



Understanding the BPMN- XPDL-BPEL Value Chain

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For the past 12 to 18 months, there has been growing interest and discussion surrounding BPMN, XPDL and BPEL. What has begun to take form is the recognition of the BPMN-XPDL-BPEL Value Chain, a concept first credited to analyst Sandy Kemsley by XPDL expert Keith Swenson (whose work has been liberally borrowed and adapted for this article—thank you, Keith!).

In many ways, both literally and metaphorically, this value chain begins with Business Process Modeling Notation, or BPMN for short. Users generally will start by drawing a BPMN diagram, saving the partial diagrams as XPDL during development, and ultimately translating to BPEL parts of the process focused on data exchange (vs. human interaction). BPMN was proposed as the graphical modeling component of the original set of specifications introduced by the former Business Process Management Initiative (BPMI), now part of the Object Management Group (OMG).

BPMN is a graphical notation that depicts the end-to-end flow of steps and activities within a business process. It provides for modeling the sequence of activities within a process as well as the data or messages that flow between different process participants within a related set of activities. In other words, BPMN isn't designed simply to model applications, but also the processes in which applications would be used. For this reason, the output of BPMN needs to be expressed in something other than programmatic language. This was initially expected to be BPML, a since abandoned meta-language developed by BPMI.

What BPMN would have provided through BPML is the direct translation of a graphical model intelligible by people (i.e., business analysts, process owners) into a machine-readable format—to enable the interchange of process definitions between different tools and from different vendors. In the absence of BPML, where do you go with a BPMN model? The answer(s) are found in the next linkages in the value chain—specifically translating BPMN into BPEL and/or XML Process Definition Language (XPDL).

One of the common misconceptions regarding these standards is that BPEL and XPDL are direct competitors or are otherwise mutually exclusive. This simply isn't the case. In fact,

BPEL and XPD L are entirely different yet complementary standards, designed for different purposes. BPEL is an “execution language” designed to provide a definition of Web services orchestration—the underlying sequence of interactions, and the flow of data from point to point. The goal of XPD L is to store and exchange the process diagram—to allow a tool to model the diagram, another to read the diagram, and so on.

BPMN can be used to model an executable process by constraining diagram objects and their properties to that which can be mapped directly to BPEL elements. This enables, albeit with limitations, the use of a BPMN diagram to provide a business-oriented graphical process model that also can generate executable code through BPEL. This presents a real advantage, since BPEL doesn’t have an associated graphical notation nor does it require concepts to support the visual diagram of a process model.

Similar to BPEL, the original version of XPD L developed by the Workflow Management Coalition lacked specific graphical representation. With the release of XPD L 2.0 and subsequent versions, however, it was expanded to include the specific mechanisms that allow round-trip development from BPMN to XPD L and back to BPMN.

Rather than an executable programming language, XPD L is a process design format, which literally represents the “drawing” of the process definition. It has “XY coordinates” and node size, as well as a concept of lines, and points along the line that give it a particular path. The XPD L file can provide this design interchange because it offers a one-to-one representation of the original BPMN process diagram. It can be written and re-read to recover the original diagram. BPEL, on the other hand, is a non-trivial mapping that’s widely recognized as being one-directional (i.e., not round-trip). As previously stated, it’s possible to take a BPMN diagram and produce BPEL, but

it’s difficult or impossible to recover the original BPMN diagram from the BPEL. But that’s OK—BPEL wasn’t designed for process design interchange, whereas XPD L was designed precisely for this purpose.

Who cares about the ability to interchange process models anyway? Process interchange offers a key leverage point for firms investing in process models and for those that want these investments to be actionable without being locked into a single vendor. In all our research, as well as that done by others, we’ve found it’s far more common for firms to use tools such as Visio to develop process models. Through various third-party extensions, Visio supports BPMN, which by extension means it also supports XPD L—in fact, XPD L has been used specifically for the interchange of models between XPD L and simulation engines. XPD L and BPMN provide a platform for managing a library of business processes as reusable and accessible business assets.

The importance of process design interchange continues to increase as the BPM market matures. The lack of interoperability and design exchange necessitates a vertically integrated model where a single vendor must supply all the tools involved in BPM. This may have been acceptable in the early stages of the market when early adopters were placing bets on individual vendors, but for the market to grow and mature into the next stage, there needs to be an ecosystem, not an oligarchy.

This ecosystem is visible and growing today, and despite relatively aggressive M&A within the BPM sector, the leverage of standards (notably BPMN, XPD L, and BPEL) has provided a platform for a host of individual specialized and niche players, as well as the opportunity for larger BPMS vendors to offer a standards-based, round-trip framework. These standards also have “globalized” the BPM playing field, with a number of firms within emerging markets now not only offering compliant software, but directly contributing to the working groups defining and devel-

oping the specifications. Where dominant U.S. and Western European firms haven’t always demonstrated a willingness to “play nice” on standards development, emerging market firms are showing great innovation when it comes to both the development and application of standards.

An important attribute for enabling innovation within this ecosystem is the extensibility mechanism of XPD L. Specialized tools may present unique requirements using extended attributes, and while other tools won’t understand these extensions, they will carry the extensions along the round-trip. For example, a tool specialized to clean up the layout might manipulate the graphical aspects of the model, and return a cleaned up model, including all the extensions, to the original source without losing any information. Enhydra JaWE is an open source XPD L editing tool that has been publicly demonstrated to read an XPD L file from Fujitsu’s Interstage BPM, edit, and return without the loss of vendor-specific extensions.

Several BPM engines are able to run XPD L natively, which allows run-time modification and process migration to be readily supported. Where these processes focus on broader-scope collaboration among people, they can remain within XPD L/BPMN. Where pieces are decomposed into system-to-system interactions, these can be translated to BPEL for transmission to an EAI-oriented BPM engine. These are three very different and very compatible roles. But that’s the nature of the value chain—BPEL and XPD L are entirely different things for entirely different purposes. **bij**

About the Author



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BUSINESS

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TECHNOLOGY

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