

Process Optimization and Resource Management with Business Intelligence

Applies to:

SAP BI

Summary

An optimal process managed by minimal number of Human resources, becomes the target of all Companies. This article defines how Business Intelligence can be used both to optimize a process. And also to calculate the minimal number of resources to manage the Process.

Author(s): Kowshik Dutta

Company: TCS

Created on: 15 January 2007

Author Bio



I am Kowshik Dutta. I graduated in Mechanical Engineering and started my career with an Automobile company . Currently I work with the Data Warehousing Practice of TCS. My core competencies are in Database architecture and Design of BI Systems.

Table of Contents

Introduction	3
Business Case Study:.....	3
Process Overview of Out-Sourcing:.....	3
Optimizing the Process and calculating the Manpower requirement:.....	3
Optimization of Sub-Process “Pricing”:	4
Optimization of Sub-Process “Testing”:.....	5
Disclaimer and Liability Notice.....	6

Introduction

Boundaries of modern market have expanded greatly. Doing Business across continents have become easier, thanks to a series of International treaties. Countries are opening their markets for foreign investments. Organizations are trying to expand. However, to remain competitive, they also need to remain agile. Necessity of hiring resources is anticipated. And with it comes with a big challenge, "How many to hire?"

Getting the right number of resources is very crucial. Perils of both over and under staffing are well known. So before going for a detailed study, let's try to define the "Right Number of Human resources". I would define the number as "The minimal number of human resources required to run an optimized process". A well designed BI system can help to optimize the process. And once the process is optimized BI can help to define the minimal number. I will explain the point by presenting the following case study.

Business Case Study:

Company 'ABC' is an automobile company. 'ABC' is currently operating from South Africa. They want to open a plant in Qatar. Core competency of this company was in design and assembly. 70% of their automobile components were out-sourced. They wanted to go the same way for their Qatar plant. Minimal number of resources required to manage their new plant became a key challenge. A core team was formed comprising of Managers of Out-Sourcing, HR and IT departments. This Team followed a series of steps to arrive at the answer. The steps are described in sequence below:

Process Overview of Out-Sourcing:

Team looked into the Out-sourcing process in detail. They listed down the sequence of sub-processes within out-sourcing. This analysis is outlined below:

Design department hands over the drawing of the component to Materials Management Department

Material department to hand over the drawing to pre-approved vendors for the components and ask for a quote

Vendors to submit the quote

Pricing Team to review the quote. Final quote accepted after discussion with vendor

Vendor to supply the first lot of samples

QA Team to test for compliance with design and performance requirements. Report submitted to design department

Design team to review the report and approve the component

Vendor supply the part for mass assembly.

Optimizing the Process and calculating the Manpower requirement:

Team first focused on optimizing the process. Once the Process is optimized, then they went for collecting Human Resource requirement. Following steps were followed:

Judge if the process is running in Optimal mode

If not, then how would the process look like , when it would run optimally

Calculate the average time elapsed to complete the out-sourcing process once the process runs in optimized mode

Total number of components to be out-sourced in Qatar was known. Average time taken to complete the outsourcing process was gathered in previous step. Then the number of resources required could be calculated as :

$$N = \frac{N_c \times T_c}{T \times 22}$$

Where:

- N is the minimal number of Human resources required
- T is the time given to complete out-sourcing of all components, in months
- N_c is the number of components to be out-sourced
- T_c is the average person days taken by the out-sourcing process of a single component
- 22 is the number of working days per calendar month

The team tried to optimize the process by answering the following questions:

Q1) What value is each sub-process adding to the process?

This was resolved by an open discussion amongst the Team members.

Q 2) What is the average time taken to complete a sub-process listed above? Is this time logical enough?

IT managers used their BI system to get time span for each sub-process. BI also gave the list of activities within each sub- process. Detailed report from BI also gave the start and end time of the activities within each sub-process.

Optimization of Sub-Process “Pricing”:

It was seen that step 4 is taking a big chunk of time. More interestingly, BI also showed that the time taken is consistent across components. What this means is, time taken for finishing the pricing of a bolt is quite close to do the same for a fuel tank. They decided to look into the activities within the Pricing Process. And BI showed the activities and average time taken for them. The report showed a strange thing. It was noticed that the senior managers had to approve pricing of all components. In automobile industry, 70% of all components out-sourced, constitute only 20% of the total cost. They are generally categorized as “C” class item. So the core team decided to change the pricing sub-process. And it was decided that all “C” class Items will be approved by Junior Managers. Considering this approach, the core team decided to recalculate the timing of the pricing process.

For ‘C’ class item it’s the time taken for approval by junior managers only. Senior manager’s approval time will be excluded. BI could re-calculate easily by filtering off the activity of Senior Managers

For items of other class, the time from the original report was considered

Team knew the number of components to be outsourced in Quatar. Also, time span available for developing those was also defined. With this analysis, they were able to find the time required to complete the pricing process of individual components. So considering the number of components to outsource in Qatar and the time available, they could calculate the staffing requirements of the Pricing Department

Optimization of Sub-Process “Testing”:

BI Report also showed that a huge chunk of time is consumed during Testing Process. To understand the activities involved in the Testing sub-process, a detailed report from BI was sought for. This report gave the detailed activities of testing Department for the current month. It was observed that there was a considerable gap between the end of an activity and the start of its successors. Managers from testing department gave the explanation. Their team gets samples for newly developed component. Also, they have to do a random sample check for components that are already in mass production. This was more of a routine check up.

Company ‘ABC’ took a decision. They decide to form two departments within the testing division. One would be responsible for routine check of already approved parts. While the other will concentrate on testing the newly developed components.

Based on the timings given by BI reports, the Team came up with the human resource requirement for each department. So the analysis not only gave staffing requirement of the Quatar plant. It also high lighted the needs for their South African plant.

Ending Note:

To summarize, BI can come very handy for companies going for expansion or restructuring. BI can help these companies come to a logical decision on optimizing process and resource structuring. If your transactional system can capture the start and end time for each activity on a day-to-day basis, BI can do the rest for you.

Disclaimer and Liability Notice

This document may discuss sample coding or other information that does not include SAP official interfaces and therefore is not supported by SAP. Changes made based on this information are not supported and can be overwritten during an upgrade.

SAP will not be held liable for any damages caused by using or misusing the information, code or methods suggested in this document, and anyone using these methods does so at his/her own risk.

SAP offers no guarantees and assumes no responsibility or liability of any type with respect to the content of this technical article or code sample, including any liability resulting from incompatibility between the content within this document and the materials and services offered by SAP. You agree that you will not hold, or seek to hold, SAP responsible or liable with respect to the content of this document.