

Magic Quadrant for Intelligent Business Process Management Suites

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Intelligent business process management suites use actionable, real-time insights from operations intelligence to increase the agility and scalability of business operations. Application leaders building a DigitalOps competency can transform their business processes with these technologies.

Strategic Planning Assumptions

By 2022, one in five workers engaged in mostly nonroutine tasks will rely on AI to do their jobs.

By 2023, adopting a DigitalOps mindset will be the key reason for more than half of large enterprises meeting their digital transformation goals.

Market Definition/Description

Gartner defines the intelligent business process management suite (iBPMS) market as the group of vendors offering an integrated set of technologies that coordinate people, machines and things. An iBPMS allows “citizen developers” — most commonly business analysts, but also business end users — and professional developers to collaborate on the improvement and transformation of business processes. Products provide capabilities to optimize business outcomes in real time for a specific piece of work. They also allow new, emergent practices to quickly scale across a function or enterprise.

An iBPMS is a type of high-productivity (low-code/no-code) application development platform. An iBPMS enables dynamic changes in operating models and procedures, documented as models (process flows, business rules, decision models, data models, and others), directly driving the execution of business operations. In turn, business users make frequent (or ad hoc) process changes to their operations independently of IT-managed technical assets such as integration with external systems and security administration.

An iBPMS allows organizations to:

- Manage the reinvention of existing business processes and the creation of novel business processes in support of both digital optimization and digital transformation efforts

- Support top-down and bottom-up redesign of its business operations and processes

Improve the business outcomes of all types of work, not just structured and repeatable business processes

An iBPMS Brings Real-Time Situational Awareness to Business Operations

An iBPMS has higher-intelligence capabilities in at least four of the eight dimensions of the Gartner Business Process IQ Framework (see Note 1):

Data timeliness

Context granularity

Predictive power

Actionability

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

Contextual extensibility

Decision diversity

Optimization

Behavioral impact capture

A highly intelligent iBPMS — that is, one with higher-intelligence capabilities on most of the process IQ framework dimensions — can provide the foundation to industrialize the digital customer and employee experience. It does this by:

Connecting customer and partner interactions to back-office operations and supplier ecosystems in a context-aware, situationally adaptive way

Assessing, in real time, business operations based on the goals of the business, its partners and customers, to continuously update the set and order of interactions among process participants — potentially creating uniquely choreographed processes

Proactively personalizing contextually aware interactions at scale, to support rapid transformation and/or improvement of the customer and employee journey

Effectively, an iBPMS automates, orchestrates and choreographs (see “Decision Point for API and Service Implementation Architecture”) business processes that shape 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. This requires a blend of contextual awareness, effective decision management, responsiveness to events and advanced analytics.

iBPMS platforms:

Choreograph complex styles of work, such as adaptive case management

Provide tooling to automate operational decisions and enable humans to exercise their judgment

Handle complex events, even using them to coordinate action

Deliver advanced analytics to more-intelligently orchestrate and choreograph business processes

These insights manifest themselves at two levels:

At the macrolevel: Using continuous intelligence (stream analytics, complex-event processing or business activity monitoring), an iBPMS continuously monitors operations 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 via decision models, predictive analytics and machine learning [ML]) and decision support for knowledge workers, an iBPMS drives improvements in the execution of a particular process instance or case. This is useful in ways that go beyond traditional business transformation to the execution of digitalized processes.

iBPMS Capabilities Form the Foundation of a DigitalOps Capability

An iBPMS plays an important role in facilitating the creation of a digital twin for your business operations. It seamlessly brings together several of the core components of a business operating system — most commonly the operating model of the business, enterprise performance management, operational intelligence, and business decisions (see “Create a Digital Twin of Your Organization to Optimize Your Digital Business Transformation Program”).

An iBPMS thereby provides real-time insights supporting “DigitalOps” — that is, hyperagility at the business level through continuous change to the business operating model and business processes at the pace of DevOps (see “DigitalOps Helps Connect Business Models to the Digital Business Platform”). This allows for the rapid and continuous improvement of a business process, or experimentation with new customer experiences and operating models.

Magic Quadrant

Figure 1. Magic Quadrant for Intelligent Business Process Management Suites



Source: Gartner (January 2019)

Vendor Strengths and Cautions

AgilePoint

Note: AgilePoint declined to fully participate in the research process for this Magic Quadrant; it identified no reference customers and did not complete the vendor survey. Gartner's analysis of AgilePoint in this Magic Quadrant is therefore based on other credible sources, including previous vendor briefings, customer inquiries, Gartner Peer Insights reviews and other publicly available

information. Gartner Peer Insights reviews of AgilePoint (at the time of writing) point to average overall satisfaction.

AgilePoint offers an iBPMS built on Microsoft .NET architecture and primarily deployed on-premises by customers. However, it is rapidly transitioning to single-tenant and multitenant cloud offerings via Microsoft Azure and Amazon Web Services (AWS). The platform enables business and IT to collaborate on developing both process-driven and form-based applications. The following analysis refers to AgilePoint NX 6.x; AgilePoint NX 7.0 was released after the cutoff date for this Magic Quadrant, but the product roadmap is considered in our assessment of the vendor's Completeness of Vision.

Strengths

AgilePoint is typically one of the more cost-effective offerings in the iBPMS market. AgilePoint NX is licensed using a variety of different models, giving the customer flexibility to choose the approach that will scale best with their needs. It offers a free Community Edition with full capabilities for building proofs of concept (POCs), or for small-scale deployments (up to 10 named users).

AgilePoint is a strong fit for organizations looking for an easy-to-use iBPMS that leverages Microsoft investments, including Office 365, Dynamics CRM, SQL Server, and Azure AI and IoT services. With NX 7.0, AgilePoint increases the number of integration connectors to more than 70 cloud applications and on-premises systems. New connectors provide integration with chatbots, machine learning services, robotic process automation (RPA), and others.

AgilePoint enables citizen developers to easily compose process-centric applications. It offers a low-code authoring experience. Its eForms Builder offers a drag-and-drop tool with more than 60 form controls that are responsive across device form factors. In release NX 7.0, AgilePoint plans to introduce further usability enhancements to both authoring and end-user experiences.

Cautions

AgilePoint provides limited analytics and decision management capabilities in its platform. Predictive analytics gets partial support through the AgileExtender Framework, while advanced analytics, complex-event processing (CEP) and complicated reporting require integration to third-party subscription services, such as those from Microsoft. Process discovery and optimization capabilities also require customizations through the AgileExtender Framework. Its native business rules and decision management capabilities are among the weaker aspects of the platform, relying on third-party decision automation engines for more sophisticated customer requirements.

While AgilePoint gets a degree of customer mind share that is comparable to some of its most direct competitors, it has not translated this into comparable market share. This is largely due to its having a less-mature service and technology partner ecosystems.

AgilePoint NX 7.0 promises to advance usability of both the design-time and runtime experiences, and provide more robust mobile capabilities. However, it does not significantly address some of the shortcomings, particularly around its decision management and analytics capabilities, which — based on market demands — are bigger gaps in AgilePoint’s offering.

Appian

The Appian development platform combines low-code development with process management to allow both IT and citizen developers to construct process-centric and case-centric applications. The Appian platform enables enterprises to adapt their processes for ongoing process improvement and business transformation. The following analysis refers to the Appian 18.2 release.

Strengths

The Appian platform performs strongly across all the criteria for iPMS platforms. The offering provides a highly capable suite of tools for citizen developers that includes process modeling, UI design and decision design. Of significant interest was the inclusion of support for “boxed expressions” from the Decision Model and Notation (DMN) standard. The addition of a “records” view for knowledge workers complements the traditional process inbox. Further, the Appian AppMarket provides a range of accelerators, tools and extensions built on the platform by either Appian or its partners.

Appian’s value for money compared well with that of the other Leaders in this Magic Quadrant. Customer references also indicated a higher degree of satisfaction with their overall platform experience, compared with the other vendors surveyed. Appian customer references stated that they use Appian for implementing multiple processes that span cross-functional boundaries, with most indicating that they use the platform to optimize interactions with partners. Similarly, the majority were experimenting with radical changes to their operating models.

Since our last evaluation, Appian has enhanced the scalability of its platform, doubling the number of processes, increasing memory, and supporting the containerization of the platform via Docker and Kubernetes. This further supports high availability of the cloud platform and facilitates its multi-data-center offering and low recovery time objective (RTO) capabilities.

Cautions

Customer references for Appian cited contract negotiation and pricing flexibility as areas of concern. While Appian has experimented with a variety of pricing models, some customer references considered its pricing model unclear.

Although Appian provides performance analytics on business processes, the design experience for data outside of that process is limited. Native data visualization is restricted to grids and common chart types. Moreover, while the inclusion of boxed expressions from the DMN standard

is useful, there is no decision requirements diagram and the Appian expression language is still pervasively used.

Appian has added native sentiment analysis and preintegrated components for ML from major players such as Microsoft, Google and Amazon, but lacks the native ML capabilities that the market is demanding.

AuraPortal

AuraPortal Helium is a .NET-based platform that provides highly intelligent capabilities within a single integrated repository. AuraPortal is currently expanding its reach — moving from midsize to larger organizations and continuing to build momentum in the North American market. This analysis pertains to AuraPortal Helium version 4.5.

Strengths

Through better marketing efforts and messaging — such as co-branding in certain regions, co-creating whitepapers with Microsoft, and leveraging worldwide Microsoft events — AuraPortal has strengthened its position within the Microsoft-centric market segment. It also plays a key role in the Microsoft partner community by taking a leadership role in the EMEA Microsoft partner channel.

AuraPortal has increased its ease of use by introducing new UIs, and improving forms design and forms execution. Furthermore, it has added high-availability and load-balancing functionality to support large-scale implementations.

AuraPortal's partner, sales and marketing strategies revolve around a targeted goals/clients/industry model that has helped improve brand awareness in regions such as North America, South Asia and the Middle East. Customer references for AuraPortal this year indicated higher levels of satisfaction than in previous years.

Cautions

Some reference customers struggled to get value from the product early on in their projects. AuraPortal's design experience is not the most intuitive, and it was not always easy to understand which capabilities were available. Reference customers pointed out that it is essential to attend training courses before starting to develop applications.

Although market awareness of AuraPortal has increased, it has less customer mind share overall. The greatest awareness of AuraPortal is in the Microsoft-centric segment market. It also has a lesser presence in the North American market than those vendors that demonstrated stronger execution. In Gartner's customer reference survey for this Magic Quadrant, very few references that chose other products considered AuraPortal during their product selection.

Some critical capabilities may not meet all buyers' needs. Although customer references were generally very satisfied with the overall critical capabilities of AuraPortal Helium, they only had average satisfaction with the mobility features. The platform has a more limited offline experience than many of the other products evaluated. Further, when compared with the Leaders, AuraPortal Helium's analytics, citizen-developer-oriented system and cloud administration capabilities were less feature-rich.

AXON Ivy

AXON Ivy is an iBPMS, offered as both a Java-based and web-based platform, that provides many higher-intelligence capabilities. Prior to this Magic Quadrant, AXON Ivy merged with its sister company AXON Insight — a provider of advanced data and analytics and e-decision platforms that delivers insights using proprietary domain datasets — to improve these higher-intelligence capabilities. The analysis for this Magic Quadrant pertains to AXON Ivy Digital Business Platform 7.1.

Strengths

AXON Ivy offers innovative capabilities using ML for workflow load predictions, providing integration with a variety of blockchain technologies for archiving and auditing, neural networks in prospecting for new clients, and natural language processing.

From a business model perspective, AXON Ivy has created a dual strategy based upon its market insights, with separate subbrands to directly market and sell industry solutions (AXON Fintech and AXON Insurtech). It also provides partners with great flexibility in their business relationships, and the ability to independently extend the product to create industry-specific platforms. AXON Ivy also provides a free marketplace add-on that allows end users and partners to share their own extensions.

AXON Ivy is a good platform for complex or adaptive case handling. At run time, end users can dynamically extend the case model. They can leverage one-to-many signals across the entire platform and use DMN.

Cautions

Although we have seen some improvement, compared with other vendors included in this evaluation, AXON Ivy has limited customer mind share in the global iBPMS market. AXON Ivy was not considered in the buying decisions of customer references that purchased products from other vendors in this Magic Quadrant. Further, AXON Ivy was only referenced in a small fraction of Gartner inquiries with customers evaluating iBPMS vendors.

Clients looking for iBPMS outside of financial services, insurance and utilities should check on AXON Ivy's local partners and their implementation services. AXON Ivy relies heavily on partners for implementation outside of its limited core market.

Some AXON Ivy reference customers, especially those on older versions, emphasized the need for training and implementation support. While they indicated that upgrading to the latest version addressed some of the usability issues, AXON Ivy does not provide a direct upgrade path. Further, it was difficult for references to justify a business case for recreating existing applications “as is” on the newer version of the platform. AXON Ivy has promised extended maintenance support for customers on older versions of the product.

Bizagi

The Bizagi Digital Business Platform is an iBPMS that offers execution on .NET and Java Platform Enterprise Edition (JEE). Bizagi approaches the market in a disruptive way, through a deep focus on ease of use and a freemium business model. With its Digital Business Platform, Bizagi has demonstrated higher-process IQ capabilities. This analysis pertains to Bizagi Digital Business Platform v.11.1.

Strengths

Reference customers for Bizagi chose the product for a truly diverse set of reasons — enabling the business to self-serve and optimizing customer interactions were prominent, alongside the usual process optimization. Customers also scored it well across all aspects of their experience, resulting in one of the highest average customer satisfaction scores. Compared with other vendors included in this evaluation, customer references scored Bizagi as having one of the easiest to use authoring experiences.

Bizagi’s business model enables it to reach customers in underserved and often price-sensitive markets. Bizagi has offered freemium software since 2008, before the term was even coined. Both the Bizagi Modeler and the full Bizagi platform can be downloaded free. Customers have the option of a named-user license for on-premises deployment, or usage-based pricing in the cloud. This freemium approach is further supported by a comprehensive range of self-service training courses (receiving the highest reference customer score), which shortens the learning curve and helps clients manage their BPM journeys.

With the Digital Business Platform v.11.1 release, 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. The Digital Business Platform fuses and virtualizes the data model and traditional process models. All processes can share this common data model. Moreover, with strong support for the Signal Intermediate Event as a part of the business process model and notation (BPMN) modeling tooling, a fluid and dynamic process architecture is possible.

Cautions

Bizagi has two design environments for process modeling within the Digital Business Platform — Modeler and Studio — each offering has overlapping but also unique functionality. Studio, has, for example, full design-time collaboration via the cloud, and Modeler offers offline simulation without production data — thus increasing the number of tools needed for management of the full process life cycle.

To accelerate market growth, Bizagi has relied heavily on partners for implementation support. This has become a problem in North America, its primary growth market. Reference customers had mixed experiences with finding quality third-party resources. Bizagi still lacks the brand awareness to capitalize on the opportunities created by its unique business model, which have helped it penetrate other regions of the globe.

Compared with other leading iBPMS vendors, Bizagi offers adequate but less-than-stellar capabilities in business rules and decision management, operational monitoring and intelligent mobility. Another feature that is lacking, and that the market is increasingly demanding, is support for the DMN standard — which would complement its strong BPMN orientation in process modeling.

Bonitasoft

Bonitasoft is a Java-based, open-source-based iBPMS vendor. It estimates that there were more than 75,000 installations of its free Bonita Community Edition at end of 2017, with less than 10% of that number being active production environments. The Bonita platform can be deployed on-premises or in the cloud using Docker containers, but Bonitasoft itself does not offer hosting services. Instead, a managed cloud service of its platform is offered and hosted through partners, such as T-Impact and AMIGOLOG. The following analysis refers to Bonita 7.7.

Strengths

Bonitasoft's implementations are typically quicker than those of more-complex iBPMS offerings. Most of its reference customers reported deploying production applications within six months from initially purchasing the product, with some in less than three months. References also cited strong support and implementation services from Bonitasoft and its partners.

Bonitasoft has a far-reaching global partner network in more than 25 countries, with 110 certified partners, and an open-source ecosystem of more than 130,000 developers. It relies heavily on its partners as a significant part of its sales channel (including cloud hosting services) and professional services.

The Bonita platform comes with connectors and default building blocks that can help quickly deliver working applications. Bonitasoft provides fully documented REST APIs to develop extensions to its platform services, plus all the modules are extensible and fully documented. Several reference customers cited the API extensibility as a strength of the platform.

Cautions

Unlike most of the vendors in this report, Bonitasoft does not currently offer its own cloud-hosted offering for its platform. Instead, it relies on partners to deliver business process management platform as a service (bpmPaaS) and has plans to offer its own service in 2019. The vast majority of customers deploy on-premises, although Bonitasoft offers add-ons to enable continuous delivery for on-premises, cloud-hosted and hybrid configurations. It may not be a good fit for customers seeking a cloud-native iBPMS.

Bonitasoft continues to receive below-average scores, compared with other vendors in this Magic Quadrant, for its reference customers' satisfaction with its understanding of customer needs. Its platform is more suited to IT users than business users. In addition, references gave below-average satisfaction scores for its end-user peer community.

Although Bonitasoft has moved to a single pricing model for cloud and on-premises deployment of its platform, reference customers scored their satisfaction with contract pricing and contract flexibility as below average. A few of these customers said license management of the platform services could be improved.

BP Logix

Note: BP Logix participated in the research process for this Magic Quadrant but declined to provide customer references. Customer data is therefore based on briefings and other credible sources, including customer inquiries, Gartner Peer Insights reviews and other publicly available information. Gartner Peer Insights reviews of BP Logix (at the time of writing) point to above-average overall satisfaction.

BP Logix offers Process Director as its iBPMS product, which features no-code process definition and smart forms creation that runs on top of an integrated business rule engine. BP Logix's iBPMS has most commonly been deployed as an on-premises solution. Most new customers choose to go with its multitenant cloud offering running on Microsoft Azure. The following analysis primarily refers to BP Logix Process Director 4.x. Version 5.0 was released after the cutoff date for this Magic Quadrant, and features on the product roadmap were only considered in support of our evaluation of its Completeness of Vision.

Strengths

Process Director is designed for a no-code approach to building process-centric applications, using a web browser editor for form design. For extensibility, BP Logix offers a full developer SDK, featuring integration with Visual Studio's IntelliSense facility for partners and customers requiring custom development.

BP Logix Process Director offers a rich set of business activity monitoring (BAM) tools for process owners, business users and business managers. Unlike most other products in the market, BP

Logix's executable process model, Process Timeline, uses a Gantt chartlike visualization for authoring, execution and monitoring of the process. Triggered by changes in operations intelligence, tasks from the Process Timeline are dynamically activated and assigned. The Timeline's analysis capability continuously baselines the overall performance of the process, offering comparative data. Process Director automates predictive analysis and response as a default feature of every application built using the Process Timeline.

BP Logix offers flexible licensing terms that include a mix of named-user pricing and one-day passes for occasional users. Pricing is the same for deployments no matter if they are cloud or on-premises. All contracts are term-based, typically with a one-year minimum, and include standard support — with 24/7 support available at an extra charge. Customer references surveyed through Gartner Peer Insights cited cost as being one of the top determining factors when choosing BP Logix and gave above-average ratings for the evaluation, contracting and negotiation with BP Logix.

Cautions

BP Logix's sales and marketing functions are in a state of transition. It has brought on new sales leadership and is realigning its marketing organization. Both customers and partners should monitor the progress of this realignment for impact on its sales, licensing, pricing and marketing strategies.

BP Logix is falling behind the market in terms of providing built-in mobile app support. While Process Director supports mobile web apps using responsive design, native mobile app support in its platform is still a roadmap item. Companies requiring richer native mobile app capabilities must use separate mobile app development tools and frameworks.

Process Director provides limited support for process discovery and optimization. Important capabilities such as process mining, to automate discovery of business processes from heterogeneous sources, are not supported. Tools to simulate and improve business processes are basic — enabling only manual simulation, and optimization that only focuses on time to complete an activity without considering any other constraints or resources. Process Director 5.0 promises to bring some more advanced real-time and on-demand optimization features that leverage ML. However, that version of the product was released after the cutoff date for this evaluation and could not be evaluated.

bpm'online

Bpm'online offers a .NET-based iBPMS that is strongly tied to the company's CRM solutions. Its platform includes Process Designer, Process Library, its BPM engine and Process Log, as well as Case Management, Case Designer, Case Engine and Case Analytics. The platform can be deployed either on-premises or as a cloud offering, typically hosted on AWS or Microsoft Azure and supporting Kubernetes. The following analysis refers to bpm'online version 7.12. Version 7.13 was

released after the cutoff date for this Magic Quadrant, but features on the product roadmap were considered for Completeness of Vision.

Strengths

The overall satisfaction of bpm'online's reference customers was among the highest in this year's Magic Quadrant. In particular, it received above-average satisfaction ratings for understanding the customers' needs, value of the product, and meeting customer expectations.

The bpm'online platform offers a robust low-code development environment and an intuitive drag-and-drop case designer capability. It is relatively straightforward to configure the workflows, screens and rules using the platform. Reference customers reported deployment times of less than six months from purchase, and two to four weeks to become effective on the platform for many of them.

Bpm'online has the highest percentage of reference customers using its mobile app and mobile web portal capabilities in this year's Magic Quadrant. It claims that nearly every customer is leveraging mobile, which is vastly more than the typical iBPMS vendor. However, the mobile app capabilities are fairly basic, being hybrid mobile apps that use the Apache Cordova container.

Cautions

Better known for its CRM offering, bpm'online continues to have relatively low market recognition in the iBPMS space. It was rarely considered as an alternative iBPMS, according to our survey of reference customers. Given that it also offers its own CRM suite (sales, marketing and service), bpm'online may be less appealing to companies that already have other CRM investments.

Bpm'online does not offer out-of-the-box connectors to popular enterprise applications and systems with its platform. There are about 60 connectors available in its Marketplace, but most are to small and midsize business (SMB) types of applications and services — such as QuickBooks and Google Contacts. For custom integration, bpm'online requires .NET services (such as REST or SOAP), OpenAPI web services, or direct access to the database.

Although fast time to deployment on the bpm'online platform is a positive, its reference customers indicated that platform documentation and tutorials could be better. All reference customers reported buying support packages, and more than half used third-party services for implementation. Customers need to consider these additional costs as part their deployment.

Genpact

Genpact is a digital services and technology vendor that focuses on helping its customers with digital transformation. Cora SeQuence, formally PNMsoft SeQuence, is the foundation for Genpact's Cora, which bundles additional digital technologies with the iBPMS. The following analysis refers to Cora version 2.3, which combines the products acquired with RAGE Frameworks, PNMsoft,

TandemSeven and others, alongside technologies developed in Genpact's own analytics and artificial intelligence (AI) practices.

Strengths

Genpact offers a wide variety of digital business transformation and technology services alongside the Cora platform. This combination of broad technology capabilities with global service offerings enables Genpact to bundle solutions that are closely aligned to customers within the verticals it services.

Genpact and its ecosystem partners have experience in executing successful optimization and transformation initiatives in a wide range of industries, bringing both domain expertise and prebuilt assets. The Cora platform is a central part of how the broader Genpact enterprise, as well as its partners, delivers both incremental and transformational change to the customers. It is also a key strategic platform in supporting customers that use Genpact's business process outsourcing (BPO) services.

Genpact has bolstered its ML, advanced analytics and multichannel experience capabilities through acquisitions during the past year. It acquired RAGE Frameworks, which provides ML-based content analytics; also, TandemSeven, which provides customer journey mapping tools to enable outside-in reimagination of the customer experience or reinvention of operating models.

Cautions

Genpact does not have as strong a customer mind share as the Leaders and Challengers in this Magic Quadrant. Genpact Cora was not considered as an alternative in the buying decisions of customer references that purchased products from other vendors. Genpact focuses its marketing and sales efforts on very large global enterprises and does not have visibility outside of that segment of the market.

Customer references indicated a below-average level of satisfaction with the availability of quality third-party technology implementation services. While most customer references chose to use professional services to support their implementation of the platform, few leveraged those services from a partner; instead using Genpact's own professional services team. While Genpact has a large, global services labor force, customers looking for alternatives may find their choices limited.

While simple applications can be authored by those with limited technical expertise, some customer references for Genpact indicated that the platform required a deeper level of technical expertise and more extensive training than they had originally anticipated.

IBM has brought its vast catalog of process and decision automation, and content management and collaboration tools together in a sweeping reinvention of its iBPMS — under the umbrella of IBM Automation Platform for Digital Business. This review centers on IBM Digital Business Automation Enterprise and IBM Digital Business Automation Express, version 18.1. These offerings include: task-level automation using RPA (under OEM agreement from Automation Anywhere), content sharing and management (formerly IBM FileNet), workflow automation (formerly IBM BPM), content capture and extraction (formerly IBM Datacap), and decision management (formerly IBM Operational Decision Manager).

Strengths

In this latest reinvention of its suite, IBM has taken different products that had been loosely integrated, and reimagined the collection as a unified platform — operating from a common data model with a consistent, web-based design and end-user experience. The end result enables multiple roles to collaborate on building intelligent applications. This combination serves as the natural upgrade path for the previous IBM iBPMS and the IBM Case Manager products. However, while previously developed IBM Case Manager processes will run on the new platform, users must redevelop them to take advantage of the new capabilities.

Although the components of the IBM Digital Business Automation platforms are included in a unified design experience, they can also be purchased separately or added on as needed. This allows customers with relatively simple needs to grow their investment in the platform over time.

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 with other vendors' software.

Cautions

While moving to a unified platform should address some long-standing usability, integration and administration challenges, none of the customer references for IBM surveyed by Gartner were using the latest version. The reinvented platform was only introduced a couple of months prior to the cutoff date for this research and it is still too early to assess the customers' acceptance of the product and its traction in the market. Therefore, customers looking at purchasing or upgrading to the new platform should carefully evaluate the platform to determine if the enhancements are aligned to their needs.

While IBM's marketing message around digital transformation resonates with its customer references, compared with most vendors in the evaluation these references provided lower scores for the ability of the product to meet their needs. Customer references for IBM cited gaps in setup and administration, as well as context and behavior history capabilities. With Business Automation Insights, IBM has promised improvement in the context and behavior history

capability, but this is a new service and potential customers should monitor the market reaction to this new capability.

IBM's customer references cited some concerns with the vendor and the product. While still generally satisfied, they gave below-average scores for the value received for money paid when compared with the other vendors we evaluated. Some customer references indicated that the platform was difficult to use and that having the right combination of expertise on the implementation team is critical to success.

ITESOFT | W4

ITESOFT's iBPMS is a JEE iBPMS platform built upon the capabilities of W4. ITESOFT combines enterprise content management (ECM) and smart process application (SPA) solutions, with the BPM functionality of W4 BPMN+. This analysis pertains to W4 BPMN+ v.10.3, which is available on-premises and as a cloud-enabled bpmPaaS.

Strengths

ITESOFT has built strong partnerships to overcome some of its lagging functionality, most importantly with Axellience for a web modeler that handles process, customer journeys and enterprise architecture models. It has also secured OEM partnerships for additional functionality — such as with Contextor for RPA, and ABBYY for optical character recognition (OCR) functionality.

ITESOFT still has a strong focus on document-centric, end-to-end solutions such as supplier invoice handling and contract life cycle management. Although ITESOFT is shifting to be more platform oriented, companies searching for these specific solutions can benefit from this domain expertise.

In shifting to become a more widely marketed iBPMS platform, ITESOFT adapted its architecture to incorporate a set of core microservices-based components that embed reusable capabilities. These include functionality around capture as a service, fraud detection and security. The complete set of capabilities is packaged as the ITESOFT Secure Capture and Process Automation platform (SCPA platform).

Cautions

ITESOFT's iBPMS is frequently sold to support one of its prebuilt domain-specific applications, rather than as an enterprise process platform. Almost 50% of its iBPMS-related revenue was driven by broader solutions in 2017.

Compared with most other products in this evaluation, ITESOFT's iBPMS is weaker in a number of capabilities, most notably business rules and decision management, and intelligent mobility.

Also, it does not support inflight modification of process applications — limiting processes to the set of behaviors configured at design time.

ITESOFT has limited visibility outside the French market. Few customer references that purchased from other vendors in this Magic Quadrant considered ITESOFT in their purchasing decisions.

K2

K2 offers K2 Five, an iBPMS that includes K2 Designer, a web-based, no-code development environment for citizen developers, with SmartForms and SmartObjects capabilities. K2 Five is available on-premises or on private or public cloud infrastructure. K2 Cloud is a bpmPaaS managed service hosted atop Azure Cloud. K2 also offers an online Center of Excellence to deliver design templates and best practices for customers. The following analysis refers to K2 Five (5.1) and K2 Cloud service.

Strengths

Via its SmartForms and SmartObjects capabilities, K2 allows collaboration between business citizen developers and professional developers, separating the business and the technical views of the data object and UI models.

K2 does an effective job at generating market awareness of its product/service. Its offerings are commonly considered in deals with other vendors in this Magic Quadrant. K2 has effectively turned the awareness generated by its Microsoft and partner network relationships into revenue and customer growth.

K2 Five and K2 Cloud build on K2's historic focus on the Microsoft ecosystem of services such as Office 365 and Power BI. K2's platform provides tight integration with these services, using both APIs (for back-end service interactions) and web hooks (for UI-level interactions between the services).

Cautions

K2 customer references gave strong positive feedback on their overall experience with the vendor. However, compared with most vendors in this evaluation, they provided lower scores for the ability of the product to meet their organization's needs and value for money spent. K2 frequently has to be extended with additional services, which increases the cost, complexity and time to implement solutions.

Despite investments in the K2 Five/K2 Cloud design experience, customer reference scores for overall ease of use were just average compared with the other vendors evaluated. These references reported comparatively low levels of satisfaction with the ease of integration and deployment.

For some of the more advanced iBPMS capabilities — such as process discovery and optimization, and analytics — K2 Five/K2 Cloud lag behind the middle of the market. For more robust capabilities in these areas, K2 leans heavily on separately licensed Microsoft software and services.

Kofax

In July 2017, private equity firm Thoma Bravo acquired Lexmark's enterprise software business, which included Kofax, ReadSoft and Perceptive Software. The combined Kofax and ReadSoft businesses now trade under the Kofax brand. The Kofax TotalAgility iBPMS targets structured or semistructured use cases. This analysis pertains to TotalAgility 7.4, Insight 6.0, Kapow 10.3, SignDoc 2.1, Customer Communications Manager (CCM) 5.1.1, Mobile Capture 3.3 and Mobile ID Capture 2.3, which are available on-premises or as cloud-enabled bpmPaaS.

Strengths

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 its RPA, CCM, e-sign and process intelligence components to complement the core BPM capabilities.

TotalAgility offers connectors to a large number of well-known content management, CRM and other systems. Kapow, Kofax's RPA 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 offers relatively flexible pricing and contract terms, which continue to be a satisfaction bright spot in its customer reference scores. Overall customer satisfaction has also increased markedly.

Cautions

The upheaval created by the initial acquisition by Lexmark, and subsequent divestiture to Thoma Bravo, continues to impact Kofax's pace of innovation. The different product elements in this evaluation are still quite distinct and, while some cross-product integration at design time is provided, the developer experience of each product is largely separate. Very few of the Kofax customer references were using the product to replace an existing case management application.

The Kofax TotalAgility product is best-suited to the automation of more-predictable, routine business processes. Support for intelligent, situationally aware business processes driven by advanced analytics and operational decision management are provided through a combination of different, loosely integrated products. Customers need a clear implementation vision for long-term success.

TotalAgility's process analytics and decision automation are relatively weak, and 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 than those of other vendors in this Magic Quadrant. Further, Kofax's process mining capabilities are only loosely integrated into the broader TotalAgility suite.

Newgen

Newgen's OmniFlow Intelligent Business Process Suite (OmniFlow iBPS) is an iBPMS that includes content management capabilities, which it also markets separately. Our analysis refers to Newgen OmniFlow iBPS version 3.1 SP1. Included in the Newgen offering is OmniFlow iBPS V3.1 SP1, OmniDocs 10.0, Newgen Enterprise Mobility Framework (NEMF) 3.2 SP1, and Newgen RPA suite (RPA server, assistive robot, image-based robot, analytics robot, back-end robot). Newgen OmniFlow iBPS is available both on-premises and as a cloud-enabled bpmPaaS.

Strengths

Newgen has a deep understanding of its customers' industries. Newgen and its partners offer an extensive set of prebuilt application frameworks for the financial services, government and healthcare industries, among others.

Newgen often packages together features one would expect to find in a more costly, leading product — but at a lower price point. For example, the OmniFlow iBPS includes RPA, a full content management product, a CEP engine and event stream analytics.

Aside from ease of use of the authoring experience, for which Newgen received average scores, its customer references indicated a very favorable overall impression of Newgen.

Cautions

Compared with other vendors included in this evaluation, Newgen has a lower marketing presence in North America and Europe — the biggest markets for iBPMSs. None of the customer references that picked products from other vendors in this Magic Quadrant had considered Newgen as an alternative.

Nearly 90% of Newgen's customers are located in Asia/Pacific and EMEA. While Newgen has been able to adequately support its customers outside of these regions, it is unclear how effectively Newgen will be able to scale its ability to accelerate growth in the regions where it is not well represented. Most of the customer references for Newgen use its professional services to implement their solution. Customers should check that the support and implementation resources in their region are adequate to support their requirements.

While most customer reference implementations were focused on optimizing business operations, leveraging Newgen's experience and technology capabilities, few customer

references engaged in more transformative uses of the platform. While Newgen has a broad partner network, customers primarily used Newgen-provided implementation services. Buyers should leverage transformation expertise from partners — alongside resources provided by Newgen— to achieve the best outcomes from their digitalization efforts.

NTT Data Intramart

NTT Data Intramart's intra-mart platform is one of the first iBPMSs to offer native Japanese language support. This company recently expanded its sales and marketing focus outside of the Asia/Pacific market, since working with an Australia-based partner to translate its platform to the English language. NTT Data Intramart is new to this Magic Quadrant. Its iBPMS is offered in a number of standard configurations: Standard, Advanced and Enterprise. This evaluation focuses on the full set of components made available in the Enterprise version of intra-mart. These components, all available from 1Q18, include: intra-mart Accel Platform, IM-BPM, IM-OpenRules, IM-FormaDesigner, IM-LogicDesigner, IM-Box, IM-Juggling, e Builder, and Accel-Mart.

Strengths

NTT Data Intramart has one of the largest installed bases of all the vendors in this Magic Quadrant. It offers the most-widely adopted iBPMS in the historically underserved Japanese market, and boasts 10 years as the market share leader in that country.

There are a handful of technical features NTT Data Intramart has implemented to simplify the authoring experience and make it more accessible to business analysts. It uses a BPMN-compliant syntax for end-to-end processes, and uses IM-Workflow, a proprietary notation, to simplify modeling of complex approval chains. It also leverages a derivative of the OpenRules open-source rule engine, which uses a Microsoft Excel spreadsheet-based design experience.

Compared with the Leaders, NTT Data Intramart's iBPMS is relatively inexpensive and simple. Its pricing model is based on compute capacity: subscriptions for its cloud-based service are based on the number application servers; on-premises deployments are licensed perpetually based on the number of CPUs. The vendor does not levy a license cost for users of an application that are external to the enterprise.

Cautions

While NTT Data Intramart's intra-mart platform is widely adopted in Japan, and has some presence in other countries in the Asia/Pacific region, it has only recently begun to sell into other markets. There is little brand awareness of this vendor outside of the Japanese, Chinese, Indonesian, Thai and Australian markets. Few customer references that purchased from the other vendors in this Magic Quadrant considered NTT Data Intramart during their purchasing decision.

NTT Data Intramart's intra-mart iBPMS lags behind the rest of the market in several critical capabilities. It offers a modest mobile end-user experience and lacks the ability to create native

mobile applications. It offers no ability to inject ad hoc tasks at runtime. Collaboration at runtime is limited to a proprietary chat feature that does not link interactions to the related process instance (a feature that is on the product roadmap). The use of ML is limited to digitalization of unstructured content using optical character recognition (OCR).

While generally still satisfied with their experience, NTT Data Intramart's customer references offered comparatively low levels of satisfaction. The areas they rated lowest included the cost of software licenses, the quality and availability of end-user training, the ease of use of the design experience, and the performance of the platform.

Oracle

Oracle is increasingly focused on its cloud-native offering Oracle Integration Cloud (OIC), while it continues to offer and enhance its Oracle BPM Suite offering. Our analysis is based on OIC version 18.3.1, which includes process, integration and decision management components. OIC groups together Process, Integration, Insight and Visual Builder into a single OIC SKU. Other OIC-related services carrying the suffix "Cloud Service" include the Oracle Content and Experience Cloud (CEC) version 18.3.1, which is a separate SKU. We also examined the Oracle BPM Suite 12c (released in September 2017). Oracle BPM Suite includes Oracle SOA Suite 12c and Oracle BAM as well as Oracle Web Center, which is used to expose process applications to both internal and external participants through a user portal.

Strengths

OIC provides a low-code, browser-based experience for both authoring and execution. This latest version is a significant step forward in bringing case management and DMN functionality front and central. This long-needed set of enhancements brings the platform closer to the vision of an end-user-accessible platform that enables citizen developers to extend Oracle's other products as well as develop custom-made solutions.

OIC enables customers to quickly prototype, get user feedback and iterate, allowing rapid delivery of web and mobile applications into production. OIC allows rapid, incremental improvement of the business process to increase operational efficiency as well as reduce the time to get new updates out to market. Compared with other products in this Magic Quadrant, customer references for Oracle scored OIC as above average for ease of deployment and integration.

The Oracle BPM Suite provides strong analytic capabilities that enable increased visibility into process performance and a more dynamic and intelligent orchestration of business processes. In addition, OIC integrates with Mobile Cloud Service (that includes chatbots) and IoT Cloud Services for conversational and event-drive capabilities, although that requires separate licensing.

Cautions

Oracle's overall iBPMS product set is a rich, but complex offering consisting of many services and applications. Reference customers sometimes struggled to identify the best Oracle product or the combination of cloud services that would best meet their needs. Indeed, some reference customers indicated that partners have also struggled with the transition to OIC from the more developer-centric Oracle BPM Suite. Customers should be careful to engage with partners that have the necessary skills for the Oracle product and services selected.

Some customer references for Oracle cited concerns with the overall customer experience, with below-average scores being driven by concerns around pricing flexibility, contract negotiation, and a lower overall value for money. Few of the customer references for Oracle cited strong services expertise, and none cited a strong customer focus, as being reasons they chose to buy from Oracle.

Customer references for Oracle also pointed to the need for better operational tooling in Oracle BPM, including better release management, instance migration (moving live process instances) and patch impact reports (before applying patches). Additionally, while OIC received favorable marks for ease of deployment and integration, customer references using Oracle BPM Suite provided below-average scores.

Pegasystems

Pegasystems remains dominant at the high end of the enterprise iBPMS market. The product supports a broad range of usage scenarios and provides the underlying engine for the Pega CRM platform. Pegasystems continues to innovate in its iBPMS capabilities, often well in advance of others. For example, this latest release includes significant advances in its case management functionality — enabling citizen developers to build solutions, and reducing some of the usability challenges that affected the authorizing experience in the past. This analysis is based on the new Pega Infinity umbrella brand version 7.4.

Strengths

Pegasystems' reference customers gave it mostly above-average scores across all dimensions of customer satisfaction. Among other criteria selected, reference customers chose this platform to replace their existing case management platforms and to support radical reinvention of their business models. Customers cited Pega Infinity's capability to integrate with external systems above other drivers. At the same time, the primary use case of customer references for Pega was to optimize operational efficiency. Most customers cited its product roadmap and vision as a top factor in their purchasing decision.

The strength of the Pega platform lies in its comprehensive underlying object model decision management capabilities. Prior to the release of the Infinity brand, Pega had refocused on a cloud-first model, relying on a container-based architecture to enable a choice of cloud

environments and easier deployment. The Pega platform, with its mobile app development and case management capabilities, offers one of the most comprehensive sets of features in the market. In addition, Pegasystems continues to demonstrate strong vision through its native ML and integrated RPA capabilities.

Pegasystems has built a well-structured ecosystem to spread its brand, technologies and practices. This includes a broad array of implementation partners; Pega Exchange, to foster sharing of apps and components across its partners; and Pega Service Ventures, to fund startups based on Pega expertise. It also embraces university affiliates, to promote model-driven development in order to increase its resource pool (including free access to Pega Academy online training through the end of 2019).

Cautions

Despite Pegasystems' investments in midmarket sales, and its active promotion of Pega App Studio to better enable app development by citizen developers, Gartner has yet to see any significant traction in the midmarket for this vendor's iBPMS offering.

Due to Pega's unconventional architecture, customers sometimes find it hard to ensure that the way they are setting up the data architecture will enable future expansion. Customers must factor in potential future development paths and their implications, which makes it difficult for them to choose the right starting point for their journey. As a result, the object-oriented structure chosen at the beginning of a project may be inappropriate for later, unexplored usage scenarios. Moreover, while powerful, the object-oriented nature of the metadata model — with its multiple inheritance and dynamic run time binding — is challenging for traditional developers to comprehend. To mitigate the risk, Pegasystems has developed a set of guardrails and placed a stronger emphasis on training and certification.

Because of these unpredictable future scenarios, a relatively broad aftermarket has developed. While Pega offers free online training and certifications through its Pega Academy, customers may need to turn to relatively expensive consulting offerings to augment their own resources. Moreover, to experienced resources that are expensive to recruit, difficult to further train and develop, and challenging to maintain. In the end, this results in relatively expensive implementation projects compared with others in this Magic Quadrant.

Red Hat

Red Hat is a new entrant to the iBPMS market and to this Magic Quadrant. Red Hat is a provider of enterprise software based on open-source products. The Red Hat workflow and business rule engines have been available as stand-alone tools for many years. Recently, however, it has combined this functionality with a low-code portal technology and other capabilities to offer a product that meets the requirements of an iBPMS. Our evaluation centers on Red Hat Process Automation Manager 7.0. This product adds process management and application management to

Red Hat Decision Manager (business rules and CEP), Red Hat Business Optimizer (constraint solver), and an OEM-licensed version of Entando App Manager (open-source digital experience platform).

Note: In October 2018, IBM announced its intention to acquire Red Hat.

Strengths

Red Hat Process Automation Manager uses a cloud-native microservices architecture that enables rapid deployment, scalability and resiliency. Compatible with the Red Hat OpenShift Container Platform — an open source, Kubernetes-based container orchestration platform — Process Automation Manager can be deployed in a hybrid architecture where workloads can be executed on-premises and in the cloud, or in a multicloud configuration.

Compared with most of the products evaluated for this Magic Quadrant, Red Hat provides attractive pricing of software licenses. The platform provides access to a capable BPM platform for smaller, budget-conscious digital optimization efforts.

Red Hat is an established provider of open-source software, with an extensive network of partners and global support and implementation services. The business rule and workflow engines used in the Red Hat Process Automation Manager are the most widely deployed open-source engines of their type. Red Hat's business rule engine was the only one we evaluated that supported DMN Level 3, with full support for Friendly Enough Expression Language (FEEL).

Cautions

Red Hat Process Automation Manager offers limited functionality for business users to build process-centric applications. While there are elements of applications that can be authored using a lesser technology skill set, such as composing prebuilt components in the portal, most components are oriented at a skilled IT developer. Red Hat is a proponent of many industry standards that provide greater portability and interoperability, which means that easier-to-use, third-party modeling tools become an option. However, this approach can create its own levels of complexity, more than some of the proprietary approaches used by some of the vendors in this Magic Quadrant. Red Hat offers worldwide training, support and consulting services to assist customers. However, compared with the other vendors in this evaluation, its customer references gave below-average scores for both end-user training and the availability of quality third-party implementation resources.

Red Hat has only recently made the iBPMS market a strategic focus, and its offering is primarily marketed as a toolset for IT developers to build applications. Red Hat has only recently introduced line-of-business, citizen-developer-friendly authoring tools, as well as support for case management — both of which are still relatively immature. Customer references for Red Hat indicated no use of the platform for business transformation and little use for case management.

Compared with the other vendors evaluated, Red Hat's customer references indicated some of the lowest levels of customer satisfaction. Customer references cited their concerns with integration and deployment, and flexibility around pricing and contracts.

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 version 10.0, which is available on-premises and as a cloud-enabled bpmPaaS; also, AgileApps, a cloud-native bpmPaaS offering.

Strengths

Software AG continues to drive one of the more visionary marketing messages and product roadmaps. It has a vision that resonates with those organizations seeking to reinvent and transform themselves using business automation and analytics technologies as key to generating additional and new business value.

Software AG continues to invest in the already advanced analytic capabilities of the DBP. It has a strong set of process discovery, design and optimization tools. Combined with its more traditional integration capabilities, these advanced analytic capabilities make the DBP well-suited to dynamic, event-driven processes. Customer references gave high scores to the API-oriented integration capabilities.

For less complex, process-centric applications, Software AG offers a number of line-of-business, citizen-developer-oriented, low-code/no-code tools that provide prebuilt connectors into the broader, more robust capabilities of the full Software AG DBP.

Cautions

Software AG has made strides in improving the authoring experience, by simplifying the architecture and offering a line-of-business, citizen-developer-friendly authoring environment. Customer references indicated that the platform was difficult to use. However, those that were using the latest version of the product did indicate greater levels of satisfaction with its ease of use.

Software AG's DBP is one of the more expensive products in this evaluation. Compared with the other vendors in this research, reference customers gave Software AG some of the lowest scores for level of satisfaction with its pricing and contract flexibility, and with the perceived value of the product. Software AG recently simplified its pricing approach, but there was not enough data to assess the impact on the customer experience.

Some customer references reported inconsistent experiences with service and support from both Software AG and its partners — particularly around the newer, or recently updated, parts of the

product suite.

TIBCO Software

TIBCO Software is a traditional middleware “stack” vendor, with a substantial BPM presence supplementing its core integration services business — which is focused on larger enterprise customers. The following analysis refers to TIBCO ActiveMatrix BPM 4.2.0, TIBCO Jaspersoft 6.4.3, TIBCO Nimbus 10.2 and TIBCO Spotfire 7.13, which are each available on-premises and as a cloud-enabled bpmPaaS. Our evaluation also refers to TIBCO Cloud Live Apps (versioned as “refresh 16”) and TIBCO Cloud Nimbus, which are each available as a cloud-native bpmPaaS and updated on a frequent basis.

Strengths

TIBCO’s enterprise strengths are around workflow process execution at scale — including integration to rich underlying services, and both traditional analytics and real-time continuous intelligence. These strengths map well to sophisticated digital business requirements, especially when involving human workflow, yet do not require a large starting cost.

The TIBCO iBPMS has strong middleware capabilities for traditional application development teams, including comprehensive API management, enterprise service bus (via ActiveMatrix BusinessWorks), message-oriented middleware and event processing.

TIBCO customer references generally considered vendor reputation as a key selection criterion. They gave high scores for its stability and performance — especially for human-centric business processes.

Cautions

Compared with other vendors in this Magic Quadrant, TIBCO’s reference customers gave it some of lowest scores for satisfaction with evaluation and contract negotiation. References provided comparatively low scores for the vendor’s ability to understand their needs, the timeliness of response to product questions, and the flexibility of pricing and terms.

Reference customers for TIBCO considered their eventual full stack solution as not only comprehensive in capability, but also sometimes highly complex and requiring an extensive set of skills. TIBCO’s BPM capabilities and user experiences are variable. While Live Apps demonstrates agile cloud-native, integration-rich process automation, it does not provide the full capabilities of an iBPMS and must be integrated with other products such as ActiveMatrix BPM. The integration with active ActiveMatrix BPM is not seamless, and ActiveMatrix’s design experience can be challenging to use. While TIBCO has invested in turning its Nimbus collaborative process design tool into a cloud native product, it is not seamlessly integrated into the other TIBCO products.

TIBCO continues to struggle for awareness and consideration. It was only considered as a potential alternative by a few customer references that purchased products from vendors that are Leaders in this Magic Quadrant.

Whitestein

Whitestein's iBPMS uses a goal-oriented approach to process modeling and execution. Its approach benefits from the renewed interest in AI, ML and agent technology. Evaluation for this Magic Quadrant is based on the Living Systems Process Suite (LSPS) 3.3 Enterprise Edition and Cloud Edition.

Strengths

Through its GO BPMN, Whitestein's iBPMS takes a novel approach to modeling and execution of business processes. LSPS uses a hierarchical representation of business goals to drive, measure, track and adapt processes during their execution. Features include symbolic- and semantic-reasoning-based goal orientation, agent-based process execution, machine-driven adaptation of processes on the fly, and a distributed execution engine. These adaptive technologies make LSPS suitable for processes that need a high degree of agility and real-time optimization.

LSPS combines top-down theoretical AI techniques to temper the often "blind" bottom-up ML, to ensure safety, compliance and effective trust and cooperation between intelligent humans and intelligent programs. This allows customers to avoid the racial and gender biases — unwittingly learned from training sets — that lead to legal liabilities. Whitestein has seen most success in marketing these capabilities in the banking, insurance, logistics and government verticals.

Customer references for Whitestein indicated above-average levels of satisfaction with the vendor. Compared with other vendors included in this research, its customer references offered some of the highest scores for evaluation and contract negotiation for the product, and for ease of deployment.

Cautions

Compared with most other products evaluated for this Magic Quadrant, the LSPS may require a deeper technical skill set to implement. Beyond the goal, process, business rule and business object modeling, the LSPS's design environment provides tools and libraries that are more appropriate for expert programmers. While Whitestein has attempted to mitigate this risk, by developing partnerships in industries it most commonly serves (such as banking, insurance, logistics and government), the complexity challenge remains — particularly for customers outside of these core industries. LSPS implementations require a highly technical skill set and extensive collaboration between the domain knowledge owners, business analysts and professional developers.

Whitestein has limited customer mind share in the iBPMS market. It has limited resources dedicated to sales and marketing. Whitestein has a focus on marketing its LSPS platform under an OEM license (white-labeled and co-branded), rather than selling to end users. None of the customer references for other vendors considered Whitestein during their selection of an iBPMS. Moreover, Gartner receives very few end-user inquiries regarding Whitestein's LSPS as an iBPMS.

Whitestein does not have a strong end-user-oriented ecosystem. Its customer references gave below-average scores for the quality of its peer community and the availability of quality third-party resources.

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

NTT Data Intramart

Red Hat

Dropped

None

Inclusion and Exclusion Criteria

The inclusion criteria represent the specific attributes that analysts believe are necessary for inclusion in this Magic Quadrant.

To qualify for inclusion, vendors need to meet the following criteria:

The provider offers an iBPMS. That is, it provides the critical capabilities of an iBPMS (see Note 2) and regularly competes against other iBPMS vendors. It 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 before 31 May 2018.

The provider has at least 20 paying customers for the specific product/offering version being evaluated. These customers must be from distinctly different companies. All customers must have demonstrated production deployments on the version being evaluated by 31 May 2018.

The provider must have revenue greater than \$15 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 four geographic areas: North America, EMEA, Latin America/Central America and 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 public cloud service, a private cloud offering, and on-premises deployed software.

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 four* usage scenarios of an iBPMS:

- Digital business optimization

- Digital business transformation

- Self-service intelligent business process automation

- Adaptive case management

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

Isis Papyrus Software

Nintex

OpenText

PMG

Salesforce

ServiceNow

Evaluation Criteria

Ability to Execute

Gartner analysts evaluate vendors on the quality and efficacy of their processes, systems, methods or procedures that enable competitive, efficient and effective performance, 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 enable citizen developers and business users to drive frequent or ad hoc process change. It should facilitate the citizen developer as a partner throughout the entire process life cycle. It will have an emphasis on providing real-time insights that support process improvement.

An iBPMS is distinguished from other process-centric, high-productivity development tools by having higher intelligence capabilities in the following four dimensions of the Gartner Business Process IQ Framework: data timeliness, context granularity, predictive power and actionability. Very advanced iBPMS offerings may also feature higher intelligence capabilities in the other four dimensions of the Gartner Business Process IQ Framework (see Note 1):

Vendors will support both on-premises and cloud-based deployments, with portability between them. Stronger vendors will enable the ability to execute hybrid workloads.

Stronger vendors will take advantage of cloud-native capabilities.

Stronger vendors will offer capabilities to manage both top-down digital transformation and capabilities to scale the discovery of emergent ways of delivering values from the bottom up.

Stronger vendors will provide a broad ecosystem of services that can be leveraged as part of a business process transformation initiative — both through partnerships and high-productivity tools, to easily connect to an ecosystem.

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 considers the likelihood of the organization continuing to offer and invest in the product as well as the product's 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.

Degree of successful execution of previous sales strategies.

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 intelligence.

Appropriateness of the tool for both business analysts/citizen developers as well as professional developers.

Adoption of cloud-native capabilities.

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:

Appropriateness and differentiation of marketing message.

Stronger vendors will demonstrate the use of a variety of marketing channels, both direct and indirect.

Stronger vendors will more frequently compete for deals in the market.

Customer Experience: This criterion examines the products and services and/or programs that enable customers to achieve anticipated results with the products 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:

Stronger vendors 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.

Stronger vendors have relationships, products and services/programs that enable successful implementations, 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 criterion considers the ability of the organization to meet its goals and commitments. Factors include quality of the organizational structure, skills, experiences, programs and systems, and other vehicles that enable the organization to operate effectively and efficiently.

Subcriteria:

Stronger vendors will have a 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	High
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	High
Operations	Medium

Source: Gartner (January 2019)

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 to and understand customer demands. They can shape or enhance market changes with their added vision.

Subcriteria:

Vendors must demonstrate an understanding of how citizen developers, 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 (see Note 3) and how intelligent BPM technologies are best leveraged, and can create sustainable business process improvement and transformation capabilities.

Marketing Strategy: This criterion includes clear, differentiated messaging that is consistently communicated internally, and externalized through social media, advertising, customer programs and positioning statements.

Subcriteria:

Vendors must evangelize how intelligent business processes can not only be used to optimize existing business operations, but also be used to unlock new value by delivering proactively personalized and automated digital experiences at scale.

Vendors must demonstrate the use of a variety of 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.

Vendor's existing marketing strategy, and its forward-looking approaches and message.

Sales Strategy: This criterion examines if the vendor has a sound strategy for selling that uses the appropriate networks. This includes, but is not limited to, 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.

Vendor's existing sales strategy, and its forward-looking approaches and message.

Offering (Product) Strategy: This criterion 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 2).

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 criterion 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 product must be available as a public cloud service, a private cloud offering, and on-premises deployed software.

Stronger vendors will support both on-premises and cloud-based deployments.

Vertical/Industry Strategy: This criterion examines if the vendor has a strategy to direct resources (sales, product and 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.

The more-visionary vendors will offer stronger capabilities in business process discovery, business process monitoring and business process automation.

The more-visionary vendors will provide more-advanced decision automation and management capabilities.

The more-visionary vendors will be able to orchestrate and improve outcomes from situationally adaptive business processes.

The more-visionary vendors will strike a balance between feature completeness and ease of use.

Geographic Strategy: This criterion 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. This may be 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 America and EMEA) in addition to emerging markets.

Table 2: Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting

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

Source: Gartner (January 2019)

High

Quadrant Descriptions

Geographic Strategy

Low

Leaders

Vendors in the Leaders quadrant demonstrate strong capability concerning the use of “intelligence” in a process context. Their customers have shown innovative and successful processes with substantive business outcomes that showcase the 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. Flexible processes allow customers to take advantage of changing business conditions and respond to threats and regulatory changes quickly. Such changes may occur “in flight” during the running of an operating process, recognizing the occurrence of events which indicate evolving patterns that imply a change in process is needed.

Leaders tend to focus significantly on this market, having successfully absorbed acquisitions or developed their own iBPMS offering. Leaders often have sophisticated product sets that require specific methodologies and in-depth professional services to support implementation. Being priced at the top end of the spectrum may make them hard to justify when the benefits of BPM are not well-understood.

Leaders also articulate a compelling roadmap to support their customers’ journey toward digital business. Customers tend to use early product features that 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 a 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 stronger goal orientation. Their offerings are generally less well-rounded than those of the Leaders. To bring in relevant technology, some Visionaries have made targeted acquisitions or OEM licenses for commercial and/or open-source software, but have yet to seamlessly integrate those capabilities into their suites.

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 offer 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. Rather than pushing at the boundaries of intelligent business processes, they often have muted marketing messages that emphasize simpler process automation. Vendors in this segment may have only recently introduced capabilities that support intelligent business processes, and have yet to deliver proven value. While their offerings technically meet our inclusion criteria, the underlying

capabilities of the product are less mature and/or less robust than those of the vendors in the other three quadrants.

Context

Faced with both externally and internally driven change, organizations have a greater need to reinvent themselves while also driving improvements in efficiency. Managing business processes effectively is a difficult challenge for today's business leaders. The prevailing business environment is evolving ever-more rapidly. Many of the systems accessed are rigid and difficult to change, while the operating models and internal structures of the organization are also transforming. Today's business managers need both top-down and bottom-up approaches to deliver more efficient and effective customer experiences. They also need tools to seek out new opportunities, experiment with ways to exploit those opportunities, and then quickly adapt or reinvent business processes regardless of whether those participants are inside or outside the organization.

As organizations move to more ecosystem-centric business models and application architectures, it is even more important for systems to:

Move from orchestration to choreography (coordination) of people, machine services and things. The expectation that you can predict and control the set and sequence of activities is overly limiting for many types business processes — especially those that involve interaction with the customer or partners in an ecosystem.

Provide more “joined up” insight through better analytics. Combined with better support for the people involved in processes, allowing them to take advantage of this insight is a key aspect of what differentiates today's iBPMS market from earlier BPMS technology markets.

Support business responsiveness 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, or at the level of the global process design.

React intelligently to events. These events are often happening outside the established scope of a process. As a result, process coordination — both within and between processes — is better handled through event-oriented mechanisms.

Enable the fluid execution of operational decisions within processes. More intelligent iBPMS products and services provide robust decision management capabilities, allowing you to optimize outcomes across a variety of decision types.

Facilitate better social interactions within the context of a process. An iBPMS also provides the ability to manage interactions across a variety of channels (web, mobile, chat, social networks, and others) in a situationally adaptive way (see “The CIO's Role in Creating an Adaptive Digital Business”).

The combination of these aspects enables the dynamic adjustment of processes. For example, a threshold may determine if a secondary approval for a work item is needed. It is possible to predetermine a fixed rule at design time. However, a more dynamic execution is achieved at runtime when real-time and on-demand analytics capabilities permit an instant assessment of alternatives, depending on customer behavior and other aspects of the case. Further, ad hoc changes to processes may need to occur that were not planned at design time. The most intelligent processes can not only leverage advanced analytics, but also support this ad hoc dynamism — helping guide the process toward the desired outcomes. Business process discovery and analysis capabilities are also used to identify emergent ways to exploit new opportunities (see “Get Out of Strategic Limbo: How to Discover and Exploit the Business Moments That Drive Digital Transformation”).

This year’s iBPMS Magic Quadrant aligns the evaluation of the vendors in this market with a number of broader Gartner research themes:

Digital ambition: This describes an organization’s appetite for using digital technologies to drive change in how it delivers value to its customers. An iBPMS can be used to optimize how value is currently delivered to customers (digitization or business function optimization, for example). It can also be used to more-quickly experiment with and operationalize net new ways of delivering value (operating model transformation and business model reinvention, for example). For further details, see “Unleash the Power of Digital Ambition to Realize Your Digital Future.” We evaluate the strength of an iBPMS to support your digital ambitions through the digital business optimization and digital business transformation use cases.

Event-driven architecture and its impact on business process: 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 their case management capabilities to varying degrees, enabling organizations to improve outcomes from a wider variety of process styles (see “Business Events, Business Moments and Event Thinking in Digital Business”). We evaluate the strength of an iBPMS to support event-driven and content-heavy uses through the adaptive case management use case.

Digital dexterity: 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. This was reflected in both the emphasis we placed on ease of use and the requirement that all vendors now offer a bpmPaaS service as part of their standard offering (see “Cultivate Citizen X Practices to Maximize Digital Dexterity”). We evaluate the strength of an iBPMS to increase the digital dexterity of those with a less technical skill set, as part of the self-service, process-centric application development use case.

DigitalOps: An iBPMS has many of the capabilities required to support this business discipline for increasing organizational agility. DigitalOps encompasses a holistic set of methods and enabling

technologies to plan, model, coordinate, govern and monitor the processes and physical/digital resources associated with how the firm delivers value via a digital platform in real time. For more detail, see “DigitalOps Helps Connect Business Models to the Digital Business Platform” and “Create a Digital Twin of Your Organization to Optimize Your Digital Business Transformation Program.” The ability of an iBPMS to provide the models and instrumentation to power the digital twin of an organization (DTO) is embodied in the DigitalOps critical capability.

Market Overview

Vendors in the iBPMS market have originated from several different sources, including “infrastructure stack” vendors that have added relevant BPM functionality (often by acquisition). Document- and content-centric vendors have also moved into the market, by extending content workflows to include system integration and human workflows into processes. New developments include vendors that have focused on developing solutions from business-oriented modeling techniques. Others have focused on the integration of Internet of Things (IoT) technology (sensors, smart machines, robots and so on) combined with advanced analytics (CEP, streaming analytics, AI and predictive analytics). The solutions that balance ease of use and time to solution alongside greater intelligence capabilities are seeing the most success. Strong partner networks for business transformation capabilities, in addition to traditional implementation services, are also essential.

The iBPMS Market Is an Evolution of the BPMS Market

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.

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 the focus of an iBPMS.

Gartner recommends that clients looking for an iBPMS consider their requirements carefully, and establish how intelligent their desired solution needs to be (see “Six Essential Steps for Selecting the Right Intelligent Business Process Management Suite”).

RPA Drives a Resurgent Interest in Process Automation

The growth of the overall BPMS market was modest in 2017. This trend is expected to have accelerated in 2018, because many of the leading vendors in this market have made significant investments in developing cloud-native capabilities. They have also put more emphasis on bpmPaaS in their sales and marketing efforts.

In 2017 there was also a renewed interest in customers looking for business process automation technologies, with the market for RPA tools exploding (see “Market Guide for Robotic Process Automation Software”). RPA promises a fast return on investment (ROI) driven by UI-level integration, which in turn enables organizations to extend their existing investments in technology and enhance their existing business operations. RPA provides a way of freeing up human resources, quickly demonstrating value to the business.

However, RPA has intrinsic limits to its sustainability, caused by:

Characterizing UI-level integration features as “robots” and members of a “digital workforce”

—By personifying the role digital technologies can take in delivering value, RPA on the one hand helps free up human labor to focus on activities with a higher value add. However, it also positions technology as being able to perform work that is equivalent to that of a human — which it is not.

Conflating (mixing up) the notion of a human resource with a set of integration scripts — In reality, there is no digital workforce or robot. In the end, these are integration scripts that help get information in and out of other systems. It does, of course, help RPA vendors to charge significantly more for their technology.

Building in long-term technical debt — By effectively chaining the organization to the user interfaces of the past. As those systems continue to evolve and change, all those integration scripts require constant revalidation. Even predicting the impact of a system change becomes next to impossible with most current RPA approaches.

In light of these limitations, application leaders should treat RPA as the integration mechanism of last resort. While it does have value, organizations must recognize that integration quick fixes do little to address the fundamental issues. They must not only look at how machines can replace human labor, but how the machines and humans can complement each other in a world that requires both automation and intelligence.

Pegasystems recognized the synergies between RPA and iBPMS early on, through its acquisition of OpenSpan. Most other vendors have followed suit, with either strategic partnerships with RPA vendors or through organic development of an RPA capability. The more visionary vendors in this market go beyond offering a prebuilt integration between the two automation technologies. What they offer is a digital workforce management capability that manages the transition of routine work from a human to a robot mimicking the human, to achieve process optimization enabled by IT modernization (see “Market Trends: Planning Beyond the Hype of Artificial Intelligence and Automation”).

Other Factors Affecting the iBPMS Market

Market growth was also affected by competition from vendors selling and marketing products from related markets, such as:

Low-code/no-code application platform as a service (see “Magic Quadrant for Enterprise High-Productivity Application Platform as a Service”)

Rapid application development tools

Integration platforms as a service

IT service support management

Content services platforms (see “Magic Quadrant for Content Services Platforms”)

Multiexperience development platforms (see “Technology Insight for Multiexperience Development Platforms”)

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 and 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, alternatives to an iBPMS 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 also the full business process life cycle for more-complex and long-running business processes that coordinate the behaviors of people, machines and things together, an iBPMS continues to provide differentiated capabilities.

New Players Emerge and Others Reinvent Amid a Nearly Stagnant Market

This year’s Magic Quadrant adds two new vendors: NTT Data Intramart, which has only recently achieved international expansion beyond the Asia/Pacific market; and Red Hat, which only recently added case management capabilities. NTT Data Intramart is relatively immature compared with those it has joined in the Magic Quadrant. Red Hat brings a second open-source platform to the evaluation, which includes many widely used products such as Red Hat Process Automation Manager (formerly known as Red Hat JBoss BPM Suite).

Overall, the market growth rate is modest, with the greatest growth in terms of number of customers seen from new entrant NTT Data Intramart, as well as two established vendors: K2 and Genpact. These vendors, particularly NTT Data Intramart and K2, focus on midsize enterprises. This matches the trend in Gartner client inquiries, where a growing share of inquiries regarding iBPMS and business process automation are coming from small and midsize organizations.

Several of the vendors within this market have shifted their marketing messages. Going beyond a focus on incremental optimization of business operations to supporting organizations in their digital business transformation, by reinventing or creating customer experiences or operating models. They have rebranded their platforms to emphasize the role that an iBPMS can play in supporting the transformation to a digital business. Examples include, the IBM Automation Platform for Digital Business, Software AG's Digital Business Platform, and Pegasystems' Pega Infinity digital transformation platform.

Gartner expects that this rebranding trend will become more pervasive as iBPMS vendors try to break free from the shackles of customer perceptions about this market of tools, and from the BPM approach. End users still view an iBPMS as a heavyweight, hard to use and expensive tool for driving incremental optimization of business operations. The vendors' marketing messages attempt to change thinking toward viewing an iBPMS as the key to enabling the continuous digital transformation capability needed by today's rapidly changing enterprise. The question remains, whether the vendors within the iBPMS market can deliver on this message while alternatives continue to emerge?

Automation Is Not Enough

Features such as RPA and chatbots — another capability that vendors have integrated — personify the role digital technologies take in delivering value to customers as members of the digital workforce. This makes the technology seem more accessible, because it makes activities once limited to humans easier to reimagine through a digital lens. On the other hand, these features position digital technologies as replacements for humans, rather than looking for opportunities to synergize the two. The rapid time to ROI value cannot alone achieve maximal value.

Application leaders must look at not only the quick ROI but also at sustainable ROI. Although its function and capabilities are rapidly evolving, the iBPMS will continue to play a critical role in the digitalization of the enterprise for many years to come.

Acronym Key and Glossary Terms

AI	artificial intelligence
AWS	Amazon Web Services
BAM	business activity monitoring
BPM	business process management
BPMN	business process model and notation

bpmPaaS	business process management platform as a service
CEP	complex-event processing
DMN	Decision Model and Notation
DTO	digital twin of the organization
iBPMS	intelligent business process management suite
JEE	Java Enterprise Edition
ML	machine learning
ROI	return on investment
RPA	robotic process automation

Note 1

Gartner Business Process IQ Framework

The Gartner Business Process IQ Framework describes eight dimensions that influence the ability of a process to reshape itself as it executes (see “Eight Dimensions of Process IQ Determine How Smart Your Process Needs to Be”).

Note 2

Critical Capabilities of an iBPMS

Gartner evaluated the 11 critical capabilities that differentiate products within the iBPMS market:

Ease of Use

Business Process Automation

Human Task Management and Collaboration

DigitalOps

Business Rules and Decision Management

Real-Time Analytics

Interoperability

Intelligent Mobility

Process Discovery and Optimization

Context and Behavioral History

System Setup and Administration

Ease of Use

The platform includes development tools for both line-of-business and technical citizen developers. The platform allows developers to quickly and more easily build intelligent process-centric applications.

Applications built on the platform must be configured using a high-productivity, metadata-model-driven approach. Models should expose the configuration of a platform for use by both line-of-business and technical citizen developers. The platform should provide features to reduce the complexity of managing both the complete application development and business process life cycles.

Platforms may offer wizards, templates, frameworks, or other types of accelerators to reduce the technical skill set required to use the platform.

Business Process Automation

The platform provides capabilities to automate the interaction of people, machines and “things” in order to drive more efficiency, scalability, accountability, visibility and accuracy for predictable tasks.

The order and set of tasks may be predictable or may be unique — where the next task to perform is automatically determined by decision automation algorithms that leverage real-time operations intelligence. The platform provides a capability to describe the life cycle of a business process using a visual metadata model. This model may be compiled and used to automatically generate code, or may be interpreted directly by the process execution engine at runtime.

Human Task Management and Collaboration

The platform offers the ability for process stakeholders to initiate tasks, processes or process segments on an hoc basis. It must also offer the ability for process stakeholders to collaborate with other stakeholders in support of achieving the desired business outcomes.

The ad hoc nature of tasks may be related to the timing of the task, to whom the task is assigned, or the nature of the task (a unique activity that is to be performed). The platforms must offer

configurable access controls to limit who and under what circumstances ad hoc behaviors are allowed. These controls may be modifiable at runtime by administrators or managers.

Collaboration between process stakeholders may be facilitated through a variety of methods including content-specific events related to annotations/redactions/creation and so on, real-time chat, case/process instance notes, co-browse sessions, or integration with telephony or video chat services.

The iBPMS may provide facilities to allow the creation of task lists of repeatable sets of tasks, or process segments, at runtime. These task lists may be unique to an individual, or shareable with other process participants.

DigitalOps

Previously Monitoring and Business Alignment

The platform provides capabilities to plan, model, coordinate, govern and monitor the life cycle of business processes and physical/digital resources associated with how the firm delivers value via a digital platform in real time.

At the core, DigitalOps orchestrates and choreographs other processes and resources that may exist in other systems across the enterprise (such as ERP and CRM), and within partners' operations. Insights and analytics on past and near-real-time performance combine with process and decision models to create a digital twin of the organization (DTO). This DTO then drives optimized and dynamic execution of business processes and tasks across the full ecosystem of human and machine services.

An iBPMS platform supports 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 (processes or case instances) — that is used by the native iBPMS orchestration facility, or may run in external systems.

An iBPMS may also provide other kinds of BAM for business intelligence 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. It may also provide features to industrialize a set of configurable organizational “components” embedded in different offerings and then specialized for different customer segments. For further details, see “Maverick*

Research: Operate Your Business Like a Lego Set to Win in Disruptive Times” and “Make Business Operations More Agile With Intelligent Business Processes That Reshape Themselves as They Run.”

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 operational decisions according to business directives or policy statements.

This capability supports deductive reasoning (forward chaining) and may support additional kinds of decision logic.

Real-Time 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 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 responses 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.

Platforms offer high-productivity capabilities for configuring custom-made connections to external systems. Platforms must offer the ability to connect via SOAP and REST. They may also provide HTTP, Open Database Connectivity (ODBC), Java Database Connectivity (JDBC), Java Message Service (JMS) or others.

Platforms may offer prebuilt adapters for hybrid integration platforms and integration platforms as a service, as a way to more easily integrate the iBPMS with a broader ecosystem of services.

An iBPMS can also be integrated by mashing up the user experience of the platform with other applications. The iBPMS user experience can either be embedded into other applications, or the user experience of other applications may be embedded within the iBPMS. An iBPMS may use webhooks to drive direct interaction between the iBPMS UI and the other applications. An iBPMS

may provide accelerators or prebuilt components to create mashups with more widely deployed applications and services such as CRM and ERP applications.

iBPMS platforms are often deployed alongside RPA tools. This can help the process automation to gain access to information and operations intelligence stored in legacy or third-party applications that do not provide machine-readable APIs. While RPA is not directly embedded within the platform, the platform may provide prebuilt adapters or an administrative console to manage tasks across the iBPMS and RPA tools.

Intelligent Mobility

The platform 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 a mobile device's native capabilities such as its camera, GPS and other sensors.

The platform uses the device's capabilities to execute work more intelligently. For example, the iBPMS may assign field service requests based on a combination of geolocation, real-time travel conditions, priority, skill set fit and past behavior.

Process Discovery and Optimization

The platform provides capabilities that accelerate the time to discover and optimize behaviors (for example, processes, tasks and policies) needed to improve business outcomes. These may include analyzing past execution history or simulation of proposed behaviors.

An iBPMS may offer automated capabilities to discover new opportunities for automation through automated business process discovery features — such as process mining and desktop end-user behavior monitoring and analytics — that examine the context and behavior history. It also provides more-traditional process improvement optimization tools such as critical path analysis and root cause analysis.

Context and Behavioral History

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. The 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. The context and history store may offer the ability to provide snapshots of the context at points of time.

System Setup and Administration

An iBPMS provides tools to accelerate the setup of a new environments — bpmPaaS services in particular simplify much of the configuration and deployment of applications. Further, an iBPMS includes tools to accelerate the testing and deployment of applications. For bpmPaaS services, this may include self-service provisioning and maintenance of applications and infrastructure.

Note 3

iBPMS Use Cases Evaluated

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

Digital Business Optimization

Digital Business Transformation

Self-Service Intelligent Business Process Automation

Adaptive Case Management

Digital Business Optimization

Previously Continuous Process Improvement and Composition of Intelligent Process-Centric Apps

Digital business technologies and approaches can be used to improve the enterprise without changing its business model. Specifically, an enterprise can:

Improve productivity — By reducing cost and/or improving the productivity of machines and employees. The IoT can improve asset productivity. Robotic process automation can improve employee productivity, and so can a digital workplace. These are all examples of types of initiatives that lead to improved productivity *without* changing the business model.

Improve existing revenue — By leveraging analytics and AI to better forecast demand/supply and optimize prices and promotions. Digital marketing and sales technologies and approaches will also increase spend by customers, while customer service initiatives can improve retention.

Improve the customer experience — Digital channels often add both a self-service and improved experience. Using the IoT to track the length of queues, ETA of vehicles and inventory status of tanks or shelves also improves the customer experience, providing more visibility to statuses they care about. AI in the form of virtual assistants can also improve the customer experience. These are all examples of initiatives that don't change the business model, yet improve the enterprise's ability to serve its customers and constituents.

The combination of these three goals leads to a type of digital ambition that is best described as digital business optimization (see “Digital Business Ambition: Transform or Optimize?”).

Digital Business Transformation

Previously Business Transformation and Digitalized Process

In contrast to digital business optimization, there are digital business initiatives that result in net new revenue streams, products/services and even new business units with a new business model:

Launch net new digitally enabled products and services — The IoT enables manufacturers of products to sell a brand-new class of their product (e.g., a connected lamp or a connected industrial dryer). Once connected, connected services (e.g., monitoring services) can also generate new revenue. Even new revenue-generating services can be borne out of digital approaches and technologies:

New loan products are being created for individuals and small businesses that don't have formal credit bureaus/scores. Fintechs (e.g., Kabbage) and companies such as Alibaba, through its Alipay subsidiary, use new data sources coming from digital ecosystems (e.g., payment, reputation scores and social networks) and new risk algorithms to assess credit worthiness. The end result is a class of loan products that serve a market that has never been served by formal financial services institutions.

Pursue new business models — New business models that are made financially viable and technically possible by digital technologies and approaches include platform businesses such as:

Multisided markets (e.g., Uber)

New insurance models that leverage P2P approaches (e.g., Friendsurance)

Metered and as-a-service models such as pay-as-you-drive insurance

Commerce-that-comes-to-you models such as Booster Fuels, which delivers fuel to your vehicle instead you going to a gas station

Large enterprises can create new business units or acquire startups to pursue these new business models. Sometimes, the new business models lead to ventures in adjacent or new industries. For example, utility companies may get into battery storage, car companies may get into public transportation, or wealth management may get into health insurance.

The combination of these two goals leads to a type of digital ambition that is best described as “digital business transformation” (see “Digital Business Ambition: Transform or Optimize?”).

Self-Service Intelligent Business Process Automation

Previously Citizen Developer Process-Centric App Composition

By offering a high-productivity development experience, an iBPMS enables self-service development of process-centric applications for line-of-business and professional citizen developers.

An iBPMS uses metadata models to abstract the complexity of implementing the application from the author. It also provides features that enable more rapid testing and deployment of applications.

This use case has a lesser dependence on operations intelligence and advanced analytics than the others. It focuses on the ability of the line-of-business citizen developer (business analysts, subject matter experts, end users) to build intelligent process-centric applications with minimal involvement from IT development staff. It uses the high-productivity application authoring capabilities of an iBPMS (see “Survey Analysis: Citizen Development Is Happening and IT Needs to Be More Engaged” and “Citizen Development Is Fundamental to Digital Transformation”).

While professional specialist IT developers may not be completely removed from the authoring of these applications, their scope of responsibility is typically more limited — focused more on configuring citizen-developer-accessible business objects that are integrated with external services. They connect the business objects to outside services and manage the security model that controls which business objects are made available for use in self-service-developed applications.

As the business requirements for these applications evolve over time, to require more complex behaviors, these line-of-business-authored applications can be extended by technical citizen developers and specialist IT developers within the same platform. This allows them to leverage the existing application and enables a sustainable approach to collaboration between application authors of varying degrees of technical expertise.

Adaptive Case Management

Previously Case Management

iBPMSs support case management in their ability to execute unstructured or semistructured processes.

The real-time analytics and rules and decision management capabilities of an iBPMS enable situational adaptive business processes — optimizing the set and sequence of tasks performed throughout the case life cycle. It uses the real-time operational context (including both structured and unstructured data) of the case to drive next-best-action recommendations and automation.

iBPMSs must also be able to handle a wide variety of content types, from structured to unstructured. An effective 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. An iBPMS makes it easier to develop case management applications, which can be complex to build using custom-made application development approaches. It also

allows for fit-to-purpose case behavior, which requires extensive customization of domain-specific commercial-off-the-shelf (COTS)/SaaS case management solutions.

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.

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