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## BPM Software Tools and BPEL

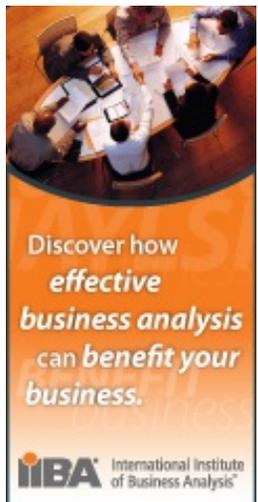
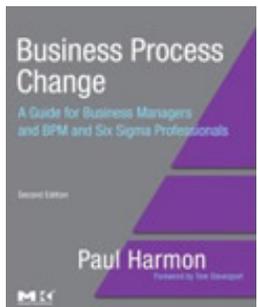
The current interest in process change was given a huge impetus in 2003 when organizations began to talk about BPM software systems, languages and notations that could support the capture and automation of the runtime execution of business processes. BPMS vendors became a major focus at business process conferences, and BPTrends was full of articles on BPM software techniques, BPEL - a language that supports shifting from process notation to software code, and BPMN - a notation for flow modeling that many of the new BPMS vendors were involved in creating. The whole effort was brilliantly described in a book by Howard Smith and Peteringar titled *Business Process Management: The Third Wave* (2003).

Things have settled down quite a bit since those heady days. First, claims that BPMS products would allow process managers to design, or at least update, their own processes have largely been forgotten. For the foreseeable future, BPMS applications will be created and updated by IT developers. Second, BPEL has largely been forgotten. BPEL was a nice idea – a standard language that would assure that an application developed in one tool could be moved to another without difficulty – but it floundered under the complexity of the expanding BPMS project. To understand this, one really needs to step back and recall what the BPM software products were designed to accomplish.

Smith and Fingar proposed that BPM software would essentially be workflow tools on XML. A developer would create a diagram of a business process. The diagram would be interpreted by a software engine and rendered into code which would execute instances of the process on demand. Such a tool would support both manual processes and the execution of software applications, like the various ERP modules that many companies used.

The original effort at creating such a language – to be termed BPML – was launched by a consortium of users and small software vendors. About one year into the effort, IBM and Microsoft announced their own version of a BPM language – BPEL. Faced with a language backed by both IBM and Microsoft, the BPML initiative lost one-third of its members in a few months and decided the only option was to merge with the Object Management Group (OMG). Unfortunately, it soon became clear that the IBM/Microsoft offering was an inferior implementation. It supported software integration, but didn't support integrating human process work. That, they claimed, would be solved in a later version of BPEL.

By this time – around 2005 – the number of large and small vendors offering BPMS tools had grown dramatically. Moreover, as the various tool vendors struggled to deliver on the original promises offered by Smith and Fingar, they found themselves adding new capabilities. Many added more elaborate reporting capabilities allowing managers to monitor processes from graphical dashboards. Others added business rules capabilities so that the tools could represent decisions as rules to be evaluated. As an aside, Smith and Fingar had assumed that the underlying process language – BPML – would be based on Pi Calculus, an approach which offered considerable flexibility. BPEL wasn't based on such a flexible base. Both Pi Calculus and the original BPEL relied on a paradigm that was at odds with rule-based languages. Put a different way, as the BPMS vendors added capabilities to their tools, they created a mix of features





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that proved to be difficult to capture in any underlying language.

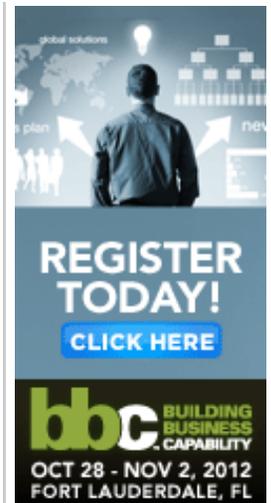
Ironically, BPMN, the graphic notation that the BPMI team created to go along with BPML, has proved very popular. Today, most BPMS vendors support BPMN and it is gaining increased attention from end users of all kinds.

The vendors didn't stop with the addition of rules. Most proceeded to add some data mining capabilities, business intelligence techniques, process mining and analytics. Along the way, the more powerful BPMS products went from being business process tools to being business process suites, or platforms. In essence, BPMS stopped being a single product and became a toolkit of techniques that a business technologist might use to support any or all types of process work.

The leading vendors added capabilities by acquiring companies with the technologies they needed. In the initial phase of the market, between 2003-2007, workflow vendors acquired software integration vendors and vice versa. Once a tool could handle the integration of both employee tasks and software tasks, most of the vendors went on to acquire rules vendors. And, as they sought to create better modeling environments, they also began to acquire earlier process modeling tools and then monitoring and dashboard tools. Obviously, even the largest vendors can't integrate 4-5 different software tools overnight, so most tools became less like an integrated environment and more like a suite of tools in search of a common paradigm. By 2007, it was obvious that most of the leading vendors were going to need a few years to rewrite and integrate the various tools they had acquired.

Separately, we are going through a dramatic change in the nature of the underlying platforms or bus structures used by software systems. We have moved from server-based applications to SOA-based applications, to cloud-based applications, and will soon move to environments designed to better integrate computers and smart phone capabilities. In fact, in hindsight, it's amazing that even the large vendors can manage to keep up with the rate of change.

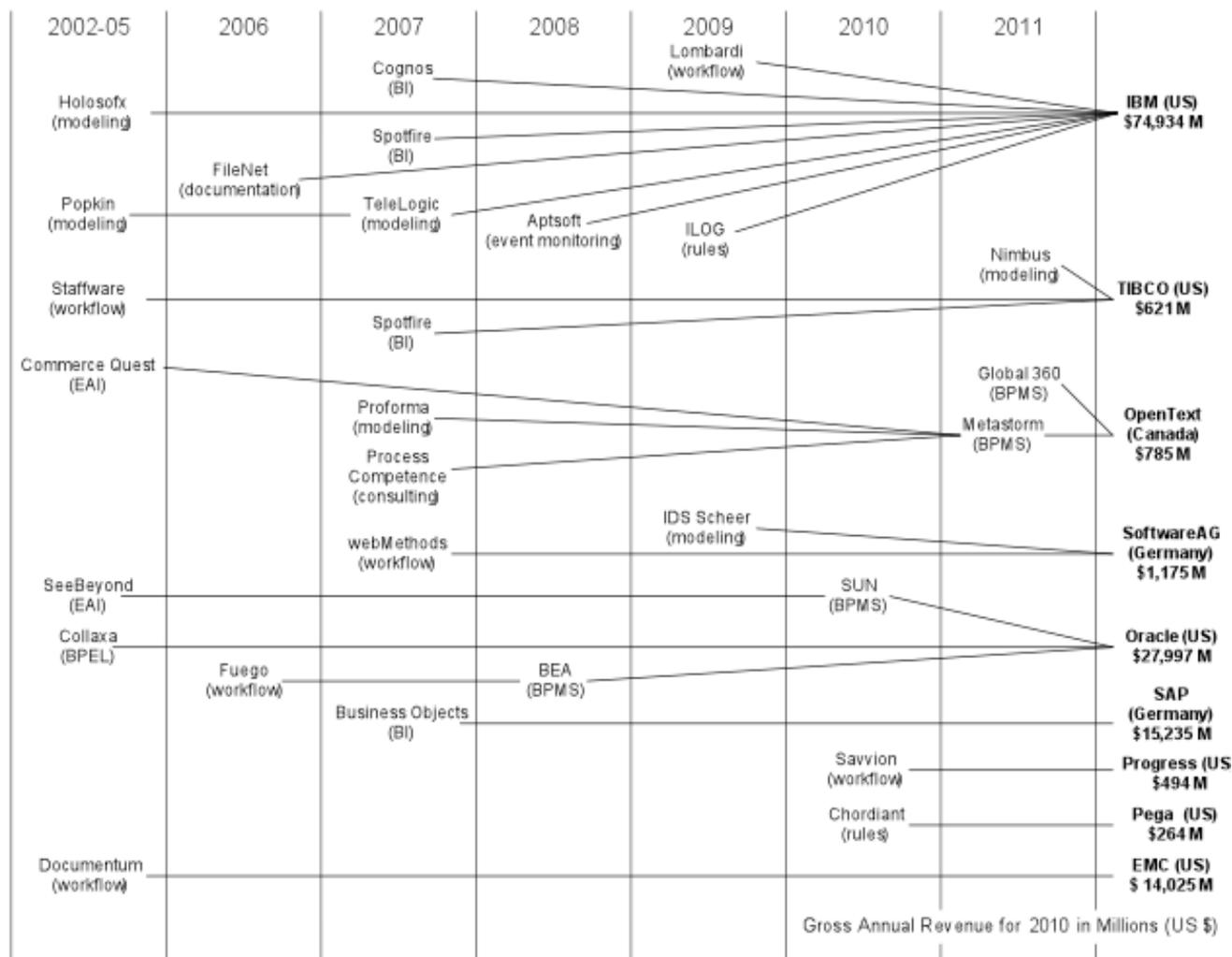
Figure 1 details some of the major acquisitions that have occurred between 2002 and 2011. A quick glance at Figure 1 might lead a casual reader to think that the BPMS market has gone through a major consolidation and that today, instead of 50 vendors, there are only 5 or 10 major players. In a sense, that's correct. The market has consolidated. However, keep in mind exactly what has happened. It's not so much that the various early BPMS vendors bought each other, though some of that has occurred. Instead, it's a matter of the early BPMS vendors buying all kinds of other vendors in related areas. Business Rules vendors have been acquired, Business Intelligence vendors have been acquired. Modeling vendors have been acquired. And, as each of the surviving tools has become a more complex suite of tools and techniques, new vendors have entered the marketplace offering simpler more specialized tools that focus on one or another of the niches that have opened up as a result of the ongoing acquisitions.



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**Figure 1. A history of BPMS acquisitions.**

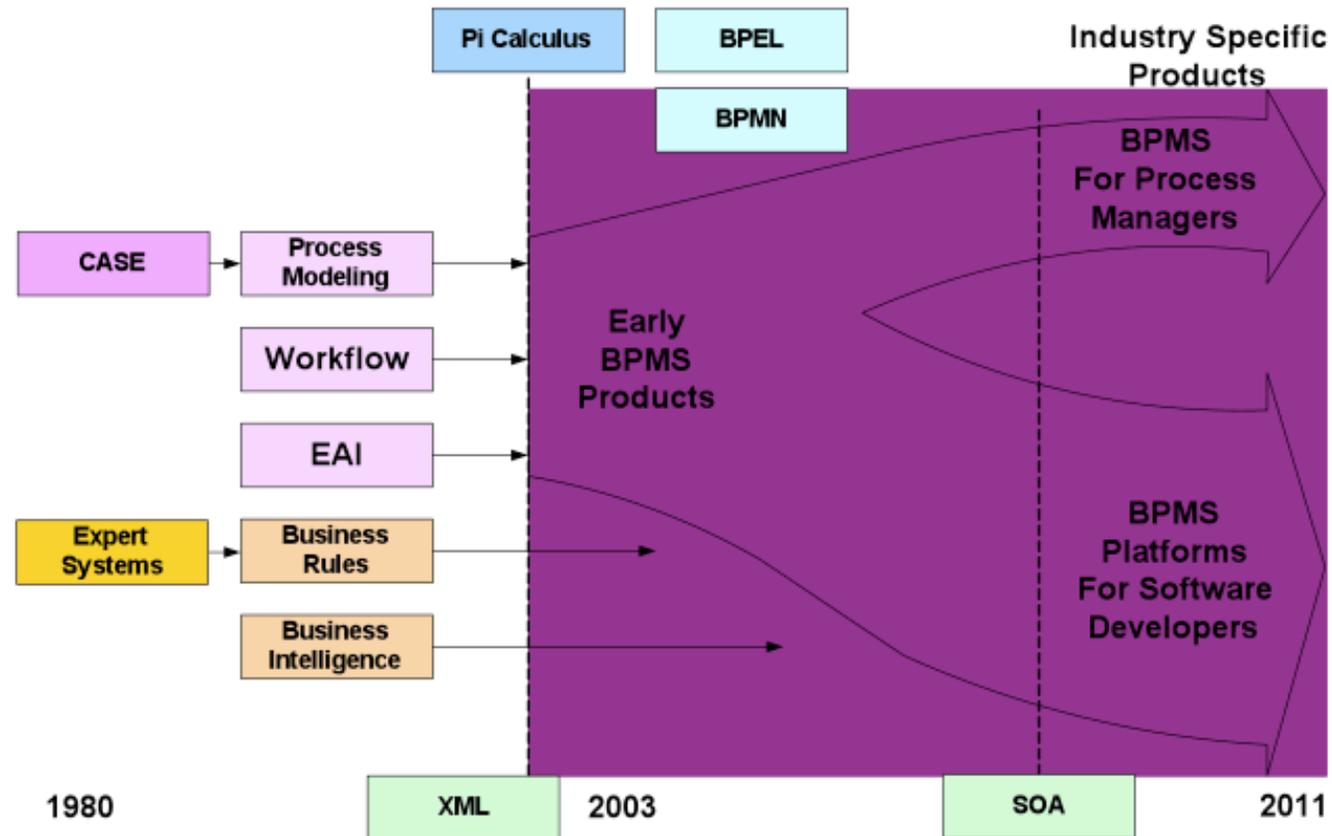
Meanwhile, consider what has been happening in the process market, as a whole. In order to keep this Advisor to a reasonable length, I will consider only one area. When the current increase of interest in process began in 2003, most people were still talking about conventional process designs. Think manufacturing processes that flowed in a step-by-step manner from order, to production, to the delivery of a product or service. But, since then, the world has changed rather dramatically - email, the web, smart phones, tweeting and texting have all rendered business processes more dramatic and complex. Groups have been formed to try to evolve standards for more complex and dynamic ways of modeling processes. Some emphasize the fact that many processes rely on complex networks of online communication. Others emphasize that the processes change frequently, and depend on the individual characteristics of the customers involved - as, for example, in managing a specific patient's case in a hospital. Process modeling approaches that were standard a few years ago are now being challenged.

Nor is it only modeling that is in flux. The whole world of process architecture is changing as enterprise architects try to define a new field called business architecture, and process practitioners try to define architecture models that can accommodate the complexities of process within organizations that support

various kinds of virtual value chains and multiple stakeholders. Similarly, business rules has mutated into a richer decision support system, and analytics is rapidly changing how we think about process monitoring.

All this is to say that, as fast as the larger vendors are consolidating to provide large BPMS environments, new vendors are entering the market with more specialized tools to do new kinds of modeling, new kinds of architecture and new kinds of analytics.

Moreover, some of the smaller vendors are still motivated by the original ideal of Smith and Fingar and hope to create simple tools that business managers can actually use to control their own processes. Figure 2 suggests where we are today.



**Figure 2. The diverging BPMS market.**

Meanwhile, what has happened on the BPMS application front? At a minimum, BPMS tools have been used to create a wide variety of more flexible applications – applications that would have been developed in SAP or some other ERP environment a few years earlier. This hardly delivers on the promise offered by Smith and Fingar, but it's made software development easier, and in some cases, made applications better aligned with the actual processes business people seek to implement and support.

We have yet to see any killer BPMS applications – as for example, a BPMS application that runs a large company's worldwide supply chain, constantly informing the head of operations where each item is in the

supply chain, which processes are performing as they should and where there are bottlenecks. We fully expect to see such applications and are confident that BPMS will deliver much better process management in many organizations in the near future.

In the meantime, however, we have tried to explain how the BPMS vendors, who launched themselves in the excitement of 2003, have found that it has taken a lot longer to get the results they hoped for. The world of business has become a lot more complex than it was in 2003 and those developing software to model and execute business processes have found themselves struggling to add new capabilities to support the many different paradigms.

In spite of all the problems, in our latest BPTrends BPM Market Survey, companies indicated that they are happier with BPMS tools and more likely to invest in BPMS tools this or next year than at any time since we launched our first Survey in 2005. Most businesses are more aware of the importance of processes than ever before. A growing number are launching programs to improve processes, to measure and manage them, and to align their processes with strategic goals. In today's business environment, one does not need to do much process work before one finds oneself struggling to create IT systems to support new process initiatives. BPMS products have taken a long time to mature, and it may take a few more years before they reach the point where they will be as pervasive as we expect them to become, but they are clearly going to become the workhorses of application development in the near future. Some of the early ideas, like BPEL, have fallen by the wayside, while others, like BPMN, have emerged as standards. For the foreseeable future, vendors will continue to explore which features to include in BPMS platforms and most organizations will begin to use BPMS products to support the growing demands of their process work.

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Till next time,

Paul Harmon

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