G00269380

Market Guide for Rapid Mobile App Development Tools

Published: 19 November 2014

Analyst(s): Richard Marshall, Nick Jones, Jason Wong

New ways of creating mobile apps are coming to market, offering simpler, faster development by business analysts. IT leaders can use these rapid development tools to address the global shortage of skilled mobile software engineers by increasing the pool of people who can deliver mobile apps.

Key Findings

- Many enterprises are actively using mobile apps, but a 2014 Gartner survey shows that the average number of apps developed is less than ten.
- Enterprises find it exceedingly difficult and costly to hire developers with good mobile skills.
- Demand is rising from lines of business for mobile access to business information and processes, driven by increasing awareness of mobile access and personal use of public mobile apps.
- The market for new approaches to mobile development is burgeoning, with many new entrants exploiting graphical development techniques and simple integration via RESTful APIs.

Recommendations

- Experiment with different styles of rapid mobile app development (RMAD) tools and select a small subset that corresponds to organizational needs.
- Verify the financial stability of suppliers, as many of them are small. Plan an exit strategy for each vendor; however, do not let vendor risk limit your adoption of innovative solutions.
- Determine your key selection criteria, typically back-end integrations, skills required, device support and user interface (UI) capabilities.

Strategic Planning Assumption

By 2018, more than half of all business-to-employee (B2E) mobile apps will be created by enterprise business analysts using codeless tools.

Market Definition

This document was revised on 4 December 2014. For more information, see the Corrections page.

Most IT groups are unable to keep up with the growing demand for mobile apps within most organizations. Traditional approaches to delivering mobile apps using conventional coding and mobile application development platform (MADP) tools demand skills that are in short supply and result in relatively long delivery times. Alternative, faster approaches are required for rapid delivery by a wider range of people. Tools that meet these needs can be classified as being RMAD tools, a burgeoning market. Users for these tools can come from many areas of an organization, and are not concerned with the intricate details of mobile app mechanics. Their object is to produce useful apps as rapidly and as easily as they might create a presentation using a typical office productivity suite.

A combination of better mobile client technologies, useful integration and communications standards and increasing app demand is driving the emergence of a new wave of tools for developing mobile apps. While most of the techniques have been tried before, the new generation of tools is supported by some significant changes, allowing for much better results:

- The emergence of light-weight integration technologies, such as RESTful APIs that support easy service discovery, allows for quick mobilization of myriad data sources.
- Improved hardware and OS performance means that high-level functional interpretation now operates at acceptable speeds.
- Common and effective standards, such as JavaScript, JavaScript Object Notation (JSON), and HTML5, greatly reduce the complexity of building an execution engine.
- Standards such as HTML5, plus the growth of component libraries from the operating system and open-source projects allow rapid construction of attractive, high-performance user experience (UX) layers. This enables rapid development tools to now provide easier approaches to building good UIs, doing away with screen after screen of dull, unintuitive forms.

Many approaches are being taken, including drag-and-drop codeless tools, code generation and orchestration, model-driven development, virtualization, business process mapping, component assembly, app configuration, forms construction and others. Significant innovation is driving this market, and replacing traditional coding approaches, such as native development tools, with more effective rapid mobile app development tools that automatically build the scaffolding around the business processes.

This has the double benefit of allowing the developer, someone who may have never written a line of code, to focus on tasks that require human input, such as workflow, while ensuring that potentially complex code, such as offline synchronization, is built correctly.

Market Direction

The huge variation in approaches makes finding a single nomenclature difficult. Terms such as codeless, rapid application development (RAD), high productivity, metadata-driven, model-driven and visual programming could all be applied, but not to all the offerings. For this reason we settled on simply calling them RMAD tools, in juxtaposition to the already defined MADPs. Many tools also combine approaches, for example, a largely codeless tool might support more complex development by allowing developers to add scripts, making it no longer codeless.

While most of the companies listed below are newer entrants, major vendors are now delivering offerings in this space. This recognition by incumbents is expanding awareness of an already growing market. It is likely that the conventional MADP market (see "Magic Quadrant for Mobile Application Development Platforms") will converge with the alternative approaches over time, offering a continuum of capabilities. This continuum will also join with cloud mobile back-end as a service (mBaaS) which will enable rapid, controlled integration. Ultimately, traditional and citizen developers alike will be able pick the tools and approaches — ranging from automatically generated to hand-crafted code, via visual or forms-based approaches — that best suit the building of different apps depending on complexity and functionality.

These technologies have come together at a good time, as demand for enterprise mobility is growing rapidly and outstripping the availability of mobile developers. A Gartner survey of global enterprises, "Survey Analysis: Enterprise Mobile App Development Spend Is Increasing, While Platform Choice Remains Tactical," shows that only 21% of respondents built custom mobile apps entirely with internal resources. The rest were either developed entirely by an outsourced partner or with a mix of external and internal resources. Therefore, tools that can produce apps more rapidly are crucial for enterprises to help bridge the gap between mobile app demand and supply. IT leaders, especially those with responsibility for delivering enterprise mobile apps, should be aware of this growing market and the possibilities that it offers.

Market Analysis

The market for rapid mobile app development tools is very fragmented in terms of both the development approaches and the mobile use cases that they serve. Some products address simple forms-based apps, others extend Web-based apps, and yet others target specific, back-end applications such as SAP, Microsoft SharePoint, or database-driven systems. The plethora of vendors means that you can likely find a specific product that is best suited for building a specific class of apps.

Use the following key attributes as a guide to identify the RMAD tool that is most in line with your organizational needs.

Back-End Data Integration

Ease of integration is the primary factor in rapidly building mobile apps. Typically, building custom integration may make up between 50% and 75% of the costs and time associated with mobile app

development. These alternative tools are meant to provide out-of-the-box integration for mobilizing specific types of apps — whether it's via SAP Business API (BAPI), Document Object Model (DOM) interface, SQL database connection, Web Services Description Language (WSDL) introspection, or RESTful APIs. Check with the vendor on what is ready to deploy out-of-the-box in terms of integration in order to maximize the benefits of rapid development, but realize that any customization of your back end may negate some of the benefits.

Mobile UI and Workflow Design

Creating the actual client app interface is another laborious part of mobile app development. With rapid development tools, the design and integration is tightly coupled to provide time savings. Designing the app UI consists of creating the app layout and controls, as well as defining the business objects and workflows based on the integration model. With visual drag-and-drop editing, business analysts and citizen developers can quickly build the app interface, and many tools will instantly render the UI in an emulator so that the developer can see what the end user would see. Evaluate the editing tool carefully to determine how the business logic is embedded and how flexible the UI controls and layouts are for your use case.

Offline Transactions and Conflict Resolution

One of the more complicated parts of mobile apps is the use of offline data and handling asynchronous transactions. In order to achieve rapid app development, some of these tools may not offer this capability — which is acceptable for some app use cases such as mobile Web apps. However, some tools do recognize the importance of offline access and have built local data storage into their apps and synchronization logic on the server-side to handle data conflicts. Identify end user requirements for offline transactions and determine whether the product provides sufficient support for complex synchronization scenarios.

Mobile Optimized Capabilities

Mobile-specific functions such as geolocation services, accelerometer integration, bar code scanning and signature capture are required for many apps to provide a true mobile-optimized experience. Rapid development tools can make adding such features as simple as dragging in the function from a palette or selecting from a drop-down menu to enable data capture via bar code or GPS. Determine the type of common services that you will need in your apps and ensure the product offers these and is extensible to add future mobile functions.

App Management and Analytics Services

While the tools focus on the speed of delivering mobile apps, you should not discount the management and analytics requirements that are an essential part of the mobile software development life cycle (SDLC). These capabilities are more typical of the enterprise MADP products, but some more specialized rapid development tools do offer basic app management functions to enable deployment and updating of the apps. Some have also built-in analytics for reporting on app usage and also potential performance issues. Such real-time analytics can help drive rapid iteration of mobile apps to improve usability and adoption. Determine whether the product offers these services, especially if you are not using third-party app management or analytics.

Representative Vendors

The vendors listed in this Market Guide do not imply an exhaustive list. This section is intended to provide more understanding of the market and its offerings.

This limited list of 30 vendors only includes products that can deliver apps to at least the main mobile device platforms — iOS and Android — although many also produce mobile Web apps. Some also support Windows Phone apps. Development tools that target only a single device OS have been excluded. Also excluded are mobile development or configuration tools provided by packaged app vendors (business process management [BPM], CRM, ERP, etc.) that only support access to their own back-end data or data orchestration through their system. The listed vendors are collected from across the globe, but there are likely local vendors not mentioned that are worthy of consideration.

Alpha Software

Alpha Software offers the Alpha Anywhere platform with a wizard-driven development environment for building HTML5 and hybrid mobile apps (in combination with Cordova/PhoneGap).

AnyPresence

AnyPresence offers a platform with a Web-based designer to generate app APIs and assemble apps from prebuilt templates and UI controls.

Appery,io

Part of Exadel, Apperi.io offers a platform with a drag-and-drop, visual UI builder that uses HTML5, jQuery Mobile, and Cordova/PhoneGap for building hybrid apps.

AppGyver

AppGyver offers the Steroids platform with their Composer drag-and-drop development tool.

appsFreedom

appsFreedom offers a Java-based, model-driven platform with a visual toolkit for drag-and-drop development of HTML5 mobile apps that can run on PhoneGap with custom extensions.

Avoka

Avoka offers the Transact Engagement Platform that transforms paper, PDF files and Web forms into responsive HTML5 mobile apps using their Composer drag-and-drop authoring tool.

BlinkMobile

BlinkMobile offers the Blink Mobility Platform that includes the Blink Forms Builder for visually building dynamic mobile forms.

Canvas

Canvas offers a platform for creating and editing mobile forms-based apps.

Capriza

Capriza offers a platform that mobilizes back-end Web applications via the DOM interface using a visual designer and editing tool.

Catavolt

Catavolt offers a platform with a graphical interface that allows IT to build apps with centralized control over data and app security functionality, accessibility and permissions.

EachScape

EachScape offers a platform for generating native iOS and Android apps, as well as HTML5 hybrid apps, through a drag-and-drop editor.

Data Systems International (DSI)

DSI offers a mobile platform for mobilizing primarily supply chain management (SCM) and ERP applications using the Multi-View drag-and-drop editor and prebuilt integration adaptors for major enterprise systems.

FeedHenry

Acquired by Red Hat, FeedHenry offers an mBaaS platform that includes a Forms Builder for drag-and-drop creation of mobile apps.

Globo

Globo offers a mobile platform that includes GO!AppZone Studio, a visual integrated development environment (IDE), for building cross-platform apps that are run and rendered in their GO!Enterprise WorkSpace container.

IBM

IBM offers the MobileFirst platform that includes an Eclipse-based, visual development environment as part of the Worklight Foundation product.

Instant Developer

Instant Developer from Pro Gamma is a model-drive platform for building multichannel mobile apps.

July Systems

July Systems offers the MX Platform with MX Studio that includes a drag-and-drop editor for building mobile websites and apps.

Kony

Kony offers an integrated, model-driven app platform that includes the Kony Modeler product for visually composing the app user experience, workflow and line of business (LOB) data mapping.

Magic Software

Magic Software offers a platform with a visual and metadata-based editor, along with a number of prebuilt components and template apps with SOA-based integrations into ERP and CRM systems.

Mendix

Mendix offers a visual, model-driven approach to building apps with native UI components and access to hardware features.

MobileForce

MobileForce offers a Web-based tool for building native apps that connect to multiple enterprise back ends via the MobileForce Unification Engine.

Movilizer

Specializing in mobilizing SAP, but supporting many potential back ends, Movilizer offers a forms-based tool for rapid deployment of business process apps in a dedicated container.

Oracle

Oracle's Mobile Application Accelerator (MAX) is a new offering that allows the drag-and-drop construction of mobile apps consuming RESTful API services via Oracle Mobile Cloud Service.

OutSystems

OutSystems offers visual development of mobile and Web-based HTML5 apps, including invoking RESTful APIs, and supports linking to continuous integration systems.

Reddo Mobility

Reddo offers a platform that virtualizes Windows desktop apps by rendering their user interface as HTML5, and then uses the Adaptive UX Planner to visually define and design the mobile app.

SAP

SAP provides two rapid development options: a cloud-based, drag-and-drop HTML5 hybrid IDE and a metadata-driven application player; both share a common server landscape, including prebuilt integration adapters to SAP and non-SAP systems.

Sencha

Sencha offers a graphical app creation tool in their existing Sencha Architect product that allows developers to rapidly create HTML5-based apps using the Sencha Touch framework.

Snappii

Snappii offers a cloud-based platform to visually develop custom mobile forms and apps or choose from prebuilt apps in their industry-specific app portfolio.

StarMobile

StarMobile offers a cloud solution with a drag-and-drop app builder that transforms and reassembles any back-end data source through their servers to render as a thin-client mobile app.

Webalo

Webalo offers a platform with a graphical development tool to build and configure mobile apps that connect to back-end systems via Java Database Connectivity (JDBC) drivers, XML Web services, flat files, and Web-scraping.

WebRatio

WebRatio offers a platform that uses visual modeling in the Eclipse IDE to automatically generate mobile and Web apps that integrate with a variety of back ends, in particular BPM systems.

Market Recommendations

- The mobile development tool market is changing quickly. Invest in these tools to ensure that your app development projects for the next 12 months will have positive ROI.
- Be open to using more than one of these tools based on app use case and need.
- Follow mobile center of excellence (MCOE) guidelines in terms of setting up governance, policies and standards for all mobile app development, which is particularly important with these approaches since citizen developers can end up creating rogue apps in terms of branding, security or integration.
- Since RMAD allows rapid, low-cost production of apps, it becomes possible to consider some apps disposable. Construct apps for specific business purposes, for example, seasonal work, and withdraw them when no longer needed.
- Apps with long lives should be regarded as products with continuous evolution. Use RMAD tools ease of updating deployment to enable a steady stream of updates.
- Regularly review the market for new tools that may be better matches to your needs.
- Start building a mobile application integration platform that offers lines of business the opportunity to assemble their own APIs that can be directly exploited by RMAD tools.
- Do not consider RMAD a replacement for a good app testing strategy, although the testing need only be at a functional level.
- RMAD and classic MADP tools will coexist for the foreseeable future. Both have different use cases and should be used accordingly, with more complex projects potentially using both.

Additional research contribution and review was provided by: Adrian Leow, Rich Doheny, Tom Murphy and Charles Smulders

Acronym Key and Glossary Terms

API	Application Programming Interface
DOM	Document Object Model
Hybrid	A hybrid app is one that is built using multiple technologies. Most commonly this is a mixture of native code, often simple a container, and HTML5.
JSON	JavaScript Object Notation, is an open standard format that uses human-readable text to transmit data objects consisting of attribute — value pairs. Commonly used by mobile apps for server data exchange.
mBaaS	Mobile Back-end as a Service, also known as Cloud mobile back-end services
MCOE	Mobile Center of Excellence
RAD	Rapid Application Development
REST	REpresentational State Transfer, an architectural style commonly used in mobile app development.

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Magic Quadrant for Mobile Application Development Platforms"

"The Future of Mobile Apps and Their Development"

"Adopt a Bimodal Approach to Mobile App Development Strategy"

"Taxonomy, Definitions and Vendor Landscape for Mobile AD Technologies"

"Improve Mobile App Development and Integration With JavaScript Technologies"

GARTNER HEADQUARTERS

Corporate Headquarters
56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters
AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

For a complete list of worldwide locations,
visit http://www.gartner.com/technology/about.jsp