



TREND 5

The business of applications: Software as a core competency in a digital world

The way we build software is changing. Mimicking the shift in the consumer world, organizations are rapidly moving from enterprise applications to apps. Yes, there will always be big, complex enterprise software systems to support large organizations, and it will still be necessary for IT developers to keep customizing those systems, providing updates, patches, and more. But now, as large enterprises push for greater IT agility, there is a sharp shift toward simpler, more modular, and more custom apps. The implications are significant for IT leaders and business leaders alike: they must soon decide not just who plays what application development role in their new digital organizations but also how to transform the nature of application development itself.

Why now?

Digital transformation of enterprises: IT applications have become the primary driver for growth and differentiation for enterprises.

Accelerated pace of IT change: The increasing push to rapidly deploy new technology is increasing the pressure on IT to provide a faster way to develop and deploy the applications that are driving corporate digital strategies.

Maturation of application platform providers: PaaS players are offering ready-made data service platforms, with sets of services already connected and instant sets of app families available. Tibco, Apigee, and Salesforce are already offering solutions that provide the foundation for a customized enterprise app experience.

Rising consumer and user expectations: Customers and employees are looking for consumer-grade experiences everywhere. They are pressing IT to give them, in the workplace, the kinds of low-cost, accessible, and often intelligent apps they use every day on their own mobile devices.

A large corporation that is as agile as its global customers need it to be?
There's an app for that.

But there are big changes in how the application is created. Anyone with a smartphone can see the signs.

In the consumer world, application development has become the province of a new generation of developers eager to strike gold by creating the next Angry Birds or Evernote app for the mobile phone—applications that are smaller and simpler to use. That development approach is now moving into the enterprise, creating new applications for mobile, Web, and desktop platforms alike. The more quickly businesses can create and launch new applications in today's turbulent markets, the better they can innovate, collaborate, improve customer experiences, and enrich personal interactions.

The drivers of this change are not hard to find. Eager for relief from some of their biggest pain points—especially their systems' lack of agility—business leaders have been pushing for software that is far nimbler than the legacy systems they've relied on for decades. They have been pressing IT to give them, in the workplace, the kinds of

low-cost, accessible, and often intelligent apps they use every day on their own mobile devices.

IT is responding. Leading IT groups are building software platforms and architectures that essentially separate the big back-end services from the applications that users interact with. The outcomes are a win for both the IT side and the business side: IT gets breathing room to build solid foundations for complex systems; the business gets platforms that allow for an increased focus on custom software that enables rapid iterations to tailor solutions to fast-changing market conditions.

There's another big consequence of the shift toward an enterprise app world: business functions are partnering with technology organizations to assume joint ownership of the new agile applications. The back-end services—from data centers to networks—still fall squarely under IT, but in more and more organizations, the lines are blurring as the business takes a more active role in many aspects of front-end applications. These are not maverick activities: they are happening with the say-so of IT in those organizations. In fact, savvy IT leaders are deliberately partnering with the business side not just to enable but to encourage them to take on some of these roles.

In a sense, the building of these custom agile applications is becoming a hallmark of the new digital enterprise. The questions are now as much about resources as about technology. How does IT help the business side to acquire the necessary skills and development mind-set? How do IT leaders manage the balance between enablement of the business and building of a stronger technology backbone to support a more agile enterprise? These questions will be high on the agenda of every CIO in the next few years.

The push toward application ecosystems

In the consumer world, applications have the luxury of being relatively self-contained. Shazam, for example, excels at capturing a song heard playing in a café, but the user doesn't need it to manage her playlist; she has another app for that. In the enterprise world, however, the problems being solved are much more complex. They often involve multiple applications to run intricate business processes that may span multiple time zones, several countries, and thousands of employees.

To attack these big enterprise-level problems, then, something more than a single, nimble app is needed. The way forward is to think in terms of the application's ability to connect with other applications. In fact, the push is toward libraries or "ecosystems" of applications that can, while still being individually simple and agile, be bolted together to tackle the most challenging problems. To do this successfully, businesses require more than just separation of the front-end applications from the back-end services. They need software platforms to drive new development ecosystems.

We see this trend most clearly in the movement toward enterprise app stores. Research company Gartner predicts that by 2017, a quarter of all business enterprises will have an app store for managing corporate-sanctioned apps on PCs and mobile devices.¹ The top performers are already leading the way: Accenture's High Performance IT research confirms that 54 percent of high-performance IT groups have deployed a mobile-enterprise app store, compared with just 22 percent of other IT organizations.²

China Eastern is a good case in point. In developing its own app store in 2012, the airline wanted to drive mobile app adoption across the company; its rationale was that fast-growing mobile phone use in China would help drive growth for the airline and also improve productivity and operational efficiency, especially among the 50,000 of its employees who use their mobiles for work. The airline makes good use of mobile apps in areas such as aircraft maintenance, employee feedback services, and mobile office automation. China Eastern has also bought 2,500 iPads for in-cabin services, helping it earn a reputation as an early adopter of the latest mobility technologies.³

But the real power of enterprise apps lies in how they are amalgamated—combined and connected in ways that create a customized system capable of handling larger business tasks. To some extent, what's old is new again: the rise of these application ecosystems is effectively cashing in on the appeal of service-oriented architecture (SOA), the technology of a decade ago that promised business process owners the ability to rapidly iterate business processes and user experiences by reusing and reorganizing small pieces of functionality—now known as apps—and by providing ways to string them together.

For example, Japan Post Co. is one of Salesforce.com's top five customers and has been using apps on Force.com's platform to streamline business planning and compete in new markets. They created 15 custom apps to provide business process visibility in selling services and products from three companies as a retail outlet: Japan Post Bank, Japan Post Insurance, and Japan Post Service. With 24,000 post offices nationwide, it efficiently serves 14 billion mail packages annually and more than 6 million insurance policies for upwards of 100 million clients while achieving flexibility and a reduced total cost of ownership.⁴

Software platform: middleware redux?

The proliferation of app stores speaks to the consumption and use of small, nimble apps. But the other important story is how IT systems are architected for this new app world. The new direction is to separate applications from the back-end systems that support them. Imagine taking the look, the flow, and the experience of a financial reporting system and disconnecting it from the complex financial models and SEC regulation behind it.

The resulting system would allow developers to rapidly update how users interact with it; it would be easier, for instance, to get up-to-date cost projections without having to touch the underlying financial models—traditionally a burdensome effort when such updates are required.

Software vendors and enterprises alike are already changing how they architect their systems to enable this separation. In essence, middleware is being resurrected as the "software platform"—a way to present data services that can make it easier to find modular apps that will perform a particular business function, and to enable modular apps to combine, like puzzle pieces, into "systems" in order to implement more complex business activities. Such systems are more flexible and provide a framework to create a custom, on-demand solution faster.

Companies such as Mashery and Tibco Software—the latter a longtime standard bearer in the middleware world—are pushing this data services space with their platforms to provide an integrated development environment to rapidly create, orchestrate, and integrate modular services and business applications. Helping *USA Today* open and manage its application-programming

interfaces (APIs), Mashery has expedited the media company's ability to negotiate and execute new partnerships with distributors and device makers so that devices from iPads to Samsung refrigerators are now connected.⁵ Similarly, Tibco's Silver Fabric cloud platform is designed to give enterprises the ability to quickly provision their own app stores.

Other companies such as Apigee are stepping forward with API management tools that help make it easier for large enterprises to extend their reach with mobile apps, create new products with partners and developers, and more. Live Nation Entertainment uses Apigee's Enterprise API Platform to grant internal developers and trusted partners and clients the ability to extend their ticketing functionality to mobile devices and provide additional functions such as event calendaring and live event applications. As a result, Live Nation's mobile transaction volume has more than doubled in the last year.⁶

And the Platform-as-a-Service (PaaS) players are offering ready-made data services platforms, with sets of services already connected and instant sets of app families available. Salesforce.com's AppExchange is a useful case in point. Using its platform as a base for how

these applications are bought, built, and woven together, Salesforce.com has created its own flexible ecosystem that represents the next generation of enterprise-built and -customized systems and solutions. Recognizing that more than 40 percent of their transactions stem from API calls, the Salesforce1 Platform is expanding this ecosystem, opening up ten times more APIs and services for developers to build upon.⁷ And acknowledging the increasing value of management required to expose APIs at scale, Microsoft recently acquired Apiphany to integrate API management into Windows Azure.

Importantly, IT leaders should not strive for the holy grail of software platforms; there is no such thing. It's not possible to use a single platform to handle every business requirement. And don't assume that cloud will always be the answer either. According to Accenture's latest High Performance IT study, only 7 percent of applications currently reside in the cloud, and survey respondents expect that figure to approach 33 percent by 2020.⁸ In practice, companies will need to adopt a hybrid mind-set, with different platforms, local and in the cloud, for different sets of business needs. Abstraction of the back-end services will have to be a step-by-step process, starting with the highest-priority business needs. Perhaps

the organization starts out by developing a platform for its consumer data and then eventually creates a platform for its ERP data. The more services that are available, the greater the functionality that the apps will be able to leverage and the more diverse and innovative they can become.

Leveraging separation to amplify impact

Of course, nobody is suggesting that ERP, CRM, or large enterprise financial systems are about to become obsolete. Rather, it's important to recognize that IT has entered a new stage in which constant change is the new normal—one in which IT not only supports business applications but also enables the business to play a more active role in those front-end apps. As business users start to embrace technology as a way to drive their business strategies—everything from tools for analyzing consumer sentiment on social media sites to pilots of new pricing models—IT must start opening up the systems, tools, and processes to allow business users to drive these initiatives forward themselves. This lets the enterprise move from the paradigm of a backlog

of IT requests from the business to one where IT is empowering the business to experiment, innovate, and drive its strategies.

Enabling the business is just the first phase; business leaders will recognize that extending these services to business partners has the potential to accelerate business imperatives. For example, AT&T opened its phone activation APIs so that its partners could leverage them fully—building apps on top of them, for instance. The APIs are now available as Web services, and the onboarding process can now be executed in a matter of days or even hours—resulting in a 1,500 percent increase in the usage of the APIs, not to mention a boost in phone activations.⁹

Other companies have taken this "ecosystem" concept further. Positioning their software as an open platform, Facebook and Salesforce.com are among the companies that are using the developer community at large as their app innovation engine. At last count, Facebook had more than 10 million apps on its platform, where more than 25 percent of its annual revenue comes from mobile app install ads.¹⁰ It's not just tech companies that are taking this approach; General Motors has opened

up its OnStar APIs to the public. And, based on an innovative application developed on top its APIs, the company is now partnering with the start-up RelayRides to enter the emerging ride-sharing market. In doing so, GM is threatening to disrupt both car rental and taxi companies—business sectors well outside of automobile manufacturing.

This amplification effect is one of the most powerful advantages for the new approach to enterprise apps. In this way, the organization can be more innovative and react more rapidly. It is not just about applications being easier to build—it's about the numbers of apps that can be built rapidly and concurrently.

Adding intelligence to applications

As more and more apps are driven by the business, they continue to evolve: they are becoming more intelligent. Apps will be better able to sense and respond to users' context, their history, and the world around them. Time Warner, for example, has embedded intelligence in its set-top boxes so that more-relevant content can be pushed

to users based on their TV-viewing patterns.¹¹ In another example, a mobile app called uChek allows users to spot potential problems such as kidney and liver issues as well as diabetes using a picture of a chemical test strip.¹² And Amazon has announced the release of an analytics service for iOS, Android, and Kindle Fire developers that will allow any developers to embed more intelligence into their apps.

Far-sighted business users are also eager to make their applications more useful and more contact-aware—which is why there's a growing push to embed analytics in business applications. Analytics-rich applications can enable users to answer many more of their own data questions. They can effectively become their own data scientists. Tableau Software's simple data visualization capability gives customers like Unilever the opportunity to answer complex business questions very simply, thus rekindling people's interest in asking data questions. This has created a resurgence in analytics and discovery of simple solutions for previously complicated situations, such as determining the fastest-growing products for a very specific demographic.¹³ When users can extract intelligent insights from their data in short order, they

can take intelligent action much more quickly. At the same time, the organization's actual data scientists are then freed up to dig into higher-level strategic questions.

The competencies needed to support a world of apps

As enterprises get more involved with the new business of applications, corporate leaders—IT and business executives alike—will need to re-examine the skills and organization structures that must be in place to support the new arrangement. Business will be more aware of technology and its opportunities, and IT will need a better understanding of the strategic business imperatives that the technology will drive. As technology and business strategies become inseparable, multidisciplinary teams will become the norm. User experience skill will become a necessity to drive the adoption of every new application. And as the data collected from these applications is dispersed across the organization, scarce resources, such as data scientists, will need to be built up through hiring and training.

But it's not just tech skills that will be in demand. Unlike many of the packaged software solutions, the business processes are not set in stone in a world of apps. This not only provides a big opportunity to move beyond just technology innovation, it also enables innovation of the underlying processes and adds emphasis to the roles of the business process orchestrator and program manager.

Apps also have different sets of expectations in terms of maintenance. Agility implies iteration. In a traditional software world, deployment is the end of the development cycle. In the app world, deployment is just the first iteration. The expectation is that the applications will essentially be "forever beta"—always evolving.

Crucial juncture for IT and business

Over the next few years, we expect to see some striking examples of business groups that are much more engaged in the lifecycle of "their" own front-end apps. We anticipate something of a resurgence in custom development as leading companies view it as their best option for pursuing the objectives of a digital business.

Your 100-day plan

In 100 days, begin to develop a comprehensive strategy that will lay out the foundation for enterprise app development.

- Appoint a digital champion to coordinate development of your app strategy across organizations in your enterprise.
- Determine your ability to enable cloud and mobile apps against your existing SOA, API Management, and PaaS investments. Based on this evaluation, start preparing a strategy to separate your back-end services from front-end apps.
- Begin the design and architecture of an enterprise apps store for the distribution of mobile and desktop applications.
- Start creating a list of enterprise-level apps to be developed. Work cross-functionally across business units to prioritize the items on your list.
- Start planning a pilot for your highest priority apps that will deploy in conjunction with the enterprise app store. Aim to validate the readiness of your app production environment.
- Review and begin to update your app process and app governance strategy. Prepare to shift toward a hybrid buy and build environment, where your IT buy for front-end functions will decrease.

And we are confident that we will observe more and more CIOs and IT leaders sitting down with their business colleagues to discuss how they can help facilitate the new application development trend.

For many, though—and particularly for IT—this is a crucial juncture. The immediate task is to fully grasp the implications of the evolving enterprise app environment. The second task is to understand the many benefits that come from having the business side assume larger roles in driving new agile applications. The next task is to establish the boundaries of the new roles: the extent to which IT focuses increasingly on back-end system development or partners with the business on the front end—or both.

And the last task? It is to dive into those roles with relish—knowing that they will surely help the company to become a truly digital business.

This time next year

In 365 days, begin the process of implementing the tools and services to enable the development and distribution of smaller, more agile applications.

- Begin the process of abstracting your front-end functions from your back-end services. Start with the consumer applications and services that support the applications going through the most lifecycle iterations.
 - Update your app governance strategy to support an agile methodology.
 - Re-evaluate your testing methodology to make sure you are not disrupting it when you shift toward a continuous testing methodology.
 - Pilot the enterprise app store. Utilize the first set of high-priority apps to test the functionality of both the app store and the applications themselves.
 - Based on your pilot results, create a multi-year road map for partnering with the business to build and deliver the remainder of your high-priority apps. Take into account the expected rapid change of pace for IT. Start small but scale fast.
- Identify potential partners to whom you can open up your application platform and development tools.
 - Pilot the deployment of a partner-developed application on top of your application platform.
 - Evaluate the possibility of opening up specific APIs, and/or pieces of the application platform more broadly to the developer community.