

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

by Clay Richardson and John R. Rymer

January 15, 2016

Why Read This Report

Business leaders demand more solutions to win, serve, and retain customers; adopting a low-code application platform is often the response. The market for these platforms is growing fast, but selecting a platform that actually delivers without creating a 4GL-like orphan in the software portfolio isn't easy. Forty-two different suppliers dot the vendor landscape, each with distinct strengths, openness, and prospects for the future. Technology management and enterprise architecture (EA) professionals should read this report to understand the segments in the emerging low-code platform market and reduce the risk of making a selection they later regret.

Key Takeaways

Low-Code Platforms Hold High Potential As Well As Risks

Low-code platforms bring promise but also risks. The promise: impressive results in speeding application delivery, and high vendor growth rates. The risks: dozens of small vendors selling outside of tech management, and customers with little consensus about how low-code platforms fit into their broader portfolios.

EA Pros Will Find Five Low-Code Segments

Low-code platform vendors occupy five segments: general-purpose, process app, database app, request-handling, and mobile app platforms. Product features and primary use cases, as well as the scope of vendor ambitions, define these platforms.

Vendor Consolidation Is Inevitable

Low-code platforms are proving their value now. In the next phase of this market, the most successful low-code platform vendors will either be acquired by large enterprise vendors or grow large enough to push out smaller competitors. In addition, the mobile app platform category will be subsumed in the general-purpose platforms category.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

by [Clay Richardson](#) and [John R. Rymer](#)

with [Alex Cullen](#), [John M. Wargo](#), [Christopher Mines](#), Shaun McGovern, and Diane Lynch

January 15, 2016

Table Of Contents

- 2 Low-Code Platforms: A Development Approach Plus A Business Model
- 5 Low-Code Platforms Allow App Delivery At Customer Speed
- 6 The Five Low-Code Application Platform Segments
- 13 The Roots And Directions Of Low-Code Platforms

- Recommendations
- 16 Define A Clear Role In Your Architecture For Low-Code Platforms

- 18 Supplemental Material

Notes & Resources

We based this report on ongoing research into low-code application platforms, including briefings with 42 vendors, a vendor survey, and 33 customer conversations via client inquiries, interviews, and other contacts.

Related Research Documents

- [Five Customer-Facing Scenarios Shape “Low-Code” Platform Choices](#)
- [Low-Code Platforms Deliver Customer-Facing Apps Fast, But Will They Scale Up?](#)
- [New Development Platforms Emerge For Customer-Facing Applications](#)

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Low-Code Platforms: A Development Approach Plus A Business Model

Low-code platforms have become an important way for technology management and enterprise architecture pros to quickly deliver software to win, serve, and retain customers and to keep that software evolving.¹ Low-code application platforms are software environments that speed development and delivery of new apps by changing two dimensions of traditional platforms, such as Java and .NET:

- › **How business apps are developed and delivered.** Low-code platforms rely on declarative development tools, including domain languages, WYSIWYG user experience (UX) definition, flow diagramming, and visual data modeling, instead of programming languages. Provided the tools suit the target applications, application development and delivery (AD&D) pros will be able to develop custom apps many times faster with low-code platforms than they can by using programming languages (see Figure 1).
- › **How development platforms are acquired and consumed.** Vendors offer licensing models that reflect business value delivered rather than business value promised. Low-code platforms are accessible via free or low-cost self-service offerings rather than the big upfront financial commitments typical of enterprise software. Free and freemium models are essential, although not all vendors yet provide them (see Figure 2). Most low-code platforms are available as public cloud services. The business model requires minimal, if any, training for architects and developers to get started and anticipates that revenue will flow from fees for named users, deployed apps, and/or capacity used as developers create business value with the platform.² The model allows architects, developers, and their business partners to quickly test a business idea in a working app, gain feedback, and iterate toward a finished product.

FIGURE 1 Comparing Low-Code Results With Coding Results: Four Cases

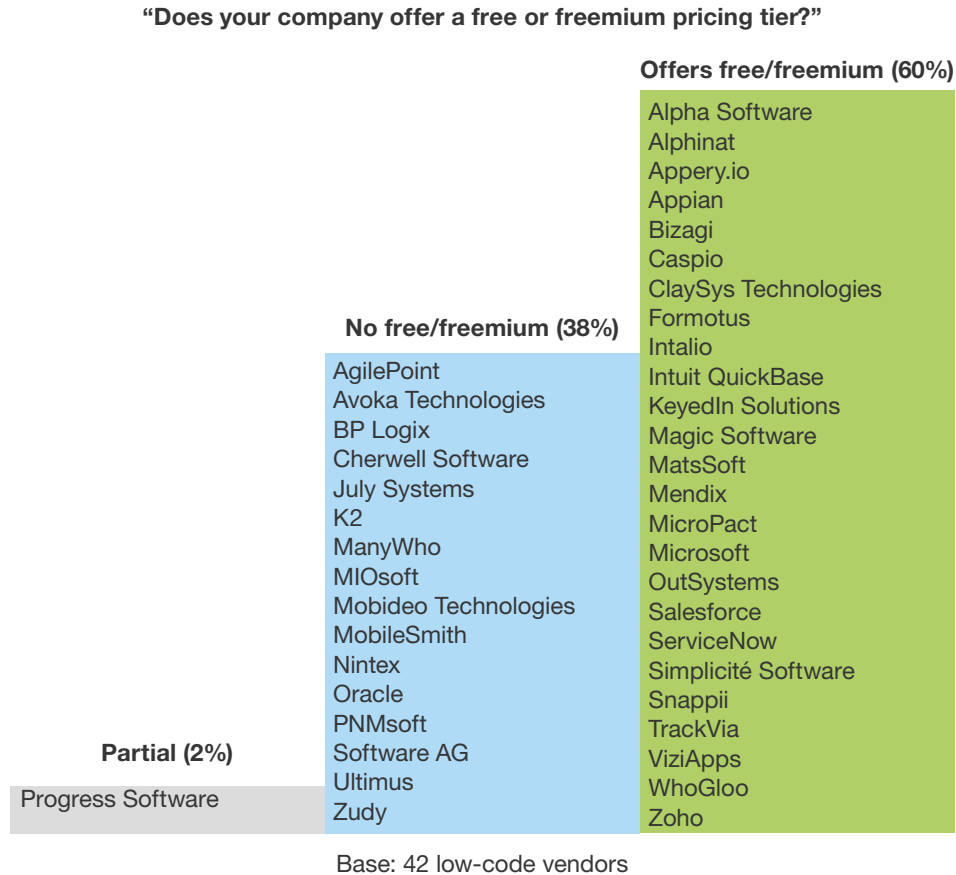
Enterprise	Result	Code	Low-code
US government (Affordable Care Act)	Document compliance module	100 person-months	5 person-months
British insurance provider	Agent portal	Unknown*	10 days to minimum viable product (MVP)
Call center operator	Customer-specific app	4 months	3 weeks
Spanish insurance provider	Web channel and administration system	2.7 years (estimated)	13 weeks

*The project was on the technology management backlog list for years with little hope of ever starting

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

FIGURE 2 The Majority Of Low-Code Vendors Offer Free Or Freemium Models



Source: Forrester’s Q4 2015 Global Low-Code Platforms Vendor Landscape Online Survey

Enterprise Architecture Challenge: Finding Platforms With Long-Term Fit And Scale

The 42 vendors we track in the low-code platforms market will generate a minimum of \$1.7 billion in revenue during 2015, and many are growing their revenues in excess of 50% a year (see Figure 3).³ The trouble is that most of the vendors are small, and customers can adopt a low-code platform for a below-the-budget-radar cost without consideration of corporate architecture strategies and standards. The risk is high that today’s product selection will be tomorrow’s regret. The best low-code platforms are more than just tools to solve an immediate pain point; they are platforms that can produce business value over a period of many years. With their discipline, technical knowledge, and understanding of the platform portfolio, enterprise architecture pros can tip the scales toward strategic product selections. Doing so requires understanding the types of products available and dispelling three myths about this category:

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

- › **Myth No. 1: Low-code platforms are for citizen developers, not pro developers.** Some vendors — for example, Caspio, Intuit QuickBase, ManyWho, Snappii, TrackVia, and Zoho — seek unique market positions by targeting business experts capable of delivering apps relying on spreadsheets, desktop databases, and similar tools. We rarely found these citizen developers in our research.⁴ More typically, developers used low-code platforms to create tools for citizen developers to deliver apps.
- › **Myth No. 2: Low-code platforms eliminate the need for any programming.** Generally, developers can use low-code platforms to create self-contained, relatively simple applications without having to write any code.⁵ But typical business applications require some programming and scripting for: 1) integrating with other applications and databases; 2) writing custom algorithms; and 3) accommodating technologies not incorporated in the low-code platform (e.g., native mobile application development). For these use cases, teams will need to use programming extensions within the low-code environment or rely on external programming languages and scripts.
- › **Myth No. 3: Low-code platforms mean small scale.** Architects and developers balk at business requests to evaluate low-code platforms because they believe these products cannot support large and growing user bases and application portfolios. The evidence for many low-code platforms says these products can and do accommodate enterprise needs for high scale.⁶

FIGURE 3 Estimated Revenues In The Low-Code Platforms Market

Group	Vendors	Revenue
>\$200	Salesforce*	\$600
\$100 to \$200	Appian and Magic Software	\$300
\$50 to \$100	Bizagi, Intuit QuickBase, K2, Nintex, OutSystems, ServiceNow,* and Zoho*	\$420
\$25 to \$50	Cherwell Software, Mendix, MicroPact, PNMsoft, and Progress Software*	\$245
\$10 to \$25	AgilePoint, Avoka Technologies, BP Logix, MIOsoft, Software AG, and Ultimus	\$90
\$2 to \$10	Alpha Software, Alphinat, Appery.io, Caspio, ClaySys Technologies, KeyedIn Solutions, ManyWho, MatsSoft, Mobideo Technologies, MobileSmith, Snappii, and Zudy	\$65
<\$2	Formotus, July Systems, Simplicité Software, WhoGloo, and ViziApps	\$8
Total		\$1,728

Note: All figures are in US\$ millions.

*Revenues attributable to low-code platform sales

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Low-Code Platforms Allow App Delivery At Customer Speed

Survival in the age of the customer demands that companies keep up with the unrelenting pace of disruptive innovation and changing customer behaviors. Quickly building and launching new digital products and services that deliver convenient, simple, and engaging customer experiences is a key lever. Enterprises turn to a myriad of strategies to address this need, ranging from outsourcing application development to hackathons for building new apps to buying prebuilt, off-the-shelf solutions. However, each of these choices throws up its own barriers to speed, flexibility, and customer experience. Low-code platforms are a new, more attractive choice because they help business and tech management:

Sprint used Appian's development platform to prototype a new service called Direct 2 You, offering in-home delivery for customers buying or upgrading mobile devices.

- › **Visually configure new apps instead of hand-coding them.** Even with the introduction of Agile and Lean development approaches, coding new applications continues to be a time-consuming and labor-intensive process. And changing custom-built apps with tens of thousands of lines of code continues to be cumbersome and slow. Forrester interviewed dozens of companies to gain insights on how they're using low-code platforms to speed development. The vast majority of these companies reported that their low-code platforms helped them accelerate development by five to 10 times.

So what helped them achieve these results? Companies shared that visually configuring new applications using these platforms has helped speed up development and allowed the businesses to provide real-time feedback on the resulting applications' functionality.

- › **Uncover true requirements and real value.** The late Steve Jobs famously said, "People don't know what they want until you show it to them."⁷ Companies are now living this reality as they try to build new products for customers that have changing tastes and an endless stream of product choices. Low-code platforms allow architects and developers to quickly build minimum viable products to validate ideas and customer requirements before wasting precious resources on features and functionality that customers may not value.
- › **Live-trial business ideas quickly and at low or no cost.** New product and engagement ideas are flowing from all parts of the enterprise. Who knows? That idea from the mailroom clerk might end up shaping your company's future product strategy. Low-code platforms allow companies to quickly translate fast-moving ideas into low-cost working prototypes that they can deploy and test in the market.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

For example, Sprint used Appian's development platform to rapidly prototype a new service called Direct 2 You, which aimed to offer in-home delivery for customers buying or upgrading their mobile devices.⁸ Using this low-fidelity prototype, Sprint was able to prove the value of the service and move forward to building the full offering.

- › **Scale from working prototypes to production apps in minutes.** Business leaders want to quickly translate successful prototypes into production-grade applications that companies can deploy across a large number of employees and customers. Unfortunately, many custom-built prototypes quickly become throwaway apps that companies need to completely rebuild as the volume and diversity of users increase. Low-code platforms provide enterprise architects and developers with tools for one-click deployment of prototypes and for scaling and performance-tuning applications to support large numbers of users.
- › **Use development talent the enterprise can find and afford.** A drought of development talent often leaves the business' insatiable thirst for new web and mobile apps unsatisfied. Many business leaders are immediately turned off by lengthy backlogs for delivering new apps. These business leaders are demanding more self-service development platforms that allow them to hire their own development talent — developers who may lack formal programming background and experience but bring just enough technical skill to visually configure new business applications using low-code development platforms.

The Five Low-Code Application Platform Segments

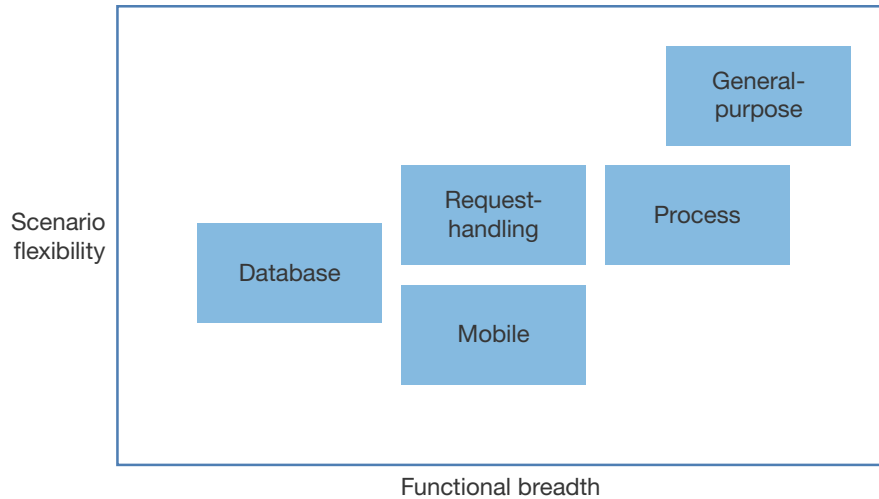
The landscape of low-code platforms is broad and fragmented. We identify five major segments in the low-code platforms market: general-purpose platforms, process app platforms, database app platforms, request-handling platforms, and mobile app platforms (see Figure 4).

All low-code platforms address development of at least a user experience, a data model and data-management logic, and business logic. Our segment definitions recognize the additional functions of the products as well as the breadth of application scenarios we've observed in our customer research.

There are specialized products that use a low-code approach to deliver business-function-specific solutions, including electronic forms, business intelligence and analytics, business rules management, predictive analytics, collaboration sites, and other specialties. These are best evaluated as vertical solutions rather than as platforms for development and deployment. EA pros should head off redundancies between specialized platforms and low-code platforms under consideration.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

FIGURE 4 The Five Low-Code Platform Segments**General-Purpose Low-Code Platforms**

General-purpose low-code platforms target a wide range of web and mobile applications with extensive collections of declarative tools that address application creation, integration, deployment, life-cycle management, and distribution (through marketplaces). Ten vendors occupy this segment: Intalio, Mendix, MIOsoft, OutSystems, Progress Software, Salesforce, Simplicité Software, ViziApps, WhoGloo, and Zudy. Today, Microsoft nominally occupies this category with its Azure App Service and upcoming PowerApps service with big potential influence.⁹

Vendors of general-purpose low-code platforms:

- › **Seek to displace Java and/or .NET and other established coding platforms.** Vendors of general-purpose low-code platforms hope to be their customers' primary platform for developing and delivering all their apps. Most of the products in this segment have the broad functions of application life-cycle management, and portfolio management plays a central role in an application-delivery strategy. We've seen strategic applications ranging from hospital administration to financial services compliance to many insurance sales, agency, and administration applications built with general-purpose low-code platforms.
- › **Sell to both central and line-of-business application-delivery groups.** Vendors in the general-purpose segment target either CIOs and CTOs in central technology management organizations or line-of-business leaders and their technologists. These vendors also prefer large enterprises, which are actually in the best position to make full use of these products.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Line-of-business targeting is a way for vendors to gain adoption even if rejected by central tech management, and these vendors can, in fact, help business leaders obtain desperately needed applications that central tech management can't deliver. The downside, however, is the nightmare of an isolated oddball platform and its applications adding cost and complexity to the enterprise portfolio. The better scenario is adoption of the platform as a strategic platform capable of adding value throughout the enterprise.

- › **Offer comprehensive declarative tooling with full application life-cycle support.** General-purpose low-code platforms feature rich tool sets that address user experience (web page, site, mobile Web, offline mobile, and responsive UI); SQL database (schema, data management logic, and transactions); process (long-running processes, workflow, and service orchestration); integration (SOAP and REST services and adapters); access control (identity and permissions management); application life cycle (user stories, team collaboration, component catalogs, and sandbox-to-production phases); application and portfolio management (version control, change management, and administrative controls); and distribution through marketplaces and/or community sites.

The most comprehensive of the products in this segment cover all of these functions. Don't expect these vendors to provide the deepest features in these categories, however. Process is the best example; general-purpose low-code platforms provide good workflow but shallow business process management (BPM) features.

- › **Address database and workflow app needs.** Business web applications are the bread and butter of general-purpose low-code platforms, including public-facing portals that provide access to many apps. Most of these vendors started with database and transaction functions and then added workflow and forms as they progressed. More recently, they've all tackled mobile web applications. The next step is native mobile applications and expansion into NoSQL analytics and sensor-based applications.

Low-Code Platforms For Process Apps

Low-code platforms for process apps target applications that require coordination and collaboration across different employee and customer roles. These platforms provide a rich mix of process automation, case management, and social interaction features that can be configured to manage structured and unstructured business processes. Low-code platforms for process apps draw their strength from visual process and case-modeling tools that allow teams to visually configure process flow logic and ad hoc task management across a range of internal and external roles, applications, and database systems. These vendors also provide built-in metrics, analytics, and audit trails for monitoring process and case performance. Thirteen vendors make up the segment of low-code platforms for process apps: AgilePoint, Appian, Bizagi, BP Logix, K2, ManyWho, MatsSoft, MicroPact, Mobideo Technologies, Nintex, PNMsoft, Software AG, and Ultimus.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Vendors of low-code platforms for process apps:

- › **Seek to orchestrate processes that cut across multiple silos and systems.** Vendors of low-code platforms for process apps seek to replace heavy, complicated BPM suites that require significant upfront financial and training investments. These vendors provide alternative platforms for orchestrating business processes and interactions across different departments, and customers often use them to easily extend existing systems of record, such as Oracle and SAP. Many of the vendors operating in this segment also provide out-of-the-box adaptors that customers can configure to integrate with a wide range of databases and applications.

Some vendors of low-code platforms for process apps have optimized their solutions for the Microsoft cloud ecosystem. This includes K2, Nintex, and PNMsoft. While these vendors have optimized their platforms for different Microsoft offerings such as Azure, Office 365, and SharePoint, they also provide good interoperability with non-Microsoft and Java components. Customers tend to deploy other vendors, such as Appian, Bizagi, MicroPact, and Software AG, in mixed Java and .NET environments.

- › **Sell primarily to line-of-business and technology management buyers.** Companies usually adopt low-code platforms for process apps to relieve a specific process pain, such as automating customer onboarding or order fulfillment. Because business leaders own these process pain points, vendors in this segment tend to sell into specific lines of business. Savvy vendors employ a land-and-expand strategy that focuses on quickly solving the initial process pain point and then expanding usage to focus on broader process problems and challenges across the entire organization. As these vendors work to expand within a given organization, technology management leaders — including enterprise architects, data architects, and development leads — play a greater role in evaluating the vendor's fit to enterprise standards and requirements.

Vendors in the segment of low-code platforms for process apps price their products based on some combination of number of named users and number of deployed apps. This means these vendors are motivated to expand their footprints across organizations and realize that they need to build strong partnerships with technology management leaders to be successful.

- › **Offer visual modeling for process, forms, and tasks.** The low-code platforms for process apps feature tools that address process design (workflow modeling, business rules, case management, and work routing); process analysis (audit trails, process metrics, and process analytics); data management (virtual data modeling, process variables, and data synchronization); integration (visually configurable SOAP and REST services and connectors and adapters); forms design (electronic forms, e-signatures, validation rules, and responsive forms); work portal (task lists, native mobile app, and alerts and notifications); and some application life-cycle and portfolio management services. Appian is one of the few vendors in this segment to offer strong write-once-run-everywhere functionality that supports customizing applications for mobile devices.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Low-code platforms for process apps lack strong UX design and integration tools. Customers with extensive requirements for building customized, pixel-perfect user experiences often need to build their own custom user interfaces (UIs) using custom development or other third-party UX tools.

- › **Address complex process and collaboration scenarios.** Low-code platforms for process apps are best suited to situations that require collaboration among several roles within an overall business process (e.g., customer onboarding). Although customers can use these platforms for simple workflows, they deliver the greatest value for more-sophisticated processes and workflows that can benefit from automated decisions, deadline notifications, case management, and ad hoc work management. When evaluating vendors in this segment, look closely at how many steps are involved in the target process, how many people are involved, and how much visibility the stakeholders need to monitor how a process is progressing.

Low-Code Platforms For Database Apps

Low-code platforms for database apps target applications that gather, query, and present data stored in relational databases, including apps that rely on electronic forms. The declarative tools these platforms provide address user interface and application logic creation, schema and database creation, deployment, binding, and some life-cycle management functions. Nine vendors occupy this segment: Alpha Software, Alphinat, Avoka Technologies, Caspio, ClaySys Technologies, Intuit Quickbase, Formotus, Magic Software, and Oracle.

Vendors of low-code platforms for database apps:

- › **Seek to own the database and forms apps in the portfolio.** Vendors of low-code platforms for database apps seek to peel away tracking, forms, and data-gathering apps from established coding platforms like Adobe FormsCentral and ASP.NET. Although the low-code platforms in this segment have data definition and database creation features, most are used to create new application UX and logic that accesses existing databases, and all have data-binding features to do so.

Vendors in this segment all address apps with database as opposed to process foundations. Still, Alphinat and Avoka Technologies, and increasingly, Alpha Software and ClaySys Technologies, focus on forms-based applications, handling process using database logic. Avoka, in particular, provides deep forms-processing features; Alpha's mobile forms technology is strong; and Alphinat is focused on omnichannel applications.

- › **Sell primarily to line-of-business and/or small-business buyers.** Vendors of low-code platforms for database apps usually circumvent central technology management to reach the leaders of underserved business units. These business units may be in large enterprises, such as banks, governmental agencies, and call-center operators, that are big consumers of electronic forms technology. But they often are small and medium-size businesses hungry for custom information tracking, reporting, and business analysis applications but lacking the developers to build them using conventional coding.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Of the five low-code platform segments, the products focused on database apps have the greatest potential to empower nondevelopers, given appropriate tooling. Both Caspio and Intuit QuickBase have among their customers many business experts who are not pro developers but who deliver applications.

- › **Offer WYSIWYG UI and data tooling with basic application life-cycle support.** The low-code platforms for database apps feature tools that address user experience (web page, site, mobile web, offline mobile, and often responsive UX); SQL database (schema, data management logic, and transactions); integration (SOAP and REST services and adapters); access control (identity and permissions management); and some application life-cycle and portfolio management services. Only Intuit QuickBase offers application distribution through a marketplace.

Low-code platforms for database apps lack workflow/process tools. Customers can implement page flows using the UX tools these products provide and must build workflows using triggers and other database logic.

Of the five low-code platform segments, the products focused on database apps have the greatest potential to empower nondevelopers, given appropriate tooling.

- › **Address database and forms apps.** The segment name says it all: Low-code platforms for database apps are best used for collecting, managing, and presenting data stored in relational databases. These vendors are unlikely to add formal workflow and process tooling; rather, this segment's future lies in stronger and stronger mobile and omnichannel features that transform traditional electronic forms applications into modern interactive mobile apps.

Low-Code Platforms For Request-Handling Apps

Low-code platforms for request-handling apps target applications that accept, process, and track requests. These platforms come from the world of IT service management (ITSM) solutions and present to developers the core application pattern of ITSM — request handling — as a framework customizable with declarative tools. The declarative tools these platforms provide address application creation, workflow, deployment, “service” life-cycle management, and distribution (through marketplaces). Cherwell Software, KeyedIn Solutions, and ServiceNow offer low-code platforms for request handling.

Vendors of low-code platforms for request-handling apps:

- › **Seek to own request-management apps run by major departments.** Many departments buy specialized software packages to manage their core data and then manage requests using spreadsheets, desktop databases, collaboration (e.g., Microsoft SharePoint), and workflow tools.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Request-handling low-code platforms provide a platform with a core framework for request management and tools to customize for the needs of individual departments. Typically, ITSM is the beachhead, followed by facilities management and administration, HR, and finance.

- › **Look to Salesforce as their market model.** These vendors hope to duplicate Salesforce's feat of turning an application-extension platform into a big independent source of revenue, starting by persuading existing customers to branch out from ITSM into other application domains.
- › **Sell to I&O pros, line-of-business leaders, and solutions providers.** The vendors in this segment focus first and foremost on ITSM applications, which are sold to infrastructure and operations (I&O) professionals. Some I&O pros have an aptitude for creating business applications; those individuals are the primary developers driving this segment, filling gaps left by application-delivery groups. The vendors also sell to underserved business leaders among their ITSM customers as well as to partners that specialize in adapting the ITSM solutions for industries and geographies.
- › **Offer a service catalog with supporting-request submit-and-track processes.** The core of a low-code platform for request handling is a catalog of services available to requesters. Processes surround this catalog and the services it presents to request services (sometimes via self-service applications), assign requests for fulfillment, track the progress of requests, and report/analyze performance. Cherwell Software and ServiceNow add marketplaces (just another catalog) for components and applications for specific functions, like employee onboarding and facilities-maintenance requests.
- › **Address the request-management application pattern.** Request handling is a broad application pattern and has been a primary scenario for SQL databases and, more recently, collaboration platforms. The core of these scenarios is managing work assigned to employees or partners, but self-service is also important. The challenge: Even though the pattern is common across many applications, each department or function typically must add its own process customizations and user interfaces, configure the core pattern's workflows, and/or customize the data model for its applications.

Low-Code Platforms For Mobile Apps

All low-code vendors provide some level of support for building and deploying mobile applications. However, at least five of the low-code vendors we talked with focus on the mobile apps use case: Appery.io, July Systems, MobileSmith, Oracle, and Snappii.¹⁰

Vendors of low-code platforms for mobile apps:

- › **Seek to simplify cross-platform mobile development.** Many companies can't afford to maintain two native code bases for a single mobile app that supports Apple phones and tablets and/or Android phones and tablets. Finding and retaining talent for building native mobile apps using these software development kits (SDKs) is also problematic. Companies facing this dilemma often opt to use low-code platforms for mobile apps that allow them to build a single code base that

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

can support different native app formats and languages. Using this approach, companies can deploy sophisticated mobile apps that take advantage of each device's native functionality and operating environment.

- › **Sell primarily to customer-facing business lines.** Vendors of low-code platforms for mobile apps usually target customer-facing teams that lack deep benches of mobile development talent and can't afford to hire a mobile-app development firm. This includes marketing, customer experience, sales, and services teams that need to build mobile apps that keep customers connected to their products and services. These teams often have a small pool of developers who can quickly learn to use these low-code platforms to build visually appealing and functional apps.
- › **Offer mobile widgets and app store deployment tools.** The low-code platforms for mobile apps feature tools that address mobile user experience (responsive layouts, mobile device simulators, mobile Web, and offline mobile); mobile middleware (data services, SOAP and REST services, and adapters); access control (identity and permissions management); and some application life-cycle and portfolio management services. Only Intuit QuickBase offers application distribution through a marketplace.

Low-code platforms for mobile apps lack workflow/process tools, as it is rare for customers to use these platforms to create multistep workflows that involve different stakeholders. The tools do support creating simple page flows to guide mobile users through completing a series of forms or tasks.

- › **Address mobile apps for customer and employee engagement.** This segment addresses the need to quickly build mobile apps that allow customers to look up information or initiate service requests from their mobile devices. Additionally, we see companies using low-code platforms for mobile apps to build apps that engage mobile field workers and mobile employees.

The Roots And Directions Of Low-Code Platforms

Visual and declarative development tools have been available in various forms for decades, and vendors have applied those techniques to both narrow (e.g., report writing and simple web page) and broad (e.g., interactive websites and process workflows) application development.¹¹ In perhaps a platform version of Moore's Law, each successive wave of declarative tools/platforms has lowered the bar for skills needed to build increasingly complex business applications without the need for formal programming.¹² Each successive wave of platforms has also kept up with new scenarios, progressing from terminal applications to client/server to web and now to mobile and omnichannel apps.

Each wave of declarative tools/platforms has lowered the bar for skills needed to build increasingly complex business applications without formal programming.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Low-Code Platforms Overcome Three Limitations Of Their Roots

But low-code platforms aren't your uncle's 4GLs modernized for web and mobile development and offered as cloud services. Low-code platforms are different in three key ways:¹³

- › **They're more open.** 4GLs were completely proprietary and thus tended to be isolated and difficult to connect into broader application portfolios. Low-code platforms employ many proprietary elements, but most also provide platform APIs and adapters that make it straightforward to incorporate them into a broader platform strategy. Some generate either Java or .NET code, which some customers believe is a good enough hedge against vendor lock-in. Lastly, some of the products incorporate open source mobile development frameworks, most notably AngularJS, Apache Cordova, and Bootstrap. Mendix may have started a trend by supporting Cloud Foundry, a platform-as-a-service available from multiple vendors and under an open source license.
- › **They're more complete as platforms.** In the previous generation, declarative tools were tools first and platforms second; low-code platforms aren't just tools. The application deployment features, as well as management of the platform, applications running on it, and application life-cycle management, set these products apart from those that preceded them. In particular, the general-purpose platform vendors and several of the process vendors have demonstrated an ability to address multiple application patterns over a period of many years. They haven't gotten stuck serving just one scenario and one technology generation.
- › **They're more easily integrated.** The openness strategies of these vendors also allow new opportunities to integrate them into a broader platform strategy. Most of the low-code platforms are adept at ingesting and/or accessing data in a variety of external sources. And many have APIs that allow customers to integrate external application modules — for example, native mobile apps and custom algorithms — into broader applications running on the platform.

Consolidation Lies On The Horizon Of The Low-Code Platform Landscape

The intense demands for new apps to win, serve, and retain customers have propelled low-code platforms into the foreground of many enterprise strategies, helping establish a distinct market. In the next phase of this market, the vendor landscape will grow sparser as large vendors enter the market and the most successful vendors attract more revenue and push out smaller vendors. Forrester expects consolidation to push revenue growth in this market to 68% by 2019 and to an overall market size of \$10.3 billion (see Figure 5).

Expect these four developments to shape the future of this market:

- › **Large vendors acquire low-code platforms.** Most large vendors have a low-code platform gap in their product portfolios. Two needs and one harsh reality will prompt these vendors to fill that gap, primarily by acquiring today's most successful low-code platform providers. First, all vendors need low-code platforms to complete their embrace of service composition as an application delivery approach. Second, as the most successful independent low-code platform vendors approach

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

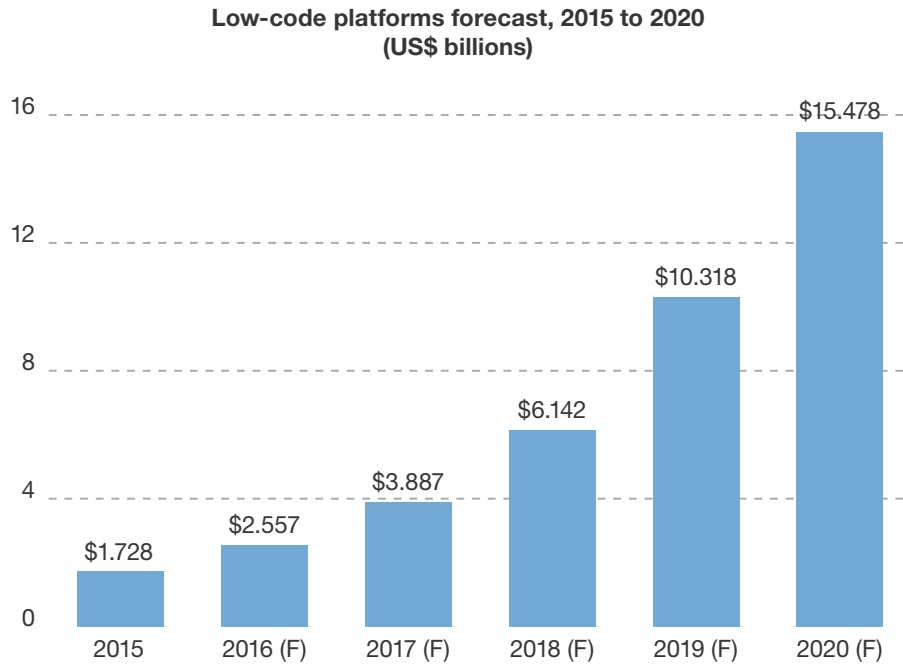
The Landscape Reflects A Market In Its Formative Years

\$500 million in annual revenues, they fill a need to bolster balance sheets with high-growth revenue sources. The harsh reality: Building a low-code platform from scratch is beyond the capabilities of even the largest vendors.

- › **The category of low-code platform for mobile disappears.** In a world rapidly moving to value omnichannel applications, enterprises can't live by mobile platforms alone. The vendors of low-code platforms for mobile fill a myopic need and must move on to address a broader set of application requirements. Very few companies will need mobile-only capabilities from their platforms. Mobile-only vendors will either sell themselves to other vendors to create broader platforms or create those broader platforms themselves to survive.
- › **The biggest low-code-for-process vendors expand into the general-purpose segment.** The seeds of this prediction are already sown; Appian, K2, and, to some extent, Nintex are already facing customer demand to address more than the process applications that are their specialties. As these vendors enlarge their ambitions, a lively competition with the general-purpose vendors will ensue.
- › **The next wave of innovation is apps that include devices (Internet of Things).** The next source of organic growth for low-code platforms will be applications that incorporate sensors and actuators. The key challenge for the vendors is to address the issues of real-time data processing these applications require. Doing so will likely require new architectures and thus, for customers, will be a key test for vendor staying power in this market.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

FIGURE 5 The Low-Code Platforms Market Will Reach Over \$10 Billion In Revenue By 2019

(F) = Forrester forecast

Note: The figure for 2015 is estimated.

Source: Forrester's Q4 2015 Global Low-Code Platforms Vendor Landscape Online Survey

Recommendations**Define A Clear Role In Your Architecture For Low-Code Platforms**

We continue to recommend that enterprises adopt low-code platforms to raise their capacity to deliver applications to win, serve, and retain customers. However, we also advocate strategic selection of low-code platforms, not simply adopting these products as just another tool for limited usage. The variety of decision-makers involved in selecting low-code platforms — many of whom have limited technology experience — raises a high risk of product selections that aid one or two projects but fail to move the needle on overall application delivery. Enterprise architecture professionals are positioned to advance to strategic choices, employing these recommended actions:

- › **Identify the right low-code platform segment for your enterprise.** Using our segment analysis, steer vendor selection toward the highest-value feature sets and scenarios for your enterprise's needs. Key questions to answer: How specific must the feature set be for the platform to deliver value? Is your world, for example, primarily forms and databases? Does it involve coordination, collaboration, case management, and long-running processes? Or does your organization need a platform that can span multiple scenarios (general-purpose platforms)?

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Incorporate economic and adoption realities into this decision-making. A more focused tool can produce ROI faster and can be easier to adopt than a broad platform with multiple services for your technical community to master.

- › **Identify and prioritize the right feature set for your enterprise.** The bread and butter of low-code platforms is declarative tooling to build applications. But what other features and tools will your enterprise need to obtain maximum value from the platform it chooses? Pay special attention to application management, application life-cycle management, change management, integration, and user experience features, and seek to obtain most of the features you need from the platforms you evaluate. Fill gaps deliberately.
- › **Steer product selection to vendors able to sustain innovation and value.** Only a handful of today's low-code platform vendors will graduate as the market consolidates. Few of the low-code vendors are publicly held, and so financial performance is guesswork. However, a reasonable proxy for financial statements is a vendor's ability to sustain a high level of innovation over two or more years; for example, keeping pace with new features to support mobile apps. Look also for achievable road maps and smart partnerships to expand customer reach and fill gaps.
- › **Guide your colleagues to productive governance policies for low-code platforms.** All of the customers using low-code platforms with sustained success advise setting up conventions, application frameworks, and shared services. Setting up these guardrails and rules of the road will require additional time and investment but will pay off in change management that is quick without compromising application integrity.

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

Engage With An Analyst

Gain greater confidence in your decisions by working with Forrester thought leaders to apply our research to your specific business and technology initiatives.

Analyst Inquiry

Ask a question related to our research; a Forrester analyst will help you put it into practice and take the next step. Schedule a 30-minute phone session with the analyst or opt for a response via email.

Learn more about inquiry, including tips for getting the most out of your discussion.

Analyst Advisory

Put research into practice with in-depth analysis of your specific business and technology challenges. Engagements include custom advisory calls, strategy days, workshops, speeches, and webinars.

Learn about interactive advisory sessions and how we can support your initiatives.

Supplemental Material

Low-Code Application Platforms By Segment

Vendors break out into five low-code app segments: general-purpose, process, database, request-handling, and mobile (see Figure 6).

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

FIGURE 6 Vendor Breakdown Within Low-Code App Segments

Vendor	General-purpose	Process	Database	Request-handling	Mobile
AgilePoint		x			
Alpha Software			x		
Alphinat			x		
Appery.io					x
Appian		x			
Avoka Technologies			x		
Bizagi		x			
BP Logix		x			
Caspio			x		
Cherwell Software				x	
ClaySys Technologies			x		
Formotus			x		
Intalio	x				
Intuit QuickBase			x		
July Systems					x
K2		x			
KeyedIn Solutions				x	
Magic Software			x		
ManyWho		x			
MatsSoft		x			
Mendix	x				
MicroPact		x			
Microsoft	x				
MIOsoft	x				
Mobideo Technologies		x			
MobileSmith					x
Nintex		x			
Oracle*			x		x

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

FIGURE 6 Vendor Breakdown Within Low-Code App Segments (Cont.)

Vendor	General-purpose	Process	Database	Request-handling	Mobile
OutSystems	x				
PNMsoft		x			
Progress Software	x				
Salesforce	x				
ServiceNow				x	
Simplicité Software	x				
Snappii					x
Software AG		x			
TrackVia				x	
Ultimus		x			
ViziApps	x				
WhoGloo	x				
Zoho			x		
Zudy	x				

*Oracle has two separate products in these two segments

Endnotes

- ¹ To learn more about how usage of low-code platforms is gaining momentum in customer-facing applications, see the [“New Development Platforms Emerge For Customer-Facing Applications”](#) Forrester report.
- ² To learn more about how usage of low-code platforms is gaining momentum in customer-facing applications, see the [“New Development Platforms Emerge For Customer-Facing Applications”](#) Forrester report.
- ³ Salesforce, with an estimated \$600 million in revenues from its Salesforce App Cloud platform, is the largest of the low-code platform vendors.
- ⁴ Caspio, Intuit QuickBase, and Snappii are exceptions. Caspio and Intuit QuickBase introduced us to multiple customers who are not professional developers and never have been but use those products to deliver business applications for their organizations. Snappii introduced us to one such person.
- ⁵ Configuration of SaaS is also a way to deliver applications without coding. The approach allows a developer to customize the SaaS product’s packaged functionality by using property sheets and parameter checklists. No coding is required.
- ⁶ In our research into the scalability of low-code platforms, we found many examples of large-scale, complex applications, as well as large app portfolios, running on these platforms. To learn more, see the [“Low-Code Platforms Deliver Customer-Facing Apps Fast, But Will They Scale Up?”](#) Forrester report.
- ⁷ Source: Andy Reinhardt, “Steve Jobs: ‘There’s Sanity Returning,’” *Businessweek*, May 25, 1998 (<http://www.businessweek.com/1998/21/b3579165.htm>).

Vendor Landscape: The Fractured, Fertile Terrain Of Low-Code Application Platforms

The Landscape Reflects A Market In Its Formative Years

- ⁸ For the details on the Sprint case study, see the [“Brief: The New Economics Of Experimentation”](#) Forrester report.
- ⁹ Azure App Service is a collection of four web-based developer experiences for 1) simple web applications; 2) mobile applications; 3) API creation; and 4) integration/API composition. Previous research resulted in our analysis that the product was best as a tool for learning modern, API-based applications. PowerApps is based on Azure App Service and provides tools for quickly creating and deploying web and mobile database and workflow applications either from scratch or through application templates. PowerApps is available as a limited preview; we expect general availability in the second half of 2016. To learn more, see the [“Azure App Service Helps Developers Move Smoothly From Web Apps To Modern Apps”](#) Forrester report.
- ¹⁰ Snappii is positioned and completely focused on mobile application delivery. The vendor also can support web apps, but given the company’s extreme focus on mobile, Forrester chose to include it in the mobile segment.
- ¹¹ The previous generation of declarative development tools included offerings such as Borland Paradox, IBM Notes, and Microsoft Access and FoxPro. These tools targeted technical and nontechnical teams looking to quickly build and deploy database applications to small groups of business users. Today, these declarative development tools are considered legacy, and software vendors have dropped support for these offerings.
- ¹² Moore’s Law is the observation that overall processing power for computers will double every two years.
- ¹³ To learn more about fast delivery of business applications, see the [“The New Productivity Platforms: Your Solution To The AD&D Crunch”](#) Forrester report.

We work with business and technology leaders to develop customer-obsessed strategies that drive growth.

PRODUCTS AND SERVICES

- › Core research and tools
- › Data and analytics
- › Peer collaboration
- › Analyst engagement
- › Consulting
- › Events

Forrester's research and insights are tailored to your role and critical business initiatives.

ROLES WE SERVE

Marketing & Strategy Professionals

CMO
B2B Marketing
B2C Marketing
Customer Experience
Customer Insights
eBusiness & Channel Strategy

Technology Management Professionals

CIO
Application Development & Delivery
› **Enterprise Architecture**
Infrastructure & Operations
Security & Risk
Sourcing & Vendor Management

Technology Industry Professionals

Analyst Relations

CLIENT SUPPORT

For information on hard-copy or electronic reprints, please contact Client Support at +1 866-367-7378, +1 617-613-5730, or clientsupport@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.