

Simulation as a service to business process management (BPM)

Preparing for BPMN 2.0:

an integrated view of second generation simulation

“Increasingly looking for ways to reduce working capital by improving operational agility and by linking silos of information with modern web-based services.”

Abstract

The global economic meltdown of the late 2000s exposed poor internal processes within many organisations around the world. Previously unshakeable institutions went to the wall and every indicator, from house prices to the number of unemployed, was on a downward trend.

As companies begin their slow recovery, they are increasingly looking for ways to reduce working capital by improving operational agility and by linking silos of information with modern web-based services. They are also searching for ways to gain competitive edge through the introduction of Internet-based collaborative processes including slicker sales channels, more efficient finance processes, tighter supply chains and better workflow management.

As a result, the market for business process management (BPM) is growing as the need for operational savings and efficiencies drives the need to rework business processes. BPM has long been recognised as a toolset for designing processes. But it is now taking on a new role as the lead component within broader SOA implementation projects.

In this paper we examine the changing use of simulation as a service to BPM: how can simulation be used in the wider context of business improvement and agility?

What are the implications of the introduction of BPM Notation (BPMN) 2.0 and how close are we to using simulation to intelligently optimise business processes?

We also explain the role that Lanner's simulation software will play in the development of next generation BPM.

Definition of BPM

BPM is an all-encompassing term that covers business automation and/or IT-based efficiency strategies. Industry analyst Gartner defines BPM as: 'a management discipline that treats processes as assets that directly contribute to enterprise performance by driving operational excellence'.

In the words of analyst Forrester, the main power of SOA 'is unleashed by BPM'. Used correctly, and within a strict governance model, BPM provides an environment in which organisations can integrate processes and services – but also transform their applications in line with business change.

It is for this reason that BPM and SOA are such hot topics currently. Economic recession brings enormous pressure to bear on organisations that are trying to survive. It's a time when costs are cut dramatically, either directly or through the introduction of more efficient processes. The combination of BPM and SOA helps to achieve results with less risk and within a more predictable timeframe – and the addition of simulation software to the mix can only improve this situation.



The introduction of BPMN 2.0 will be a further stimulus to the growth and adoption of simulation



Simulation moves centre stage within design

Traditionally, process simulation has most often been used within BPM as a design confirmation or 'pathology' tool. This is largely for technical reasons: quite simply it has not been either sufficiently convenient to use or integrated within a design toolset.

Process simulation therefore normally acts as an optional standalone package that can be used adjacent to, rather than as a standard part of, BPM toolsets.

However, organisations are beginning to recognise that the same principles that apply to simulation in physical design can now be applied to BPM. There is significant evidence from other areas of design (such as product development) that 80% of the costs are committed within the first 20% of the time spent in design or redesign.

A corollary to this is that late changes in design (especially after release) cost orders of magnitude more to correct than making the same changes early in the design/redesign process. Using simulation up front within design/redesign makes the assessment of alternatives viable and supports the early identification of issues - and hence fewer costly late changes or sub-optimal designs.

One such case was recently presented by the German national railway Deutsche Bahn. DB Netz manages and maintains the 34,000km of track on Germany's railways. It used BPM combined with simulation to optimise the fault clearing process at regional division RB East and to increase train punctuality.

In its presentation*1 it describes how simulation of the current process identified the complex interactions that were resulting in long waiting times. It then goes on to show how simulation provided a risk free environment in which to evaluate options, finding savings of 28%, 28% and 37% in the first three critical steps of the process chain.

The impact of BPMN 2.0

Another driver for simulation in BPM is the development of Business Process Modelling Notation (BPMN) 2.0. Developed under the guardianship of the Object Management Group (OMG), BPMN 2.0 is a standard for business process modelling, and provides a graphical notation for specifying business processes in a business process diagram (BPD).

BPMN 2.0 is based on a flowcharting technique very similar to activity diagrams using Unified Modeling Language (UML). The objective of BPMN overall is to support business process management for both technical and business

users by providing a notation that is intuitive to business users yet able to represent complex process semantics. The BPMN specification also provides a mapping between the graphics of the notation to the underlying constructs of execution languages, particularly Business Process Execution Language.

Much of the effort put into BPMN 2.0 has focused on making the diagrams executable on a process engine. With BPMN 2.0 it is now possible to have different perspectives on a design/redesign, from high level business oriented views to detailed technical views.

The importance of BPMN 2.0 is that there is now standardisation and the opportunity to exchange information between tool sets, as well as between business analysts and IT implementers.

The introduction of BPMN 2.0 will be a further stimulus to the growth and adoption of simulation: the twin barriers of a difficult, technical user interface and a discrete tool set that stands alone from programming tools will both now be removed.

Significance of L-SIM 2.0

Lanner is a world leader in simulation software and is ahead of the market when it comes to providing simulation as a service to BPM. L-SIM is already the most popular and functional native BPMN1.2 simulation on the market. It is supported by Lanner's simulation savvy development team and used by a range of leading toolset providers.

L-SIM 2.0 is the latest version of Lanner's performance proven BPMN simulation engine. L-SIM 2.0 is a BPMN 2.0 native and compliant simulation engine. As such it can simulate high level business oriented views and detailed technical views.

The Experimentation and Optimisation framework that is part of L-SIM 2.0 adds further value by automating the process of searching for the best solution within user-defined goals. For example, this may involve optimising a process to make the most effective use of your most highly valued resources or selecting between processes to deliver the best customer experience*2.

L-SIM 2.0 is configured as a RESTful service. Representational State Transfer (REST) has gained widespread acceptance across the Web as a simpler alternative to SOAP and Web Services Description Language (WSDL) based Web services. Mainstream Web 2.0 service providers, including Yahoo, Google, and Facebook, have now adopted REST as an easier-to-use, resource-oriented model.

BPM/SOA toolset providers can now simply integrate the full functionality of BPMN simulation: all that's needed is an http: call and a suitably configured BPMN 2.0 exchange file. L-SIM 2.0 also supports the scalability and computing power of cloud computing. L-SIM 2.0 can be considered as the first of a second generation of BPM simulation. The first generation of BPM simulation focused on the 'stress testing' of already designed processes. It has little capability to perform the experimentation needed to compare and optimise process alternatives.

L-SIM 2.0 differs from earlier forms of simulation in two important aspects

1. It delivers a simulation experimentation framework in which to explore process alternatives, manipulate and optimise variables to achieve improvements in high level business goals.
2. It provides robust simulation capabilities that can be easily connected to the existing range of desktop tools and the new breed of lightweight web-based toolsets through its support of the BPMN 2.0 notation and RESTful services. This opens up the opportunity of simulation led process design to a broader range and size of organisations.

As such, it represents the most cost effective and convenient way for BPM/SOA suppliers to deliver leading edge simulation as part of their toolsets.

Summary

The BPM market is growing quickly, and is being driven by the business imperative for process improvement and the stimulus to adoption provided by BPMN 2.0. Using simulation up front in business process design/redesign will offer significant benefits to a broad range of industry sectors - L-SIM 2.0 now makes that viable.

References:

DB Netz presentation*1 available at
<http://www.lanner.com/en/case-study.cfm?theCaseStudyID=BC8A68E1-15C5-F4C0-993950D4C05BE859>

Questions attributed to Derek Miers
 BPMFocus*2

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