

Magic Quadrant for Intelligent Business Process Management Suites

Published: 24 October 2017 **ID:** G00315642

Analyst(s): Rob Dunie, Marc Kerremans, Van L. Baker, Jason Wong

Intelligent business process management suites use actionable, real-time insights from operations intelligence to augment the orchestration and automation of adaptive business processes. They help application leaders deliver better business outcomes by improving and transforming business processes.

Strategic Planning Assumptions

By 2020, 50% of the companies that have renovated their ERP core and migrated their IoT infrastructure to a standardized platform will increase customer interactions by over 20%.

By 2020, 70% of new integration technology deployed will have unified application and data integration capabilities within a single platform.

Market Definition/Description

This document was revised on 24 October 2017. The document you are viewing is the corrected version. For more information, see the [Corrections](#) page on gartner.com.

Gartner defines an intelligent business process management suite (iBPMS) as an integrated set of technologies that coordinate people, machines and things. It emphasizes:

- Support for real-time human collaboration, including integration with social media, mobile and cloud access to processes
- Advanced analytics, real-time activity monitoring and decision management for intelligent coordination and management of the interactions of process participants

iBPMS software supports the full cycle of process and decision discovery, analysis, design, implementation, execution, monitoring, and optimization. Such business process management (BPM) suites support highly intelligent applications that seamlessly integrate more-advanced decision automation technologies — such as predictive analytics and artificial intelligence (AI) — to automate business processes that require more situationally adaptive behavior.

An iBPMS is a type of high-productivity application development tool (see "Survey Analysis: High-Productivity Application Platform as a Service Advances in Enterprise IT"). It allows citizen developers — most commonly business analysts but also business end users and professional developers — to collaborate during the creation of an application, with changes to the requirements reconciled by changing a model (process flows, business rules, data models, etc.) and directly impacting application behavior. This allows for rapid continuous improvement of a business process or experimentation with new operating models.

An iBPMS fosters collaboration between "citizen developers" — typically business analysts, subject matter experts and data analysts, as well as IT developers (internal to the organization or third-party independent software vendors). This allows business users to be involved in frequent or ad hoc process change, while allowing IT to own certain technical assets (such as integration with external systems and security administration). An iBPMS enables the citizen developer to be a partner with IT throughout the entire process life cycle, allowing rapid experimentation by reducing the time it takes to realize changes to a business process. An iBPMS provides real-time insights supporting "BizOps" — that is, continuous process improvement and reinvention at the pace of DevOps (see "Technology Insight for Intelligent Business Process Management Suites").

A highly intelligent iBPMS can provide the foundation to industrialize the digital customer and employee experience by connecting customer and partner interactions to back-office operations and supplier ecosystems in a situationally adaptive way. It services proactively personalized, contextually aware interactions at scale while supporting rapid transformation and/or improvement of the customer and employee journey. An iBPMS acts as a digital twin for your business operations and brings together seamlessly several of the core components of a business operating system — most commonly the business operating model, enterprise performance management, business operational intelligence and business decisions (see "Create a Digital Twin of Your Organization to Optimize Your Digital Business Transformation Program").

An iBPMS has higher-intelligence capabilities in at least four of the eight dimensions of the Gartner Business Process IQ Framework (see "Eight Dimensions of Process IQ Determine How Smart Your Process Needs to Be"):

- Data timeliness
- Context granularity
- Predictive power
- Actionability

Very advanced iBPMS offerings may also feature capabilities in the other four dimensions of the framework:

- Contextual extensibility
- Decision diversity
- Optimization
- Behavioral impact capture

An iBPMS allows for the orchestration of processes that reshape themselves as they run. These processes can therefore be considered adaptive and intelligent, executing the best, next action instead of the same repeatable sequence of actions.

An iBPMS orchestrates an organization's work to produce business outcomes that can far exceed those from typical process efficiency and performance measures. It enables organizations to improve the business outcomes of all types of work, not just structured and repeatable business processes. It does so without unnecessarily standardizing the activities and flows, and thus orchestrates the work in a situationally adaptive way.

iBPMS platforms are differentiated by their ability to orchestrate progressively complex work styles — for example, adaptive case management or processes driven by complex events (see "Business Events, Business Moments and Event Thinking in Digital Business"). This is increasingly important, particularly in the context of digitalized processes and those that coordinate the behaviors of people, processes and the "things" that are part of the Internet of Things (IoT). This requires actionable, advanced analytics to more-intelligently orchestrate business processes across the virtual and physical worlds. These actionable analytics generate insights from situational context using both historical and real-time operations intelligence.

These insights manifest themselves at two levels:

- *At the macrolevel:* Using stream analytics, complex-event processing (CEP) or business activity monitoring (BAM), an iBPMS continuously monitors operations intelligence and identifies opportunities to improve outcomes — for example, anomaly or exception detection. It also encompasses on-demand analytics such as critical path and workload volume analysis. It is used to drive improvements in the process design, which is often useful in continuous process improvement and business transformation efforts.
- *At the microlevel:* Using real-time analytics, decision automation (such as decision tables, predictive analytics and AI) and decision support for knowledge workers, an iBPMS drives improvements in the execution of a particular process instance. This is useful in ways that go beyond traditional business transformation to the execution of digitalized processes.

For details regarding the nine critical capabilities of an iBPMS, see Note 1.

For details regarding the six use cases we evaluated vendors against, see Note 2.

Magic Quadrant

Figure 1. Magic Quadrant for Intelligent Business Process Management Suites



Source: Gartner (October 2017)

Vendor Strengths and Cautions

AgilePoint

AgilePoint's iBPMS offers an integrated set of capabilities built on Microsoft .NET architecture, enabling business and IT to collaborate on developing business applications. AgilePoint has also

added integration with Salesforce to embed its iBPMS capabilities and support Visualforce and Lightning development. The following analysis refers to AgilePoint NX v.6, which is available on-premises and as a cloud-native bpmPaaS through Microsoft Azure and Amazon Web Services.

Strengths

- With strong support for SharePoint and Office 365, use of .NET in its stack, and cloud deployment via Azure, AgilePoint NX is a strong fit for organizations seeking an iBPMS that integrates well with Microsoft services. Alongside 40 different prebuilt application connectors, AgilePoint's integration with Salesforce embeds its iBPMS capabilities in the Salesforce user experiences using Visualforce and Lightning.
- Reference customers indicated a high level of satisfaction with AgilePoint's pricing and contract terms. AgilePoint is generally viewed as an attractive and cost-effective option for organizations looking for core iBPMS capabilities that can scale well to enterprise needs.
- AgilePoint enables citizen developers to easily compose process-centric applications. It has improved its high-productivity authoring experience, with reference customers giving this above-average ratings. Employing JQuery and JQuery Mobile frameworks, its eForms Builder offers a drag-and-drop tool with more than 60 form controls that are responsive across device form factors. AgilePoint NX also tracks the controls and enables reusable form components and sections.

Cautions

- While AgilePoint plans to invest in process discovery and optimization, currently its capabilities are quite limited even when analyzing activities not controlled by its own orchestration engine. It does not support goal visualization or goal-oriented formulas in process modeling. Process simulation and optimization require customizations through its AgileExtender Framework.
- AgilePoint has limited native business rules and decision management capabilities. Besides its support for formula-driven rules in condition shapes, rule functions require third-party decision automation engines, such as externalized stand-alone business rules, statistical analytics and machine-learning services.
- AgilePoint provides basic analytics capabilities, with partial support for predictive analytics through its AgileExtender Framework. Customers requiring complex business rules, CEP and complicated reporting, or advanced analytics may need AgilePoint add-on integration with subscription services (Microsoft Azure CEP, Cognitive Services, Machine Learning, Power BI, etc.).

Appian

The Appian development platform combines low-code development with process management to allow IT and citizen developers to construct process-centric and case-centric applications. The Appian platform allows enterprises to dynamically alter processes for ongoing process

improvement, and supports intelligent business processes that support business transformation. The following analysis refers to Appian v.17.2.

Strengths

- The Appian platform performs strongly across all the criteria for iBPMS platforms. The offering provides a strong suite of tools for citizen developers that includes process modeling, UI design and decision design.
- Appian customer references indicated a higher degree of satisfaction with their overall platform experience versus those of the other vendors surveyed. All respondents stated that they use Appian for implementing multiple processes that span cross-functional boundaries, indicating a preference for implementing complex business processes with the Appian platform.
- Appian demonstrates a better understanding of customer needs compared to most vendors in the market, with its reference customers indicating high satisfaction. Its Quick Start program jump-starts the implementation process for new customers, and it has a wide range of training options. Its Appian Assurance offering delivers an annual audit of infrastructure, configuration, design and user experience, demonstrating a strong commitment to making customer deployments successful.

Cautions

- Although Appian provides performance analytics on business processes, the design experience for data outside of the process is limited. Native data visualization is restricted to grids and common chart types.
- Reference customers surveyed by Gartner rated the overall value of the Appian platform slightly lower than those of the market leaders, and indicated that they were slightly less satisfied with contract negotiations versus other vendor customers.
- Appian has added machine-learning capabilities to support decision management to deliver predictive analytics, but they are more limited and unproven so far compared to those of more-visionary vendors. Its event-triggered actions are largely limited to messaging, web services, timers and data-state triggers at this point.

AuraPortal

AuraPortal Helium is a Microsoft .NET-based platform that provides highly intelligent capabilities in a relatively inexpensive package. This is quite an achievement, given that AuraPortal is further expanding its reach from midsize to larger organizations and has started to build momentum in the North American market. This analysis pertains to AuraPortal Helium v.4.4.6.

Strengths

- AuraPortal bolsters its position within the Microsoft-centric segment through increasing marketing efforts and messaging (e.g., co-branding in certain regions, leveraging worldwide

Microsoft events, and playing a visible role in the Microsoft partner community by presiding the channel partners in EMEA).

- In order to facilitate citizen-developer-based application composition, AuraPortal has introduced a new set of easy-to-use connectors for Excel and email. These connectors are designed to help coordinate and sequence the execution of tasks, and orchestrate complex implementations.
- AuraPortal's partner, sales and marketing strategies have started to pay off, based on perceived sales traction and greater brand awareness in regions such as North America, South Asia and the Gulf area.

Cautions

- Some reference customers surveyed by Gartner indicated challenges in modeling more-complex processes and implementing integrations with external systems. Organizations must plan carefully when implementing a process that requires interactions between process instances or that requires complex integrations.
- Reference customers that paid for support reported much higher degrees of overall satisfaction with the vendor than those that did not. Only half of them indicated that they had purchased a support contract with AuraPortal. Prospects should strongly consider purchasing a support package alongside the software.
- Although it has increased market awareness, AuraPortal does not have as much recognition outside of the Microsoft-centric segment. Few reference customers across the vendors considered it during their evaluation of products in the market. Nearly all reference customers that showed interest or purchased AuraPortal examined only other .NET-based products.

Axon Ivy

Axon Ivy is a J2E-based iBPMS that provides many higher-intelligence capabilities. After the overhaul of its system some years ago, Axon Ivy has started to harvest on these investments, and has provided evidence of the acceptance of its differentiating vision for case handling. This analysis pertains to Axon Ivy BPM Suite 6.6.

Strengths

- Axon Ivy has robust case management functionality, having added capabilities such as a NoSQL business repository to load and store case data in a flexible manner, which can be easily searched and analyzed. Axon Ivy is a good platform for complex or adaptive case handling.
- Axon Ivy has introduced innovative functionality aimed at the citizen developer, such as a low-code wizard to build custom-made application adapters. It also has new interaction features aimed at the business user and based on AI and natural-language processing, such as a digital employee called James.

- From a business model perspective, Axon Ivy is leveraging new channels based on the industry-related open business platform for SMBs that it has created. Free for end users, this platform takes care of payroll and accident administration, and has been financed by the cost savings from fewer expenses for agencies and insurance companies.

Cautions

- Reference customers surveyed by Gartner indicated lower levels of overall satisfaction with the vendor compared to those of the other vendors in this evaluation. Although Axon Ivy has some promising innovations and analytic capabilities, these capabilities are immature and deployed inconsistently by clients. While all reference customers indicated that they would recommend the product, more did so with qualifications compared to the other vendors evaluated.
- Awareness of Axon Ivy is limited outside the DACH region, and no reference customer of any other vendor in this Magic Quadrant mentioned it as a shortlisted vendor for their iBPMS initiative. Compared to vendors with stronger execution, Axon Ivy does not have as broad market awareness or as mature a sales capability, instead relying heavily on a partner-led international expansion.
- Potential clients should check local implementation support services, because Axon Ivy will be challenged to keep up with its high software and maintenance revenue growth rate, aggressive expansion into international markets and the number of clients to upgrade.

Bizagi

Bizagi's Digital Business Platform is an iBPMS that offers execution in a .NET or JEE platform. Bizagi approaches the market in a disruptive way through a deep focus on ease of use and a freemium business model. With the introduction of a new major version of its Digital Business Platform, Bizagi has started to demonstrate more vision with greater emphasis on higher-process IQ capabilities. This analysis pertains to Bizagi Digital Business Platform v.11.1.

Strengths

- Bizagi still is one of the easiest products to use in this evaluation. It offers a comprehensive range of self-service training courses (receiving the highest score of the evaluated vendors in the reference customer survey), shortening the learning curve and successfully helping clients manage their BPM journeys.
- Bizagi deploys a disruptive business model, having offered freemium software since 2008, before the term was even coined. Both the Bizagi Modeler (for collaborative design and documentation of process models — over 5 million downloads) and the full Bizagi platform (for automating an unlimited number of these process models into process applications across up to 20 nonproduction users) can be downloaded for free. When ready to develop for production, customers have the option of a named-user license for on-premises deployment or usage-based pricing in the cloud.

- In Digital Business Platform v.11.1, also available as a cloud PaaS, Bizagi introduced several new capabilities such as advanced case management, contextualized user experiences, personal workflow, on-the-fly creation of task lists and a connector marketplace.

Cautions

- Bizagi has two design environments for process modeling: Modeler, and Studio within the Bizagi Digital Business Platform. Each offers different functionality — for example, Studio has full design time collaboration via the cloud, and Modeler offers offline simulation without production data.
- Bizagi sees North America and specifically the U.S. as its primary growth market. To accelerate growth in this market, it has relied heavily on partners for implementation support. Reference customers recorded mixed experiences finding quality third-party resources. Bizagi still lacks the brand awareness to capitalize on all the opportunities created by its unique business model.
- Compared to leading iBPMS vendors, Bizagi offers adequate but less-than-stellar capabilities in business rules and decision management, operational monitoring, and intelligent mobility.

Bonitasoft

Bonitasoft is a fast-growing, open-source-based iBPMS vendor. As of 2016, there were more than 65,000 installations of its free Bonita Community Edition (available through open-source channels such as OW2 and SourceForge). The Java-based platform can be deployed on-premises or in any cloud, but Bonitasoft offers hosting services only through partners. The following analysis refers to Bonita BPM v.7.4. (Note: Bonita BPM v.7 was the first commercial release, in 2015.)

Strengths

- Bonitasoft has assembled a large ecosystem of more than 100 certified partners across 30 countries. These implementation and delivery partners include both large SIs (e.g., Capgemini, CGI, Atos, Sopra Steria) and midsize consulting firms specializing in various industries (e.g., BP3, Cenotech Solutions, Evoke). The majority of its sales are also generated through its partner channel.
- Bonita BPM is readily managed by an external application through an exhaustive API (Java and REST), allowing any kind of interactivity (e.g., process life cycle, replaying tasks, data management). There's also a comprehensive set of REST APIs exposed by the Bonita BPM runtime for building completely custom user experiences for custom-made process applications.
- Bonita BPM implementations are typically quicker than those of more-complex iBPMS offerings. All of Bonitasoft's reference customers reported being able to successfully deploy a production application within nine months from initially purchasing the product.

Cautions

- Overall reference customer satisfaction with Bonitasoft was below average. In particular, when compared to other vendors in this report, its customer satisfaction ratings for understanding customer needs and for the Bonita BPM's ability to meet organizational needs were poor. Its customer service and support satisfaction rating was also significantly below average.
- Bonitasoft's simple subscription pricing for its platform is based on the number of process instances (cases), with a minimum requirement. Reference customers reported poor satisfaction with contract negotiation and pricing flexibility.
- Reference customers gave the analytic capabilities of Bonita BPM one of the lowest satisfaction ratings in this research. The platform provides basic analytics through reports for BPM and BDM data integrated on the Bonita BPM Portal. It does not provide a dedicated CEP engine, but does include extension points that allow it to address the majority of CEP-related use cases.

BP Logix

BP Logix offers a .NET-based iBPMS featuring workflow automation, smart forms and reusable business rules. BP Logix's iBPMS is typically deployed as a single instance on-premises, while it has recently moved its primary bpmPaaS cloud operations, BP Logix Secure Cloud, to run on Microsoft Azure. The following analysis refers to Process Director v.4.5, which is for both on-premises and cloud deployments.

Strengths

- Reference customers indicated very high levels of satisfaction for value for the money spent on the platform, and cost was a chief factor in their purchasing decision. BP Logix is well-suited for uses cases to increase efficiency, reduce costs and address compliance needs.
- BP Logix Process Director is built for a no-code approach to building process-centric applications. It offers online form design via a web browser editor, within Microsoft Visual Studio or using Microsoft Word. Reference customers gave a high rating for the level of satisfaction for the platform's ease of authoring, and reported a quick ramp-up time for application authors to effectively begin delivering solutions (less than six months, and many in less than three).
- BP Logix Process Director offers a rich set of BAM tools for process owners, business users and business managers. Administrative panels for process instances provide visibility into past, current and future behaviors, based on Process Timeline's built-in predictive analytics. Newly added is Process Director Business Events, offering a configurable view of significant milestones and activities while also providing a mechanism for ad hoc discussions around those events.

Cautions

- While reference customers have responded with consistently high levels of satisfaction with the product, BP Logix's product roadmap and vision are not strong suits. It has not shown

impactful near-term roadmap planning around emerging key technologies, such as IoT integration, mobile app development, chatbot support and machine learning.

- Outside of BP Logix's professional services, customers may find few trained resources. BP Logix has only one global partner for implementations (Mitratach) and two regional partners (AssistMicro in Japan and ePartner Consulting in EMEA). While applications can be localized for other languages/cultures, only English and Japanese languages are supported out of the box. However, reference customers reported high satisfaction with the platform's ease of integration and deployment.
- BP Logix continues to lag in its capabilities to support scenarios requiring advanced analytics. Process Timeline supports predictive analytics that can be directed to generate alerts, launch new processes and alter in-flight processes; however, the platform lacks the real-time analytics necessary to find temporal, spatial and other patterns in multiple event streams, such as IoT data streams.

bpm'online

Bpm'online, a vendor that has most of its customer base in Europe, offers a .NET-based iBPMS. It includes Process Designer, Process Library, its BPM engine and Process Log, as well as Case Management, Case Designer, Case Engine and Case Analytics. The product is strongly tied to the company's CRM offering. The company states that it offers a visual development environment with robust coding, and supports OData, REST, SOAP and Open API integrations on the platform. Despite the name of the company, the platform can be deployed either on-premises or as a cloud-native bpmPaaS. The following analysis refers to bpm'online v.7.10.

Strengths

- The bpm'online platform offers strengths in its case designer capability, with milestones clearly spelled out at the top and related tasks and processes listed underneath each phase of the case. It is relatively straightforward to configure the workflows, screens and rules using the platform. Bpm'online hosts an online marketplace that offers users of the platform add-ons to enhance the platform capabilities.
- Reference customers were very happy with both bpm'online and its product offering. Overall experience with the vendor and needs fulfillment by the product were rated well above the averages of all vendors evaluated. Contract negotiation, flexibility on pricing and understanding of enterprise needs were also rated above average.
- Bpm'online has added support for integration with Visual Studio, which will appeal to professional developers wanting to use the platform. It offers an academy for online training and access to a bpm'online community. These tools support both the direct sales effort and a strong partner network that sells and supports the offering in multiple geographies. Pricing is very affordable both for hosted and on-premises instances.

Cautions

- Better known in the CRM market, bpm'online has limited customer mind share in the iBPMS market. It was not considered by any reference customer that chose to purchase a different iBPMS. Compared to the other vendors in this evaluation, a disproportionate amount of bpm'online's iBPMS-related revenue was driven by add-on products (e.g., its CRM solution). The vendor's CRM focus may limit the appeal of its platform to companies that have another CRM solution.
- The mobile solution for bpm'online offers little beyond a basic Cordova container and responsive web design for delivery to mobile apps. Access to features enabled by the mobile operating systems is limited to those supported via Cordova plug-ins.
- While bpm'online asserts that it has AI capabilities enhancing the platform, these capabilities are limited to predictive and text analytics, and do not offer any true deep-learning capabilities that some other vendors offer.

Genpact (PNMsoft)

PNMsoft was acquired in August 2016 by Genpact, a digital services and technology vendor that focuses on helping its customers digitally transform. PNMsoft Sequence is the foundation for Genpact's digital business platform, Cora, which bundles additional digital technologies with the iBPMS. The following analysis refers to PNMsoft Sequence v.8.3, which is available on-premises and as a cloud-enabled bpmPaaS.

Strengths

- Alongside the PNMsoft iBPMS, Genpact offers a wide variety of business transformation and digital technology services. Its Lean Digital methodology is thought-leading, weaving together process-centric technologies with design thinking and lean principles for agility and experimentation. PNMsoft Sequence is the cornerstone of Cora, which brings together Genpact's other digital technologies such as RPA, natural-language processing, big data analytics, AI and the IoT.
- Genpact's focus on selling and marketing its digital transformation services and Cora has accelerated adoption of PNMsoft Sequence. PNMsoft had the third-highest year-over-year installed base growth rate of the vendors included in this evaluation.
- Genpact has deep domain expertise in a wide variety of industries and has a global presence. It has trained many of its existing implementation staff on the PNMsoft platform.

Cautions

- While reference customers were overall highly satisfied with Genpact, they indicated challenges with finding quality third-party implementation service partners, and with the quality and availability of end-user training. Nearly all of the references had worked exclusively with Genpact professional services for their implementation.

- While strong in many areas, the business rules and decision management capability of PNMsoft Sequence has room for improvement. The business rule modeling capability is less mature than those of many other vendors evaluated, and offers little in the way of decision optimization.
- When using PNMsoft Sequence by itself, a modest level of process IQ can be achieved. To orchestrate more-complex, adaptive and intelligent processes using more-sophisticated decision automation and analytics, it must be combined with a variety of other Genpact services.

IBM

While IBM continues to focus on intelligent enterprise processes through robust decision management capabilities, it has expanded its focus to personal and ecosystem productivity. This review centers on IBM Process Transformation Manager v.8.9 (which includes IBM Business Process Manager Advanced, IBM Operational Decision Manager, IBM Integration Bus and IBM API Connect). It also centers on IBM Digital Business Assistant (as of May 2017) and IBM Blueworks Live (as of March 2017). IBM Process Transformation Manager is available both on-premises as well as a cloud-enabled bpmPaaS. IBM Digital Business Assistant and IBM Blueworks Live are available as SaaS.

Strengths

- IBM offers a comprehensive set of capabilities across the dimensions of the business process IQ framework. Through IBM Operational Decision Manager and Watson Analytics, IBM is a leader in decision management and analytics.
- Through its broad network of partners and cloud data centers, IBM is able to effectively market, sell and implement its iBPMS globally. IBM has a commanding lead in market share of iBPMS platform revenue and has the second-largest installed base of the vendors evaluated.
- IBM's iBPMS has been successfully implemented in a variety of different industries. IBM and its partners bring domain experience in addition to product expertise to support customers in their process improvement and transformation efforts. Its products support common industry standards, facilitating integration to software with other vendors.

Cautions

- Compared to the other vendors evaluated, reference customers surveyed by Gartner provided below-average levels of satisfaction with the ease of use of the product suite. They also indicated a heavier dependence on IT specialist developers in constructing and maintaining solutions. However, IBM has recently improved the authoring experience of IBM Business Process Manager Advanced and IBM Operational Decision Manager.
- IBM has expanded its focus to both productivity at the microlevel (personal productivity through the IBM Digital Business Assistant) and macrolevel (ecosystems through blockchain and smart contracts). However, these new offerings are evolving quickly and are currently immature or incomplete.

- Process-centric technologies are not central to the overall IBM marketing message, and can get lost in the larger IBM focus on Watson and the cloud. The reduced visibility of the platform, in combination with other factors like ease of use, has stagnated the growth of IBM within the iBPMS market.

Itesoft | W4

Itesoft | W4 is one of the new entrants this year, having built upon the capabilities of W4. W4 is a workflow product with a long history — hence its name standing for "world wide web plus workflow." W4 was acquired by Itesoft in July 2015, a software company providing enterprise content management (ECM) and smart process application (SPA) solutions. This analysis pertains to W4 BPMN+ v.10, which is available on-premises and as a cloud-enabled bpmPaaS.

Strengths

- W4 is leveraged in its parent company's document-centric end-to-end solutions, such as the complete creditor invoice handling. These solutions contribute to half of Itesoft | W4's iBPMS-related revenue. Companies searching for these specific solutions can benefit from this domain expertise.
- Reference customers rated their overall experience with Itesoft | W4 highly. Particular areas they highlighted were the ease of deployment, the performance and reliability of the platform, the quality and availability of end-user training, and the availability and quality of third-party resources.
- Itesoft | W4 has strong simulation capabilities, widely used by the reference customers surveyed by Gartner. This functionality is based on a multimode engine that can be used on-demand during design and on runtime process instances to dry-run the remainder of a process.

Cautions

- Compared to the other products in this evaluation, Itesoft | W4's iBPMS is less mature. It offers limited functionality to design, execute and monitor cases explicitly. It is weak in a number of capabilities, most notably business rules and decision management, intelligent mobility, and advanced analytics. Although the execution layer is available as a PaaS, the total offering is not yet available as a cloud-based platform.
- The full benefits of the additional capabilities brought by Itesoft have not been realized, particularly in terms of sales growth (only 15 new installs in 2016) and international expansion (80% of customers are based in France). Compared to most of the other vendors evaluated, Itesoft | W4 does not have as much marketing focus on selling an iBPMS platform (50% of its iBPMS-related revenue was driven by broader solutions in 2016).
- The Process Composer design environment is a thick-client IDE best suited to professional IT developers. The web-based Web Modeler does not allow users to edit all of the metadata.

K2

K2 offers blackpearl, an iBPMS that includes K2 for Visual Studio for professional developers used to operating in an IDE tool. It also has K2 Designer, a web-based no-code development environment for citizen developers, with SmartForms and SmartObjects capabilities. The platform facilitates the creation and management of these either independently or collectively within a K2 application. K2 also offers an online Center of Excellence (COE) to deliver design templates and best practices for customers. The following analysis refers to K2 blackpearl v.4.7 and K2 AppIt for SharePoint.

Note: On 20 September 2017, K2 announced the release of K2 Cloud (bpmPaaS) and K2 Five (on-premises). These were not included in this evaluation as they were released too late for consideration.

Strengths

- K2 is differentiated with its visually focused UI design tool for no-code development, SmartForms and SmartObject capability that facilitates drag-and-drop API development. K2 for Visual Studio also addresses the needs of the professional developer, giving flexible approaches to the development of process-centric applications.
- Reference customers scored K2 above the average of all evaluated vendors in user satisfaction with their overall experience with the vendor. They also scored it above average for the product meeting their needs and the value provided by the product.
- K2 blackpearl offers strong integration with Microsoft products such as SharePoint, Office 365, Dynamics and Dynamics 365, and has begun to integrate Microsoft Azure Machine Learning capabilities. K2 also offers strong integration with third-party business intelligence tools, such as Tableau, SSRS, Power BI and other platforms.

Cautions

- K2 blackpearl's decision management capabilities are limited, and the company prefers to use third-party decision services to address this. The same approach is evident for process discovery and optimization — K2 chooses to rely on partners to address these needs in the platform.
- Reference customers rated K2 below average for ease of deployment and for integration and deployment overall. Customers also rated their contract flexibility, as related to contract pricing and terms, slightly below average. However, in 2017, K2 updated its pricing model to make it more attractive for smaller installations by eliminating the per-server license fee.
- When it comes to event-triggered processes, K2's interaction management capabilities are limited. The platform is also lacking when considering collaboration tools as necessary elements for orchestration or for context capture, which are considered important in case management instances.

Kofax

In July 2017, private equity firm Thoma Bravo completed its acquisition of Lexmark's enterprise software business, including Kofax, ReadSoft and Perceptive. Kofax and ReadSoft have been combined under the Kofax brand, and TotalAgility continues to be sold under the Kofax brand. Kofax TotalAgility iBPMS is most appropriate for processes that are structured or semistructured cases. This analysis pertains to TotalAgility v.7.3, Insight v.5.5, Kapow v.10.1, SignDoc v.2.0.1, Customer Communications Manager (CCM) v.5.1 and Mobile Capture v.3.01, which are available on-premises or as a cloud-enabled bpmPaaS.

Strengths

- TotalAgility offers strong interoperability with systems and connectors to a large number of well-known content management, CRM and other systems. Kapow, Kofax's robotic process automation tool, enables customers to extend the degree of automation in an end-to-end business process to systems that do not provide a good machine-readable API.
- Kofax has a strong heritage in multichannel document image capture, BPM, case management and content management, providing solid support for digitizing manual, document-based processes. Kofax also offers RPA, CCM, e-sign and process intelligence.
- Kofax offers flexible pricing and contract terms. Satisfaction with pricing and contract terms was a bright spot in reference customer survey results.

Cautions

- The process of being purchased by Lexmark and then sold to Thoma Bravo has impacted Kofax's pace of innovation and customer satisfaction. Compared to most other vendors in this evaluation, reference customers cited lower levels of satisfaction, citing concerns with the ease of use of integrations and deployment, their experience during the contract negotiation, and the ability of the vendor to understand their needs.
- Kofax's product vision and go-to-market strategy emphasize the automation of content-intensive business processes more than the intelligent, situationally aware orchestration of business processes driven by advanced analytics and operational decision management. Kofax has capabilities in all these respects, yet is best-suited for the automation of more-predictable, routine business processes.
- Due to Kofax's integrated platform strategy, several capabilities are provided through different products that, while delivered with some prebuilt integration, must be combined during the implementation process. TotalAgility's analytics and decision automation are relatively weak, focused largely on the use of business rules to automate moderately complex decisions. Its mobile user experience, excepting its mobile capture experience, is less-robust versus those of other vendors in this research. Further, Kofax's process mining capabilities are only loosely integrated into the broader TotalAgility suite.

Newgen Software

The Newgen Software iBPS Suite is a comprehensive offering with both intelligent process management as well as robust content management capabilities. The following analysis refers to Newgen iBPS Suite v.3.1, which includes OmniFlow iBPS v.3.1, OmniDocs v.9.0 and Newgen Enterprise Mobility Framework (NEMF) v.3.2. Newgen iBPS Suite is available both on-premises and as a cloud-enabled bpmPaaS.

Strengths

- Newgen has a deep understanding of its customer industries. Newgen and its partners offer an extensive set of prebuilt application frameworks for the financial services, government and healthcare industries, among others.
- Newgen's innovations around decision automation and advanced analytics (predictive, CEP and machine learning) enable customers to orchestrate the work of people, machines and things in a situationally adaptive way. Newgen Digital Sensing capability categorizes and prioritizes interactions across a variety of different channels, triggering appropriate actions.
- Reference customers cited high degrees of satisfaction with the ability of Newgen to understand their needs as well as offer attractive pricing and contract flexibility.

Cautions

- Compared to other vendors included in this evaluation, Newgen has less marketing presence in North America and European markets — the biggest markets for iBPMS.
- No reference customer self-identified as using the platform for citizen developer application composition. Compared to the other evaluated vendors, the reference customers indicated lower levels of satisfaction with critical capabilities, including interaction management, high-productivity application authoring, and context and behavior history.
- While Newgen now offers a more seamlessly integrated and easier set of product capabilities that can be deployed alongside more-robust commercial products and services, its historical dependence on open source has slowed its ability to deliver comprehensive capabilities that are also easy to use. Newgen has relied upon OSS for business rules, CEP and reporting. Although its RPA capabilities are available with both commercially available and open-source RPA tools, its open-source option is not as powerful as the commercial ones.

Oracle

Oracle's focus is increasingly on Oracle Process Cloud Service, a cloud-native offering. The Oracle BPM Suite is a separate, richer product offering that is on-premises only. Oracle Process Cloud Service is a bpmPaaS that is integrated with other Oracle Cloud Services. These services include Oracle Documents Cloud Service, Oracle Social Network, Oracle Sites Cloud Service, Oracle Insight Analytics and Oracle Integration Cloud Service. The following analysis refers to Oracle Unified Business Process Management Suite 12c (6/2014, 9/2015, 9/2016), Oracle SOA Suite 12c (6/2014,

9/2015, 9/2016), Oracle Process Cloud Service (v.17.2.3), Oracle Documents Cloud Service (v.17.2.3), Oracle Social Network (v.17.2.3), Oracle Sites Cloud Service (v.17.2.3) and Oracle Cloud Integration Service (v.17.2.3). Oracle BAM (aka Insight and Analytics) is part of the SOA Suite and Oracle Process Cloud Service.

Strengths

- Oracle's BPM Suite offers separate tools for citizen developers: Oracle Business Process Composer spans both the Oracle Unified BPM Suite and the Process Cloud Service as a 100% web-based design experience, and Studio is a client-based desktop tool for professional developers. The product also features Oracle Business Process Management Workspace, a browser-based tool for execution, monitoring and optimization. The Oracle Process Cloud Service offers a low-code, browser-based experience for all aspects of life cycle management and all user personas.
- Reference customers rated Oracle above the average of all evaluated vendors for the value that the product provides and for the performance of the platform. They also rated the strength of its peer user community for the platform as above average.
- In addition to integrations with a variety of its packaged applications, Oracle also offers integration between Process Cloud Service and Application Builder Cloud Service, which includes mobile and conversational application capabilities. This allows application authors to tie a process action into multiple channel interactions, such as a radio button in a mobile app. Both Oracle platforms feature strong analytic capabilities that increase visibility into process performance and orchestrate processes more intelligently. However, Oracle Process Cloud Service features more tightly integrated BAM reports and form design than Oracle BPM does.

Cautions

- Oracle's iBPMS is a complex offering consisting of many services and applications. As such, it can be confusing for customers as to which Oracle products and services will best meet their needs — reference customers indicated challenges in doing so.
- Reference customers recorded slightly below average overall experience with the vendor. They specifically cited concerns with the ease of deployment (partially driven by the large number of products and services that are available), as well as timely and complete responses to product questions.
- While it appears that Oracle is striving for at least some degree of parity between the offerings, feature disparity further complicates the choice for prospects. In many ways, Process Cloud Service is more focused on citizen developers and BPM Suite on professional developers — and using both would introduce unnecessary complexity for many customers.

Pegasystems

Pegasystems is dominant in the high end of the enterprise market. Its iBPMS supports a broad range of usage scenarios and is the engine underlying the Pega CRM platform. Pegasystems

develops market-leading product capabilities in the iBPMS market, often well in advance of others. This analysis is based on Pega v.7.2.2.

Strengths

- Pegasystems reference customers gave it one of the highest overall product satisfaction ratings in this year's survey. The strength of the Pega platform lies in its comprehensive business rule management system (BRMS) and predictive analytics decision management engine (which powers its Customer Decision Hub), all based on a unified architecture. Additionally, customers cited its product roadmap and vision as a top factor in their purchasing decision.
- The intelligent mobility capabilities of the Pega platform and richness of mobile app development using Pega Express and Pega Designer Studio are substantially ahead of the competition in the iBPMS market. In addition, Pegasystems has added chatbot and conversational UI support in its tooling to easily extend and test services for channels such as Facebook Messenger, Amazon Alexa and Google Home.
- Pegasystems has built a well-structured ecosystem to spread its brand, technologies and practices. These programs include Pega Service Ventures to fund startups based on Pega expertise, Pega Exchange to foster sharing of apps and components across its partners, and university affiliates to promote model-driven development to increase its resource pool (including free access to Pega Academy online training through end of 2018).

Cautions

- While clients can choose between on-premises and cloud deployments, many still choose on-premises. Despite improvements to its cloud architecture, Pegasystems reference customers reported below-average satisfaction ratings regarding ease of deployment and platform reliability. As of May 2017 (after the cut-off date for inclusion in this evaluation), Pega adopted the Cloud Foundry container-based architecture to enable cloud choice and easier deployment.
- Despite Pegasystems' investments in midmarket sales, Gartner has yet to see any significant traction in the midmarket for the vendor's iBPMS. It has started to more actively promote Pega Express and embed it more in the Pega platform to drive more app development for organizations with less-complex requirements.
- Pegasystems reference customer satisfaction ratings for contract negotiation, pricing and flexibility were among the lowest across those of all the evaluated vendors. The company has started to roll out more-simplified pricing models.

Software AG

Software AG's Digital Business Platform (DBP) combines its webMethods BPMS product with its middleware stack and advanced analytic capabilities. The following analysis refers to Software AG DBP v.10.0, which is available on-premises and as a cloud-enabled bpmPaaS, and AgileApps, a cloud-native bpmPaaS.

Strengths

- Software AG's DBP boasts some of the strongest advanced analytic capabilities of the vendors in this evaluation. It has a strong set of process discovery, design and optimization tools. Combined with its strong integration capabilities, the DBP's advanced analytic capabilities make it well-suited for dynamic, event-driven processes.
- Software AG's digital transformation and DBP marketing message resonates well with customers. It has the largest installed base of all the vendors in this evaluation. The vendor is well-suited to supporting both strategic business transformation initiatives as well as more incremental improvements to business processes. It has strong operations intelligence and strengths around managing the full process life cycle, allowing customers to link strategy to execution.
- Citizen developers can use Software AG AgileApps to quickly construct process-centric applications that can easily integrate with or augment more-sophisticated BPMS-based enterprise applications

Cautions

- Software AG has a less-robust partner network than those of most the vendors in this research. Its sales are nearly all direct. Reference customers indicated challenges in finding quality third-party resources to assist with the development of their solution, as well as low satisfaction with the peer user community.
- Of the vendors in this research, Software AG's reference customers reported nearly the lowest degree of overall customer satisfaction. They cited low satisfaction with the deployment and ease of use of the authoring experience, as well as with service and support.
- Software AG's DBP is one of the more expensive products in this evaluation. Compared to the other vendors in this research, reference customers indicated the lowest levels of satisfaction with Software AG's pricing and contract flexibility, and nearly the lowest level for perceived value of the product.

TIBCO Software

TIBCO Software is a leading middleware "stack" vendor with a substantial and growing BPM business. The following analysis refers to TIBCO ActiveMatrix BPM v.4.1.0, TIBCO JasperSoft v. 5.6.0, TIBCO Nimbus v.10.0 and TIBCO Spotfire v.7.8, which are each available on-premises and as a cloud-enabled bpmPaaS. It also refers to TIBCO Cloud Live Apps and TIBCO Cloud Nimbus, which are each available as a cloud-native bpmPaaS.

Strengths

- TIBCO's robust real-time analytics and operational intelligence capabilities are well-suited to business outcomes that warrant a high level of process IQ. TIBCO Spotfire provides sophisticated real-time reporting and visualizations. TIBCO BusinessEvents and StreamBase add CEP capabilities to ActiveMatrix BPM.

- The TIBCO iBPMS has strong integration capabilities. It provides an enterprise service bus (ActiveMatrix BusinessWorks), message-oriented middleware, an API management tool and a variety of prebuilt adapters for common enterprise applications.
- TIBCO offers hybrid cloud development capabilities — its citizen-developer-friendly tools (Live Apps and Nimbus) run atop TIBCO Cloud, and its professional-developer-oriented tools (ActiveMatrix BPM) run on-premises or on cloud.

Cautions

- Some reference customers reported some challenges with TIBCO. They cited time to market as well as the availability and quality of end-user training as areas for improvement, along with some product capabilities (high-productivity application authoring, and process discovery and optimization).
- While friendly to citizen developers, TIBCO's new cloud-native bpmPaaS, Live Apps, has modest capabilities and is best-suited to drive better outcomes from processes that do not require a high degree of process IQ. While TIBCO plans on offering a native integration between Live Apps and ActiveMatrix BPM, integration between the two is currently limited to API calls.
- TIBCO offers a rich set of advanced analytics and real-time integration capabilities, but the application authoring experience is not as easy to use as it is in many of the other products in this research. ActiveMatrix's thick client, Eclipse-based design studio is optimized for and geared toward professional IT developers.

Whitestein

Whitestein re-enters the Magic Quadrant as one of the visionary vendors that brings higher-maturity-level capabilities with its iBPMS, benefiting from the renewed interest in AI, machine learning and agent technology. This analysis is based on Living Systems Process Suite (LSPS) v.3.2, both Enterprise Edition and Cloud Edition.

Strengths

- Whitestein LSPS's cognitive process automation uses a hierarchical representation of business goals to drive, measure, track and adapt processes during their execution. Features include goal orientation based on symbolic and semantic reasoning, process execution based on agent technology, machine-driven adaptation of processes on the fly, and a distributed execution engine. LSPS is extremely valuable to support processes that need a high degree of agility and real-time improvement.
- The Whitestein LSPS Process Engine pursues process goals by adaptively selecting and executing the activities that will most optimally achieve or maintain them. This autonomous balancing of goals and optimization of process flow is accompanied by end-user steering, allowing application users to redirect flow and inject ad hoc activities or processes.

- Whitestein LSPS combines top-down theoretical AI techniques to temper the often "blind" bottom-up machine learning to ensure safety, compliance and effective trust and cooperation between humans and intelligent programs. This mitigates the impact of biases introduced by training sets (such as racial and gender biases).

Cautions

- Beyond goal modeling, BPMN modeling and business object modeling, Whitestein LSPS is a design environment with tools and libraries most appropriate for expert programmers. LSPS implementations require close collaboration between domain knowledge owners, business analysts and professional developers.
- Because it introduces higher-level capabilities based on new technologies, in custom applications where Whitestein doesn't deliver domain-knowledge-based solutions, LSPS may require higher-level implementation skills that are not always available. Whitestein has addressed this by closing deep partnerships (e.g., in wealth banking, loan and credit management, and the supply chain), but it remains an action point.
- Compared to the other vendors in this evaluation, Whitestein remains one of the smaller iBPMS companies and has one of the smallest installed bases. It maintains a strong focus on OEM partnerships.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

Added

- bpm'online
- Bonitasoft
- Itesoft | W4
- Kofax (changed from Lexmark)
- Whitestein

Dropped

- Lexmark (changed to Kofax)

Inclusion and Exclusion Criteria

The following inclusion criteria were used to determine which vendors were covered in this research:

- The provider offers an iBPMS. That is, it provides the critical capabilities of an iBPMS (see Note 1), regularly competes against other iBPMS vendors, has a product that is used to support business operations improvement and transformation, and has a product that is marketed as software and/or bpmPaaS.
- The provider has demonstrated a focus on iBPMS, and the iBPMS offering has been generally available and actively marketed to buyers for at least 12 months prior to the start of our product evaluation. The general availability (GA) date for the version being evaluated must be prior to 30 April 2017.
- The provider has 20 paying customers for the specific product/offering version being evaluated. These customers must be from distinctly different companies. All 20 customers must have demonstrated production deployments on the version being evaluated by 30 April 2017.
- The provider must have revenue greater than \$10 million in terms of software license, subscription and software support services revenue, related specifically to the iBPMS platform (additional solution frameworks/templates, consulting, outsourcing and managed services are not included in this figure).
- The provider's product is widely deployed in at least two of the following geographic areas: (1) North America, (2) EMEA, (3) Latin America/Central America and (4) Asia/Pacific. The provider has some customers already in each of these geographies (although the provider's headquarters may be elsewhere).
- The provider markets its products across industries rather than focusing on being an industry specialist for just a few industries. While the platform should not be specialized, additional industry-specific or cross-industry solutions offered by the provider will be considered as part of the evaluation.
- The product must be available as a subscription-based bpmPaaS and/or a cloud-enabled BPM platform. In addition, it must be available for installation on-premises.
- The solution must be accessible from mobile devices — the user experience should adapt to the device form factor and provide an adaptive user experience using the native capabilities of the device (presence awareness, geolocation and other sensors).
- The provider's platform has been used to implement all six usage scenarios of an iBPMS: (1) composition of intelligent process-centric applications, (2) continuous process improvement, (3) business transformation, (4) digitalized process, (5) citizen developer application composition and (6) case management (see Note 2).

Honorable Mentions

The following vendors were not included in this research because they did not meet one or more inclusion criteria; however, they are appropriate for certain situations and sometimes compete against the vendors covered in this Magic Quadrant:

- Canea
- DST Systems
- Nintex
- Red Hat
- OpenText
- PMG
- ServiceNow
- Salesforce

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate vendors on the quality and efficacy of the processes, systems, methods or procedures that enable IT provider performance to be competitive, efficient and effective, and to positively impact revenue, retention and reputation within Gartner's view of the market.

Product or Service

This criterion comprises the core goods and services that compete in and/or serve the defined market, including current product and service capabilities, quality, feature sets, skills and so on. These can be offered natively or through OEM agreements/partnerships, as defined in the market definition and detailed in the subcriteria.

Subcriteria:

- An iBPMS should be geared toward "citizen developers," allowing business users to be involved in frequent or ad hoc process change. It should enable the citizen developer to be a partner throughout the entirety of the process life cycle. It will have an emphasis on providing real-time insights supporting process improvement, not just one-time automation. The concept of a process should be a primary metadata object and unifying construct.
- An iBPMS is distinguished from a BPMS by having higher intelligence capabilities in these four dimensions of the Gartner Business Process IQ Framework: data timeliness, context granularity, predictive power and actionability. Very advanced iBPMS offerings may also feature capabilities in the other four dimensions of the Gartner Business Process IQ Framework.

- Stronger vendors will support both on-premises and cloud-based deployments.
- Stronger vendors will take advantage of cloud-native capabilities.

Overall Viability

Viability includes an assessment of the organization's overall financial health as well as the financial and practical success of the business unit. It views the likelihood of the organization continuing to offer and invest in the product as well as the product position in the current portfolio.

Subcriteria:

- iBPMS software revenue size.
- iBPMS revenue growth.
- Number of iBPMS customers.
- Growth of iBPMS customers.
- Profitability.
- Strength of partner ecosystem (solutions, cloud services or system integration).

Sales Execution/Pricing

This examines the organization's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Subcriteria:

- Alignment of sales strategy to target customers.
- iBPMS software revenue size.
- iBPMS revenue growth.
- Number of iBPMS customers.
- Growth of iBPMS customers.
- Customer attrition rate.
- Customer reference feedback on sales process and value for price.

Market Responsiveness/Record

This examines the vendor's ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve, and market dynamics

change. This criterion also considers the vendor's history of responsiveness to changing market demands.

Subcriteria:

- Introduction of capabilities that address the higher levels of process IQ.
- Appropriateness of the tool for both business analysts/citizen developers as well as professional developers.

Marketing Execution

Examination of the clarity, quality, creativity and efficacy of programs designed to deliver the organization's message, in order to influence the market, promote the brand, increase awareness of products and establish a positive identification in the minds of customers. This "mind share" can be driven by a combination of publicity, promotional, thought leadership, social media, referral and sales activities.

Subcriteria:

- Stronger vendors will demonstrate the use of a variety of marketing channels, direct and indirect.
- Stronger vendors will more frequently compete for deals in the market.

Customer Experience

The criterion examines the products and services and/or programs that enable customers to achieve anticipated results with the product(s) evaluated. Specifically, this includes quality supplier/buyer interactions, technical support or account support. This may also include ancillary tools, customer support programs, availability of user groups, service-level agreements and so on.

Subcriteria:

- We focus particularly on the support for intelligence and innovation within business processes, not merely automation — the iBPMS must support a broad range of process/work patterns. Visibility of the impact of activities, interactions and even external changes on a business process is vital, as is the ability to change the process rapidly.
- We examine the relationships, products and services/programs that enable clients to be successful with the products evaluated, including the ways customers receive technical support, account support and process improvement support. We assess this criterion through quantitative and qualitative interviews with vendor-provided reference customers, as well as feedback from Gartner clients.
- Stronger vendors will have a higher degree of customer satisfaction. Their customers will recommend the use of the vendor and the product.

Operations

This considers the ability of the organization to meet goals and commitments. Factors include quality of the organizational structure, skills, experiences, programs, systems, and other vehicles that enable the organization to operate effectively and efficiently.

Subcriteria:

- Stronger vendors will have mature organizational structure with dedicated staff for sales, marketing, product development and so on.
- Stronger vendors can scale appropriately to meet customer demands organically and through a partner ecosystem.
- Stronger vendors will have certification programs in place for partners and application authors (vendor, partner, and/or customer).
- Stronger vendors will demonstrate the ability to balance growth and innovation with viability.

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	Medium
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	High
Operations	Medium

Source: Gartner (October 2017)

Completeness of Vision

Gartner analysts evaluate vendors on their ability to convincingly articulate logical statements. This includes current and future market direction, innovation, customer needs, and competitive forces, as well as how well they map to Gartner's view of the market

Market Understanding

This criterion examines the vendor's ability to understand customer needs and translate them into products and services. Vendors that show a clear vision of their market listen and understand customer demands, and can shape or enhance market changes with their added vision.

Subcriteria:

- Vendors must demonstrate an understanding of how business analysts and business users participate in intelligent business operations.
- Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those wants with their added vision.
- Vendors must demonstrate a strong understanding of the various use cases and how intelligent BPM technologies are best leveraged, and can create sustainable business process improvement and transformation capabilities.

Marketing Strategy

This includes clear, differentiated messaging consistently communicated internally and externalized through social media, advertising, customer programs and positioning statements.

Subcriteria:

- Vendors must essentially evangelize digital transformation and explain what they do differently in digital business scenarios, as well as support mainstream business process improvement.
- Vendors must demonstrate the use of a variety marketing strategies to gain awareness.
- Vendors may market both directly to customers and indirectly through partners. Stronger vendors will use a combination of direct and indirect marketing strategies.

Sales Strategy

This examines if the vendor has a sound strategy for selling that uses the appropriate networks, including direct and indirect sales, marketing, service, and communication, as well as partners that extend the scope and depth of market reach, expertise, technologies, services and their customer base.

Subcriteria:

- Vendors may sell both directly to customers and indirectly through partners. Stronger vendors will use a combination of direct and indirect marketing strategies.
- Vendors may use different selling strategies (such as target account, geographically focused, industry focused). Stronger vendors will use a combination of sales strategies that are appropriate for the types of customers they are targeting.

Offering (Product) Strategy

This examines if the vendor has an approach to product development and delivery that emphasizes market differentiation, functionality, methodology and features, as it maps to current and future requirements.

Subcriteria:

- The vendor's product strategy must include all current iBPMS capabilities (see Note 1).
- The vendor's roadmap should aim to improve how business users consume the product, including process/business agility, time to insight and so on.
- Stronger vendors will support both on-premises and cloud-based deployments.
- Stronger vendors will take advantage of cloud-native capabilities.

Business Model

This examines the design, logic and execution of the organization's business proposition to achieve continued success.

Subcriteria:

- The vendor must provide an iBPMS product rather than a set of tools used to support a professional services engagement. The product must be separately licensed from services.
- The vendor must provide an iBPMS product platform via a PaaS delivery model, and may also provide it as an on-premises commercial platform product.
- Stronger vendors will support both on-premises and cloud-based deployments.

Vertical/Industry Strategy

This examines if the vendor has a strategy to direct resources (sales, product, development), skills and products to meet the specific needs of individual market segments, including verticals.

Subcriteria:

- The vendor should be particularly focused on industries where iBPMS can deliver real value, and the vendor may be investing and building solution assets (process accelerators) in such verticals.
- The vendor should be growing an ecosystem of solution partners with vertical industry expertise.

Innovation

This criterion includes direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Subcriteria:

- The vendor must provide capabilities to manage the full life cycle of a business process.
- More-visionary vendors will offer stronger capabilities in business process discovery, business process monitoring and business process automation.
- More-visionary vendors will provide more-advanced decision automation and management capabilities.
- More-visionary vendors will be able to orchestrate and improve outcomes from situationally adaptive business processes.
- More-visionary vendors will strike a balance between feature completeness and ease of use.

Geographic Strategy

This examines if the vendor has a strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that geography and market.

Subcriteria:

- Vendors may sell directly or indirectly to various geographies.
- Stronger vendors will target the biggest markets for iBPMS (North American and EMEA) in addition to emerging markets.

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	High
Marketing Strategy	High
Sales Strategy	Medium
Offering (Product) Strategy	High
Business Model	Medium
Vertical/Industry Strategy	Low
Innovation	High
Geographic Strategy	Low

Source: Gartner (October 2017)

Quadrant Descriptions

Leaders

Vendors in the Leaders quadrant demonstrate strong capability concerning the use of "intelligence" in a process context, with customers that have shown innovative and successful processes with substantive business outcomes. Leaders' customers demonstrate combined usage of social, mobile, rule-based and event-based capabilities of an iBPMS. Customers' usage of cloud for production solutions is also indicative of Leaders. Leaders' offerings demonstrate features that support business professionals, allowing them to participate more fully, and to collaborate in developing differentiating processes to rapidly take advantage of information within a context that may have previously been difficult to reach. The flexible processes that have been developed allow customers to take advantage of changing business conditions and respond to threats and regulatory changes quickly. Such changes may even be made "in flight" during the running of an operating process, recognizing the occurrence of events that indicate evolving patterns that imply a change in process is needed.

Leaders tend to be successful companies and may have either developed their own iBPMS offering or successfully absorbed acquisitions to focus significantly on this market. Leaders sometimes provide highly sophisticated product sets that may require specific methodologies and in-depth professional services, or they may be priced at the top end of the spectrum, making them hard to justify when the benefits of BPM are not well-understood.

Leaders also articulate a roadmap for supporting their customers' journey toward digital business, and their customers demonstrate the use of these early product features to digitalize business

processes and support business moments (see "Digital Businesses Will Compete and Seek Opportunity in the Span of a Business Moment").

Leaders have a strong partner network that not only knows how to implement the vendor's software, but also supports the customer's business transformation initiatives. They also have a well-defined marketing and sales strategy around both on-premises and cloud-based deployments.

Challengers

Vendors in the Challengers quadrant are characterized by operational excellence and good standing in the market. Compared with vendors in the Leaders and Visionaries quadrants, either they do not have long-term roadmaps or their products lack some features. Challengers demonstrate strong execution but only on a subset of the use cases. They may also have less-mature partner networks and weaker industry/vertical focus.

Visionaries

Vendors in the Visionaries quadrant demonstrate innovation from a business and/or technology perspective. They tend to have strategies that focus on a particularly demanding aspect of BPM, such as responsiveness to complex events, emphasis on specific types of business process or goal orientation. Their offerings are generally less well-rounded than those of Leaders. Some Visionaries have made targeted acquisitions or OEM license commercial and/or open-source software to bring in relevant technology, but have not yet fully integrated those capabilities to deliver a seamlessly integrated suite.

Visionaries may be a good choice when you have a strong need for a particular scenario, or to cover processes that emphasize integration of devices into a business process. Vendors that rely on the heavy involvement of IT staff may be visionary in some respects, but fall short of being Leaders because of their limited support for the direct involvement of business people. Smaller visionary vendors, in terms of revenue, have a fairly limited installed base, or their products and services are not widely used for the more-critical business processes. Visionaries may not always excel at getting their message across in a crowded market, and small, private Visionaries are sometimes acquisition targets.

Niche Players

Vendors in the Niche Players quadrant tend to provide perfectly good technologies, but may have not yet seen significant traction across this market, or they may focus well in one or two vertical industry or geographic segments. These vendors may be specialists in their areas, often offering specialized expertise, focused support practices, flexible terms and conditions, and a greater dedication to a particular market segment and its customers. Thus, they may represent the optimal choice for some projects.

We also regard vendors as Niche Players when they find it hard to enunciate their future plans, or have a muted marketing message that might emphasize simpler process automation rather than pushing at the boundaries of intelligent business processes. Vendors in this segment may have only recently introduced capabilities that support intelligent business processes and have yet to deliver

proven value. Even though technically their offerings meet our inclusion criteria, the product's technical capabilities are less-mature and/or robust than vendors in the other three quadrants.

Context

Managing business processes effectively is a difficult challenge for today's business leaders, because many of the systems that are used within processes are rigid and difficult to change rapidly. It is even more important today for systems to be flexible and responsive, allowing process participants to intelligently respond to events (even those that are happening outside the process).

The ability to provide more "joined-up" insight around business processes through the use of greater analytics capabilities — combined with support for the people involved in processes, allowing them to take advantage of this insight — is what differentiates today's iBPMS market from earlier BPMS technology markets. Today's business managers need to seek out new opportunities, model them ahead of time, and then quickly adapt processes in order to innovate and deliver dynamic and responsive experiences to process participants, regardless of whether those participants are inside or outside the organization (see "Technology Insight for Intelligent Business Process Management Suites").

The iBPMS market is the evolution of the BPMS market. However, as with previous evolutions, there are still many other kinds of BPM products that address less-comprehensive market needs. When an organization faces relatively slow rates of change, has very low BPM maturity or is focusing mostly on document-centric process automation, an iBPMS product may be overly complex for the task.

An iBPMS supports business responsiveness — often at the "moment of truth" in a customer interaction. The need to change which task is performed can happen at the individual work-item level, at the aggregate level of groups of work items, and also at the global process design level. Parameterized models can enable dynamic adjustment to the process itself, so that any new work items go through a new execution path due to that parameter change. For example, there might be a threshold that determines if a secondary approval for a work item is needed. Such changes may be predetermined at design time, as a choice of runtime options that permit dynamic execution of alternatives depending on the parameter setting. However, ad hoc changes to processes may need to occur when the runtime behavior (often of a person) has not been planned at design time. The most intelligent processes can also support this ad hoc dynamism. Analytics can help guide the process toward desired outcomes.

Gartner recommends that clients looking for an iBPMS consider their requirements carefully, and establish how intelligent their desired solution needs to be. Use the Gartner Process IQ Framework to understand which areas to focus on (see "Eight Dimensions of Process IQ Determine How Smart Your Process Needs to Be").

Market Overview

Vendors in the iBPMS market have originated from several different sources. "Infrastructure stack" vendors have added relevant BPM functionality (often by acquisition), document- and content-centric vendors have moved into the market by extending content workflows to include system integration and human workflows into processes, and newer innovators have focused more on developing solutions from business-oriented modeling techniques.

Faced with both externally and internally driven change, organizations have a bigger need to reinvent themselves while also driving improvements in efficiency. Additionally, through the integration of various systems, including IoT technology (sensors, smart machines, robots and so on) combined with advanced analytics (CEP, streaming analytics, AI and predictive analytics), companies are using an iBPMS to power their digitalized processes — embodying the characteristics of Gartner's digital humanism manifesto (see "Digital Humanism Is a Key to Digital Success").

Examples of "things" in the IoT may include household and business premises lights, smart electric meters, smoke alarms, security cameras, mobile devices, tools, toys, remote patient monitoring nodes, vending machines, parking meters and hotel door locks (see "Internet of Things Primer for 2017"). In a digitalized process, IoT "things" are integrated in the business process in order to ensure that the process can adjust to changing conditions as necessary. Process innovation can happen more easily when such devices are orchestrated together with all other process participants.

This year's Magic Quadrant continues the focus on using an iBPMS to address more-complex work styles that may be less structured or unstructured, and that require interaction with a wide variety of structured and unstructured content types. iBPMSs have evolved case management capabilities to varying degrees, enabling organizations to improve outcomes from a wider variety of process styles — including those that may be highly event-driven (see "Business Events, Business Moments and Event Thinking in Digital Business"). The other main focus this year is that an iBPMS allows an organization to adapt to changing business needs more quickly. Thus, there is an even greater focus on making the technologies easier to use so that citizen developers (business users and business analysts) can author solutions with minimal involvement from IT.

While an iBPMS can coordinate short-lived, transactional system-oriented processes, it is best used to manage long-lived business processes that span people, machine services and things, as well as functional boundaries. While some vendors use similar process execution engines, pure service-oriented architecture (SOA) orchestration is not a focus of an iBPMS.

The mobile, social, cloud and analytics features in an iBPMS have continued to evolve. More-intelligent iBPMS products and services provide robust decision management capabilities, allowing you to optimize outcomes across a variety of decision types. They also provide the ability to manage interactions across a variety of channels (web, mobile, chat, social networks, etc.) in a situationally adaptive way (see "Talk About Adapting Behavior Instead of Business Processes to Drive Digital Business Transformation"). The solutions that balance ease of use and time to solution alongside greater intelligence capabilities are seeing the most success. Also essential are strong

partner networks for business transformation capabilities, in addition to traditional implementation services.

This year's Magic Quadrant adds a few smaller vendors in terms of revenue and market share that have expanded their market presence enough to meet the inclusion criteria. These newer vendors are relatively immature compared to those they have joined. Further, many of the larger, established vendors in this market, including IBM, Software AG and TIBCO Software, have experienced tepid or negative growth in the last year. AgilePoint, AuraPortal, Axon Ivy and Pegasystems have seen the most rapid software revenue growth rates, although on a relatively small share of the overall iBPMS market (with the exception of Pegasystems).

The growth of the overall BPMS market stagnated in 2016. This was largely due to competition from vendors selling and marketing products from related markets, such as high-productivity application platform as a service, high-productivity rapid application development, integration platforms as a service, IT service support management, and rapid mobile application development tools. While these alternative tools may not offer process and decision management or analytics capabilities as rich as those of an iBPMS, they may have "good-enough" capabilities and require less investment in both skills development as well as software licenses. For application-centric development or self-service application development, where the processes need not be as intelligent or adaptive or where process is focused on the automation of product capabilities and is more transactional, these alternative tools may meet immediate customer needs. Further, they are quickly closing the gaps for business rules and decision management as well as advanced analytics. However, for managing not only the application life cycle, but the full business process life cycle for more-complex, long-running business processes that coordinate the behaviors of people, machines and things together, an iBPMS continues to provide differentiated capabilities.

Lastly, several of the vendors within this market have shifted their marketing message to go beyond a focus on traditional BPM to supporting organizations in their digital business transformation efforts. They have rebranded their platforms to emphasize the role that an iBPMS can play in supporting the transformation to a digital business — for example, IBM's Process Transformation Manager and Software AG's Digital Business Platform.

Acronym Key and Glossary Terms

AI	artificial intelligence
BAM	business activity monitoring
BPM	business process management
CEP	complex-event processing
IoT	Internet of Things

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Technology Insight for Intelligent Business Process Management Suites"

"Eight Dimensions of Process IQ Determine How Smart Your Process Needs to Be"

"Critical Capabilities for Intelligent Business Process Management Suites"

"Make Business Operations More Agile With Intelligent Business Processes That Reshape Themselves as They Run"

"How Markets and Vendors Are Evaluated in Gartner Magic Quadrants"

Note 1 Critical Capabilities of an iBPMS

Gartner evaluated the nine critical capabilities that differentiate products within the iBPMS market:

- Interaction management
- High-productivity application authoring
- Operational monitoring and business alignment
- Business rules and decision management
- Analytics
- Interoperability
- Intelligent mobility
- Process discovery and optimization
- Context and behavior history

Interaction Management: A business process is a journey to a business outcome destination. Interaction management refers to the iBPMS's ability to orchestrate multiple types of activities and interactions at runtime to support the work that people, systems and "things" (as in the IoT) do in order to produce specific business outcomes. This work may be performed by software systems and machines (applications, machines and devices), decisions made by humans or algorithms, collaborations that occur between workers inside and outside the enterprise, social interactions ("like," "poke," "follow" and so on), events (such as weather conditions, fuel price changes, changes in worker availability), analytics, information flows, business rules, and policies. An iBPMS offers the choice of managing this work as either semistructured, dynamic behavior, or as structured sequences of steps.

High-Productivity Application Authoring: An iBPMS includes development tools for both citizen and IT developers. It allows developers to quickly and easily build a process-centric application. Applications built upon the platform use a metadata model to manage the complete life cycle of business processes.

Operational Monitoring and Business Alignment: An iBPMS platform supports business activity monitoring (BAM) to continuously track conditions in processes, cases and other behaviors in near real time. This provides process intelligence — information related to the flow of work items (process or case instances) through activities that may be managed by the native iBPMS orchestration facility or may run in external systems. An iBPMS may also provide other kinds of BAM for business intelligence (BI) purposes by monitoring other entities and making available metrics and key performance indicators (KPIs) that are not directly related to process flow. Components that support BAM display information on dashboards, send notifications (including alerts) or trigger automatic responses in applications, processes or devices. In addition, the iBPMS may also capture and visualize strategic business objectives and underlying assumptions, and connect these to a metrics hierarchy. The iBPMS may optionally provide tools for managers and executives to track summary-level results against high-level operational, tactical or strategic business objectives.

Business Rules and Decision Management: An iBPMS provides software facilities, such as rule engines, recommendation engines or decision management engines, which provide guidance for making human or automated decisions according to business directives or policy statements. It supports deductive reasoning (forward chaining) and may support additional kinds of decision logic.

Analytics: Analytics is the discipline that applies logic and mathematics to data to provide insights for making better decisions. An iBPMS may incorporate or have connections to predictive analytics, such as scoring services, or prescriptive analytics, such as optimization engines. Analytic services may help the orchestration capability make smarter decisions about the flow progress of work, or they may be used within an activity step to improve other aspects of the application. An iBPMS may also support complex-event processing (CEP), the capability to correlate data from one or more event streams and detect temporal, spatial and other patterns. CEP engines may support near-real-time dashboards; send notifications; trigger automatic response in applications, processes or devices; or store events and complex events in databases for subsequent analytic processing.

Interoperability: An iBPMS platform includes adapters and adapter development tools that enable interoperation with external application services and application systems, such as commercial-off-the-shelf (COTS) packaged applications, custom applications and cloud-based SaaS applications and their databases. This capability leverages middleware technologies such as HTTP, REST, ODBC, JDBC, SOAP, WSDL, JMS or others.

Intelligent Mobility: An iBPMS provides the ability to access applications from a wide variety of mobile devices, including smartphones, tablets and other digital devices. Beyond providing access from anywhere, the platform takes advantage of the mobile device's native capabilities, including camera and other sensors. The platform uses the device's capabilities to more intelligently execute work.

Process Discovery and Optimization: An iBPMS provides capabilities that accelerate the time to discover and optimize behaviors (processes, tasks, policies, etc.) that are needed to improve business outcomes. This may include analyzing past execution history, or simulation of proposed behaviors.

Context and Behavior History: An iBPMS must maintain a log of certain events that have occurred in the course of the interactions that have occurred under its control. This may include process events, decisions or collaboration or other activities. The iBPMS may also manage other kinds of context data, from external applications, databases or event streams, to enhance the intelligence and effectiveness of the system. This context and history store may be implemented as multiple databases or files, and it may be in memory, on disk or a mix of both. This context and history store may also maintain a faithful record for each process instance of the structured, dynamic and improvisational interactions that take place between people, systems and things, and the impact of those interactions on business outcomes.

Note 2 iBPMS Use Cases Evaluated

We evaluated how well vendors were able to support the orchestration of work to produce business outcomes across six use cases. These use cases (which are not mutually exclusive) are:

- Composition of intelligent process-centric apps
- Continuous process improvement
- Business transformation
- Digitalized process
- Citizen developer application composition
- Case management

Composition of Intelligent Process-Centric Applications: Application authors use an iBPMS as a composition platform to coordinate mission-critical, industry-specific or company-specific processes more effectively. Business managers use an iBPMS in this way when they recognize the need to coordinate a long-running process, or improve business performance through broader and better coordination of processes that span functional boundaries and IT silos (see "Make Business Operations More Agile With Intelligent Business Processes That Reshape Themselves as They Run").

Continuous Process Improvement: In this pattern, the business (rather than the IT organization) has pursued process thinking for a while and has advanced to a continuous process improvement (CPI) mentality. CPI stems from well-understood process methodologies, such as lean and Six Sigma, which have been extensively adopted by manufacturing industries for years. However, in the past decade, many companies in industries such as financial services, healthcare and telecommunications have brought their BPM programs to a CPI level, often adopting Lean Six Sigma as a methodology.

Business Transformation: This is when senior business executives make "game-changing" actions by rethinking business processes that redefine their organization for survival. Senior business executives pursue business transformation in response to significant industry changes that are a result of regulatory changes and the global economic climate. Transformation can be strategic (what markets, and products/services are being delivered to these markets) or operational (significant rethinking of how to operationalize the business strategy).

Digitalized Process: This shortens the time from contextual insight to action, and speeds the delivery of a unique customer experience or response to inputs from the IoT. This use case involves using a highly intelligent process to respond to the unique context presented by business moments in an optimal way (see "Make Business Operations More Agile With Intelligent Business Processes That Reshape Themselves as They Run" and "Rethink Hammer's Process Principles to Innovate Your Processes").

Citizen Developer Application Composition: This uses the process orchestration capabilities of an iBPMS, and has less dependence on operations intelligence and advanced analytics. This use case focuses on the ability of the citizen developer (whether they be from lines of business, or are end users or business analysts) to build process-centric applications with minimal involvement from IT development staff. It uses the high-productivity application authoring capabilities of an iBPMS.

Case Management: The iBPMS supports case management — the ability to execute unstructured or semistructured processes. Also, they must be able to handle a wide variety of content types from structured to unstructured. The iBPMS should be able to support one or more patterns of case management, including investigative, crisis and incident management, service delivery and process-through-decision.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification

with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either

directly or through partners, channels and subsidiaries as appropriate for that geography and market.

GARTNER HEADQUARTERS**Corporate Headquarters**

56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters

AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

For a complete list of worldwide locations,
visit <http://www.gartner.com/technology/about.jsp>

© 2017 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. or its affiliates. This publication may not be reproduced or distributed in any form without Gartner's prior written permission. If you are authorized to access this publication, your use of it is subject to the [Usage Guidelines for Gartner Services](#) posted on gartner.com. The information contained in this publication has been obtained from sources believed to be reliable. Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information and shall have no liability for errors, omissions or inadequacies in such information. This publication consists of the opinions of Gartner's research organization and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice. Although Gartner research may include a discussion of related legal issues, Gartner does not provide legal advice or services and its research should not be construed or used as such. Gartner is a public company, and its shareholders may include firms and funds that have financial interests in entities covered in Gartner research. Gartner's Board of Directors may include senior managers of these firms or funds. Gartner research is produced independently by its research organization without input or influence from these firms, funds or their managers. For further information on the independence and integrity of Gartner research, see "[Guiding Principles on Independence and Objectivity](#)."