White Paper
Impact Analysis in the BPA Context

WP0034 | June 2012

Peter Harrad

Peter Harrad is the regional manager for North America, based in Orbus' Washington DC office. He has worked with modeling standards and techniques throughout his 20 years in IT, in a career that has covered software development, solutions architecture and international consulting.

Peter's particular areas of interest are opportunities arising from interdisciplinary touchpoints, how to balance practicality and rigor when modeling, and the importance of viewpoints in addressing different stakeholder perspectives.

A common operation in Enterprise Architecture modeling is impact analysis; taking an item and examining what the potential effects would be of changing that item, based on the dependencies that you have mapped. For example, you might use impact analysis upon a server to understand what the potential impact would be if you needed to take it offline for an upgrade. You could use impact analysis to find out "if we take this server offline, then employees will not be able to submit expense reports".

At Orbus, we see noticeably less usage of impact analysis in the context of the business process environment. But as we will argue in this paper, the technique of impact analysis is equally useful when applied to processes, and for the same reasons.

We begin by examining a traditional impact analysis scenario, one where an organization is concerned about the possible impact of retiring a server. We will then look at how similar impact analyses deliver value in a variety of business process scenarios.

Overview of Impact Analysis

The classic case for impact analysis is where an organization wishes to understand the potential effect of taking a server offline or bringing an application down. In other words, what are the business functions and business processes that will be affected if a certain part of the IT infrastructure is no longer available (either temporarily, or permanently)?

There are several reasons why this question might be asked. At a tactical level, a software upgrade or preventative maintenance on hardware

Access our **free**, extensive library at
www.orbussoftware.com/community

might involve downtime and an awareness of what the business impact of such downtime would be is of obvious value. At the same time, strategic projects such as application portfolio consolidation initiatives, or datacentre migrations, need to know which business functions will need to be dealt with when they take applications offline.
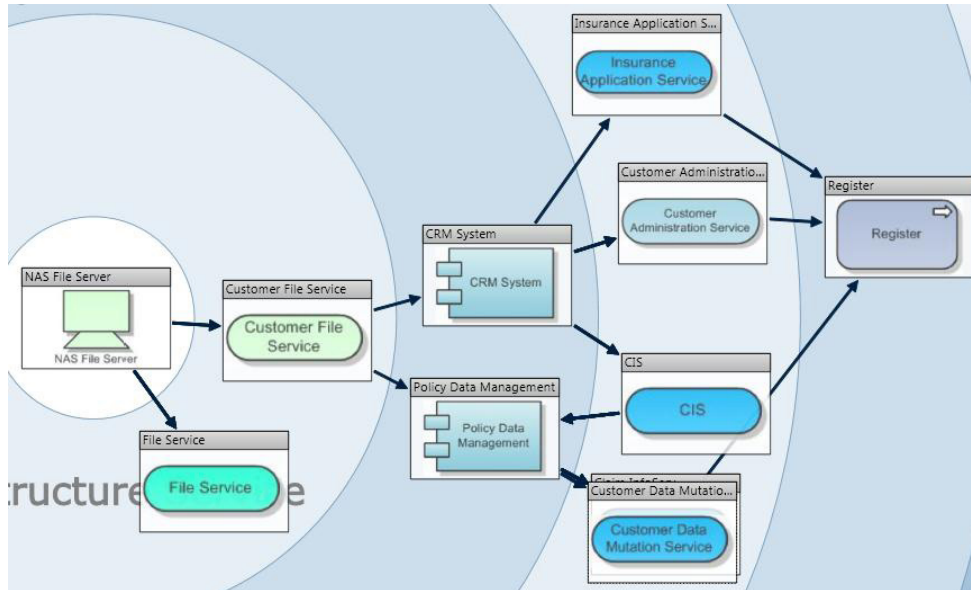

Figure 1 – a simple impact analysis of a server, taken from the ArchiMate sample model

In order to carry out an impact analysis the organization must first map functions and how they depend on applications, how applications depend on physical hardware…and then trace through from end to end. This can be a manual process, where an architect looks back through historical models to understand this information. Alternatively, many modeling tools have some form of impact analysis functionality.

Impact Analysis in the BPA Context

As described, impact analysis is a common problem faced at the application and technology levels. But the technique of impact analysis is equally useful at the business process levels, e.g. understanding who is using which forms, which roles perform certain decisions…all help to understand the best way to process. In the rest of this paper, we consider some specific examples that show how impact analysis is useful in the business process arena.

We assume throughout that process maps are created using the BPMN 2.0 notation, but the concepts and principles presented apply equally to any other notation.

Role Redefinition

As described earlier, the basis of impact analysis is to identify the mapping of different elements to each other. These mappings allow the identification of potentially impacted components. It turns out that most process mapping is concerned with identifying the roles that are responsible for performing a given activity.
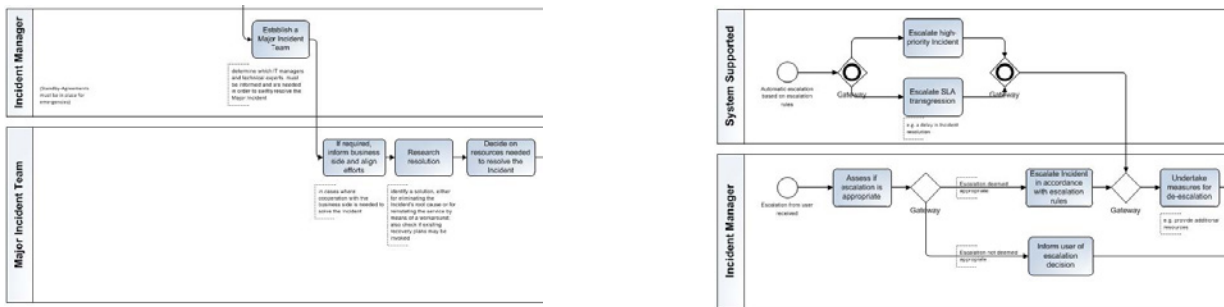
Figure 2 - two different process fragments that show the incident manager performing activities

What this means is that by taking an overall view across all process maps, a business analyst can then gain a view of all activities that this role performs, across all process maps. By using this implicit mapping, it is possible to understand the impact of a change to a role, by understanding the activities that will be impacted.
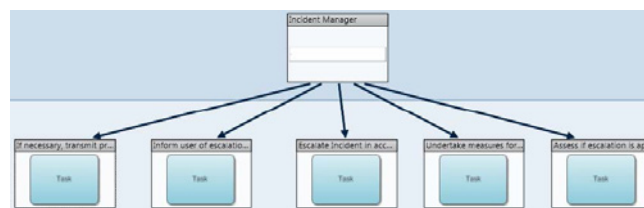

Figure 3 - the tasks that the incident manager performs, across all process maps

Document Tracing

A second area that process maps often consider is which documents are updated by the fulfilment of certain activities.
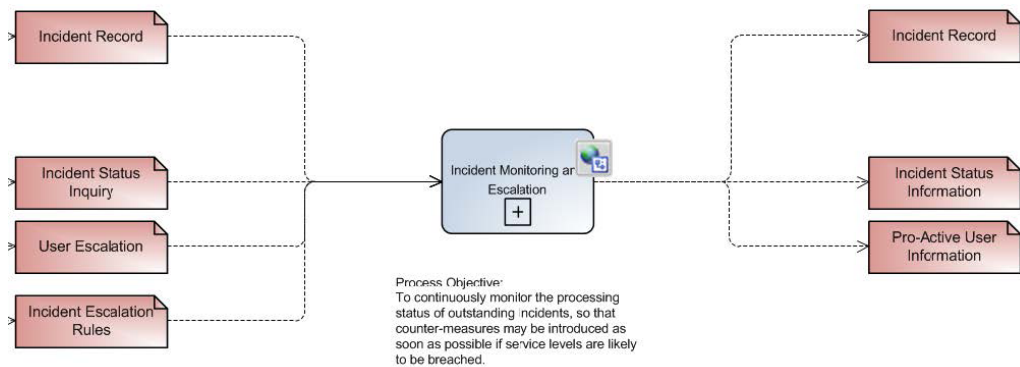

Figure 4 - an activity mapped to its input and output documents

This mapping exercise is useful in itself but as we have already seen, having these mappings also open the door to understanding what process activities might be affected by a change to a document. A common example of this would be how a change in law can require the update of a quarterly report to an industry regulator.
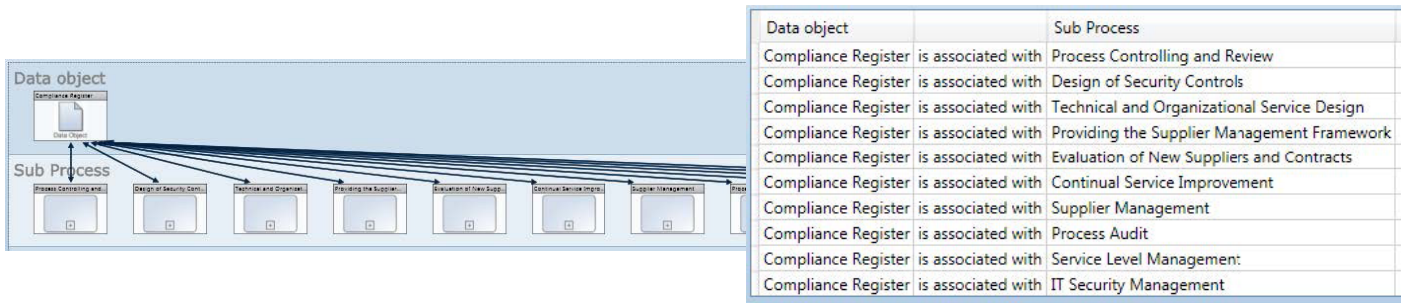
Data object		Sub Process
Compliance Register	is associated with	Process Controlling and Review
Compliance Register	is associated with	Design of Security Controls
Compliance Register	is associated with	Technical and Organizational Service Design
Compliance Register	is associated with	Providing the Supplier Management Framework
Compliance Register	is associated with	Evaluation of New Suppliers and Contracts
Compliance Register	is associated with	Continual Service Improvement
Compliance Register	is associated with	Supplier Management
Compliance Register	is associated with	Process Audit
Compliance Register	is associated with	Service Level Management:
Compliance Register	is associated with	IT Security Management

Figure 5 - The activities affected by the Compliance Report

Role-Document Usage

Up until this point, for business process analysis we have only considered single-level impact analysis. That is, we take an element or set of elements from our model, and only consider the items that are directly linked as being impacted by a proposed change. But as we have seen when we looked at impact analysis at the technical level, the real power of impact analysis comes from tracing through multiple levels.

With this in mind, our third example combines the first two examples; roles that are mapped to activities, and activities that are mapped to documents. This opens the door to finding the answer to the question, which documents does a given business role need access to? A particular use case: understanding what levels of access permission are needed in a secured environment.

Conclusion

In this paper, we have considered some of the ways that the techniques of impact analysis, although more commonly used by the more technical parts of the enterprise, can deliver significant value by building on the process mapping activities undertaken at the business level. Taking advantage of impact analysis does require that the necessary mappings between items exist (or that there is resource available to perform the mapping), but such mappings are already commonly performed in process mapping exercises, in which case it makes sense to take maximum advantage of the corporate intellectual property that has been developed in this way.