

Magic Quadrant for Enterprise Low-Code Application Platforms

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Enterprise low-code application platforms offer compelling productivity gains for professional and citizen development, as well as speed-of-delivery benefits. We evaluate 18 vendors to help you identify those with a balance of technology and business capabilities suited to your enterprise's needs.

Strategic Planning Assumptions

By 2024, three-quarters of large enterprises will be using at least four low-code development tools for both IT application development and citizen development initiatives.

By 2024, low-code application development will be responsible for more than 65% of application development activity.

Market Definition/Description

Application platforms provide runtime environments for application logic. They manage the life cycle of an application or application component, and ensure the availability, reliability, scalability, security and monitoring of application logic.

A **low-code application platform (LCAP)** is an application platform that supports rapid application development, one-step deployment, execution and management using declarative, high-level programming abstractions, such as model-driven and metadata-based programming languages. They support the development of user interfaces, business logic and data services, and improve productivity at the expense of portability across vendors, as compared with conventional application platforms.

An **enterprise LCAP** supports enterprise-class applications. These require high performance, scalability, high availability, disaster recovery, security, SLAs, resource use tracking, technical support from the provider, and API access to and from local and cloud services.

Gartner views **"no-code" application platforms** as part of the LCAP market. "No-code" is a marketing and positioning statement, implying that the platform requires text entry only for formulas or simple expressions, all other aspects of application development being enabled by visual modeling or configuration. The LCAP market includes such no-code platforms.

Citizen development is often associated with no-code application development. We consider it a niche within the LCAP market.

Magic Quadrant

Figure 1. Magic Quadrant for Enterprise Low-Code Application Platforms



Source: Gartner (August 2019)

Vendor Strengths and Cautions

AgilePoint

AgilePoint is a Niche Player. It has a background in business process management (BPM) technology, but undertook an early transition into low-code development tools for automating business operations. It provides multitenancy using either on-premises deployment or the cloud. Gartner reviewed AgilePoint NX, version 7.

Strengths

- **Product:** AgilePoint's BPM background is reflected in its model-driven, Business Process Model and Notation (BPMN)-compliant AgilePoint NX environment for building extensible process-centric or data-centric applications, aimed at nontechnical developers. More complex extensions can be built in C# or Visual Basic using AgilePoint's software development kit.
- **Ecosystem:** To assist developers, AgilePoint's ecosystem store includes popular process patterns, 70 predefined integrations, 50 domain-specific data entity types and 700 process activities. AgilePoint also participates in other vendors' ecosystems; it appears, for example, on the Salesforce AppExchange and Microsoft AppSource stores.
- **Product vision:** AgilePoint's vision extends to low-code edge computing and the Internet of Things (IoT), as well as artificial intelligence (AI)-driven development and chatbots, to assist with digital business initiatives in larger enterprises.
- **Sales execution:** AgilePoint focuses on providing value for money and offers concurrent-user and transaction pricing options. Scores from reference customers for AgilePoint's pricing and value for money were higher than those received by most other vendors. It expects its freemium Community Edition to be an enabler of new business.

Cautions

- **Overall viability:** Although AgilePoint is growing well and has an appropriate partnering strategy, including white-label resellers, it remains one of the smaller vendors, with a relatively low average revenue per customer. It has been self-funded to date, but might find it challenging to keep investing at the level needed to compete with other LCAP vendors.
- **Market record:** Responses from AgilePoint's reference customers, supplemented by Gartner Peer Insights reviews, indicate that its customers have tended to focus on reduced skills requirements for operations automation, rather than on enterprise rapid application delivery, although some reported achieving the latter.
- **Product strategy:** AgilePoint's participation in Microsoft and Salesforce ecosystems means it is potentially competing against these ecosystems' hosts. Although AgilePoint competes successfully through its process-centric and value characteristics, these advantages could easily be negated, forcing the vendor into a more niche position.
- **Customer satisfaction:** AgilePoint's reference customers expressed desire for enhancements to how mobile apps are deployed, together with improved developer assistance in the form of better examples and documentation. AgilePoint states it has made improvements recently with regard to the former desire.

Appian

Appian is a Leader. It originated in the BPM market and focuses on complex business processes and other applications requiring sophisticated automation, rules and analytics capabilities. Its technological differentiators include prebuilt no-code integration with various AI services and support for DevOps with automated continuous integration/continuous delivery (CI/CD) for enterprise IT shops. Gartner reviewed Appian version 19.1.

Strengths

- **Product:** Appian's LCAP strengths derive from its background in the model-driven intelligent business process management suite (iBPMS) market. Gartner sees Appian's support for business process automation and modernization of applications as the main reasons for customers to choose it. Appian's ability to handle complex business rules, decisioning and workflow is also a key differentiator.
- **Innovation:** Appian continues to offer innovative low-code technology, with support for chatbots and progressive web apps (PWAs) among its multiexperience capabilities.
- **Market responsiveness:** Appian demonstrates enterprise-worthiness through the scale of its deployments, which typically span whole organizations and multiple projects. Appian also invests heavily in security certifications and audits, and has one of the most comprehensive sets of certifications for high-security government requirements.
- **Overall viability:** In a crowded market with many small, privately owned vendors, Appian stands out as a stable, publicly traded company with a focus on low-code technology. Although not as big as the largest enterprise software vendors, Appian has many enterprise customers and government agencies running its platform, which should ensure its long-term viability in this market.

Cautions

- **Sales execution:** One of the main challenges facing Appian and its customers is the company's sales execution. Appian's reference customers reported below-average satisfaction with its contract evaluation and negotiation, as well as its contract flexibility. Appian has recently changed its licensing model to help address this issue, but the effect of the change is not yet known. Overall, reference customers expressed a lower-than-average level of satisfaction with its sales process.
- **Sales strategy:** Appian focuses on larger deals and its pricing strategy means its rate of customer expansion is less than that of other Leaders. Appian's reference customers reported below-average satisfaction with its pricing.
- **Product strategy:** Compared with some vendors in this Magic Quadrant, Appian's low-code development product is more suitable for professional developers in terms of the ease of use of its proprietary expression and scripting language. Furthermore, reference customers' overall score for Appian's citizen developer support was lower than the average for vendors in this Magic Quadrant.

- **Customer experience:** Appian's reference customers all recommended it to others, but not unreservedly. They gave lower-than-average scores for time to deployment, which could be the result of Appian customers choosing it for larger-than-average applications, and for the quality of Appian's peer community.

Betty Blocks

Betty Blocks is a Visionary. Its product, also called Betty Blocks, focuses on the no-code assembly of applications from components – hence the “Blocks” part of the company's name. It does this while providing application oversight and governance and support for enterprise-scale usage. Technical differentiators include its cloud-native architecture and React-based UI. The Betty Blocks version reviewed was current as of the start of 2019.

Strengths

- **Market understanding:** Betty Blocks differentiates itself as a provider of a citizen development platform for enterprise applications. This reflects a strong vision for a key aspect of the low-code market. Simple drag-and-drop development and an emphasis on a component reuse model with associated component repository encourage use of a compositional model for application development.
- **Innovation:** Betty Blocks' technical innovation remains advanced, as it uses the Elixir language to underpin a cloud-native Kubernetes and container-based deployment model with serverless extensions. This enables customers to extend applications with customizable microapp blocks for scalable and flexible app delivery.
- **Product:** Betty Blocks has a record of delivering standard business applications rapidly. Some Gartner clients report that Betty Blocks delivered straightforward business process automation in a matter of days.
- **Sales execution:** Betty Blocks' reference customers scored it higher than the average for pricing and contract flexibility. This is an important consideration, as one of the most common concerns about LCAPs is their pricing.

Cautions

- **Overall viability:** Although it has grown, Betty Blocks is still one of the smallest vendors in this Magic Quadrant. Prospective customers should also note the relative smallness of its community and be aware of the potential for it to be acquired. Additionally, the company's sales coverage is limited primarily to Europe and the U.S.
- **Customer experience:** The nascent market for true citizen development tools is evolving. Reference customers gave Betty Blocks lower-than-average scores for its no-code development capabilities. Improvements to the end-user experience and further enhancements to the platform's usability for citizen developers remain goals on Betty Blocks' roadmap.

- **Operations:** The on-premises version of Betty Blocks' platform is not the company's standard offering. It comes with cloud-native overheads, such as a container infrastructure requirement, that may be incompatible with departmental or small-customer scenarios.
- **Business model:** Extending beyond the platform's no-code capabilities will often require professional development, such as for complex extensions to blocks. This may prompt some users to revert to co-development with their professional services providers or Betty Blocks' partners.

bpm'online

Bpm'online is a Niche Player. It is primarily a BPM and CRM SaaS vendor, its LCAP being provided as part of its BPM capability in the bpm'online platform. Its ethos that "everyone is a developer" prompts its focus on extensions to its prebuilt applications and ecosystem-supplied components. Gartner reviewed bpm'online version 7.13.3.

Strengths

- **Product:** Bpm'online's LCAP has a strong focus on BPM functionality. This enables the orchestration of processes across teams and applications, especially in customer-oriented domains related to its CRM offerings.
- **Market understanding:** Bpm'online aims to help business developers without deep technical skills rapidly build and modify model-driven applications. Its ideal user is a business analyst with a general understanding of web applications and knowledge of BPMN 2.0.
- **Market responsiveness:** In addition to supporting the application extension model of a SaaS-plus-PaaS (platform as a service) player, bpm'online allows developers to create their own custom machine learning (ML) models without coding or scripting. These models can predict values in different types of field, as well as calculate predictive scores (such as for the probability of specific events). The business logic for ML is defined using bpm'online's citizen development environment.
- **Marketing strategy:** Bpm'online marketplace is an ecosystem of ready-to-use apps, industry solutions, templates and development accelerators designed to extend the functionality of bpm'online's LCAP. Its community of developers and partners delivers custom applications, extensions, connectors and templates for the bpm'online platform and publishes them on bpm'online marketplace.

Cautions

- **Overall viability:** Bpm'online is a small vendor, compared with most of those in this Magic Quadrant, and its focus is CRM SaaS. Gartner rarely sees bpm'online on customers' shortlists or vendors' competitive lists outside Europe. As a result, standing out and scaling its sales and support strategies to compete head-to-head with larger LCAP providers focused on enterprise-class deployments is likely to prove challenging in the next couple of years.

- **Product strategy:** Although bpm'online supports AI-enabled application deployments, in comparison with some key competitors it has been slow to deliver AI-augmented development assistance, such as process autocomplete suggestions.
- **Innovation:** Bpm'online lags behind in terms of mobile and integration support, compared with the Leaders in this Magic Quadrant. Most of its 60 integration connectors are for relatively simple small and midsize business (SMB)-type services, which means that some enterprise projects require additional work.
- **Customer experience:** The productivity achievable with bpm'online's LCAP may not be comparable to that of other vendors' LCAPs for general application development, unless the customer customizes bpm'online's predefined solutions. Increased developer productivity should be a key benefit of an LCAP, but bpm'online's reference customers gave it productivity scores lower than those received by other vendors.

K2

K2 is a Niche Player. It is better known as a long-term BPM provider for process-centric automation projects of moderate complexity and scale. It provides full application life cycle support for process-driven applications involving multiple developer personas and draws on an integration framework. It offers separate cloud and on-premises versions, with K2 Cloud Update 7 and K2 Five version 5.2, respectively, being reviewed for this Magic Quadrant.

Strengths

- **Product:** K2 is a well-recognized, model-driven business process automation vendor with a background in BPM. Its product supports process orchestration, business rules and integration, and has software development life cycle features, such as its own test automation framework.
- **Market understanding:** Some citizen developer use cases suit K2, due to its App Wizards. These offer four simple steps to application definition, resulting in either deployed applications or templates that can be further customized during the conventional development process.
- **Sales execution:** K2 received above-average scores from reference customers for its pricing and costs. They also scored K2 above the average for contract and pricing negotiation.
- **Market responsiveness:** K2 has targeted its audience well for application development. Reference customers expressed above-average levels of satisfaction with K2's functionality and integration features, as well as its developer experience.

Cautions

- **Marketing strategy:** K2 needs to invest more in its LCAP marketing and sales execution. At present, it risks losing out to LCAP competitors, due to a low level of awareness of its offering.

- **Sales strategy:** K2 declined to give Gartner insights into its LCAP sales figures, but evidence from Gartner's client inquiry service indicates that it still sells primarily to customers interested in process-centric applications, rather than (for example) data-centric or user-experience-centric applications.
- **Product strategy:** K2's SmartForms UI remains primarily form-based, although it is rendered in HTML5. Additionally, reference customers' overall score for K2's ability to deliver advanced architectures in applications was below those received by other vendors. Its UI limitation will impact certain application use cases.
- **Customer experience:** Reference customers' overall score for K2's cloud functionality was below those received by other vendors. Its reference customers also expressed a desire for more improvements to the end-user experience in terms of quality, reliability, availability and ease of deployment. A higher-than-average number of K2's reference customers would give it only a qualified recommendation to prospective customers.

Kintone

Kintone is a Niche Player. This vendor, whose LCAP bears the same name, focuses on providing a low-code ecosystem for workgroups and lines of business, primarily in Japan and Asia. It differentiates itself in terms of how simple it is to use its LCAP to develop applications involving data, workflow and collaboration. Gartner reviewed Kintone's January 2019 release.

Strengths

- **Overall viability:** Kintone is growing rapidly as part of Cybozu, a Japanese IT business with annual revenue of over \$6 billion that provides SaaS applications. In addition to Japan, its LCAP is available in other parts of Asia and North America.
- **Business model:** Kintone's thousands of partners and developers, as well as its very large installed base, amount to a primarily Japanese ecosystem success. Partners include some (such as SoftBank) that operate their own Kintone app stores, and several integration partners (such as Microsoft and Zapier).
- **Market responsiveness:** Citizen development for SMBs is a core capability of Kintone's LCAP. This is shown, for example, by its support for self-service application building through the import of Microsoft Excel data. This citizen development style suits Kintone's mainstream SMB and line-of-business audiences.
- **Sales experience:** Kintone's reference customers scored it above the average for sales evaluation and contact negotiation. They also gave it a higher-than-average score for overall cost.

Cautions

- **Product strategy:** Kintone's cloud strategy is evolving only slowly to encompass global infrastructure as a service (IaaS) providers like Amazon Web Services (AWS) – a process that

has been ongoing for two years. As of mid-2019, Kintone has limited cloud presence outside Japan and no on-premises capability.

- **Product:** Kintone's architecture is not cloud-native, being a monolithic application running on virtual machines. This limits its horizontal scalability and therefore its overall scalability. However, this has not hindered its success in Japan.
- **Innovation:** Kintone's application development features are sparse when it comes to things like sophisticated business logic, AI and chatbots. The end-user experience is relatively limited, compared with other LCAPs. There is limited in-platform developer support for JavaScript extensions.
- **Customer experience:** Kintone's reference customers consider its integration capabilities weak. They scored Kintone below the average for integration capabilities, and they want it to improve in this respect.

Kony

Kony is a Challenger. The Kony Quantum platform has evolved from a mobile app development platform offering (now a multiexperience development platform), which means it can address rich web and mobile app use cases and is configurable through a low-code environment. It supports PWAs and API management capabilities. Gartner reviewed release V8SP3 of Kony's product.

Strengths

- **Product:** Kony Quantum is most suitable for professional developers who want a low-code approach to visually construct web, mobile and even conversational apps. The platform is highly extensible using JavaScript and can integrate with a wide range of popular enterprise systems via Kony's connectors.
- **Market responsiveness:** Kony demonstrates a high degree of responsiveness to market trends and customer needs. It continues to innovate with the Kony IQ chatbot in order to provide AI-augmented development. It is one of the few LCAP vendors to support both PWAs and chatbots.
- **Market understanding:** The Kony Fabric back-end provides comprehensive services for enterprise application needs, including identity management, workflow, Object Services for back-end data model transformation, offline synchronization and app analytics. It also offers API management functionality and an API developer portal for extending the platform.
- **Product strategy:** Kony works well for advanced developer needs relating to the user experience and integration. Reference customers scored Kony above the average for developer productivity. While they tended to select it for its multiexperience capabilities, they also scored it higher than the average for its end-user experience and integration features.

Cautions

- **Marketing strategy:** Kony has only recently started to shift its marketing and positioning toward a low-code value proposition. However, we have not seen significant awareness of Kony as an LCAP provider among users of Gartner's client inquiry service.
- **Visual model development:** Kony does not yet offer any visual process modeling for laying out complex back-end processes to support low-code development. Organizations requiring process-oriented development should look elsewhere.
- **Sales execution:** Although all of Kony's reference customers would recommend it to others, some would do so only with qualifications. Some of Kony's scores for value for money and the overall purchase experience were lower than those received by other vendors.
- **Customer experience:** Reference customers' scores for Kony were lower than those given to other vendors for overall product capabilities. Reference customers' main concerns were about Kony's no-code capabilities for citizen developers and the amount of training required for developers. They also reported longer times to deploy their first app. Although Kony is strong when it comes to meeting requirements for sophisticated app user experiences, customers looking for a relatively simple no-code LCAP, particularly for citizen developers, should consider other vendors.

Mendix

Mendix is a Leader. Mendix, which was acquired by Siemens in 2018, focuses on improving business-IT collaboration and application life cycle management. Its LCAP, of the same name, is deployed on cloud-native technology. It is also being extended to integrate with Siemens' MindSphere IoT and product life cycle management products. Gartner reviewed the Mendix 7.20 release.

Strengths

- **Overall viability:** Ownership by Siemens gives Mendix an inflow of resources, which is essential for competing successfully in a market that is increasingly targeted by megavendors. In addition to accelerating research and development, ownership by Siemens implies a new level of viability for Mendix business; it opens new distribution channels and positions Mendix for future differentiation in the low-code IoT market.
- **Product strategy:** Mendix offers significant enterprise characteristics, which are especially attractive to large businesses. Its platform is well equipped for multicloud and hybrid computing, due to its support for on-premises, virtual private multicloud and multitenant public cloud deployment options. The platform's autoscaling, high availability and very low latency for failover across multiple availability zones increase the quality of its service. Mendix's partnerships with IBM, SAP and now Siemens will reassure large customers.
- **Innovation:** Mendix is one of the first vendors in this market to offer a multipersona developer experience in one integrated platform. The ability to support both business developers in Mendix Studio and professional IT developers in Mendix Studio Pro supports advanced forms

of business-IT collaboration. Mendix's AI-assisted development further promotes productivity and consistency of outcomes.

- **Product:** Mendix's offering is suitable for sophisticated applications. Reference customers gave Mendix high scores for enterprise-worthiness, integration and advanced architecture support, as well as for productivity and ease of use by professional developers.

Cautions

- **Industry strategy:** Mendix's acquisition by Siemens offers some promising opportunities, but also represents a risk. Given the scale of Siemens' business (its revenue totaled €83 billion in 2018), its commitment to Mendix could shift. Siemens' prioritizing of industrial IoT offerings and its other vertical commitments may become a stronger influence on Mendix, which could shift its focus away from the mainstream LCAP business.
- **Market strategy:** Mendix needs to increase its capabilities in integration, API management, event brokering and process orchestration if it is to lead future LCAP requirements for a composition platform, rather than just a development platform. Some of these increased capabilities are roadmap items for 2019.
- **Market responsiveness:** Growth in the LCAP market is much easier to achieve when a vendor offers its platform as an extension tool for prebuilt applications and services. Mendix may have to expand its business model to begin offering business applications that utilize its platform, as well as increase its efforts to attract partners to create applications on it.
- **Customer experience:** Mendix's reference customers scored it below the average for satisfaction with its platform's support for citizen developers. They also gave it some poor reviews for pricing and contract flexibility.

Microsoft

Microsoft is a Leader. Its LCAP, consisting of PowerApps, Flow and Common Data Service, is applicable to many use cases but strongest for those that extend Microsoft Office 365 and Dynamics 365. This LCAP is part of the Microsoft Power Platform, along with PowerBI analytics, and is differentiated by the additional depth provided by additional and advanced Azure services. The Power Platform includes more than 240 third-party web service connectors and data source connectors. Gartner reviewed PowerApps version 3.19014, Flow version 20190121, and Common Data Service version 9.1 19013.

Strengths

- **Market understanding:** In 2018, Microsoft brought its Dynamics 365 platform together with PowerApps, Flow and the Common Data Service to create a unified LCAP. In the process, Microsoft enhanced the Common Data Service with additional enterprise-grade capabilities, such as server-side logic, business processes, advanced security and professional developer support.

- **Product (business-to-employee [B2E]):** Of the vendors evaluated in this Magic Quadrant, Microsoft offers one of the simpler design-time tools in PowerApps, one that is used for designing canvas apps and that employs a drag-and-drop approach and Microsoft Excel-like expression language. This makes it well suited to citizen developers and business unit developers. Reference customers for Microsoft reported some of the fastest production deployment times for apps – nearly all said such deployment took less than two months, and many said less than one month.
- **Product strategy:** Microsoft has shown increased commitment to the LCAP market by introducing a low-code AI Builder, as well as deeper integration with Microsoft Azure services. Given Microsoft's incumbent position in many enterprises with Office 365, Gartner expects Microsoft to appear on many enterprises' LCAP vendor shortlists, and that it will have good long-term platform viability. Microsoft's was the platform most considered by all the featured vendors' reference customers, with nearly one-third of them assessing it.
- **Customer experience:** Reference customers for Microsoft reported above-average satisfaction with the overall experience, service and support, and overall product capabilities. Microsoft also had the highest proportion of reference customers exploiting an LCAP for prototyping.

Cautions

- **Market responsiveness:** Whereas PowerApps' canvas apps provide citizen development capabilities, PowerApps' model-driven app capability targets more complex applications and is often used by independent software vendors (ISVs) to extend the Dynamics platform. Gartner clients indicate that their needs often lie in between, being, for example, for enterprise application developers working on systems of differentiation and vision.
- **Sales execution:** PowerApps and Flow come in restricted-license versions when supplied with certain Office 365 and Dynamics 365 plans, so customers must purchase more licenses or upgrade their plans if they need to build more apps or satisfy more complex use cases. Reference customers for Microsoft reported below-average satisfaction with its pricing and contract flexibility, so prospective customers should check how licensing prices and other arrangements may change as platform usage grows.
- **Product (B2C):** Microsoft's platform has not targeted the building and deploying of customer-facing apps, although PowerApps Portals has been announced to address this. PowerApps' licensing does not yet support unnamed external users or less predictable usage patterns. Capabilities expected by customers aiming to offer a consumer-grade experience, such as higher-end UI customization, have only recently been released.
- **Industry strategy:** Microsoft is in the early stages of providing specific industry solutions or industry accelerators for its LCAP – it currently offers four Industry Solution Accelerators and has others in preview, most aimed at ISVs. Customers will likely need to look in addition to Microsoft's community of partners, accessible via its AppSource marketplace.

Oracle

Oracle is a Challenger. It offers two distinct LCAP solutions. One is its long-standing Application Express (APEX), which is provided free to users of Oracle Database on-premises or of all Oracle Database Cloud services. The other is the service-oriented architecture (SOA)-based Visual Builder Cloud Service (VBCS). Oracle APEX is strongly tied to the Oracle Database platform and has tens of thousands of organizations using it. VBCS supports new applications, as well as customizations of Oracle SaaS; it offers HTML5 and an extensible low-code experience.

Strengths

- **Market responsiveness:** Oracle is the only vendor in this Magic Quadrant to offer two distinct LCAP solutions. As a result, it can address use cases ranging from simple spreadsheet replacement and form processing (create, read, update, delete [CRUD]) applications in VBCS, to advanced professional developer environments in APEX (as preferred by many database teams).
- **Product strategy:** Oracle continues to extend its LCAP offerings with advanced application features. APEX now offers dynamic UI selection, including UI features such as a simplified reporting interface, a dashboard and a timeline report. VBCS includes access to all generated JavaScript and HTML5/Cascading Style Sheets (CSS) source code for services, while both VBCS and APEX exploit the Oracle JET UI technology stack.
- **Innovation:** Oracle offers advanced AI/ML-assisted conversational chatbot capabilities, including specialized mobile bots and interaction with popular consumer voice services such as Amazon Alexa and Apple Siri. In addition, VBCS supports access to the separately priced Oracle event hub, messaging, process and IoT cloud services, which enables the creation of advanced event-driven applications.
- **Customer experience:** VBCS enables low-code access to Oracle's broad collection of cloud services. It does so by drawing on a network of IaaS data centers, a suite of PaaS capabilities and a portfolio of SaaS offerings. In addition, it supports hybrid cloud and on-premises deployments with Cloud at Customer. VBCS extends customers' Oracle SaaS investments via APIs, while Oracle's innovative consumption-based portfolio pricing should encourage wider usage. Reference customers for Oracle gave it higher-than-average scores for product capabilities, developer productivity and contract negotiations.

Cautions

- **Market understanding:** Having two LCAP offerings is a strength in one regard, but also poses a challenge, as there is no portability of applications between them. Oracle customers report some confusion about determining the most suitable low-code path to take for application modernization.
- **Sales strategy:** Most of the advanced capabilities in Oracle's cloud service portfolio, such as advanced process and decision modeling, come at additional cost and are accessed via REST APIs. For some customers, the initially low-cost VBCS or no-cost APEX can lead to

multiproduct complexity and expense, as further services are added for desired functionalities. Costs may, however, be mitigated by Oracle's Universal Credit Pricing approach.

- **Sales execution:** Adoption of VBCS by Oracle's SaaS ISV partners is still low and is not creating any significant Oracle ecosystem at this point in time. Other LCAP vendors maintain a more SaaS-independent position and forge stronger third-party partnerships.
- **Marketing execution:** VBCS appears far less often than most other vendors on the competitive lists drawn up by users of Gartner's client inquiry service. The benefits of its LCAPs are mostly limited to Oracle's own ecosystem. As a result, Oracle's LCAPs mostly attract experienced Oracle customers.

OutSystems

OutSystems is a Leader. It originated as vendor of a rapid application development environment based on .NET, but now offers an enterprise LCAP of the same name that supports cloud, on-premises and hybrid solutions. It focuses on enterprise application development for agile and continuous customer delivery by offering a combination of omnichannel support and scalability. Gartner reviewed OutSystems 11.

Strengths

- **Overall viability:** OutSystems continues to grow strongly by providing an alternative to many older third-generation language (3GL) platforms, while enabling low-code productivity improvements with access to capabilities such as an advanced web and mobile user experience, B2C support and even batch processing. Reference customers stated that they selected OutSystems for its strong vision and innovation.
- **Product strategy:** OutSystems supports both AWS and Azure deployments, but is particularly interesting to Microsoft shops due to its underlying use of .NET. Both AWS and Azure versions support access to the underlying cloud services for the IoT, AI and analytics.
- **Innovation:** OutSystems' multipersona developer experience encourages professional and line-of-business developers to participate in governed and AI-assisted application development using web-based and fat-client integrated development environments; deployment can be container-based. Over 2,500 components are available on OutSystems' Forge app store, and reference customers' usage of shared components in this ecosystem was among the highest.
- **Customer experience:** Reference customers scored OutSystems higher than the average for developer productivity and most critical LCAP capabilities. They also scored it above the average for modernizing the user experience of existing applications.

Cautions

- **Product:** OutSystems' LCAP is often used for automation of business processes, but is not yet competitive in all aspects of process-centric application development, especially with regard to aspects such as complex business logic modeling.
- **Market understanding:** OutSystems tends to be favored by professional developers, rather than citizen developers. Reference customers were less satisfied with its LCAP's ease of use for citizen development (though citizen development was not a goal of any of them).
- **Sales strategy:** OutSystems' customers need to ensure its pricing remains acceptable as their usage increases. The vendor's pricing model uses a blended metric ("application objects," which measures user experience pages, data tables, and API or service operations) to gauge consumption and therefore price, which clients can find it difficult to predict. In addition, increasing B2C usage is forcing increasing adoption of an unlimited user-count pricing model.
- **Cloud strategy:** OutSystems' reference customers scored it lower than the survey average for cloud functionality. Its application PaaS (aPaaS) credentials for larger deployments have also received some criticism from Gartner clients. Additionally, surveyed reference customers requested continued improvement in the area of quality, reliability and availability.

Pega

Pega is a Visionary. Pega Infinity has evolved from a BPM suite into an application platform and provides an LCAP capability through its App Studio, formerly Pega Express. Pega Infinity adds an LCAP layer to the vendor's CRM and other SaaS offerings. Pega provides capabilities for governing developers, as well as advanced integration services, such as robotic process automation (RPA) and event processing. In addition, it supports multipersona developer experiences for professional developers and data scientists. Gartner reviewed Pega Infinity 8.1.

Strengths

- **Product:** Pega has a reputation for selling a mature, multifunctional offering capable of producing advanced application designs. It offers visionary support for accessible development of event processing, decision management, data science and integration. Pega's Cosmos user experience design system is evidence of this strength.
- **Market understanding:** Pega is one of only a few vendors in the LCAP market to recognize the need for unified multipersona developer experiences, with Pega App Studio and Dev Studio. Pega supports continuous business-IT design cooperation, which can help with IT-enabled business innovation.
- **Industry strategy:** Pega's evolution toward offering stand-alone business applications, including ones for CRM, financial, healthcare, government and other vertical markets, which also represent components for LCAP users to build on, reflects a strong vision. Its combined SaaS-and-PaaS strategy provides the platform with multichannel business opportunities and helps drive its technological innovation and maturity.

- **Developer experience:** Reference customers for Pega scored it above the average for developer productivity and integration capability. They also praised its support for improved business process agility.

Cautions

- **Business model:** Pega's business model supports a large consulting business to help customers fully implement its major capabilities. In addition, Pega's pricing involves add-on fees for some enterprise-significant capabilities, including RPA and other integration features, AI assistance for developers and disconnected-mobile support. That this can result in relatively high per-user pricing is confirmed by users of Gartner's client inquiry service and one of the lowest scores from reference customers for satisfaction in terms of value for money.
- **Marketing execution:** Pega does not separate out its LCAP-only revenue, and Gartner's assessment is that Pega's LCAP capabilities account for only a small part of its overall business. Reference customers confirmed that Pega's platform is still seen as being primarily BPM-centric. Pega's marketing efforts have yet to succeed in redefining the Pega brand for the LCAP market.
- **Sales execution:** Pega's reference customers gave a below-average score to its contract negotiation process, but generally had not evaluated many other LCAP vendors.
- **Platform experience:** Pega's reference customer scores for end-user experience, deployment and integration, enterprise-worthiness and cloud functionality were lower than those received by other vendors in this Magic Quadrant. Pega, however, reports that it has recently made significant investments to improve its capabilities in these areas.

ProntoForms

ProntoForms is a Niche Player. Its LCAP of the same name is used primarily for field service use cases and apps for mobile frontline workers. It supports rapid form development with a simple drag-and-drop approach to building mobile apps, web apps and Microsoft Windows fat clients.

Strengths

- **Product (B2E):** ProntoForms provides an intuitive no-code, web-based tool using a drag-and-drop, visual app-building approach ideally suited to citizen developers. Its platform is most suitable for replacing paper forms, prototyping new apps, and modernizing or mobilizing existing desktop-bound applications.
- **Market responsiveness:** ProntoForms recognizes the advantages that a comparatively small vendor can seize by exploiting the ecosystems of larger ones. Its platform is available via the Salesforce AppExchange and Box app store, for example.
- **Product strategy:** ProntoForms focuses on mobile app development and provides some of the more robust capabilities in this area, such as offline data synchronization, bar code

scanning, push notifications and SMS. However, some reference customers for ProntoForms said they would like its UI capabilities to be more sophisticated.

- **Operations:** Reference customers for ProntoForms gave above-average satisfaction scores for overall experience and service and support. They specifically praised the company's culture and integrity in addressing their needs and helping them succeed.

Cautions

- **Marketing execution:** ProntoForms is not widely known in the LCAP market. It has primarily marketed and sold to mobile field service organizations. As it competes more in the enterprise sector and sells to IT departments, it will need to raise greater awareness of its platform, particularly as other LCAP vendors enhance their mobile app capabilities.
- **Business model:** ProntoForms has a large base of customers, but these are mainly business departments or business units, rather than enterprise IT departments. Its core platform updates in 2018 enable it to serve the needs of IT departments and enterprises better, but prospective large-enterprise clients still need to evaluate it carefully.
- **Product (B2C):** Gartner does not recommend ProntoForms for B2C or consumer-facing applications. Very few of ProntoForms' customers use its LCAP for such applications.
- **Sales execution:** Reference customers for ProntoForms reported below-average satisfaction with its product in terms of value for money, as well as with the company's pricing and contract flexibility. A few said that ProntoForms' licensing management tools and processes were cumbersome to deal with.

Quick Base

Quick Base is a Niche Player. Its LCAP of the same name is focused on enabling citizen developers to create applications as a means of empowering knowledge workers. It provides governance and rapid application development capabilities, based on a custom in-memory database. Its LCAP is entirely cloud-based.

Strengths

- **Product:** Quick Base focuses on ease of use for citizen developers, and has developed a large customer base. This base extends across industries and includes professional developers aiming for rapid delivery of data-oriented applications.
- **Market responsiveness:** Quick Base primarily delivers data-oriented applications, which some customers deploy at an enterprise level, encouraged by certifications for the U.S. Health Insurance Portability and Accountability Act (HIPAA) and Service Organization Control (SOC) 2, for example. The Quick Base Exchange provides hundreds of applications to accelerate application development, while for professional developers there is a site dedicated to API usage.

- **Market understanding:** Quick Base has a large feature set for citizen developers, including Kanban models for project use cases and multiple data reporting styles. Business logic is simplified through triggers or actions, but can be scripted for more complex use cases. Quick Base scored above the average in the reference customer survey for enabling no-code and citizen development.
- **Customer experience:** Reference customers gave Quick Base higher-than-average scores for value for money and business automation.

Cautions

- **Corporate ownership:** Quick Base has undergone two changes of corporate ownership in the past four years, and is now owned by Vista Equity Partners (which also owns TIBCO Software, another LCAP vendor). This may result in another change of ownership, judging by typical private-equity patterns.
- **Marketing execution:** Although it has built up a large base of SMB users over many years, Quick Base's customer numbers have not grown as much as those of other LCAP vendors. It faces increasing competition from other providers of low-cost data-oriented cloud services.
- **Product strategy:** Quick Base targets internal B2E applications involving data recording and reporting, and the lack of visual process modeling makes more complex applications harder to build and maintain. Offline mobile support and visual process modeling are roadmap items. Quick Base is specializing in meeting the needs of the citizen developer subset of the LCAP market.
- **Geographic strategy:** Quick Base has customers beyond North America, but has yet to expand its data centers outside the U.S. or to offer technical support outside U.S. hours. This is likely to deter non-U.S. customers with data location concerns, although, for the EU, Quick Base does support General Data Protection Regulation (GDPR) data encryption controls and plans 24/7 customer support in future.

Salesforce

Salesforce is a Leader. It is better known for its CRM application services, but in the LCAP market its Lightning Platform focuses on customer-related applications and extensions to SaaS, supported by over 5,000 third-party applications on the Salesforce AppExchange and the Trailhead education service. It also interfaces with high-control services through its Heroku offering. Salesforce operates largely on its own cloud data centers, but recently began to expand onto AWS infrastructure. Gartner reviewed the Winter '19 version of its LCAP.

Strengths

- **Overall viability:** Salesforce can claim persistent LCAP revenue growth, widespread name recognition, aggressive innovation and acquisition activity, intimate compatibility of its LCAP with its market-leading CRM SaaS, and ecosystem partnerships with thousands of third

parties whose offerings are hosted in AppExchange. It generates more LCAP revenue than any other provider.

- **Innovation:** Salesforce continues to innovate in the following areas: AI libraries for discovery, prediction and voice services (Einstein); integration with DevOps (Salesforce DX); and event-driven design (including IoT Explorer and platform events). The recent announcement of a future Salesforce Blockchain suggests that Salesforce will be the first major vendor with a low-code platform for blockchain-enabled application design.
- **Marketing execution:** Salesforce continuously invests in deepening its relationships with customers and partners. It supports ISVs through monetized AppExchange programs for partners, startups and incubators. Salesforce's strategic investment in training and education (Trailhead) facilitates a growing community of developers and encourages further adoption.
- **Market responsiveness:** Salesforce's reference customers use the platform for enterprise-class applications and gave high scores for the platform's high availability and the quality of its peer community. Additionally, they expressed higher-than-average satisfaction with Salesforce's vision and innovation.

Cautions

- **Product strategy:** The architecture of Salesforce's Force.com platform core has sustained continuous growth for the past 20 years, and is evolving from a monolithic architecture. This makes integration with the newer and acquired parts of Salesforce's portfolio more difficult and complicates some types of innovation. Developers have to use both Lightning no-code and Salesforce Apex language features to deliver complex functionality.
- **Market understanding:** Salesforce Lightning remains resolutely cloud-only, which threatens to undermine the completeness of Salesforce's enterprise vision in some strategic areas, such as hybrid deployments and IoT edge computing.
- **Business model:** Salesforce's recent business model has been to grow by making major acquisitions, but this can create challenges. Despite acquiring MuleSoft, an integration leader, in 2018, the integration features of the Lightning Platform remain limited, and Salesforce's reference customers expressed dissatisfaction with its support for integration.
- **Sales execution:** Reference customers for Salesforce expressed below-average satisfaction with its costs. Also, their scores for Salesforce's customer service and support were not as high as those received by other vendors in this market.

ServiceNow

ServiceNow is a Challenger. It is better known as an IT service management (ITSM) SaaS provider, and its SaaS is built on its low-code LCAP called the Now Platform. It is used for low-code workflow automation relating to ITSM and other domains, thanks to its support for portal, web and mobile user experiences. Gartner reviewed the ServiceNow Madrid release.

Strengths

- **Overall viability:** ServiceNow's core business of providing SaaS for IT users provides a ready IT audience for centralized application development using the Now Platform. Developers can exploit all its SaaS-developed capabilities, such as support for portals and chatbots, for new applications across the business. As a result, the Now Platform's customer growth is strong.
- **Innovation:** ServiceNow's development environment includes natural language-assisted development and new mobile capabilities for 2019. Its integration features were already considered a strength.
- **Product strategy:** ServiceNow successfully offers its LCAP to its core IT audience for various application development tasks. It scored higher than the average for enterprise-worthiness in the reference customer survey.
- **Market responsiveness:** ServiceNow has responded to the demand from its customer base, and reference customers report they are deploying the Now Platform for large-scale deployments. ServiceNow was selected by its reference customers principally for its strategic relationships with clients and its performance.

Cautions

- **Sales strategy:** Business unit development usually drives growth in vendors' LCAP revenue. ServiceNow, however, remains popular mostly with central IT teams. Although it claims lines of business or departmental application development teams as users, it had fewer reference customers reporting line-of-business or departmental usage than did other vendors in this Magic Quadrant.
- **Product:** ServiceNow's popularity with IT users has led to less specific support for citizen development personas. This is an area that is partly addressed by features planned in the 2019 New York release; however, reference customers for ServiceNow claimed that development was 3GL-based, and a higher-than-average number described their developers as "specialist developers." They also gave lower-than-average scores for ServiceNow's application development capabilities and for their usage of its app store ecosystem, although ServiceNow reports steady growth in the latter.
- **Market approach:** ServiceNow's interpretation of how best to deliver low-code workflow applications differs from that underlying traditional workflow tools, such as BPM systems. Prospective customers should review both approaches to identify which suits their use case.
- **Sales execution:** Reference customers for ServiceNow and users of Gartner's client inquiry service indicate that ServiceNow's pricing and contract negotiations are more complex than the average. However, ServiceNow's pricing models have recently changed, which should improve the sales experience in 2019.

TrackVia

TrackVia is a Niche Player. Its LCAP of the same name focuses on non-IT application developers that require low entry costs for digitizing business processes and procedures. Its proposition relates to no-code business process automation and easy definition of mobile and web applications.

Strengths

- **Product:** TrackVia provides a low-cost, extensible, process-oriented platform with features like process modeling. It targets relatively small teams and SMBs that need to build departmental applications.
- **Innovation:** Applications developed with TrackVia's LCAP can include some sophisticated features, such as Gantt charts. Its LCAP also provides extensibility using the Apache Groovy language. The platform offers some of the ease of use of a citizen development platform, but can also tackle complex process applications.
- **Industry strategy:** TrackVia supports multiple industry domains (it is HIPAA-compliant for healthcare applications, for example). It provides consulting services with experience in many types of workflows within those domains.
- **Customer experience:** Surveyed reference customers for TrackVia indicated above-average satisfaction with its LCAP's capabilities and value for money.

Cautions

- **Overall viability:** TrackVia is one of the smaller vendors in this Magic Quadrant. Its recent sales performance lags behind its size and technical capabilities, which may increase the risk of it being acquired.
- **Product strategy:** Some aspects of TrackVia's functionality are more limited than those of other LCAP vendors, such as when it comes to the integration of complex services. TrackVia has recently added an integration platform to address this particular limitation. TrackVia's standard form-oriented user experience reduces its appeal to organizations with B2C use cases.
- **Market understanding:** Sophisticated enterprise IT users will find that TrackVia lacks any advanced capabilities for headless applications and types of event processing. This will restrict its usage for many digital business initiatives.
- **Geographic strategy:** Although TrackVia has customers outside North America, its AWS data centers are all in the U.S., which could be a problem for some organizations with data location requirements. In addition, there is a lack of support for text string internationalization.

Zoho

Zoho is a Challenger. Primarily a SaaS provider focused on SMBs, it provides an LCAP called Zoho Creator for building applications via both citizen and professional development. Application developers can also draw on its CRM and other applications. Zoho has a global presence and offers built-in integration PaaS (iPaaS) and access to SaaS capabilities such as analytics and chatbots. Gartner evaluated Zoho Creator 5.

Strengths

- **Overall viability:** Zoho offers the enterprise scale of a global SaaS-plus-PaaS provider, is internally funded and is mostly used by SMBs. It continues to record strong growth, driven by initiatives such as its Enterprise Business Solutions team's provision of professional management assistance and partner resellers (of which there are many). Two different pricing models with different metrics are supported for SMBs and large enterprises.
- **Innovation:** Zoho Creator has strengths associated with Zoho's nature as a SaaS provider: a predefined data schema, PWAs, conversational and headless voice applications, a dedicated cloud offering and Kanban reports. Zoho expects to offer Zoho Creator on-premises in 2019, albeit without modern deployment practices, such as the use of containers.
- **Market understanding:** Citizen development is supported, with features like code-free dashboards displaying data from composite data sources. Zoho also offers low-code support for Zia, its AI-driven natural language application.
- **Customer experience:** Zoho's reference customers gave it above-average scores for its features and functionality, as well as its ease of deployment.

Cautions

- **Business model:** Zoho has only a small professional services arm to assist with application delivery, and is still in the early stages of attracting large solution provider partners to help customers with more complex solutions. However, it does have a large ecosystem of smaller, specialist partners.
- **Product:** Reference customers for Zoho expressed a general desire for improvements in the area of quality, reliability and availability. They gave Zoho a lower-than-average score for the availability and usage of optional accelerators, such as prebuilt components and processes from the Zoho ecosystem.
- **Product strategy:** Zoho Creator uses Zoho's Deluge script language for application business logic, but does not support external DevOps. Additionally, reference customers scored Zoho lower than the average for no-code development and end-user experience, and expressed a general desire for better productivity for developers.
- **Operations:** Zoho reference customers gave lower-than-average scores for its service and support. Technical support during working hours is included, but a premium subscription is required for 24/7 support.

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.

This "Magic Quadrant for Enterprise Low-Code Application Platforms" replaces 2018's "Magic Quadrant for Enterprise High-Productivity Application Platform as a Service." Its definition relaxes the requirement for each vendor to be a cloud PaaS vendor, though all the vendors included in this Magic Quadrant have PaaS capabilities anyway.

Added

Compared with 2018's "Magic Quadrant for Enterprise High-Productivity Application Platform as a Service," which the present Magic Quadrant supersedes, the following vendors have been added:

- K2
- ProntoForms

Dropped

Compared with 2018's "Magic Quadrant for Enterprise High-Productivity Application Platform as a Service," which the present Magic Quadrant supersedes, the following vendors have been dropped:

- Caspio
- Fujitsu
- MatsSoft
- OrangeScape

Honorable Mentions

The following vendors were considered for inclusion in this Magic Quadrant, but did not meet all the inclusion criteria:

- Alpha Software
- WEM

Inclusion and Exclusion Criteria

The inclusion criteria reflect the specific attributes that Gartner considered necessary for inclusion in this Magic Quadrant. The cutoff date for compliance was 1 February 2019; releases after this date were not considered.

To satisfy our technical inclusion criteria, each vendor had to:

1. **Demonstrate a go-to-market strategy for its LCAP for cross-industry application development**, rather than for specific vertical markets.
2. **Provide a minimal set of application platform capabilities**, including:
 - Tools to develop, version, test, deploy, execute, administer, monitor and manage the applications and their relevant artifacts.
 - Support for the design of data schema and application logic.
 - Invocation of external third-party services via APIs and/or event topics.
 - Support for some automation of platform patching and versioning.
3. **Provide for rapid application development**, including:
 - A low-code or no-code approach to development of UIs, business logic and data definitions.
 - Support for development and deployment of applications by line-of-business developers.
 - Single-step deployment.
4. **Provide an enterprise-grade LCAP**, aimed at enterprise-class projects, that offers:
 - High availability and disaster recovery.
 - Secure access to application services.
 - Technical support to customers.
 - Third-party application access to application logic and/or data via APIs and/or event topics.

Each vendor also had to satisfy all of the following business criteria:

1. **Growth:** The vendor must have had at least 20% year-over-year growth in revenue from LCAP licenses and subscriptions, excluding professional services, in 2018.
2. **Size:** The vendor must have had *either*:

- Revenue of at least \$10 million from LCAP licenses and subscriptions during the 12-month period ending on 31 January 2019 *and* at least 250 paying customer organizations.

Or:

- At least 10,000 organizations as customers.

3. **International support:** The vendor must have added at least 10 new paying enterprise customers for its LCAP in 2018, in at least two of the following regions:

- North America
- South America
- Europe
- Middle East and Africa
- Asia/Pacific

We excluded any vendor that:

- **Required a specific third-party component or product that was *not* already “OEMed” into its platform(s)** (that is, was not branded, sold and supported directly by the LCAP vendor).
- **Only sold its platform(s) along with development or professional services**, with the offering being used exclusively by the vendor’s consultants.
- **Required the purchase and/or installation of other, unrelated products or platforms from the same vendor** (such as a CRM application or content management system).
- **Did not offer a commercial enterprise offering** – that is, only offered an LCAP as open-source software.

Evaluation Criteria

Ability to Execute

Vendors are evaluated on two axes: Ability to Execute and Completeness of Vision. These relate to their performance in 2018, capabilities delivered through 1 February 2019, and vision for the coming years. Vendors are scored according to Gartner’s methodology for Magic Quadrants, and these scores define each vendor’s position. In each successive year, the evaluation criteria are changed as new technologies are defined, new markets addressed and new roadmaps created. Vendors are invited to provide data for the evaluation criteria via questionnaires and briefings, but our evaluations also reflect the results of Gartner customer surveys and information gathered from analysts’ interactions with users of Gartner’s client inquiry service.

For the Customer Experience criterion, Gartner confidentially surveyed vendor-identified reference customers. At least seven references were required for the survey data to be considered for discussion in the Magic Quadrant. Although insights from reference customers may not be statistically significant, they are still useful feedback from vendors' customers.

For the Product or Service criterion, which assesses the capabilities of a vendor's enterprise LCAP(s), we examined:

1. **Developer experience:** How does the platform support development using a no-code or low-code approach to create applications?
2. **End-user experience:** How does the platform support rich mobile and web interfaces and continuous user experience, as well as other user interfaces?
3. **User experience data, business logic and process:** How does the platform support the user experience using local data, business logic for tasks like data validation, and processes like page navigation?
4. **Back-end data, business logic and process:** How does the platform support shared data and associated automated business logic and processes?
5. **Integration:** How does the platform support back-end integration with local and cloud services via APIs and data sharing?
6. **Enterprise software development life cycle support:** How does the product support mixed low-code and professional application (mesh app and service architecture) applications and work with their different software development life cycles and tools?
7. **Advanced architecture support:** How does the platform support scalable development and/or delivery on local private or public cloud services with associated ecosystems?
8. **Cloud and deployment functionality:** How does the platform support aspects like governance, access and data security, regulatory compliance and standards?
9. **Enterprise-worthiness:** How does the platform support aspects like governance, access and data security, regulatory compliance and standards?

Table 1: Ability to Execute Evaluation Criteria

Evaluation Criteria ↓	Weighting ↓
Product or Service	High
Overall Viability	Medium
Sales Execution/Pricing	High

Evaluation Criteria ↓	Weighting ↓
Market Responsiveness/Record	Medium
Marketing Execution	Medium
Customer Experience	High
Operations	Medium

Source: Gartner (August 2019)

Completeness of Vision

Gartner analysts evaluate technology providers on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs and competitive forces, and how well they map to Gartner's view. Ultimately, technology providers are rated on their understanding of how market forces can be exploited to create opportunities for the provider and its customers.

Table 2: Completeness of Vision Evaluation Criteria

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

Source: Gartner (August 2019)

Quadrant Descriptions

Leaders

Leaders have an insightful understanding of the realities of the market, a reliable record, an ability to influence the market's direction, an ability to attract and keep a following, and a capacity to lead.

In the enterprise LCAP market, leadership implies an understanding of the opportunities and benefits of a low-code ecosystem for enterprise customers. Leaders provide significant enterprise coverage for some subset of SaaS service extensions, application modernization or development, or citizen development. They will support digital businesses. Leaders must have demonstrated a market-leading vision and the ability to fulfill that vision. They must support cloud services and enable use by low-code developers.

Five vendors have sustained excellence, in terms of both execution and vision, long enough to demonstrate effective leadership: two SaaS-plus-PaaS vendors and three independent vendors. As we expect continued growth from Challengers and Visionaries, and the attribution of more importance to low-code platforms, we expect other vendors to progress toward Leader status over the next two to three years.

A Leader is not always the best choice for a specific enterprise application. A focused, smaller vendor may provide excellent support, value and commitment to individual customers — especially with regard to specific geographical or industry needs, or requirements for commitment to a certain capability or functions. Such a focused vendor would not be a Leader in the overall LCAP market, but could be a leader within a specific vertical domain, such as ERP or supply chain.

Challengers

Challengers excel in their ability to attract a large user following or provide a strong technical capability, but this ability is limited to a subset of the market. For their target audience, Challengers may be the best choice, but their specificity represents a barrier to adoption for those outside that segment.

In the enterprise LCAP market, a Challenger may have a strong presence or following, but lack traction, commitment or sophistication. A Challenger must demonstrate a sustained excellence in execution and must have a significant following. There are four Challengers this year. Three are SaaS-plus-PaaS vendors that face a challenge to break into wider application domains, and one is evolving from the mobile and multiexperience segment.

A Challenger can become a Leader if it adopts an aggressive, innovative strategy to serve the full breadth of the target market, demonstrates exceptional insight in understanding the market's direction, and retains the capability to fulfill its vision. Alternatively, it may become a Visionary by sacrificing growth for new features and capabilities that are ahead of the rest of the market.

Visionaries

Visionaries are innovators that drive the market forward by responding to emerging leading-edge customer demands and offering their customers' new opportunities to excel. Typically,

they appeal to leading-edge customers, and may have minimal mainstream presence or name recognition. Their ability to deliver sustained and dependable execution in the mainstream enterprise market has not been sufficiently tested. Note that a vendor's vision is expressed not only in its technological innovation; insightful understanding of market trends is also required for visionary marketing, sales, and product and business management strategies.

In the enterprise LCAP market, there are two Visionaries, one a SaaS-plus-PaaS provider that is undertaking a transition to support the next generation of application developers. Visionaries generally invest in leading-edge enterprise LCAP services that are not yet readily adopted by mainstream enterprise customers. They offer capabilities such as multipersona developer support, advanced AI and chatbot capabilities, process, case and decision management, cloud-native architecture and associated ecosystems. They also excel in understanding the demands of enterprises on the path to cloud adoption: ready customizations of SaaS, strong integration capabilities for composite application services, and hybrid deployment support.

Visionaries may eventually grow to become Leaders. Alternatively, they may limit their target markets to focus on their core competencies (or core technologies or existing customers) and become Niche Players. Then again, they may mature their specialties and improve their execution to become Challengers.

Niche Players

Niche Players typically specialize in a vertical, geographical or functional area, and therefore address only a segment of the market. Neither their execution nor their vision is market-leading from an enterprise perspective. Often these vendors are in transition from or to other markets. They may also have excessively risk-averse leadership; they may be startups just starting to succeed, or vendors focused on a specific subset of use cases.

In the enterprise LCAP market, most Niche Players are simply focusing on SMBs, or citizen developer models of application development, or undertaking a transition from the BPM market. In the first two cases, they are extending the capabilities of citizen development to handle more use cases. In the last case, they are adjusting their marketing and functionality to match that of the Leaders, and in particular addressing developer skill set requirements and adding UI capabilities.

Because of their specializations, Niche Players often represent the best choice for a specific category of buyer or a particular use case. They typically offer specialized expertise, focused support practices, flexible terms and conditions, lower costs, and greater dedication to a particular market segment.

Some Niche Players are poised to improve their Ability to Execute and enterprise features, and thus become Challengers. Others may discover innovative solutions that attract interest beyond their niche segments, and may emerge as Visionaries. Some will look to strengthen and broaden their businesses in order to challenge the Leaders. In this fast-evolving and consolidating market, opportunities exist for all.

Context

Enterprise LCAPs enable organizations to develop applications faster using more capabilities and fewer conventional developers. Analysis of the responses to Gartner's survey of around 200 reference customers in February and March 2019 produced the following insights, which can be used to build a business case for using an enterprise LCAP:

- They sought an LCAP mainly for its application productivity benefits, reduced time to market and ability to improve business process automation.
- Most used an LCAP for both enterprise and departmental applications, which more than half deployed organizationwide.
- Less than half of their LCAPs were used to support process automation or multiexperience development.
- LCAPs improve productivity, citizen development and the end-user experience.
- LCAPs are primarily cloud or aPaaS offerings, but significant deployments are self-managed on-premises or on customers' own cloud contracts. Some are a hybrid of cloud and on-premises deployments.
- The skills required and application delivery times for LCAPs are low, compared with historical norms for application development.

The LCAP market and its tools are still evolving. Consequently, business justifications and cost negotiations need to be handled carefully to offset the lock-in effect of these tools, which support no portability across vendors. Survey respondents identified the top-five aspects that vendors could improve as the following, which should be evaluated carefully before purchasing any LCAP:

- Costs
- Integration features
- Functional depth and completeness
- Ease of deployment
- End-user experience

Market Overview

The enterprise LCAP market is growing strongly, due to continued demand for applications and a shortage of skilled developers. Low-code development is a natural evolution of rising abstraction levels in application development, which will eventually lead to viable cross-enterprise, highly scalable citizen development and composition of applications.

LCAP vendors represent the vanguard of the movement to democratize application development by increasingly replacing standard business application development in Java or .NET, and providing differentiating alternatives to commercial off-the-shelf or SaaS applications.

Many enterprise software vendors recognize the advantages of low-code application development and provide associated platforms, but not all do. For example, among the major IT vendors, AWS has no LCAP offering at the time of writing, Google App Maker is rarely promoted, and SAP and IBM partner with other vendors. Gartner currently tracks over 220 vendors of low-code development tools, many of which do not fulfill our definition of an enterprise LCAP (see “Low-Code Development Technologies Evaluation Guide”).

Vendors in the enterprise LCAP market also support other markets:

- **SaaS market:** Several of the vendors in this Magic Quadrant are also vendors of CRM or other SaaS. SaaS requires underlying platform services, and its customers often desire application customizations and extensions, which leads to their vendors moving into the LCAP market.
- **Application PaaS market:** All the LCAPs evaluated in this Magic Quadrant are available as vendor-managed cloud services and therefore may qualify as aPaaS offerings when delivered on a self-service basis with bidirectional scaling and instrumentation for resource tracking. However, many of the featured vendors also offer software versions for on-premises, noncloud use cases; some also support multicloud deployments.
- **Multiexperience development platform market:** A few LCAPs can create multiexperience apps. All can support web and mobile capabilities to various levels of sophistication. A few also support chatbots.
- **Business process and workflow automation platform market:** Although many LCAPs have process modeling features, they lack full iBPMS capabilities, such as for process discovery, case management and human workforce management. However, some LCAP customers successfully configure their own case management, decision parameter management and workflow management using their platform’s metadata capabilities.
- **Integration platform market:** Although not stand-alone integration products, LCAPs can invoke REST APIs for external access to third-party or custom-developed services, and many include integration services to provide semantic reconciliation of inbound data. Some LCAP users, however, rely on the specialist capabilities of separate integration platforms such as iPaaS offerings, or deploy separate API management tools to manage APIs constructed by an LCAP.
- **Database and content management platform market:** All LCAPs provide some data services, and all have REST interfaces to enable external access to their content. Some LCAP users access or exploit separate databases that are either legacy systems of record or shared cloud database platforms as a service. Often, other data types are either used or provided by LCAPs, such as those provided by document content management platforms.

- **Industry- or domain-specific LCAP market:** Some domain-specific software vendors are also introducing low-code development tools, according to the SaaS-plus-PaaS model. Industry-specialized LCAPs are available for the education, financial services, legal, manufacturing and pharmaceuticals sectors. Horizontal specializations are also tackled by some vendors, such as for ERP and supply chain requirements. While providing specializations, most of these vendors can also address general-purpose application needs and therefore also compete in the general LCAP market. Likewise, the general LCAP vendors can also address vertical and horizontal markets.

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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