The Forrester Wave™: Digital Experience Development Platforms, Q2 2018
The Nine Providers That Matter Most And How They Stack Up
by Michael Facemire
June 26, 2018

Why Read This Report
In our 33-criteria evaluation of digital experience development platforms (DXDPs), we identified the nine most important vendors — Amazon Web Services (AWS), IBM, Kony, Microsoft, Oracle, OutSystems, Progress, Red Hat, and SAP — and researched, assessed, and scored them. This report shows how each provider measures up and helps application development and delivery (AD&D) professionals make the right choices.

Key Takeaways
**Kony, Microsoft, And Oracle Lead The Market**
Forrester’s research into this emerging space found that Kony, Microsoft, and Oracle are Leaders. SAP, Progress, OutSystems, and AWS are Strong Performers, while IBM and Red Hat are Contenders.

**AD&D Pros Are Looking For Speed-To-Market, Efficiency, And Integrated Tooling**
The DXDP market is growing because more AD&D professionals see these platforms as a way to address their top challenges. This market growth is in large part due to the fact that AD&D pros increasingly trust DXDP providers to act as strategic partners, advising them on top digital experience development decisions.

**Leaders Differentiate With Developer Experience And Cognitive Functionality**
These platforms enable developers to build a portfolio of digital experiences, but the Leaders excel at supporting developers by allowing them to continue using the tools they prefer and have central cognitive engines to drive better experiences across all channels.
The Forrester Wave™: Digital Experience Development Platforms, Q2 2018
The Nine Providers That Matter Most And How They Stack Up

by Michael Facemire
with Stephen Powers and Sara Sjoblom
June 26, 2018

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Adopt An App+ Strategy
The Forrester New Wave™: Conversational Computing Platforms, Q2 2018
The Future Of Digital Experiences
DXDPs Enable Development Teams To Build Digital Portfolios

Forrester defines a digital experience development platform as:

A software platform that enables organizations to rapidly create an integrated portfolio of digital experiences across a variety of end user channels.

Supported channels include web browsers (both desktop and mobile), mobile apps, chat experiences, platform experiences (e.g., Cortana, Google Assistant, and Siri), connected home devices (e.g., Amazon Echo, Apple HomePod, Google Home, etc.), augmented reality/virtual reality, voice, and embedded web experiences (e.g., Electron). These platforms offer accelerators for creating the individual experiences and tools for efficiently building a full digital portfolio across these channels. A DXDP is often built on top of a public cloud developer platform but is not limited to those platforms as an underlying infrastructure.¹

DXDPs Are The Modern Evolution Of Mobile Development Platforms

DXDPs have evolved from the channel-focused developer platforms of the past, like mobile and web development platforms. Companies are faced with building multiple digital experiences and bringing them together into a consistent digital portfolio. These experiences must all come together to meet a user’s need when and where they need it and make use of all available context to deliver a contextual experience across the user’s ecosystem of devices. This is a tall order.

Buyers once existed only in the office of the CIO or development organizations, but DXDP buyers now also include line-of-business owners and marketing departments. With this in mind, these platforms must offer more than a bag of technology parts. Instead, they must address four key needs:

› **Enabling an integrated portfolio offering.** DXDPs must integrate a wide variety of digital experiences (from desktop sites to voice experiences driven by cognitive engines) across the front and the back end. Often, this means that the technical “session,” once maintained as a cookie on the client web browser, will now be maintained on the back-end platform to enable easy (and still secure) access across front-end devices.

› **Getting developers closer to the write-once, run-everywhere ideal.** Business units want a mobile app one day, a desktop web commerce site the next, a piece of that site exposed in a chat app the day after that, and so on. DXDPs enable developers to efficiently build all of these. This demands a reusable component model that can be consumed across more than one context, bringing developers closer to write-once, run-everywhere.

› **Supporting evolving infrastructure and org patterns.** Forward-thinking companies are separating their front-end and back-end teams. DXDPs must support this evolution and provide the traditional infrastructure support to enable both sides. This includes data and identity management and security, as well as support for emerging API ecosystems that allow front-end teams to interact with data without being held up by back-end development schedules.
Addressing the lust for cognitive services. Artificial intelligence (AI) hype currently far outpaces reality. But firms can start preparing for the value that AI will offer in the coming years. DXDPs must provide developers a baseline set of cognitive services today, enabling them to use machine learning, natural language processing, and real-time analytics to personalize the experiences they build.

Digital Experience Development Platform Evaluation Overview

To assess the state of the digital experience development platform market and see how the vendors stack up against each other, Forrester evaluated the strengths and weaknesses of top DXDP vendors. After examining past research, user need assessments, and vendor and expert interviews, we developed a comprehensive set of evaluation criteria. We evaluated vendors against 33 criteria, which we grouped into three high-level buckets:

- **Current offering.** We evaluated each vendor’s capabilities in four core areas: developer experience, the ability to create an integrated portfolio offering, a central cognitive platform, and the underlying cloud platform.

- **Strategy.** We evaluated each vendor’s strategy in five areas: product vision, execution road map, market approach, planned enhancements, and supporting products and services.

- **Market presence.** The market presence criteria, which determine the size of each vendor’s marker on the Forrester Wave graphic, include the platform installed base and paid customer growth over the last year.

Evaluated Vendors And Inclusion Criteria

Forrester included nine vendors in the assessment: AWS, IBM, Kony, Microsoft, Oracle, OutSystems, Progress, Red Hat, and SAP. Each of these vendors has (see Figure 1):

- **A set of offerings that, together, provide a digital experience development platform.** These development and delivery platforms enable organizations to build digital experiences. They include accelerators for both front-end development and back-end data access. The experiences created must support web, mobile, chat, connected home devices, and the internet of things (IoT).

- **Customer references that have built both customer- and employee-facing solutions.** The platforms must have referenceable B2C customer experiences and employee experiences. For B2C, one of these must be web (with a publicly referenceable URL), one must be mobile (listed in the major app stores), and the third will optimally be one of the other required channels from the above list.

- **Forrester client interest.** The vendors we evaluated are frequently mentioned in Forrester client inquiries, shortlists, consulting projects, and case studies.
## FIGURE 1 Evaluated Vendors: Product Information And Inclusion Criteria

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product</th>
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<td>SAP</td>
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**Vendor inclusion criteria**

**A set of offerings that, together, provide a digital experience development platform.** These development and delivery platforms enable organizations to build digital experiences. They include accelerators for both front-end development and back-end data access. The experiences created must support web, mobile, chat, connected home devices, and the internet of things (IoT).

**Customer references that have built both customer- and employee-facing solutions.** The platforms must have referenceable B2C customer experiences and employee experiences. For B2C, one of these must be web (with a publicly referenceable URL), one must be mobile (listed in the major app stores), and the third will optimally be one of the other required channels from the above list.

**Forrester client interest.** The vendors we evaluated are frequently mentioned in Forrester client inquiries, shortlists, consulting projects, and case studies.

## Vendor Profiles

This evaluation of the digital experience development platforms market is intended to be a starting point only. We encourage clients to view detailed product evaluations and adapt criteria weightings to fit their individual needs through the Forrester Wave Excel-based vendor comparison tool (see Figure 2 and see Figure 3). Click the link at the beginning of this report on Forrester.com to download the tool.
FIGURE 2 Forrester Wave™: Digital Experience Development Platforms, Q2 2018

THE FORRESTER WAVE™
Digital Experience Development Platforms
Q2 2018

Challengers

Contenders

Strong Performers

Leaders

Stronger current offering

Weaker current offering

Weaker strategy

Stronger strategy

Market presence*

*A gray marker indicates incomplete vendor participation.
FIGURE 3 Forrester Wave™: Digital Experience Development Platforms Scorecard, Q2 2018

<table>
<thead>
<tr>
<th>Current offering</th>
<th>Forrester's weighting</th>
<th>Amazon Web Services*</th>
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Developer experience

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Strategy

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Road map

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Planned enhancements

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Market presence

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</table>

Customer growth

All scores are based on a scale of 0 (weak) to 5 (strong).

*Amazon Web Services declined to participate in or provide information for our research. Scores are based on Forrester estimates.

Leaders

› **Kony leads the transition from channel- to portfolio-focused.** Kony continues to transform its platform from its roots as a pure-play mobile development platform. Visualizer, its design-driven, cross-platform development tool, differentiates by accelerating early stages of professional developer life cycles and extending digital experience creation to nonprofessional developers. It has embraced the web with a hosted component library and by enabling Visualizer to consume third-party web components. Kony has done well extending a mobile-led offering to a multichannel
one, but its strength still lies in the core web and mobile offerings. While developers can create fully functional chat experiences, Kony isn’t as broad in other channels as it is in the core mobile space. Reference customers value Kony’s continued push into future-looking channels, as one stated that “Kony is the platform that helps us drive our own innovation.”

Kony, a pure-play platform and services company, understands the importance and urgency of moving to a platform-driven approach to building digital experiences; this drives its strong vision and road map. Its strategic partnership with Diebold affirms its commitment to the financial services sector. It has delivered a number of configurable yet out-of-the-box functional mobile solutions in this space. It provides a set of front-end accelerators for common industry tooling, as well as Visualizer for rapid application development, while tying in the back-end fabric platform for those looking for a modern API ecosystem acceleration platform.

Kony is a good fit for companies that are looking for a broad platform solution on both the front and back end.

Microsoft leads with tools, cloud, and cognitive solutions. Microsoft builds on its history of developer solutions with its DXDP offering. Developers can use Visual Studio Code (VS Code), a free text editor, to build all types of digital experiences. Xamarin, a cross-platform toolkit for mobile, accelerates building mobile apps for all major platforms. The Bot Framework enables developers to build bots across a wide variety of chat platforms. Microsoft has a strong cognitive offering but still has work to do in making these services easily accessible for different types of developers building a cross-channel portfolio. Reference customers told us that accessing cognitive services from individual channels is easy, but they are challenged in bringing together insights from multiple channels to a centralized engine and then having that engine deliver insights for all portfolio channels and the initial channel.

Microsoft’s vision for the future of building digital experiences leads the market, as it takes an “any developer, any language, any device” approach. It continues to struggle when detailing its planned short-term product enhancements, but its regular updates to VS Code and App Center are a positive sign.

Microsoft is a great fit for companies that are invested in the Visual Studio suite of tools and Microsoft shops in general. It is also a viable option for companies that are adopting a cloud-first development model for digital experiences, regardless of whether the primary cloud is Azure, as its front-end tooling works with many cloud providers.

Oracle is optimized for the cloud but lacks parity in developer experience. Oracle has seen great adoption of its Mobile Cloud Enterprise platform since building it from the ground up in 2014. Oracle has added to this cloud-first platform with front-end tooling around web, chat, and low-code options. A unified programming model has allowed Oracle to build solid tooling (Visual Builder Cloud Service) to expose these components to a larger audience without going down the
proprietary path where other vendors have stumbled in the past. Oracle has introduced new Oracle Code events to kick-start its community but still falls short compared to the other solutions in this evaluation in this area.

Oracle’s strategy is to build tools optimized for the Oracle cloud first and then to maintain functional parity when extending popular tools in the industry. This isn’t necessarily a bad thing for companies that have normalized on building applications on the Oracle cloud, but it is a decision factor. One reference customer even stated that “if you leave it to developers, they will all choose their own thing”; using the Oracle DXDP provided the governance that the customer needed to address this sprawl.

Oracle is a good fit for companies invested in any number of the existing Oracle clouds as well as those building net-new applications on any of the emerging technology parts of their digital portfolio, such as chat, voice, and even augmented reality.

**Strong Performers**

› **SAP is transitioning to a design-led platform but still focuses on SAP applications.** The Experience Maker platform is an example of SAP’s new design-first approach to building new software that doesn’t disrupt existing business processes. This same approach led to its acquisition of Recast.ai, which will pay dividends over time but hasn’t been fully integrated into the overall platform. SAP has tools to build web experiences (SAP Fiori) and native mobile experiences for iOS, but the functional equivalent for Android is still a road map item. SAP has built many of its own tools but hasn’t invested equally in extending popular tools in the industry, such as VS Code.

SAP is particularly strong in strategy as it rallies around design thinking and focuses on the importance of building great experiences without the traditional expense of doing so. A potential weakness is SAP’s history of building for SAP applications. However, SAP’s forward-looking plans signal a divergence from this trend. One reference customer stated, “I’ve never seen SAP act in the way that they are now. The design area of SAP has achieved a lot.”

SAP is a good fit for companies that are building digital experiences against existing SAP applications and those going all in on building for the web and web-driven ecosystem experiences.

› **Progress has built a cognitive-led platform but needs to work on tooling integration.** Progress has built a DXDP through acquisitions (DataRPM, Kinvey, Telerik) and its existing Kendo UI web tooling and NativeScript cross-platform tooling. Progress realizes the importance of insight-driven solutions, as all of its tooling now makes heavy use of a cognitive services core. All of these acquisitions have given Progress a number of developer tools that are beginning to come together under the cognitive applications umbrella to enable companies to build multichannel experiences, but the tools still feel a bit separate. Progress excels in its development tooling but still has work to do when building and integrating with design tooling.
All Progress products now point to a central theme of meeting developer needs and building around a cognitive core. Yet, the tooling separation that comes with acquisition shows up in its road map, as there is still work to do to bring these tools into seamless alignment. Progress’ focus on high-quality developer experience and allowing developers to use its solution while not having to abandon their existing tools has resulted in strong support from the developer community. Customer references we spoke with had been using the tools for many years and had no desire to look elsewhere.

Progress continues to be a solid option for software shops that build software for others (such as ISVs), as this is what has built its business to this point. Firms with large development teams and those that need a platform to bring disparate development types together should also investigate Progress.

› **OutSystems excels in the community but needs more integration with existing tools.** At first glance, OutSystems doesn’t look like the other vendors in this evaluation, as it takes a low-code, model-driven approach. It excels on citizen development. Developers can do full front-to-back debugging/development without showing breakpoints on lines of code. Its model-driven development paradigm extends throughout the software development life cycle, enabling a larger set of developers to use the entire platform. It also excels with its component-driven approach that allows developers to build components once and use them in multiple channels with propagating updates. OutSystems’ biggest challenge is convincing firms to change how they build software. Others in this evaluation tackle low-code, but OutSystems starts from that core. It also struggles with some newer channels, such as chatbots, relative to others in this evaluation.

As OutSystems’ strategy changes from one around low-code tooling to one that positions it to sit in the center of all digital experience development, the company will be forced to do more integration with existing enterprise development tool chains. It has early overtures toward integrating with existing SDLCs (with tools like Jenkins, Jira, and Selenium), but the emphasis is still on the OutSystems model. OutSystems has done well fostering its community — we didn’t encounter a more passionate set of users anywhere else in the evaluation. This is an outcome of building tools for an underserved developer population. One reference customer stated, “The only time we don’t use OutSystems is when regulatory concerns of our customers tell us that we must use another software platform.”

OutSystems is a good fit for organizations that are building (or are planning to build) net-new applications, need to expand the base of people who can build these applications, and want to use a DXDP to provide governance for how this diverse set of developers will build.

› **AWS has more parts than anyone else, but tooling remains a gap.** AWS is the mega superstore for everything a development team needs to build digital experiences. This has led to its use in building proof-of-concept experiences, fostering a vibrant, growing community. The services dashboard presents 19 categories of services, each containing up to 12 individual offerings. This enables excellent support for building individual parts of the overall experience portfolio. A great
example is AWS AppSync, which leads the data synchronization criterion in the evaluation. AWS’s weakness is bringing all of these together under a holistic set of front-end experience tooling. A developer can build most anything with its cognitive services, but putting them all together to underpin a set of digital front ends that all derive insights from each other requires quite a bit of development work.

From a strategic standpoint, AWS knows its market: developers who are willing to piece together the unique set of services required to deliver a solution. It delivers services to strongly hit that market segment. But its major weakness is its lack of a forward-looking road map for enabling developers to build a digital portfolio, as opposed to a set of discrete individual digital experiences.

AWS is the best fit for organizations that want every service under the sun available for building digital experiences and that have strong governance for how they build these experiences, how they use tools, and how to integrate them into a cohesive experience.

AWS declined to participate in or provide information for our research. Scores are based on Forrester estimates. We based our evaluation on publicly available information.

**Contenders**

› **IBM’s cognitive strength differentiates, but it struggles to excite developers.** IBM’s platform takes complex development processes and simplifies them to create an initial project. This results in an initial mobile app, web experience, or chatbot that developers can extend. It allows for complex projects but doesn’t overload the developer with complexity in the beginning. In addition to cognitive strength, IBM strongly supports international experiences, enabling developers to build for multiple languages across all experiences. Its DXDP enables front ends to use all of this data without sacrificing enterprise-grade security, scalability, or governance. IBM is weaker on extending existing tooling that both designers and developers use when building experiences outside of this platform, and it hasn’t built tooling around progressive web apps on par with others in this evaluation.

IBM’s strategy revolves around two areas: simplifying complex business processes and building insight-driven experiences on its “AI-ready” cloud. IBM’s global services organization is a strength in the early days of building digital experiences around cognitive engines. IBM’s vision centers on its cognitive strengths but still focuses on targeting existing user channels, which will hold it back in the near term. Reference customers spoke of challenges in getting timely answers to platform questions and didn’t feel like they had any level of influence over upcoming platform road map items. IBM has decided to be open and enable third-party tools, but that openness hasn’t led to the community excitement that we’ve seen around other platforms, possibly due to IBM’s lack of presence in building and extending popular third-party tooling.

IBM’s DXDP offering is a good fit for those that are invested in the IBM platform and want to enable front ends for complex back-end business processes.
Red Hat has an open, flexible back-end platform but relies on third-party tooling. Red Hat has used its FeedHenry acquisition to build a strong back-end-as-a-service offering. It then rolled this into its larger OpenShift offering, giving developers incredible flexibility for back-end deployments. It has invested heavily in data synchronization, allowing for an event-driven model for developers to handle changes to data models. Red Hat offers services for mobile developers, but not tooling or front-end accelerators. Red Hat provides a forms builder for building some simple form-based digital experiences but doesn’t provide low-code tooling on par with the other vendors in this evaluation. Red Hat helps customers address the oft-unseen, painful back end of development. One reference customer commented, “There’s no magic with mobile development. There are nuances to security and identity that must be specifically developed, and they’re focusing on these.”

Over the last 18 months, Red Hat has invested in ensuring that its DXDP can be run anywhere — public cloud, private cloud, single- or multitenant. But front-end investment has not followed suit; it enables developers to bring their own tools and relies on these tools to work well with the extensive back-end APIs that it enables for these tools to use. This is great for shops that have acquired all of these front-end tools already but will eliminate it as an option for those looking for a full solution for building both the front and back ends of their digital experiences.

Red Hat is the best fit for development shops that want to own all development and all tooling to build front-end experiences and need a flexible back-end deployment model.
Supplemental Material

Online Resource

The online version of Figure 2 is an Excel-based vendor comparison tool that provides detailed product evaluations and customizable rankings. Click the link at the beginning of this report on Forrester.com to download the tool.

Data Sources Used In This Forrester Wave

Forrester used a combination of four data sources to assess the strengths and weaknesses of each solution. We evaluated the vendors participating in this Forrester Wave, in part, using materials that they provided to us by March 22, 2018.
The Nine Providers That Matter Most And How They Stack Up

- **Hands-on lab evaluations.** Vendors spent one day with a team of analysts who performed a hands-on evaluation of the product using a scenario-based testing methodology. We evaluated each product using the same scenario(s), creating a level playing field by evaluating every product on the same criteria.

- **Vendor surveys.** Forrester surveyed vendors on their capabilities as they relate to the evaluation criteria. Once we analyzed the completed vendor surveys, we conducted vendor calls where necessary to gather details of vendor qualifications.

- **Product demos.** We asked vendors to conduct demonstrations of their products' functionality. We used findings from these product demos to validate details of each vendor's product capabilities.

- **Customer reference calls.** To validate product and vendor qualifications, Forrester also conducted reference calls with at least three of each vendor's current customers.

**The Forrester Wave Methodology**

We conduct primary research to develop a list of vendors that meet our criteria for evaluation in this market. From that initial pool of vendors, we narrow our final list. We choose these vendors based on: 1) product fit; 2) customer success; and 3) Forrester client demand. We eliminate vendors that have limited customer references and products that don’t fit the scope of our evaluation. Vendors marked as incomplete participants met our defined inclusion criteria but declined to participate or contributed only partially to the evaluation.

After examining past research, user need assessments, and vendor and expert interviews, we develop the initial evaluation criteria. To evaluate the vendors and their products against our set of criteria, we gather details of product qualifications through a combination of lab evaluations, questionnaires, demos, and/or discussions with client references. We send evaluations to the vendors for their review, and we adjust the evaluations to provide the most accurate view of vendor offerings and strategies.

We set default weightings to reflect our analysis of the needs of large user companies — and/or other scenarios as outlined in the Forrester Wave evaluation — and then score the vendors based on a clearly defined scale. We intend these default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs through the Excel-based tool. The final scores generate the graphical depiction of the market based on current offering, strategy, and market presence. Forrester intends to update vendor evaluations regularly as product capabilities and vendor strategies evolve. For more information on the methodology that every Forrester Wave follows, please visit The Forrester Wave™ Methodology Guide on our website.

**Integrity Policy**

We conduct all our research, including Forrester Wave evaluations, in accordance with the Integrity Policy posted on our website.
Endnotes

1 See the Forrester report “The Forrester Wave™: Full-Stack Public Cloud Development Platforms, North America, Q2 2018.”

2 SDLCs: software development life cycles.
We work with business and technology leaders to develop customer-obsessed strategies that drive growth.

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