

Magic Quadrant for Mobile App Development Platforms

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Summary

Application leaders face an increasing array of digital channels to support, from apps to virtual personal assistants. We evaluate the major MADP vendors used to accelerate and scale mobile app development, as well as to deliver post-app experiences supporting digital business.

Market Definition/Description

IT organizations have many ways of developing mobile apps today:

There are low-level, manual coding tools such as open-source frameworks (React Native, NativeScript and Apache Cordova, for example).

There are high-productivity, rapid mobile app development (RMAD) tools specifically designed to create mobile apps with little or no coding.

There are also mobile back-end services (MBS) that abstract and mediate data from systems of record while enabling reuse of core mobile services (for example, offline data synchronization and location services) for a variety of front-end development tools.

Finally, there are application platforms such as field service management, business process management, application platform as a service (aPaaS) and business intelligence systems, which can enable the creation of specific types of mobile apps within their platform.

While each of these products is an approach to building mobile apps, they are not classified as a mobile app development platform (MADP). Gartner's 2017 MADP definition is as follows:

A MADP provides tools, technologies, components and services that together constitute the critical elements of a platform for creating custom mobile apps (that is, .ipa and .apk binary files), as well as mobile web apps or sites. Increasingly, MADPs are adding support for wearables, chatbots, virtual personal assistants (VPAs) and conversational UI endpoints through the same services and APIs they create and orchestrate for mobile apps and web.

A MADP must include a cross-platform development tool (as well as MBS) that must be decoupled from its own proprietary front-end development tool in order to support third-party and open-source integrated development environments (IDEs), tools and frameworks. High-

productivity app development is now common in many MADPs, but customers require openness and to avoid lock-in with the front-end tooling to be able to support native IDEs and popular frameworks that may emerge.

A MADP must be able to address the requirements of diverse enterprise use cases, including external-facing and internal-facing scenarios, as well as connecting to diverse enterprise systems that may run on-premises or in the cloud. Because MADPs serve as the cornerstone of an enterprise mobile strategy, they need to be as broad as possible in addressing both front-end and back-end development needs.

A MADP serves to centralize the life cycle activities (such as design, develop, test, distribute, manage and analyze) for a portfolio of mobile apps running on a range of operating systems and devices. This is critically important for IT organizations to manage the ongoing maintenance and support of apps, as well as the back-end mobile APIs, to enable proper DevOps practices.

The MADP market consists of independent vendors and MADP products that are part of a larger vendor's portfolio or solution. Clients can purchase any MADP product as a stand-alone offering, although some MADPs have many optional and related components and most offer "free for evaluation" or open-source tools, which can make up a significant percentage of a vendor's user base.

Over the years, the independent vendors in this space have mostly been acquired by larger vendors, which demonstrates the criticality of mobility in many enterprise systems. However, there are still dozens of independent vendors, as well as vendors transforming their products (such as MBS and RMAD) into MADPs. Some vendors listed in previous years' MADP research have not evolved to meet Gartner's MADP definition for 2017, although they may still be used to create certain types of apps. Gartner expects the MADP space to continue to evolve rapidly: as wearables, bots and conversational UI channels need to be folded into the omnichannel approach of these platforms; and as mobility permeates deeper in other enterprise systems and platforms.

Magic Quadrant

Figure 1. Magic Quadrant for Mobile App Development Platforms



Source: Gartner (June 2017)

Vendor Strengths and Cautions

Adobe

Adobe is in the Niche Players quadrant this year, which is a move from its position in the Leaders quadrant in 2016. During the past year, Adobe has shifted its go-to-market execution away from the MADP space with its Adobe Experience Manager (AEM) Mobile product. In March 2017,

Adobe unveiled a new consolidated Adobe Experience Cloud offering of which AEM Mobile is a component; yet its long-term MADP product tooling and sales strategy remain unclear at the time of writing.

Adobe offers a cloud-based MADP that is focused on marketers and enterprises wanting to deliver mobile apps that run within its Adobe Experience Cloud. AEM Mobile is a high-productivity hybrid app development tool that incorporates Adobe's PhoneGap technology to enhance the platform via a wide assortment of libraries and extensions. AEM Mobile is used to create mobile apps that can automatically identify and deliver assets from Adobe Experience Cloud, with changes being managed by Adobe Campaign, which is also part of the Experience Cloud. Adobe Analytics complements the AEM Mobile platform with a deep offering spanning both performance and behavioral analytics. Overall, Adobe's MADP offering has become more tightly integrated into the Adobe technology stack, thereby making it less appealing as a general-purpose MADP.

Adobe has a large customer base on Adobe Experience Cloud, although new licensing for AEM Mobile has slowed during the past year as the company focuses on its content platform. Adobe is deprioritizing technologies to build mobile apps in favor of opening up its content platform to all customer interaction channels in order to maintain a connected brand experience. It continues to support customers who have made AEM Mobile a key part of their mobile strategy.

Note: Adobe declined to participate in the research process for this Magic Quadrant; it identified no reference customers and did not respond to requests for supplementary information. Gartner's analysis of Adobe 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 Adobe's MADP (at the time of writing) point to average overall satisfaction.

STRENGTHS

Vertical strategy: At the time of writing, Adobe's offering targets marketing professionals with easy-to-use tools that facilitate the management of marketing content and campaigns and web and mobile apps. Although this is a niche focus, it is an area that few MADPs address as well as Adobe's.

Customer experience: At the time of writing, reviews of Adobe's MADP offering in Gartner Peer Insights point to a good level of satisfaction with its contracting, deployment, support and, particularly, product capabilities.

Business model: Adobe has strong mind share with marketing and lines of business. It maximizes this audience with increased focus on its Adobe Experience Cloud offering and by making its services available to developers and nondevelopers so they can consume its content within the applications that they develop.

CAUTIONS

Sales execution: Gartner has seen a significant decline in Adobe's MADP-related licensing revenue during the past year. This is an indication that Adobe is shifting its go-to-market strategy away from a pure-play MADP focus.

Offering strategy: Adobe's AEM Mobile tools rely on the Apache Cordova (PhoneGap) community for many of the integration capabilities outside the Adobe Cloud offerings. Additionally, its focus does not appear to be on enhancing its front-end tooling as it is reliant on the Apache Cordova community and other third-party developer tools for this effort.

Overall viability: Adobe's repositioning of AEM Mobile as a subcomponent of Adobe Experience Cloud indicates a narrow focus for the tool. It also creates uncertainty about Adobe's long-term investment in addressing broader enterprise mobile app development needs.

Axway (Appcelerator)

Axway (Appcelerator) is in the Niche Players quadrant, as Appcelerator was last year. Appcelerator, acquired by Axway in early 2016, has shown customer growth during the past year and revenue growth with large enterprises, although a higher percentage of its customers are in the small enterprise and small or midsize business (SMB) markets (see Note 1 for a breakdown of company sizes). Its MADP strategy and vision is still in transition as Axway folds Appcelerator into its new Amplify data integration and engagement platform.

The Axway Appcelerator platform consists of a professional IDE called Axway Appcelerator Studio, with an improved Appcelerator App Designer for UI building. Axway Appcelerator Studio offers support for web, tablet and phone apps using JavaScript and Titanium software development kits (SDKs), as well as for its more recent Hyperloop framework for natively compiled JavaScript access to 100% of native APIs. On the back end, Axway Appcelerator offers the Axway API Builder component for building APIs and connecting to enterprise back-end systems and data. The API Builder has the ability to create composite models, allowing developers the ability to create a single composite model consisting of two or more models utilizing multiple connectors in a single app.

Axway Appcelerator has one of the largest developer communities utilizing its MADP open-source tools, but its paying customers (fewer than 2,000) represent a very small percentage of the overall community (although that number is one of the larger MADP customer bases and has grown significantly during the past year). Reference customers expressed average overall satisfaction with its MADP, which appears consistent with Gartner Peer Insights reviews (at the time of writing).

STRENGTHS

Overall viability: The acquisition by Axway provides Appcelerator with strong organizational backing and the ability to utilize Axway API management and integration tools.

Market responsiveness: Axway Appcelerator continually updates its platform. It also offers a growing marketplace from which developers can download additional connectors and components in order to add more features and functions to their apps.

Sales execution: Since the acquisition by Axway, sales have increased dramatically, with the number of paying customers growing by more than 80%. Sales growth is global, but the majority of new clients have been added in North America.

CAUTIONS

Customer experience: Although Axway Appcelerator's customer references and Gartner Peer Insight scores indicate average overall satisfaction, most of its reference customers recommended it only with reservations (one respondent from a reference customer did not recommend it). Specifically, a lack of skilled developers for Titanium in system integrators and the slow progress of developer tools were cited as concerns.

Product strategy: Axway Appcelerator has a strong IDE and lineup of tools, but these tools often feel disjointed. It has made progress in adding more high-productivity development capabilities, but continues to focus squarely on professional developers. It lacks capabilities that most enterprise mobile app developers would expect, such as preintegrated offline support rather than manual coding.

Innovation: Axway Appcelerator continues to build and expand its product offerings, but is still behind in terms of its vision for behavioral analytics, chatbot support, high-productivity tooling, and integration of its back-end and front-end products into a seamless workflow. Many of these capabilities are on the roadmap, but are lagging behind other MADP offerings.

DSI

DSI is in the Challengers quadrant this year, a move from the Niche Players quadrant in 2016. DSI demonstrates continued success in focusing on the needs of supply chain organizations for mobility. It is working to expand its cloud deployment capabilities and support for customer-facing app use cases.

The DSI Mobile Platform is predominantly an on-premises MADP, although a growing percentage of its new customers are choosing cloud deployment (whether public, private or hybrid). The platform offers tools for RMAD as well as professional code-centric development (using WireML or JavaScript) across iOS, Android, Windows (including Windows CE and Mobile) through its proprietary native app. The DSI Mobile Platform's back-end services also support native iOS and Android development through SDKs, although it lacks SDK support for other cross-platform frameworks.

DSI has one of the larger customer bases (more than 1,000 customers) of the MADP vendors evaluated, with an equal spread across all enterprise sizes and SMBs. Reference customers' survey responses and Gartner Peer Insights reviews (at the time of writing) indicate slightly above-average overall satisfaction.

STRENGTHS

Overall viability: DSI is a privately owned and profitable business with a large customer base. It is one of the few private vendors that has not needed to take up venture capital funding as it has grown. As a result, it is one of the best-positioned MADP vendors in terms of overall viability.

Vertical/industry strategy: DSI successfully sells to senior line-of-business, IT and supply chain leaders. It provides a compelling message for these buyers, with domain-specific solutions and expertise in supply chain management.

Research and development: While still a relatively small business in terms of staff, more than one-third of DSI's employees are in its MADP engineering organization. It also invests a large portion of its revenue in research and development.

CAUTIONS

Marketing strategy: Due to its marketing focus on supply chain businesses and buyers, DSI has constrained itself in the MADP space, relative to its competitors. In particular, it lacks significant reach and presence in the general mobile developer community, which is often an essential influence for those choosing a MADP.

Geographic strategy: DSI's business operations, sales presence and customer deployments are primarily in North America. Although DSI is a global company, its customers outside North America have access to fewer resources than other MADP vendors.

Product strategy: DSI continues to delve deeper into supply chain functionality by, for example, adding a cloud inventory management component. However, this comes at the expense of catering to the broader needs of the MADP market – it offers weak mobile DevOps support, for instance.

GeneXus

GeneXus is a newly added vendor to this year in the Challengers quadrant. GeneXus is based in Uruguay and has a significant customer base in Latin America and parts of Asia. The company has traditionally offered a high-productivity development platform, and has added more support for mobile app development in recent years.

GeneXus provides a model-driven platform that creates apps by generating native code for iOS and Android that can then be edited by developers with native tools or via the GeneXus proprietary IDE. The platform offers support for a wide range of endpoint devices, including smartphones, tablets, PCs, televisions and watches. However, the GeneXus platform is deployed only in on-premises configurations, although it does have a cloud-based virtual instance that runs on Microsoft Azure.

GeneXus primarily sells through partners. It counts most of its end-user platform customers as MADP customers, and as a result has one of the larger customer bases (more than 1,000 customers). Most are in small enterprises or SMBs. Reference customers gave GeneXus above-

average overall satisfaction scores (there were no reviews on Gartner Peer Insights at the time of writing).

STRENGTHS

Customer experience: GeneXus' customer references praised its platform's ease of use, stability and rapid app development capability.

Vertical/industry strategy: GeneXus has a strong presence across industries, which shows that its platform is viable regardless of unique industry requirements. However, its partners are the ones providing the domain expertise for industries, so choose a delivery partner carefully.

Pricing: GeneXus has a very straightforward developer-license-based pricing plan, which is well received by the SMB customers that make up the majority of the GeneXus installed base.

CAUTIONS

Sales strategy: GeneXus' strategy of selling primarily through regional partners could present significant barriers to expansion outside its core Latin American market, due to well-established and larger players.

Operations: GeneXus has a very small engineering organization for the number of customers it claims. It may struggle to expand without significant additional investment in engineering for platform development. Customers should be aware of potential resource constraints as the company grows.

Marketing execution: There is little awareness of GeneXus in the MADP market outside Latin America. The company's go-to-market and product messaging are not focused on mobile development, even though its offering is capable.

IBM

IBM is now in the Challengers quadrant, whereas it was in the Leaders quadrant in 2016. IBM's execution in the MADP market has largely been driven by its IBM Global Services division and its MobileFirst for iOS program. It has also begun to merge its MADP into the IBM Bluemix cloud, gradually making it more of a middleware offering by investing more in capabilities that allow developers to choose their preferred front-end design and development tools, rather than innovating on high-productivity development tooling as part of its platform.

IBM's platform, now called IBM Mobile Foundation, enables businesses to have full app life cycle management coupled with end-to-end security. IBM Mobile Foundation is offered for on-premises, cloud-native and hybrid deployment — all three forms come with a rich set of capabilities, such as enterprise-grade security, scalability and manageability for mobile services (including access to a catalog of cognitive services featuring Watson, weather and video on Bluemix, IBM's platform-as-a-service solution). Users can employ a wide range of Bluemix runtimes and DevOps capabilities to develop microservices-based architectures with continuous delivery. However, for its front-end tooling IBM has ended its foray into no-code development (with the Mobile App Builder tool) and instead now relies on RMAD partners.

IBM has one of the larger MADP customer bases of the vendors evaluated, and grew its paying customer base by approximately 60% in the past year. However, reference customers' survey responses and Gartner Peer Insights reviews (at the time of writing) indicate below-average satisfaction overall with IBM's MADP offering.

STRENGTHS

Core mobile services: IBM Mobile Foundation offers built-in mobile security, integration with back ends, push notifications, app life cycle management, app analytics, DirectUpdate, and the recently released LiveUpdate capability. IBM Bluemix can be tapped for advanced services such as Watson tone analyzer, visual recognition and conversation services.

Mobile DevOps: IBM Mobile Foundation provides both command line interface (CLI)- and UI-based tools to make it easier to move between development, quality assurance, user acceptance testing and production environments.

Vertical/industry strategy: IBM offers one of the most secure platforms, along with certifications that SoftLayer (the data center that hosts Bluemix) follows the most stringent code of practice for protection of personally identifiable information (PII) in public clouds that are acting as PII processors. The IBM MobileFirst for iOS program has created more than 100 industry-specific apps.

CAUTIONS

Product strategy: Some customers with on-premises implementations of the platform experience issues pertaining to complexity of deployment and management of the environments. As IBM transitions its MADP to a cloud-native service on Bluemix, customers may want to adopt cloud deployments to mitigate such complexities, especially when upgrading.

High-productivity app-building tool: IBM does not offer low- or no-code tooling. Instead, it addresses visual development needs through partnerships with third-party RMAD tool vendors such as Ionic and Kinetise running on Mobile Foundation. IBM's hybrid development approach does, however, offer an Eclipse-based environment in which to use Apache Cordova and UI frameworks such as Ionic's and jQuery Mobile.

Customer experience: Reference customers identified platform performance, development time and upgrade compatibility as challenges to the success of the IBM Mobile Foundation platform. Reference customers also indicated the highest average deployment times among the vendors, and one respondent from a reference customer would not recommend the product.

i-exceed

A new entrant to the Magic Quadrant, i-exceed is a Niche Player. It has expanded from a professional services-oriented business to focus on its MADP product; however, it remains one of the smaller vendors, with a focus on India and parts of Europe and Asia. Its overall product vision

lags behind those of its competitors by lacking support for bot frameworks and conversational UIs, and by having design tools that require native UI controls to be developed externally and imported into the platform.

I-exceed's Appzillon platform provides a cloud environment in which to build iOS and Android apps. It supports generation of these app binary files on a user's workstation, provided the native iOS and Android SDKs are installed on that workstation. Front-end client development is supported via JavaScript, with Java customization available on the server side. Appzillon uses static templates for developers to drag and drop "widgets" to build a screen. Most of the prebuilt connectors available are for financial industry data sources, such as Flexcube, Finacle, Euronet and FIS, which may prove limiting for customers in other industries.

I-exceed's customer base is very small (less than 50), compared with the other vendors evaluated, but it has doubled during the past year and includes large enterprise clients. Reference customers indicated above-average overall satisfaction with i-exceed's MADP offering (no reviews were available in Gartner Peer Insights for comparison at the time of writing).

STRENGTHS

Customer experience: Appzillon's customer references point to overall satisfaction with the platform. It is helped by a partner program through which Wipro and Cognizant provide customer support and a self-learner kit on how to build apps using the platform.

High-productivity app-building tool: Reference customers praised the Appzillon tools' ease of use, but also noted that the UI could not be fully customized. Appzillon can also generate web content and provides a native SDK that can be included in apps generated outside the platform.

Mobile DevOps: Appzillon provides command line utilities for various operations that have been integrated with the open-source Jenkins continuous integration tool. It supports GitHub and Apache Subversion with the inclusion of JavaScript QUnit-based scripts for the front end and JUnit-based test cases for the back end.

CAUTIONS

Product strategy: I-exceed's roadmap for Appzillon lags behind those of other vendors evaluated, and the overall MADP market's direction. Its roadmap features include user experience (UX) enhancements and security certifications, which a MADP should provide as standard, and lacks any mention of key technologies that will be required to remain competitive – such as bot framework support.

Industry strategy: Nearly all of i-exceed's customers are from the banking, finance and insurance industry. This has prompted the company to narrow Appzillon's focus to this industry, as shown by the limited types of prebuilt connectors – primarily targeted at back-end finance and banking data sources.

Core mobile services: I-exceed's Appzillon does not support NoSQL or other unstructured data storage. It also lacks support for cognitive services and Internet of Things gateways, and language support for back-end development is limited to Java.

Kony

Kony is in the Leaders quadrant, as it was in 2016. Kony's execution remains strong, thanks to its ability to meet the needs of broad mobile use cases in multiple industries. Kony's vision has continued to expand – it now includes a focus on new interactions and omnichannel experiences with both front-end components and back-end service support.

The Kony MADP comprises Kony Visualizer (a front-end IDE), Kony MobileFabric (back-end services) and the Kony Nitro Engine (an omnichannel engine for mobile and web). Kony Visualizer gives developers the ability to create a rich, interactive user experience for mobile apps within a high-productivity environment that also supports custom coding via JavaScript. Kony's Native Function API supports all native iOS and Android APIs, as well as third-party-native components via JavaScript. Back-end services and omnichannel support are provided by the combination of Kony MobileFabric and the Kony Nitro Engine, which can be deployed and managed across any combination of public cloud, private cloud or on-premises implementations.

Kony has a healthy number of MADP clients (about 500), with half from large enterprises. Customer references indicated average overall satisfaction with Kony's MADP, which is consistent with Gartner Peer Insights reviews (at the time of writing).

STRENGTHS

Product offering: Kony's MADP offers one of the most powerful cross-platform IDEs to support high-productivity and professional development approaches. In addition, Kony MobileFabric back-end services have evolved into a general-purpose aPaaS solution.

Market understanding: As one of the largest and oldest independent MADP vendors (that is, not part of a megavendor), Kony understands the needs of the mobile market very well. It continues to extend its platform to support omnichannel experiences – through the use of conversational interfaces, chatbots and immersive technologies, for example – to enhance its high-productivity capabilities and to refresh its marketplace.

UI richness and native OS API support: The Kony Native Function API enables its proprietary JavaScript framework to use all native OS APIs and controls, as well as to ingest third-party-native components and APIs. This capability, along with the ability to import Adobe Photoshop layouts into Kony Visualizer, gives developers confidence that developing in Kony Visualizer will not limit their ability to create rich native experiences.

CAUTIONS

Business model: Kony relies on resellers and partners for less than half of its revenue, but in some cases, its partnerships have not lived up to expectations (Cognizant, for example; albeit for reasons beyond its control). Kony has continued to diversify its channel partner program

with the recent addition of partners such as Tech Data, CDW, Telstra and AT&T; however, Gartner has also seen resellers represent Kony's pricing and service poorly, which negatively impacts its overall perception in the market.

Sales execution: The number of new customers added in 2016 is smaller than for most other vendors in this Magic Quadrant. As a result, Kony is trying to expand beyond its large-enterprise focus with the rollout of new packaged apps and professional service solutions (Kony AppVantage) to reach the midsize and smaller enterprise markets. It has also addressed its pricing, which has been perceived as complex, with the introduction of new pricing tiers to make licensing more transparent.

Overall viability: Kony is the largest independent MADP vendor, but with significant venture capital investments made in it during the past decade, questions surrounding its exit strategy persist. As a result, customers may have concerns about Kony's long-term independence (as a stand-alone business entity) and question whether it will be acquired by a larger company.

Mendix

Mendix is in the Leaders quadrant this year, which is a move from the Visionaries quadrant in 2016. Coming from an aPaaS heritage, Mendix has grown rapidly in the MADP market as its capabilities and messaging have matured. It offers a platform with a compelling vision for citizen development, agile development workflows and multichannel support.

The Mendix platform is a cloud-based MADP that runs on the open-source Cloud Foundry PaaS standard, with the vast majority of customers deployed in a multitenant public cloud environment. Mendix provides a high-productivity, model-driven development environment through its Web Modeler tool for citizen developers and its Desktop Modeler tool for professional developers, which has an option to customize apps via JavaScript. Both tools can be used in concert to build apps using Apache Cordova for hybrid iOS and Android apps. Mendix's MBS offer SDKs to support native iOS and Android apps, as well as cross-platform frameworks such as Microsoft Xamarin, React Native and NativeScript.

Mendix has a good number of paying MADP customers (more than 600) with enterprise customer growth expanding, although more than half of all its customers are in the SMB category. Several thousand customers use its free community edition. Reference customers expressed average overall satisfaction with Mendix's MADP, but reviews from Gartner Peer Insights point to above-average satisfaction (at the time of writing).

STRENGTHS

Market responsiveness: As it is primarily a cloud platform vendor, Mendix releases updates monthly, and its customers are typically on one of the latest two major releases. Additionally, Mendix hosts an app store, to which its partners and customers have contributed more than 400 components, with more than 100 updates made every month.

Market understanding: Although one of the more recent entrants, Mendix has a value proposition that suits the needs of this evolving market. Its platform makes mobile app development approachable in terms of both processes and tools, and therefore encourages high-speed, large-scale, collaborative app creation by IT and business units.

Offering strategy: Mendix positions its platform to support the needs of both business and IT staff. It provides a built-in life cycle management process that promotes agile development with a feedback loop, and enables continuous integration (CI)/continuous delivery (CD) for back-end APIs and web apps (mobile app test automation is on its roadmap). Mendix also offers a unique app quality monitoring service that uses the ISO 25010 evaluation criterion to automatically assess the quality and maintainability of each app's model.

CAUTIONS

Geographic strategy: Mendix's global presence is rather limited, with just three physical office locations (one in the U.S. and two in Europe). Most of its customers are in Europe, but it has started to expand more quickly in the U.S. Only a small percentage of its customers are in Asia/Pacific. Mendix's reseller and delivery partner network is also relatively small and mostly in Europe, although major global partners are planned.

Marketing execution: Mendix typically markets to lines of business, which then draw the IT department into the MADP discussion. As a result, Mendix has not generally appeared on the radar of enterprise IT leaders considering a MADP. Mendix also has spent relatively little on marketing, though it intends to significantly increase this budget.

Vertical/industry strategy: Although Mendix has high-profile customers in a variety of industries (particularly financial services and professional services), it does not have any industry-specific solutions or certifications.

Microsoft

Microsoft is in the Leaders quadrant, as it was last year. The Xamarin business, acquired in early 2016, has been integrated into the Visual Studio division and the core Xamarin team and products have remained intact, which is a positive sign. Microsoft's vision for its MADP continues to expand with its Azure platform and PowerApps and Flow tools.

Microsoft's platform is much more than just front-end development tools with Visual Studio and Xamarin. It launched Visual Studio Mobile Center to support life cycle management and DevOps activities for mobile apps, with tightly integrated testing (via Xamarin Test Cloud) and analytics (HockeyApp). Microsoft also provides an extensive suite of mobile services via its Azure platform, including application and data integration via Azure Logic Apps.

Microsoft has reinvigorated its developer base with the acquisition of Xamarin — Gartner has seen a significant increase in enterprise interest in its platform. Reference customers expressed below-average overall satisfaction; however, reviews on Gartner Peer Insights point to above-

average satisfaction (at the time of writing), due to these being mainly reviews of its front-end tools.

STRENGTHS

Product offering: Microsoft has one of the broadest offerings for professional developers, with support for iOS, Android, Windows, Cordova, React Native and Unity. This breadth of development capabilities, plus the introduction of Visual Studio Mobile Center for DevOps, make Microsoft's a very compelling platform.

Innovation: Microsoft is among the leaders in omnichannel support, with its strong support for chatbots, virtual assistants and "post-app" technologies such as augmented reality. It also offers one of the largest sets of cognitive services, which can be used within its MADP.

Market understanding: Microsoft understands modern professional developers; it has evolved its Visual Studio offering and made a commitment to open-source communities to meet their needs. The acquisition of Xamarin has given Microsoft a strong cross-platform offering, which already included Apache Cordova development. Microsoft's expansion to support the React Native framework in Visual Studio Code also accommodates this emerging JavaScript-based framework community.

CAUTIONS

High-productivity app-building tool: Microsoft's high-productivity offering, PowerApps, is completely independent of its professional developer tools in Visual Studio and relatively new and untested in the market. Also, Xamarin lacks many of the high-productivity features that developers are looking for to accelerate design, data integration and modeling.

Customer experience: Reference customers expressed dissatisfaction with Microsoft's lack of communication about its product roadmap (such as Xamarin.Forms) and with its in-depth documentation for developers (although, at the time of writing, Gartner Peer Insights reviewers are mainly complimentary about Visual Studio and Xamarin). Microsoft came near the bottom in terms of its reference customers' overall satisfaction.

Sales pricing: Microsoft has made Xamarin free as part of a Visual Studio license, but pricing for its entire MADP offering, spanning Visual Studio and Azure products, is complex. Enterprise customers have to license multiple products and services (with varying pricing models) from Microsoft to get the full suite of capabilities they will need, although simpler pricing is expected in late 2017.

MobileFrame

MobileFrame makes its first appearance in the Magic Quadrant as a Niche Player. The company has been in the mobile app development market for many years, primarily addressing apps in the Windows rugged device market, and it is one of the pioneers of no-code development tools. It has recently expanded to support consumer mobile devices, iOS and Android, although much of its installed base still runs Windows-based devices.

The MobileFrame platform runs primarily on-premises, although a small percentage of customers run it in public or private cloud environments. The platform provides a no-code, drag-and-drop approach to creating and deploying mobile apps using proprietary, native runtime app containers for iOS, Android and Windows devices (including Windows phones, tablets and desktops). Its Thin Client Server also extends apps to run in web browsers. The MobileFrame back end enables integration into systems of record, typically via web-based service connectors and Object Linking and Embedding Database (OLEDB)/Open Database Connectivity (ODBC)-compliant systems. MobileFrame's MADP is best used for focused departmental mobile apps. It has proved particularly successful at mobilizing field service and direct-to-store solutions.

MobileFrame is profitable and has a large installed base of enterprise customers (more than 2,000), typically among business units. Reference customers indicated above-average overall satisfaction with MobileFrame's MADP offering (there are no reviews available in Gartner Peer Insights for comparison at the time of writing).

STRENGTHS

Sales execution: MobileFrame typically takes a solution-oriented approach, which may include device hardware. It mainly serves small or midsize enterprises and offers compelling value for departmental mobile apps.

High-productivity app-building tool: MobileFrame offers a no-code development tool and this approach extends not only to the front end but also to back-end data binding and API creation.

Customer experience: Reference customers gave MobileFrame one of the higher overall customer satisfaction scores; they identified its speed, simplicity and ease of development as key strengths.

CAUTIONS

Offering strategy: MobileFrame tools and servers are deployed exclusively on the Microsoft .NET platform, and mainly on-premises. Its platform lacks support for post-app features such as augmented reality, virtual reality and conversational UI.

Professional developer enablement tools: Given its no-code focus, MobileFrame's platform is not well-suited to professional developers. In particular, large distributed development teams that split projects into multiple sprints, or back-end and front-end development activities, may find its development approach limiting.

Operations: MobileFrame is a very small organization – it has fewer than 50 employees. It has limited engineering, support and services resources, which may deter enterprises that require substantial support.

Oracle

Oracle is in the Leaders quadrant this year, which is a move from the Challengers quadrant in 2016. Oracle has achieved a significant increase in MADP sales, primarily from its Oracle Applications installed base. It continues to build on its platform with chatbot support and

expanded analytics, and to enhance its high-productivity development tool.

Oracle Mobile Cloud Service (MCS) is a cloud-based MADP that is mainly used by customers in Oracle's public cloud. Oracle Mobile Application Accelerator (MAX) is tightly coupled with MCS to provide a no-code approach to app construction. Professional developers use Oracle's JavaScript Extension Toolkit (JET) or Mobile Application Framework (MAF) to custom-develop apps using JavaScript and Java, respectively. MAX uses Cordova to support iOS, Android and Windows 10, while MCS offers SDKs for native IDEs and popular cross-platform frameworks, including Microsoft Xamarin and React Native.

Oracle has had to play catch-up in the MADP space with the relatively recent release of MCS in 2015 and MAX in 2016, but its customer count has more than doubled during the past year (to more than 600). Reference customers provided by Oracle and reviews in Gartner Peer Insights expressed above-average overall satisfaction with its MADP offering (at the time of writing).

STRENGTHS

Innovation: Oracle continues to invest heavily in its MADP, particularly in key differentiating capabilities, such as chatbot support, predictive analytics, and adaptive intelligence to make apps more contextual and smarter.

Customer experience: Oracle received strong endorsements of its MADP in this year's survey of reference customers. Customers liked the integration capabilities, cloud architecture and, in particular, the MAX tool.

Sales execution: Oracle had made mobility one of the pillars of its corporate strategy, which has resulted in tremendous growth in its MADP business, both via direct sales and sales through partners. Most of its new customers are midsize and large enterprises, which shows the potential of the Oracle sales team to penetrate multinational businesses.

CAUTIONS

Sales strategy: While Oracle's MADP sales strategy is to be back-end-agnostic, it has primarily been successful with existing customers of Oracle applications — an installed base that is hungry for mobility. Gartner does not typically see Oracle competing for business where it is not an incumbent vendor for enterprise applications.

Product strategy: Oracle's strategy is still a work in progress to integrate its MCS, JET and MAX products. Notably, its high-productivity web development tool, Application Cloud Builder Service (ABCS), will be integrated with MAX, and Oracle's acquisition of CloudMonkey (a provider of testing tools) is still being evaluated as part of its overall development portfolio.

Vertical/industry strategy: Although Oracle has vertical expertise in its Industrial Business Units, its MADP offering lacks any specific vertical-domain credentials, such as Health Insurance Portability and Accountability Act (HIPAA) compliance, and go-to-market partners. Clients looking for industry-specific support may require more custom development services.

OutSystems

OutSystems is in the Leaders quadrant this year, moving from the Visionaries quadrant in 2016. OutSystems has increased its MADP market awareness globally, particularly in the Asia/Pacific region. It demonstrates a compelling vision for a high-productivity MADP as it expands on its visual, model-driven web development heritage.

The OutSystems platform uses a visual modeling language to create app UI, logic, data store capabilities (for offline) and integration with its back-end system. This language is used across the platform for development of apps for the web, tablets and mobile phones using a hybrid approach with HTML5 and Apache Cordova. At the back end, OutSystems offers core mobile services and produces SDKs for third-party tools for each back-end API, with complete models and documentation of the API entities.

A very large number of organizations use OutSystems' freemium product, and a smaller number are paid MADP customers (just over 800), with the majority being small enterprises and SMBs. Reference customers expressed above-average overall satisfaction with its MADP, which is consistent with reviews and ratings from Gartner Peer Insights at the time of writing.

STRENGTHS

Offering strategy: OutSystems is expanding its MADP with a focus on increasing development agility and collaboration, reducing reliance on professional developers, and incorporating artificial intelligence (AI) and machine learning. Underlying all this is a model-driven approach to enable simplified maintenance of its front and back ends.

Mobile DevOps support: OutSystems offers collaboration capabilities between developers and business users via an in-app feedback capture mechanism, which feeds into a project management tool. It also supports UI testing across devices, and automatically tracks visual differences to support continuous UI updates.

Customer experience: OutSystems' reference customers praised it for seamlessly supporting web and mobile apps in a single environment, along with speed and reliability of the platform. Reviews in Gartner Peer Insights gave OutSystems' MADP above-average customer satisfaction ratings (at the time of writing).

CAUTIONS

Sales execution/pricing: Reference customers identified OutSystems' choice of licensing metrics as a concern, which may limit OutSystems' growth within its established paid MADP accounts.

Market responsiveness: OutSystems has provided only two major releases of its MADP (in 2015 and 2016). Most of its on-premises customers take a full year before they are on the current release.

Behavioral analytics and engagement: Although OutSystems' MADP has some built-in analytics features, more sophisticated and deeper usage analytics require third-party analytics tools.

Pegasystems

Pegasystems is in the Visionaries Quadrant again this year. Its focus on large enterprise transformation projects has resulted in low market awareness among the MADP developer community. Despite the limited market presence, it has one of the most fully integrated, end-to-end MADPs, and has expanded support for conversational UI channels.

The Pega platform runs on a multitenant public cloud; it can also support private and hybrid cloud configurations, and can be deployed on-premises. Its Pega Express no-code app-building tool is ideal for citizen developers, while its Pega Design Studio enables a full range of model-driven development, with the ability to support custom code using JavaScript. Pegasystems builds app binaries using its own proprietary native containers, but its mobile back end offers SDKs for native iOS, Android, Windows 10, Apache Cordova and React Native.

Of the vendors evaluated for this Magic Quadrant, Pegasystems has one of the smaller MADP customer bases (fewer than 300 customers), but more than 90% of its customers are sizable enterprises that have made significant investments in its MADP. However, customer references, and the few reviews posted on Gartner Peer Insights (at the time of writing), show below-average satisfaction overall with its MADP.

STRENGTHS

Product strategy: Pegasystems offers one of the more well-rounded MADPs, and has positioned it as a central part of its Pega platform. Its CRM, business process and case management capabilities are best-of-breed, which is ideal for creating complex app workflows.

Innovation: Pegasystems has one of the most powerful, yet easy-to-use, high-productivity development tools, and it serves both citizen and professional developers. The same tool now supports connection to conversational UIs such as chatbots and VPAs.

Overall viability: Pegasystems views MADP technology as a core part of its Pega platform. It continues to invest significantly in tools to make it easier for enterprises to address mobile app needs, although many of its legacy Pega Application Mobility Platform (AMP) customers have not migrated to the latest version of its MADP.

CAUTIONS

Customer experience: Pegasystems came near the bottom in terms of reference customers' overall satisfaction, and one respondent from a reference company said they would not recommend it. Some customers identified the need for performance tuning of custom controls in the model-driven environment in order to achieve desired offline and UI functionality.

Sales execution/pricing: Although Pegasystems is one of the larger vendors in this market (in terms of overall revenue), with plenty of resources, it has fewer MADP customers than most MADP vendors in this Magic Quadrant. Its prices also tend to be at the high end for this market.

Marketing execution: Pegasystems has not done well in generating awareness in the MADP space, despite having a solid offering. It mainly targets C-level buyers with a "big picture" business platform message that overshadows mobility and fails to attract the IT leaders and developers who are either decision makers or key influencers.

Progress

Progress is in the Leaders quadrant this year, moving from the Visionaries quadrant in 2016. Its products and messaging have resonated well with enterprise IT and ISVs, as well as developer communities. Its vision demonstrates a clear understanding of the mobile developer community's needs and, increasingly, those of enterprise IT leaders.

The Progress Telerik Platform includes a broad MADP with a high-productivity Telerik AppBuilder development tool that maximizes the benefits of the company's JavaScript-based NativeScript framework, which Progress created and made open source. Progress also offers a variety of UI components, including a Kendo UI component for the web, a Xamarin UI component, and native UI components for iOS, Android and Windows 10. At the back end, Progress offers a wide range of services including mobile analytics, a device-testing cloud and web content management.

A very large number of organizations (more than 20,000) use Progress's MADP tools, but 60% are SMB clients and a smaller percentage are paying customers. Reference customers expressed above-average overall satisfaction with its MADP offering, as do reviews on Gartner Peer Insights (at the time of writing).

STRENGTHS

Market understanding: Progress has a good understanding of the MADP needs of IT leaders and developers. This is reflected in its goals of managing infrastructure at a lower cost, modernizing app architecture, and delivering systems that are scalable and extensible.

Product strategy: Progress's tools receive strong support from developers and the open-source community, which has led to opportunities to establish a compelling enterprise offering. NativeScript, in particular, is emerging as a framework that enterprise developers are adopting, which is increasing confidence in Progress's MADP platform.

Innovation: With a roadmap focused on native mobile app development (via NativeScript), and the addition of predictive analytics and machine-learning capabilities, Progress's platform is well-positioned to meet the needs of enterprises.

CAUTIONS

Marketing execution: Progress relies heavily on building its open-source community with a bottom-up, developer-oriented message. This helps expand its developer base and community, but it does not necessarily translate into business and C-level value for its MADP.

Sales strategy: A large number of customers use Progress's open-source tools, but most are not paying for an enterprise MADP license. Progress has a very small number of direct sales representatives for its MADP and relatively few resellers, which limits its ability to penetrate

deeper into enterprises.

Geographic strategy: Although Progress has offices across the globe, its MADP staff are only in the U.S. and Europe. In addition, nearly 90% of the company's customers are in these two regions – very few are in Asia/Pacific and Latin America.

Red Hat

Red Hat is in the Niche Players quadrant this year, moving from the Visionaries quadrant in 2016. Red Hat offers robust capabilities, such as reusable Node.js-based mobile back-end services, and its Forms Builder has good openness and extensibility. However, Red Hat does not yet provide advanced conversational UI support or built-in mobile analytics and engagement tools, which are essential for users to understand how to iterate and improve deployed apps.

The Red Hat Mobile Application Platform (RHMAP) offers a no-code Forms Builder with drag-and-drop functionality for creating simple hybrid apps that can be deployed to both mobile targets and the web. The RHMAP cloud-based Build Farm can generate Android and iOS binaries for native (Swift, Objective-C, and Java), Apache Cordova, Xamarin and Titanium projects, and now has an option for an on-premises Build Farm based on Jenkins and OpenShift. For native and hybrid app support, Red Hat pursues an open toolkit approach with support for native SDKs, HTML5 and Cordova, cross-platform tools including Titanium and Xamarin, as well as JavaScript frameworks. For code-centric IDE development, Red Hat JBoss Developer Studio, which has Cordova support, is fully integrated with RHMAP.

A large number of organizations use Red Hat's free evaluation product, but only a small percentage is paying for the MADP (just over 100), with most being small and midsize enterprises. Reference customers expressed average overall satisfaction with its MADP, and reviews from Gartner Peer Insights (at the time of writing) point to slightly below-average satisfaction.

STRENGTHS

Core mobile services: RHMAP offers a Node.js-based mobile back-end service that enables scalability and reuse. It also includes API Mapper for point-and-click API creation and interactions with back-end APIs, and comes with a built-in MongoDB.

Offering strategy: RHMAP is now available in private cloud, hybrid cloud and on-premises offerings, with easy deployment to Red Hat OpenShift 3.x, including on Amazon Web Services and Microsoft Azure.

Professional developer enablement tools: Red Hat's JBoss software stacks are familiar to many enterprise developers. OpenShift has good support for containers, testing, continuous delivery and DevOps.

CAUTIONS

Innovation: RHMAP does not have integrated tools to take advantage of emerging technologies such as bot frameworks, VPAs and broad omnichannel support, including wearables. However, customers can use the platform's client SDKs and back-end microservice capabilities to support these.

Behavioural analytics and engagement: RHMAP has limited built-in analytics and operational dashboards. Third-party analytics modules are needed to augment these capabilities.

UI richness and native OS API support: Out of the box, RHMAP does not support third-party-native components or functions, such as video streaming and conversational UIs – users must implement such functions themselves manually. Additionally, Red Hat's Forms Builder is suitable mainly for simpler app interfaces.

Salesforce

Salesforce is in the Leaders quadrant again this year. Salesforce continues to execute well within its large enterprise customer base. It exhibits forward-thinking vision for its MADP by enabling event-driven intelligence, workflow automation, and predictive action and personalization through additions such as Apache Kafka on Heroku and Salesforce Einstein.

The Salesforce App Cloud Mobile platform is composed of products spanning Force.com, Heroku and Lightning tools. Force.com includes a mobile SDK for native and cross-platform development tools, such as React Native and Xamarin. The proprietary Salesforce1 app container, which can now be custom-branded for customers, runs on iOS, Android and Windows to support app deployment, and within HTML5 browsers. Heroku provides custom-coded microservices. Lightning offers a visual app builder with a component framework and exchange for high-productivity app development. Users can design and build a UI, build app logic, deploy an app, and manage that app through its life cycle on the platform.

Salesforce has one of the largest enterprise customer bases of the MADP vendors evaluated for this Magic Quadrant. Reference customers expressed average overall satisfaction with its MADP offering, as do reviews on Gartner Peer Insights (at the time of writing).

STRENGTHS

Offering strategy: Salesforce addresses a wide range of app use cases by providing declarative and visual development tools for its large administrator user base, plus SDKs for professional developers to write custom apps and components in their tool of choice. The tools can create and share components between developers and administrators, thus offering valuable synergies in the development cycle.

Process, workflow and data modeling: Lightning Process Builder is a visual process builder for nondevelopers to use in order to quickly create workflows and conditional logic. The same workflows are exposed as API endpoints for developers to use.

Market understanding: Salesforce's MADP high-productivity tools make mobile app development more accessible and approachable for enterprises, particularly for their business users. The ability to use Salesforce AppExchange components to expand mobile capabilities also accelerates app delivery.

CAUTIONS

Connectors and API mediation: Although Salesforce Connect offers the ability to connect to third-party data sources, using the Open Data Protocol (OData), and to interface with APIs, Salesforce's out-of-the-box integration capabilities are less flexible and extensive than those of other vendors' MADPs.

Sales pricing: Several of Salesforce's reference customers identified its pricing model as a major drawback of its MADP. Costs can be high and also add up quickly for new or additional functionalities.

Behavioral analytics and engagement: Salesforce App Cloud comes with support for URL-level analytics, but for more detailed app analytics, such as customer segmentation, screen heat maps and behavioural analytics (such as retention/cohort analysis) third-party products are required.

SAP

SAP is in the Niche Players quadrant, moving from the Challengers quadrant in 2016. SAP's ability to deliver a compelling stand-alone, general-purpose MADP has decreased, because it now focuses its strategy on powering hybrid and native iOS Fiori-designed apps for its existing customers. The company has moved away from its on-premises SAP Mobility Platform (SMP) to the SAP Cloud Platform (formerly SAP Hana Cloud Platform), although Gartner has found that a few of its customers have been uneasy about the transition.

SAP approaches mobile app development using a few technologies (for example, Fiori app templates, SAPUI5 hybrid and native SDKs, and model-driven apps); however, the common theme is its Fiori UX. SAP Web IDE is its professional developer tool for building web and hybrid apps, while SAP Build is a no-code tool for app prototyping. Professional developers also have access to SDKs for Apache Cordova, Android, Windows Phone, plus a newly released Swift-based iOS SDK (in partnership with Apple). This iOS SDK accelerates development of native apps in Apple Xcode, giving iOS developers the ability to leverage native Fiori design elements. The SAP Cloud Platform delivers core mobile services, as well as SAP API Management and SAP Mobile Place for deployment orchestration.

SAP has a very large client base for its enterprise systems, but a small number of them fully using its MADP tools. Reference customers expressed significantly below-average satisfaction with SAP's MADP, which is consistent with reviews on Gartner Peer Insights (at the time of writing).

STRENGTHS

Overall viability: SAP's MADP has transitioned over recent years, but the company's new investments in mobility, such as in SAP BUILD and the recently released iOS SDK, demonstrate a commitment to providing its enviable client base with the tools needed to develop mobile and omnichannel experiences using its platform.

Connectors and API mediation: A broad range of connectors is provided for SAP systems, including S/4HANA, SuccessFactors, Hybris, Ariba and Concur systems, as well as popular third-party SaaS applications. New APIs are created using SAP API Management, which is built on the Apigee runtime to offer a full-featured API mediation layer supporting protocol conversion, API adaptation, mapping, transformation and mashup capabilities.

Vertical/industry strategy: SAP offers a wide range of diverse and ready-to-deploy mobile apps for industry use cases. With more than 800 prebuilt Fiori apps and a growing number of native iOS apps for specific industry use cases, SAP can help enterprises hasten their app program.

CAUTIONS

Customer experience: SAP's satisfaction scores from reference customers are the lowest of the vendors evaluated for this Magic Quadrant. In particular, customers identified licensing and the stability of SDK builds and some server components, due to their immaturity, as shortcomings of SAP's MADP.

Marketing strategy: SAP focuses strongly on its SAP Cloud Platform offerings and has narrowed its MADP focus to primarily enable apps for SAP back-end data and applications. It lacks a compelling, broad use-case MADP message, particularly for non-SAP customers.

High-productivity app-building tool: Its SAP Build is relatively new and limited to building prototypes, although a version for full citizen development is in the works. SAP has also been slow to address customers that use older SMP and Agentry 4GL development tooling, but has now released SAP Enterprise App Modeler (SEAM) into beta.

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

GeneXus

i-exceed

MobileFrame

Dropped

Appian

Backbase

Embarcadero

Inclusion and Exclusion Criteria

Vendors in this year's Magic Quadrant met the following criteria:

The vendor must demonstrate a go-to-market strategy for its MADP, such as marketing on its website a MADP to create custom mobile apps for, at a minimum, iOS and Android devices.

The platform must offer MBS that support integration with heterogeneous enterprise systems and core mobile services such as offline synchronization and location services.

The platform must, at minimum, support native development IDEs (Apple Xcode and Android Studio) via SDKs for its MBS.

And, at minimum, one of the following:

The vendor must have at least \$30 million annual revenue from MADP software licensing (not including professional services).

Or, the vendor must have added at least 20 new paying enterprise customers for MADP in 2016 across at least two of the following regions: North America, Latin America, EMEA or Asia/Pacific.

We excluded vendors that:

Offer only MBS, without a tool to build app front ends.

Only sell their software coupled with development/professional services, where the tool is used exclusively by the vendor's consultants.

Target only a single system platform, such as iOS only or Android only.

Do not sell a commercial enterprise offering (that is, only offer the solution as open-source software).

Evaluation Criteria

Ability to Execute

Product or Service: We are looking for breadth and depth of products and features across the mobile software development life cycle, including design and UX capabilities, simplicity of development, ease of integration, richness of back-end services, and DevOps support such as analytics, testing, and version and release management.

High-productivity app building tool – How well does the platform support nonprogrammers in using a drag-and-drop, model-driven, metadata-driven or other visual app development approach to creating apps?

Professional developer enablement tools – How well does the platform provide developers with a code-centric approach to design and build cross-platform mobile apps using an IDE supplied by the MADP or as a plugin to an existing IDE (for example, Eclipse or Visual Studio)?

Core mobile services – How well does the platform provide reusable, cross-platform mobile services (such as location services, push notifications, offline sync, user management, and so on) and support flexible deployment options (such as private/public cloud, hybrid cloud and on-premises)?

Connectors and API mediation – How well does the platform provide connectors/adaptors to the systems of record that are needed and offer extensibility to create and manage mobile-optimized APIs?

Process, workflow and data modeling – How well does the platform make it easy to build mobile-specific workflows/processes, support custom app logic and rules/event-driven interactions to create targeted user experiences?

UI richness and native OS API support – How well does the platform support a high-fidelity UI with native look and feel, OS and hardware integration, and native app performance?

Omnichannel support – How well does the platform support the development of experiences that span multiple channels (beyond phones, tablets and the web) with state retention of processes, including web, VPAs, chatbots, wearables and other digital endpoints?

Behavioral analytics and engagement – How well does the platform capture granular app usage analytics, enable business-level reporting, and support the ability to dynamically update app content and trigger notifications to increase engagement?

Mobile DevOps support – How well does the platform offer embedded tooling to support agile development, continuous integration (CI), test automation, version and release management, and monitoring analytics to facilitate DevOps?

Overall Viability: We are looking for R&D spend and resources, growth of mobile business, and financial profitability or funding/capitalization.

Sales Execution/Pricing: We are looking for broad sales reach across geographies and industries, effectiveness of sales – such as long/short sales cycles – and simplicity of pricing models.

Market Responsiveness and Track Record: We are looking for how quickly products are released and adopted, and how new mobile capabilities are supported both organically and through partnerships.

Marketing Execution: We are looking for general awareness of the vendor in the market, any negative or positive perceptions across IT and lines of business, and how easily buyers understand a vendor's differentiators.

Customer Experience: We are looking for customer deployments across a variety of mobile app use cases, the ability of the vendor to meet and exceed customer expectations, and the ease of onboarding and training on the platform. Results from the customer reference survey and reviews from Gartner Peer Insights are also key measures of customer satisfaction.

Operations: We are looking for growth in mobile business operations and staffing, stability in leadership vision, and strength of customer service.

Table 1. Ability to Execute Evaluation Criteria

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

Source: Gartner (June 2017)

Completeness of Vision

Market Understanding: We are looking for an understanding of how to address the needs of IT and lines of business, as well as third-party developers.

Marketing Strategy: We are looking for strong brand recognition, thought-leading product messaging, and outreach programs that cut through a very fragmented and cluttered mobile market.

Sales Strategy: We are looking for a strong go-to-market strategy focused on selling mobile to enterprise IT, lines of business and developers.

Offering (Product) Strategy: We are looking for a strong understanding of enterprise needs across the mobile software development life cycle and provision of a coherent solution to address omnichannel requirements, high-productivity development, use of open and standards-based technologies, security and compliance, and DevOps support through analytics, testing, and version and release management.

Business Model: We are looking for product revenue growth, ease of doing business with customers, and a strong partner ecosystem amplifying the vendor's go-to-market strategy.

Vertical/Industry Strategy: We are looking for differentiating capabilities built for specific industries and vertical mobile apps, and a focused go-to-market approach for any specific industries – including the use of partners.

Innovation: We are looking for technology advancements in areas such as the Internet of Things (IoT), wearables and omnichannel support, cloud and microservice architecture, and RMAD.

Geographic Strategy: We are looking for diverse customer deployments across geographies, awareness within geographies across the globe, and in-country vendor presence.

Table 2. Completeness of Vision Evaluation Criteria

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

Quadrant Descriptions

Leaders

Leaders must represent a strong combination of Ability to Execute and Completeness of Vision. In the MADP sector, this means that Leaders are not only good at cross-platform development, deployment and management across the full life cycle, but also have a good vision of the omnichannel and post-app requirements, support for multiple architectures and standards, a solid understanding of IT requirements, and scalable sales channels and partnerships. Leaders must provide platforms that are easy to purchase, program, deploy and upgrade, and which can connect to a range of systems of records and third-party cloud services.

Challengers

Challengers in this market must have high numbers of satisfied enterprise clients, a large and growing base of seats in deployment, and the ability to meet the needs of multiple departments in global rollouts. Challengers are vendors with a history of execution in the broad market, but they may not yet have accumulated a substantial track record in the MADP sector across a range of scenarios. Challengers may also lack a cohesive technical or business vision – or may have lingering product gaps or inconsistent or incomplete strategies in their product roadmaps.

Visionaries

Visionaries in this market have a compelling vision of products and of the market's future, as well as the technical direction (and necessary resources) to take them there. However, they have not yet demonstrated that vision in one or more of the following areas: history of execution, revenue, size of client base, diversity of solutions or strong financial results.

Niche Players

Niche Players in this market lack strength in one or more of the following criteria: product breadth/completeness, strength of vision, geographic reach or number of customers. Although they may be a good choice for a particular departmental, regional, or industry use case, they are typically not well-suited as a broad platform for use across an enterprise. Nevertheless, for specific scenarios an offering from a Niche Player may represent the optimal choice.

Context

Gartner evaluated 35 vendors for qualification in this year's MADP Magic Quadrant, with dozens more that straddle this space. The state of the 2017 MADP market again demonstrates the continued volatility of mobile development technologies, but also points to the growing maturation of the market as the number of Leaders increases. New vendors continue to enter (GeneXus, i-exceed, and MobileFrame), and the bar continues to be raised, which caused some vendors to be dropped (Appian, Backbase and Embarcadero) and others to shift positions in the quadrant. In just a year, nearly half of the vendors moved from one quadrant to another – an indication of a highly competitive yet still maturing market.

Strong go-to-market strategies combined with strong visions for post-app support in their platforms proved to be the winning formula for those in the Leaders quadrant, which sees two departures and four newcomers in 2017. However, there are more Challengers than last year, as a new South American entrant (GeneXus) shows solid and growing market traction and joins MADP stalwarts IBM and DSI – both also in Challengers quadrant for the first time. The lone Visionary is Pegasystems, as three other Visionaries from last year (Mendix, OutSystems and Progress) have moved up into the Leaders quadrant. The Niche Players represent a good mix of vendors: from former Leader Adobe, which is in transition with its mobile strategy; to new additions, MobileFrame and i-exceed that have strong regional and industry-focused offerings. Red Hat and Axway (Appcelerator) round out the Niche Players quadrant as both fine-tune their MADP strategies and offerings as part of larger product portfolios within their respective acquirer companies.

As with any fast-changing market, simply shortlisting vendors from the Leaders quadrant is not a guarantee of success. IT leaders need to work with their line-of-business stakeholders to identify the best platform, based on specific use cases, skill sets and resources, and the mobile-readiness of the enterprise business applications, IT architecture and infrastructure.

Choosing a Leader may be too costly or overwhelming in terms of capabilities for some enterprises, depending on their readiness and use cases.

Select a Challenger based on its ability to deliver immediate value, but realize that it may lack a cohesive technical or business vision – or may have lingering product gaps or legacy functionality.

Select Visionaries knowing that they have the necessary market and product understanding to excel, but perhaps not the resources or the corporate ability to realize their vision.

For certain scenarios, such as those based on specific internal skill sets or departmental needs, choosing an offering from a Niche Player could be the best option to get started or to supplement existing mobile development tools.

Market Overview

Demand for MADPs continues to grow, especially as new technologies such as chatbots and augmented reality (AR)/virtual reality (VR) are factored into mobile development. However, the growth rate has slowed as the market gets bigger and as open-source software and alternative app building tools become more available and plentiful. After annual growth rates of nearly 30% in 2014 and 2015, overall MADP market growth was slightly above 10% in 2016, due to vendor consolidation and exits. Gartner expects the growth of the MADP market to pick up at a rate of about 18% in 2017, and show a compound annual growth rate (CAGR) of between 15% and 17% between 2018 and 2021. However, the vendors listed in this year's Magic Quadrant have, on average, performed better than the market growth rate, with a couple reporting 100% year-over-

year license revenue growth. Also, this set of vendors expects much higher growth rates for their MADP business during the next three years, which may be an indication of further consolidation coming.

In a 2015 Gartner Research Circle survey on enterprise mobile app development, 39% of respondents indicated that their companies had not undertaken mobile app development either internally or via outsourcing. The survey was repeated in 2016, and in just a year this percentage had decreased to 27%, indicating that mobile app development has finally become mainstream (with nearly three out of four organizations now having undertaken some level of mobile app development). What's also important to note (in this survey) is that nearly 90% of these companies are building custom mobile apps, not merely using packaged or out-of-the-box apps (see "Survey Analysis: The Mobile App Development Trends That Will Impact Your Enterprise in 2017").

Overall, the average number of mobile apps that respondents said they have deployed is still small at about eight apps. However, respondents from the past two surveys who indicated that they are using a MADP internally tend to have many more apps already deployed than the average respondent. Additionally, the number of apps in development and planned for the next 12 months were also higher for the MADP users than the average. Although the sample size is small, the survey results corroborate Gartner's empirical and anecdotal evidence that organizations using MADP tend to have a higher volume of mobile apps. As such, application and IT leaders need to take the following actions:

If you don't already use a MADP, evaluate and deploy one as a cornerstone product supporting your mobile development strategy, especially if your organization is starting to develop and deploy mobile apps at high volume (for example, more than six apps per year). A MADP will provide uniformity across app projects and enable a more scalable infrastructure for MBS, including addressing the emergence of chatbots, VPAs and conversational UI channels.

If you already use a MADP (either one listed in this Magic Quadrant or not) and are thinking of switching providers, consider whether it may be better to supplement the missing functionality by adding RMAD tools or MBS offerings. The cost of switching from one MADP to another could be high, depending on the amount of custom integration to proprietary mobile middleware and custom client-side logic and UI work on the platform. Make sure the RMAD and/or MBS tools can easily integrate with your existing MADP.

If you use a MADP that no longer meets your needs or that you feel may not be viable, start evaluating other platforms – not just on current needs but also on your future app requirements 12 to 18 months out, which may include wearable technologies and post-app digital endpoints. You may want to pick a platform that offers similar technologies (such as the use of Apache Cordova) or supports similar skill sets (such as JavaScript development), but don't lock yourself into these existing needs if your app requirements have outgrown them.

If you use a MADP and are happy with it, you still need to assess its capabilities and roadmap features at least every six to 12 months to make sure that it continues to align with your organization's expectations and plans. New significant device and OS releases tend to disrupt the MADP market, because architectures and standards are affected. You will also want to think about supporting artificial intelligence services, immersive technologies (such as augmented reality and virtual reality) and other emerging technologies on the MADP platform.

Acronym Key and Glossary Terms

aPaaS	application platform as a service
IDE	integrated development environment
MBS	mobile back-end services
MADP	mobile app development platform
RMAD	rapid mobile app development
SDK	software development kit
SMB	small or midsize business
VPA	virtual personal assistant

Evidence

Gartner's enterprise mobile application research was conducted via an online survey in August and September 2015, and repeated in October and November 2016, among Gartner Research Circle members — a Gartner-managed panel composed of IT and business leaders. In total, 205 IT leaders who are responsible for and have knowledge of mobile application development activities participated in 2015, and 163 in 2016.

Gartner conducted primary research through product demonstrations and surveys with vendors and customer references supplied by vendors between February and March 2017. Information from Gartner Peer Insights and that obtained through Gartner client inquiries was also used in the evaluation process.

Note 1

Gartner Definitions of the Size of Organizations

SMB — between 10 and 999 employees

Small enterprise — between 1,000 and 4,999 employees

Medium enterprise – between 5,000 and 9,999 employees

Large enterprise – more than 10,000 employees

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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