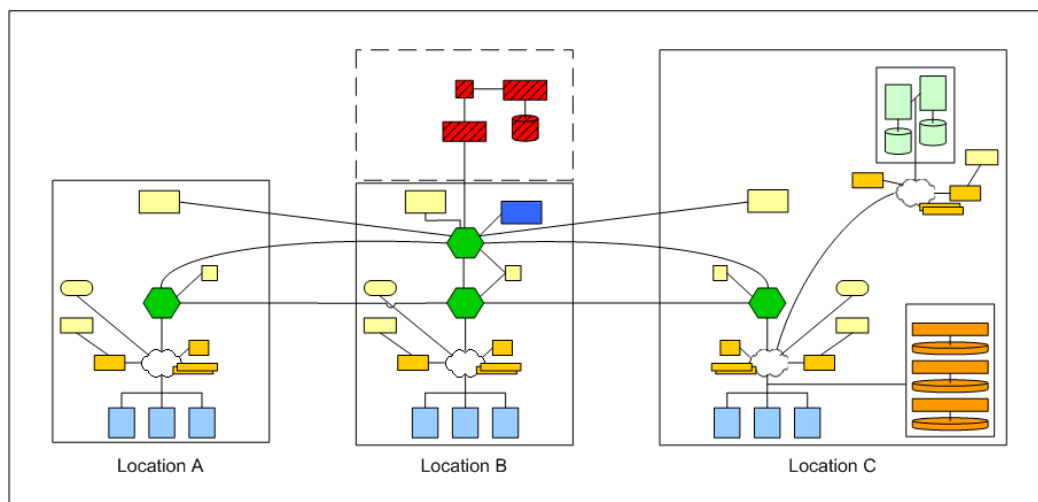
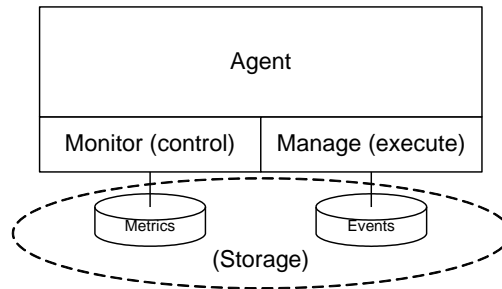


Figure 5 shows the architectural lay out of the project. The light blue colour represents the collector layer. The next yellow layer presents the communication layer with on top the Event management layer consolidated to the Service impact manager in green. The dark blue object on location B shows the SLM reporting capability. The yellow layer(s) present the GUI's to the different users and abstraction layers. The light green on the top right presents the reporting layer with below that in orange the management server which is responsible for management and deployment of this infrastructure. The red boxes on top present the Service Desk infrastructure where all the consolidated events are being processed to.

The solution as being proposed in the architectural diagram makes use of the following components:

- The Agent



**Figure 6 : Agent Architecture**

The central component in the proposed architecture is the PATROL agent. This agent is used for monitoring and managing the computers in the customer's architecture. An agent is running on the machine to be monitored and collects data from the operating system, application or database running on this machine.

The agent is capable of performing the following tasks:

- Loads specified Knowledge Modules during the start of the agent.
- The Agent runs different menu commands.
- Updates Info Box displays on the PATROL Console.

Because the agent is running completely autonomic, there are three architectural requirements to the agent. The agent must have:

- Local control
- Local execution
- Local storage

- The Configuration Manager (PCM)

PATROL Configuration Manager is the Graphical User Interface (GUI) front end to the PATROL configuration Utility. It provides a local Administration utility to manage and configure the PATROL Agents. PATROL Configuration Manager provides the ability to create, maintain, and deploy management configurations to all of the PATROL agents in the environment.

- The Knowledge Module

The Knowledge Module (KM) can be described as a set of files from which a PATROL Agent receives information about all of the resources, such as databases, applications, middleware and operating systems on a managed computer. The Knowledge Module provides information to the agent about:

- How to identify objects.
- Which commands have to run to collect resource information from the monitored object.
- The actions the agent has to take when one of the alarm thresholds are being breached.

The Knowledge Module will be installed at both the agent side as on the console side based on the fact that the Knowledge Module has the following tasks at the console side:

- Show the applications, databases, etc being monitored by the agent as icons.
- Display information like an Info Box.
- Perform local actions at the patrol console machine in case of an event state change.

- The Console Server.

The console server is used in the communications layer of the systems management solutions for authentication, security and provisioning of aliases.

- The Central web server.  
The Central web server provides the ability for the users to have a web based interface to the systems management environment.
- The Real Time Server.  
The Real Time Server or RT Server is next to the console server and the Web server part of the communications layer of the infrastructure. The RT Server provides a scalable one-to-many communications environment in which data is being communicated between agents, consoles aggregators and reporting servers.
- The Windows and Web consoles  
For the system and application administrators two different consoles are available. One is a web based console; the second one is a based on the Microsoft Management Console (MMC). Both provide the user with the same kind of functionality like the drill down capability, so that the user can have a detailed look at the health of the monitored objects. These consoles can be used to monitor and manage one single machine or an entire enterprise with servers from different underlying technology
- The Impact Manager  
The Impact Manager is the centralized event consolidator which can detect problems based on the breach of a threshold and is capable of root cause detection of problem(s) which are based on the same underlying problem(s). *“This is done by filtering, prioritizing, enriching, correlating and automatically handling events according to business and operations priorities”* Integration is possible with, for example, third party tools and utilities like frameworks or help desk applications.
- The Service Impact Manager  
The Service Impact Manager collects and calculates in real-time mode the impact IT related events have on the business side of the company. It provides an analytical engine to pinpoint, prioritize and manage the impact IT services have on the business. This is done by the service model which models the objects and their respective relations. Information is provided to the different group’s through a web interface.
- The Impact Explorer  
The Impact Explorer provides the Service Manager the ability to create, define and manage the objects and relations in the Service Impact Manager. The Impact Explorer provides different views for the functional requirements:
  - Event views
  - Service views
  - Administration view
- The Impact Web Console  
The Impact web console gives the Business end user the ability to watch real time if the service goals as being defined and managed in the Service Impact Manager are being met, or being breached.

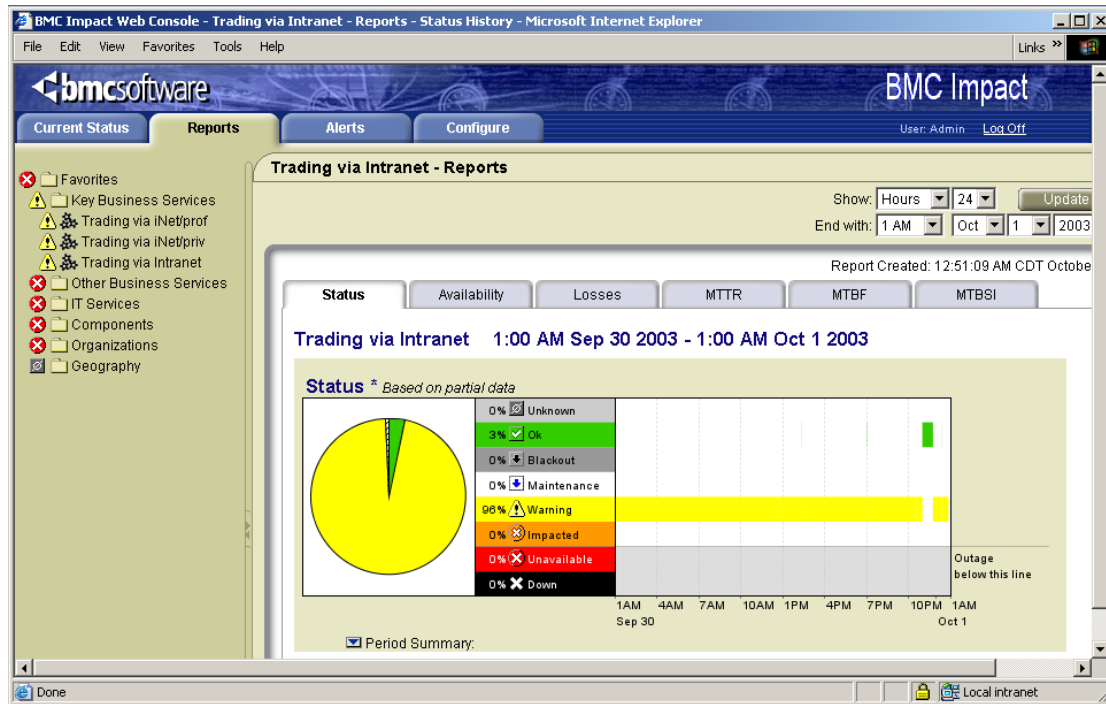
Looking at the service model which is the most important step in the final solution, this will provide an overview of objects and relational information between the objects. In this stage of the project these objects and relations will be a static model in the service model. As one of the steps for growing to a higher level in the maturity model, this model will be made dynamic.

The Service model will be created based on information from the organisation as described in the six forces on the business process (figure 3). The highest level in the model is called a “Service”, in this particular case the service is created for email. The backbone of the solution is provided in Figure 5, the needs and demands are to service 40.000 end users with an availability ratio of 98%. The service model will be created based on this information and delivers the required information at the right level and format.

The process of defining the service model starts at building the communications layer which is being used by data collectors. On the top three different levels of information are being provided:

- The technical interface provides a complete overview of the technical IT infrastructure.
- Service Level behaviour and trending over time.
- Service management information

Figure 4: Example of a Service Management interface



## 6. Conclusions

Because organisations do not have a 100% accurate view of their own maturity, they need support in the three areas of people, processes and products to help them gain an advantage and to change the IT department from a cost centre to a profit centre. The research proved that most organisations still have a long way to go to change the silo oriented Service Management organisation to a full end to end perspective of the organisation which can be fully management from an Service Level management perspective. The case study shows an example on how an organisation can be supported to grow to a higher maturity level by linking the IT metrics and Business metrics to support and improve the Business processes of the organisation.

## References

- British Standard BSI (2002), *IT Service Management Part 1: Specification for Service Management*,
- Burg, R P van der, (2005) *An Analysis and Research on the Maturity of Organisations in the Service management Environment*, University of Liverpool, Liverpool, UK.
- Carr, N (2003), "IT Doesn't Matter" *Harvard Business Review*. (81)5, pp.41 -49
- Ende J van den, Dolfsma W. (2005), Technology-push, demand-pull and the shaping of technological paradigms - Patterns in the development of computing technology. *Journal of Evolutionary Economics*. 15:83-99.
- Nolan, R. L. & Gibson, C. F., (1974). *Managing the four stages of EDP growth*. *Harvard Business Review* , 52(1), pp. 76-88.
- Scott, D., Gartner (2003), *IT Operations Management Is Undergoing Transformation*, retrieved from: <http://www.gartner.com/resources/115200/115232/115232.pdf>
- Smith, H., Fingar, P. (2003). IT Doesn't Matter--Business Processes Do: A Critical Analysis of Nicholas Carr's I.T. Article in the *Harvard Business Review*. Meghan-Kiffer Press, Tampa, Florida, USA.
- Zona Research (2001). The need for speed II. *Zona Market Bulletin*, 5, 1-9.