



# Vendor Insight

## BPM technology review 2013: IBM

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This report assesses the capabilities of IBM's BPM technology platform, and also examines the partners and intellectual property that IBM can offer customers exploring Business Process Management (BPM) implementations.

This assessment report forms part of a series of reports from MWD which assesses BPM technology offerings – technology-related capabilities which support organisations adopting BPM to design, develop, deploy, monitor and optimise partially- or wholly-automated business processes.

We strongly encourage you to read this report in conjunction with the accompanying report *BPM Technology Review 2013: Assessment Framework*. The report provides background on the assessment framework and terminology used here and is freely available on [www.mwdadvisors.com](http://www.mwdadvisors.com).

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## Summary

### In a nutshell

Since its acquisition of BPM specialist Lombardi Software in 2010, IBM has been on a steady trajectory that's seen it consistently extend beyond its integration-centric heritage to produce flexible tools that are easy to use, yet able to cope with very significant design-time and operational scale. With its latest release IBM has focused particularly on enriching the transactional work capabilities of Business Process Manager – providing a stronger and more flexible underpinning for human-centric workflow applications at design time, runtime and also from an optimisation perspective.

Enablement of broader BPM engagement scope and scale (with richer social and mobile capabilities) is also on offer in Business Process Manager 8.5, as is a public cloud deployment option.

### Support for different types of work

Automated	Transactional	Exploratory
Automated work is IBM's heritage in the BPM space, and the specialised capabilities of Integration Designer continue to support this kind of work very well – but you will need to buy the Advanced Edition of Business Process Manager to get access to them.	With its recent platform enhancements, IBM's support for transactional work scenarios is now very strong. You can now accomplish much more with the declarative and model-driven tools on offer, which will give you more flexibility and minimise your costs and risks over time.	Exploratory work scenarios are something IBM continues to work towards supporting fully with Business Process Manager, but in its current incarnation – although many foundation capabilities are present – IBM currently advocates that you use its Case Manager product for these scenarios.

### Engagement scope and scale

In the last two Business Process Manager releases IBM has concentrated a lot of its effort on increasing the ability for its technology to engage stakeholders broadly and at scale – taking the collaborative discovery and mapping innovations it initially delivered with Blueworks Live and pushing them into the rest of the platform. Now there are strong social sharing and expertise location capabilities right within the design environment as well as the operational environment, within running process applications. Plus, with the rewritten dashboarding facility, relevant participant activity streams are surfaced as both input for, and discussion around, optimisation work.

IBM's support for extending task work, process monitoring and administration to mobile platforms is less well-advanced, but with this release it has taken some sensible first steps by making use of its recent Worklight acquisition.

### Change management

The ability to manage process application change at scale has been a key design point for IBM ever since it acquired Lombardi, and it's continued to strengthen the Process Center technology in subsequent releases. Its capabilities are now at the point where the requirements that come from having to manage change across large, complex BPM programs comprising multiple parallel projects, deployment environments and development teams are supported very well.

## Inside IBM's BPM technology offering

IBM's BPM technology is based around a foundation of Business Process Manager (currently on release 8.5) together with the SaaS-based Blueworks Live and assists from Operational Decision Management (also on version 8.5) and Monitor (on version 8.0.1). In this most recent release wave IBM has focused particularly on enhancements that revolve around engagement scope and scale as well as sophistication in support of transactional work scenarios.

Along with the 8.5 schedule of BPM-related product releases, IBM has also announced availability of Business Process Manager on the IBM SmartCloud Enterprise public cloud service.

### Key products

As introduced above, there are three key products in IBM's BPM technology platform, as follows:

- **Blueworks Live.** A hosted, collaborative process and decision discovery and high-level design environment, coupled with simple tools for quickly creating simple process automation applications delivered as a hosted service.
- **Business Process Manager.** A comprehensive BPM technology platform providing capabilities across design, simulation, development, integration, deployment, monitoring and optimisation. It's available in three 'editions', each of which is packaged to suit different stages or sizes of BPM implementation and is available from IBM's Smart Cloud Enterprise or as an on-premise product.
- **Business Monitor.** A Business Activity Monitoring (BAM) tool designed to draw performance information in the form of operational events from a variety of middleware platforms – including, but not limited to, IBM's own Business Process Manager, WebSphere MQ and ESB, Operational Decision Management, CICS and IMS.

Business Process Manager has different component pieces, depending on the edition you license. The complete set of components is as follows:

- **Process Designer.** The core process application design environment in Business Process Manager. Provides BPMN-compliant graphical design tooling combined with wizard-based editors for the specification of task user interfaces, data definitions, and so on.
- **Integration Designer.** Available in the Advanced edition of Business Process Manager. Another graphical process design and development environment, but instead of being aimed at business analysts, Integration Designer is aimed more squarely at software developers and revolves around BPEL instead of BPMN, chiefly for specifying the automated orchestration of functionality across applications and services.
- **Process Center.** Available in all three Business Process Manager editions. A rich model asset repository for process applications. It provides features in support of lifecycle management and governance for assets across both Process Designer and Integration Designer, and also provides facilities for automating the deployment of process applications.
- **Process Server.** In the Standard and Express editions of Business Process Manager, the Process Server hosts processes designed and developed with Process Designer, with the additional ability to host an embedded rules engine that is upward-compatible with IBM Operational Decision Manager (ODM). In the Advanced edition the platform looks the same from a deployment and administration perspective, but also hosts straight-through integration flows specified in Integration Designer, as well as providing built-in adapters.
- **Process Portal.** Available in all three Business Process Manager editions, Process Portal provides a user experience container for process participants and administrators. Process Portal works in concert with Process Server in all three Business Process Manager editions, and also provides monitoring and optimisation capabilities in concert with Process Server.

In addition to these main components of Business Process Manager, IBM also offers a set of 'Microsoft add-ons'. With these installed, Business Process Manager can use Microsoft SharePoint as a user experience front-end for process participants and administrators, and use Microsoft Outlook for delivery and launching of tasks and publication of performance reports.

## Using the products

### Core capabilities

#### Mapping, modeling and design

Blueworks Live provides capabilities for collaborative process discovery, high-level design and the ability to create and reuse assets from a library of templates (including, for example, high-level process templates from the APQC Process Classification Framework). Its primary purpose is to help non-specialists explore and refine their ideas about processes, and communicate these ideas to others. At the same time, though, models can be refined in a BPMN-compliant modeling perspective that provides more detail and more specificity. Blueworks Live can also capture elements of the strategic context for BPM initiatives – namely, organisational goals and organisational problems/opportunities. Problems/opportunities can be associated with processes, enabling different processes to be analysed in the context of the potential business benefits available. Analysts can also define decision tables and decision trees right from within Blueworks Live, by distinguishing 'business decisions' from other activities. This comes alongside the ability to document important policies and regulations, and make reference to these across process maps you define.

As analysts are refining their high-level models they can add a level of implementation detail (focused on activity ownership, inputs, outputs and so on) – and as these attributes are specified, Blueworks Live automatically allows all participants to explore their use across projects (so it's easy to see, for example, which activities a given Manager has oversight of).

There's synchronisation between Blueworks Live and the Process Designer within Business Process Manager. A Business Process Manager installation can subscribe to a Blueworks Live process Blueprint, and users of either tool can automatically receive notifications of model updates from the other. Further, Process Designer users can engage in online discussions with Blueworks Live users (within Blueworks Live) in order to bottom out requirements, refine features, and so on. Both tools can be used to design BPMN-compliant process models with some abstract implementation details, though Process Designer can take those models into full implementation.

At design time you can also instrument process models using Key Performance Indicators (KPIs) and Service Level Agreements (SLAs), which are used to drive the process monitoring environment at runtime. KPIs and SLAs can be attached to entire Business Process Diagrams (BPDs), or to individual process activities.

#### Operation and execution

Within Business Process Manager, a single Process Server runtime environment provides a unified management and execution container. It can also act as a container for an embedded version of the rules engine portion of the ODM runtime. If you use the Advanced Edition of Business Process Manager, a BPMN engine and a BPEL engine will both be deployed to serve your applications, and you'll also be able to deploy and manage an ESB instance alongside.

Whatever combination of engines is being managed by Process Server, it works in concert with Process Center to create a seamless deployment and runtime version management environment, and administration point. You use Process Center's wizard-like tools to package together models and 'configurations' (collections of reusable assets like integration libraries, rules, and so on) into versioned process applications and deploy these to runtime servers. Process Center Advanced Edition can deploy to any mixture of Express, Standard and Advanced server instances.

The Process Portal provides the primary administration interface for Business Process Manager, although IBM also offers its Business Space user interface framework (previously deployed as the default container for WebSphere BPM user interface elements) as a supported alternative. All the Process Portal administration, monitoring, work management and optimisation features are available as Business Space widgets. Clients can also take advantage of the server APIs on offer to create their own custom user interfaces.

### **Monitoring and improvement**

When it comes to process monitoring, IBM has two technologies on the table: the Process Portal within Business Process Manager, which is the obvious choice if you're automating processes developed using Process Designer; and IBM Business Monitor, which provides monitoring facilities in environments where you want to be able to monitor operations at a broader scope (perhaps aggregating performance views across BPMN-based processes and BPEL-based integration processes developed using Integration Designer) – or where you're not using Business Process Manager as an operational process platform.

Process Portal hosts highly configurable bundles of monitoring reports (“scoreboards”) for process participants and their managers to track processes developed using Process Designer. Scoreboards can pull together information about SLAs and KPIs defined at design time and also track process variables (as defined at design time through ‘tracking groups’ and ‘tracking points’) – and the product ships with pre-built browser-based dashboards for participants and managers. There's a variety of graphing and charting options available that enable process statistics to be presented in a friendly manner to both specialists and non-specialists. The configuration tools provided, which are likely to be easily understood by non-technical business people, are web-based, drag-and-drop tools that enable any process participant to define their own *ad hoc* reports. Like administrator-defined reports, these report definitions are stored in the Process Center repository alongside other project artefacts.

Scoreboards can track and highlight ‘at risk’ process instances, which are in danger of being completed after agreed deadlines. The configuration features of the Process Portal mean that you can quite easily track and alert process state elements, and highlight if these are in danger of becoming misaligned with defined thresholds.

If you decide to use Business Monitor (either instead of or in addition to the Process Portal), you can use an easy-to-use wizard to define a ‘global monitoring context’ that links events from different platforms (including both BPMN and BPEL processes within Business Process Manager), enabling you to get true end-to-end monitoring views. You can define milestones as part of monitoring contexts, and these then provide the measurement points at which sampling is carried out to drive performance reports and charts. Business Monitor auto-generates default dashboards that include views of performance vs. defined KPIs and individual process instance performance, as well as providing drill-down functionality.

## **Automated work**

### **Mapping, modeling and design**

If you're going to be implementing automated workflows you'll be best served by working with Integration Designer. Whereas Process Designer's process modeling uses BPMN, Integration Designer's model syntax is BPEL. The recommended approach for new projects is to wrap and expose Integration Designer process flows as reusable services, and then reference them from within ‘higher-level’ business process models mapped out using Process Designer. IBM wants customers to use both toolsets: Process Designer definitions will delegate technical integration and orchestration work to Integration Designer definitions – with Process Designer being used by business-facing design teams, and Integration Designer being used by IT development teams. In BPEL flows as supported by Integration Designer, it's straightforward to model transactions that span multiple activities, and the error handling semantics supported are also fairly extensive.

With the launch of Business Process Manager in 2011, IBM embedded a limited version of its Operational Decision Management (ODM, formerly JRules) technology into the offering. IBM now recommends that any identified business rules are implemented using this technology. You can embed BAL syntax rules or decision tables this way. As was the case with the former WebSphere Lombardi Edition technology, it's straightforward to parameterise rules using External Process Variables (EPVs) and have those be editable at runtime through the Process Admin console. This is an important capability that makes it possible to change some rule behaviours in running applications without having to change rules themselves directly.

The integration approach you'll take with a Business Process Manager project will depend on the edition of the product you have. If you have the Express or Standard Edition, you'll use the simple integration capabilities offered when you specify integration tasks in Process Designer models – taking advantage of connectors, which are program libraries that are specialised for creating protocol connections between the Process Server runtime and external systems, and possibly combining these with the capabilities of an ESB investment you already have. If you have the Advanced Edition, you'll specify dedicated integration flows within Integration Designer that can orchestrate data across multiple systems, applications and databases, storing them as reusable services within Process Center and making them available for use within Process Designer. Within Integration Designer you have access to the facilities of the WebSphere Enterprise Service Bus (ESB). You can also take advantage of WebSphere adapters, which make it easy to integrate with external systems at the protocol/format level. To implement integration at the semantic (message structure) level, you define ESB-hosted 'mediation flows' in Integration Designer that employ 'interface maps' and 'business object maps' to carry out message transformations.

### **Operation and execution**

In keeping with Business Process Manager's heritage, operational support for automated work scenarios is strong when you use Integration Designer to specify your process application behaviour. The linkages between the Process Server and IBM's other integration middleware platforms make it straightforward to automate processes to be started and influenced by external events; transactional control of activities at runtime can also be quite sophisticated.

In the context of scalability, not surprisingly IBM has a number of capabilities on offer. Some of these are provided by Process Server itself, whereas other 'extreme scale' mechanisms are provided by taking advantage of extended options for the application server(s) you use to underpin your runtime environment.

## **Transactional work**

### **Mapping, modeling and design**

The organisational modeling capabilities in IBM's offering are able to support transactional work at scale – with the more powerful concept of 'teams' (with specified managers) replacing the previous 'participant groups' as the way you specify the assignment of work to groups of individuals, and then the tracking of work. Typically customers import basic organisational details from an external directory, and then augment that information with custom-defined metadata. You can specify teams where membership is dictated by custom user attribute values, which allows you to (for example) specify that a given task should only be made available to experienced analysts with proficiency in German. With Process Designer – the tool you'll most likely use for transactional work modeling – work schedules can be defined for each business process model, although work schedules themselves aren't first-class artefacts that can be easily shared or reused. Tasks can also be routed, delegated or escalated according to JavaScript expressions, or alternatively using decision services.

User interfaces for interactive activities are specified as HTML forms that you design in the Coach Designer built into Process Designer. Customers can visually design coaches by creating, reusing and assembling simple and aggregate UI components ('views'). All components and views within a Coach reference the same underlying model of task information, so complicated forms that exhibit dynamic behaviours are much easier to create without scripting.

You can easily specify that tasks may be completed 'in line' in the Process Portal's new social-style interface rather than requiring the rendering of a form.

### **Operation and execution**

The foundations for supporting transactional work are very good in Business Process Manager – with the user interface capabilities for human tasks provided out-of-the-box being particularly strong and the organisational model underpinning becoming much improved. Work assignment, delegation and administration can now be flexibly resolved at runtime based on organisational model (team) queries and filters – a great improvement on the simple participant group system that was in place prior to this release.

The Process Portal provides the default environment for individual process participants to work on tasks and keep track of progress. The default view of work that process participants have is a social-style interface. Rather than presenting work in a tabular format as most tools do, the new Process Portal's default view is that of an 'intelligent list' of tasks, combined with sophisticated interactive search to help users quickly filter and find tasks to complete. Tasks are highlighted and promoted when they're overdue or at risk. This is set next to a context-sensitive social activity stream, surfacing system events generated by the running Process Server as well as status updates from other team members. Where tasks are marked as being able to be completed 'in line', expanding a task in this list presents users with a condensed task form that can be quickly completed and dismissed. Where more complicated Coaches are required to complete tasks, these Coaches now appear in context.

Coaches are integral and integrated views onto work with deep insight into the overall state of the work and the organisation – rather than being stand-alone task forms. They're also dynamic structures, with visibility of Coach Views being driven by combinations of process variables and team membership at runtime. Also, a context-sensitive information panel that appears alongside every Coach by default and provides information to assist anyone working on a task, offering:

- A list of recommended subject-matter experts for this process, as specified by an administrator.
- A list of recommended subject-matter experts for this activity, as automatically identified by a background task mining the Performance Data Warehouse.
- The ability to immediately request real-time collaborative help from another team member within the Coach, which allows any other team member to edit information in a shared Coach such that both parties see all changes synchronously.
- A view of all the published activity (whether published by other team members or the system) that's occurred prior to the current point in this process instance.

Integration with content and document management systems is provided through implementation of the CMIS standard. Now you can easily specify metadata for images and documents that are relevant to a particular process, and functionality is provided out-of-the-box to allow users of Coaches to search, browse and display documents, and perform direct updates and deletions within document content. A lightweight CMIS server is now also provided out-of-the-box: this can act as a default store for process attachments if you don't have an external document management system you want to use.

### **Monitoring and improvement**

Overall the monitoring and improvement capabilities you'll look for in support of transactional work scenarios are very strong. Because Process Portal dashboards (collections of performance reports) are active, 'live' reports, analysts can quickly drill down into high level views to dig into performance issues and uncover root causes. Dashboards can reference SLAs and KPIs defined within process models at design time, as well as tracking process variables representing key business information types (such as sales value, for example).

In Business Process Manager 8.5, the dashboarding interface has been redeveloped based on the Coach Views technology that's used for task forms. The result is a more flexible and powerful monitoring environment that provides powerful visualisations of team performance (you can drill down to see individuals' performance) as well as process performance (where you can drill down to see performance of individual instances). Visualisations of historical process performance are superimposed on process models themselves, showing hotspots and bottlenecks and highlighting potential areas for optimisation. Dashboards also show context-specific activity streams, so stakeholder teams can work together in context to explore performance problems and improvement opportunities. A Gantt chart view for individual process instances, which shows not only the progress of formal tasks but also the parallel activity stream for that instance, provides an audit trail of work as well as an immediate visualisation of completion time estimates.

Beyond the process model-level optimisation capabilities that you get with Optimizer, Business Process Manager presents an increasing range of optimisation tools that act in the context of individual activities and process instances. The ability for the platform to make in-context recommendations about decisions and choices within individual Coaches at runtime, based on analysis of historical performance data, has long been a feature of IBM's offering (and Lombardi's before that); but now, real-time analysis of Performance Data Warehouse data can also surface recommendations about suitable subject matter experts, based on information that's held about which people have most successfully carried out which activities in the past within each process.

## Exploratory work

### Mapping, modeling and design

There are currently no specific case management features provided within Business Process Manager at design time explicitly aimed at exploratory work scenarios, although there are foundational capabilities in the offering. Specifically, there are some dynamic process capabilities provided, both through standard BPMN event-related behaviours and the concept of ad hoc tasks. Within Coach-based task user interfaces, participants have the ability to collaborate to complete tasks, and there is a pre-built integration service for IBM Case Manager that allows you to quickly specify how documents stored there can be queried and updated from within your business processes.

### Operation and execution

Business Process Manager currently implements many of the base capabilities required to support exploratory work – the ability to execute dynamic work structures, the ability to support collaborative task completion, and the context-sensitive integration of tasks with content and document management systems via implementation of the CMIS standard – but today there are no explicit case management runtime capabilities with Business Process Manager itself. For work that requires case management functionality, Business Process Manager ships with a connector to IBM Case Manager.

### Monitoring and improvement

It's not possible for Business Process Manager or Monitor to aggregate information in order to track progress and performance on a per-case basis out-of-the-box – but with a little work you can develop this capability. You can create monitoring schemes that will work across sets of related processes, to allow you to monitor the performance of cases or other concepts that exist above the level of individual process instances. Tracking points and timing intervals are designed to be shared and monitored across processes that might be involved in the same case.

At the moment there's currently no out-of-the-box capability enabling the platform to automatically archive completed cases for later access, or ability to use completed cases or work patterns or templates for future use.



## Change management

Although Integration Designer and Process Designer are specialised tools aimed at different audiences, they both share Process Center as the place from where models and other assets are accessed, stored, traced and versioned. Because Process Center provides a single place where all assets are stored, managed, versioned and packaged for deployment – and because it integrates seamlessly with Process Server instances – people working on BPM projects, regardless of the role(s) they play or tools they use, can work together and build value from one project to the next.

Support for ‘snapshots’ that create versions of configurations of multiple assets is particularly noteworthy, because the ability to quickly roll back and ‘roll forward’ workspaces between snapshots makes it easy to figure out what’s changed between versions of applications. ‘Toolkits’ represent reusable packages of assets that can be shared across projects with ease; projects can reference different versions of the toolkit. Change impact analysis, based on quick visualisations of which repository assets are referenced where, is also noteworthy; most BPM technology offerings available today provide weak change impact analysis features.

Process Center also acts as the central point for configuration of process application runtimes – including security configuration, versioning information, environment variables and so on. Server configuration information is managed within the domain of WebSphere Application Server instances running process applications – but even here, there’s a central administration console where all relevant information can be stored and managed.

Process Center is also the place where you carry out process deployment to one or more servers: and deployment is a streamlined set of tasks. The full Business Process Manager runtime, together with appropriate process application components can be deployed and configured with a handful of mouse clicks.

You can federate multiple Process Center instances across and even between organisations – something that will make it easier to run large BPM programs and Centres of Excellence (COEs) within large, distributed organisations, and also something that enables IBM to run its own Process Center containing ‘community content’ for its customers to share in their own environments. The Process Center also supports the Open Services Lifecycle (OSLC) development lifecycle integration specification, meaning that Process Center artefacts can reference, and be referenced by, other repository products supporting OSLC (including IBM’s own Rational Team Concert). Lastly, within Process Center you can now define your own custom administrative processes that are invoked whenever a process application deployment request is made, or whenever a new process snapshot is created. This flexibility means Business Process Manager can work more seamlessly in environments where responsibility for managing change is distributed – for example ensuring that chains of authority are properly consulted before deploying new functionality into a business-critical operation environment.

## Engagement scope and scale

In the last two Business Process Manager releases IBM has concentrated a lot of its effort on increasing the ability for its technology to engage stakeholders broadly and at scale – taking the collaborative discovery and mapping innovations it initially delivered with Blueworks Live and pushing them into the rest of the platform. Now there are easy-to-use and sophisticated social collaboration features available not only in Blueworks Live but also within Process Designer – and also in the operational environment with upgraded Coaches for task work and the new Coach View-based dashboarding framework in the Process Portal. In the current release activity stream data can also be forwarded to the IBM Connections and Notes collaboration platforms.

Also in Business Process Manager 8.5, IBM bundles a non-production license to its new Worklight mobile application development framework. The mobile toolkit installs as a component in Process Designer, and makes it possible to create mobile ready device-friendly task Coaches that can take advantage of mobile device features like cameras, location services and so on.

## Reference information

### Regional capabilities

As a global technology company, IBM has staff support available in every country in North America, nearly every country in Latin America, Europe, Central Asia and the Asia-Pacific region, and also in Israel, Saudi Arabia, UAE, South Africa and Egypt.

### Industry capabilities

IBM pays particular attention to developing specialised BPM capabilities for four industries: banking, insurance, government and healthcare. However, it's also developing capabilities specialised for retail, transportation, telecoms, manufacturing, and the energy and utilities sectors. It offers process accelerators and application frameworks for common process improvement scenarios across all these sectors.

For each of its 'big four' industry focuses, IBM has specialised 'tiger teams' that bring advanced BPM technology and method knowledge to pre-sales situations. It also has industry sales leaders specialised by industry, and industry framework teams with technology leaders who can help to bootstrap customer implementations. Within its Global Business Services consulting unit, IBM now has around 70 full time staff focused on BPM by industry, working on creating and curating reusable assets, implementation roadmaps, and other project acceleration content.

### Partners

IBM has over 750 BPM certified implementation partners worldwide. It works particularly commonly with Prolifics, Emericon, BP3, Haddon Hill, Axispoint, Orbital, Summa Tech, Capgemini, IBM GBS, The Willow Group, Habber Tec, and Virtusa.

### Platforms and connectivity

Business Process Manager runs on Java Application Servers (IBM's own WebSphere Application Server Network Deployment is bundled). It can be deployed to IBM PureApplication Systems as well as being available on IBM's SmartCloud Enterprise public cloud platform.

IBM offers adapters for packaged application suites as separately licensed components: adapters are available for SAP, Oracle E-Business Suite, JD Edwards, Siebel and PeopleSoft systems. Technology adapters for JDBC, Flat Files, FTP, CMIS document management systems, IBM I series platforms, Lotus Domino, Email, Web Services and HTTP protocols are bundled with Business Process Manager and offered free of charge.