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Lessons from the App Masters

How some IT departments
excel at delivering quality apps

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Introduction

Seven years ago, the iPhone began transforming how consumers and businesses interact. IT and marketing executives have come to agree that apps play a key role in driving revenue, market share, and brand relevance. Yet in 2013, enterprises still struggled to deliver apps on time, on budget, and with the intended business impact.

This Apigee Institute report identifies empirical patterns for success that distinguish IT departments that exceed expectations for delivering masterful apps.

Enterprise IT, as we have come to know it, is broken. The patterns and practices IT leaders learned to build and manage systems of record are incompatible with the new business imperative to deliver systems of engagement (decentralized cloud-based systems that enable interaction and innovation with peers and partners) at the pace the market demands.

This disconnect is shaking up the C-suite. Cars.com, for example, replaced five senior executives in two years because they didn't keep pace with business needs driven by technological change.[1] The number of chief digital officers doubled in 2013, and, in nearly a dozen cases, CDOs stepped up to CEO or board roles.[2]

A few enterprises are even forcing alignment between marketing and IT by having the chief information officer report to the chief marketing officer.[3] Others are inventing new positions, such as a chief marketing technologist, to cover technological responsibilities in the marketing and business units.[4]

Introduction

IT leaders stand at a crossroads. How they respond may drive a bigger and more direct contribution to competitive advantage than ever before—or it might impede their company's ability to build the fundamental capabilities necessary to stay viable in the digital world. The stakes are high for IT leaders and for the enterprise: companies that have built strong capabilities to deploy apps, operate APIs, and use data analytics are outperforming those that have not.

To help IT leaders adapt to the new demands of digital business and win a role as a key driver of competitive advantage, the Apigee Institute researched patterns for success with one such capability: building and deploying apps.

COMPARISON OF APP DEPLOYMENT
COMPARISON OF COMPANY'S REPORTED RESULTS VS. SECTOR OVER PREVIOUS 12 MONTHS

	NEW PRODUCTS & SERVICES	MARKET SHARE	CUSTOMER SATISFACTION	GROSS REVENUE	MARGIN
Digital Leaders (total)	73	72	79	74	67
Outperformed a lot	31	24	37	28	23
Digital Laggards (total)	43	49	55	50	46
Outperformed a lot	10	13	15	12	11

DIGITAL LEADERS
Top 2 quartiles on current capabilities with apps, APIs, and analytics
- Outperformed a lot
- Outperformed a little

DIGITAL LAGGARDS
Bottom 2 quartiles on current capabilities with apps, APIs, and analytics
- Outperformed a lot
- Outperformed a little

Source : Apigee Institute

Apps and the keys to mastery

Apps are a key to meeting fundamental market demands. A 2013 Apigee Institute survey found that 85% of marketing and IT executives viewed apps as relevant to their companies' market positions over the next five years.[5] Within the enterprise, 77% of CIOs polled by McKinsey & Company said they planned to enable employees to use personal mobile devices to access company data and apps.[6]
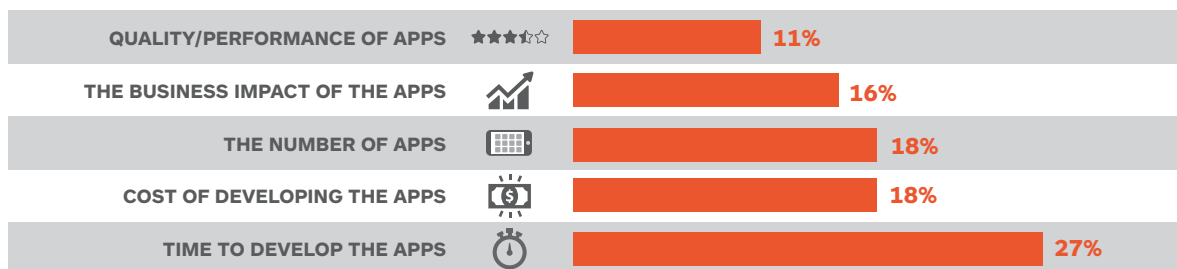
Enterprises embrace apps because they're proven to drive productivity, brand appeal, and sales. Sixty-six percent of U.S. smartphone owners were more likely to shop at a store that offers key functions via an app versus one that doesn't, according to a November 2013 Apigee Institute survey.

This understanding has been growing for some time:

companies that built and deployed the first iPhone apps will celebrate their seventh anniversary in the app economy this year. Yet many enterprises still struggle to build apps on time, on budget, or with the intended business impact.

According to an Apigee Institute survey of IT decision makers in large enterprises that attempted to deploy apps in 2013 (see methodology note at end for survey details), more than one in four failed to meet their timeline, nearly one in five failed to meet budget, and a similar proportion delivered fewer apps than planned. Of that same group of companies, another 5% failed entirely in their attempts to produce apps. Altogether, a full 45% of respondents failed to meet expectations on at least one of the five criteria.

FIVE SUCCESS METRICS
PERCENTAGE OF COMPANIES WHERE APP DEPLOYMENT FAILED TO MEET EXPECTATIONS
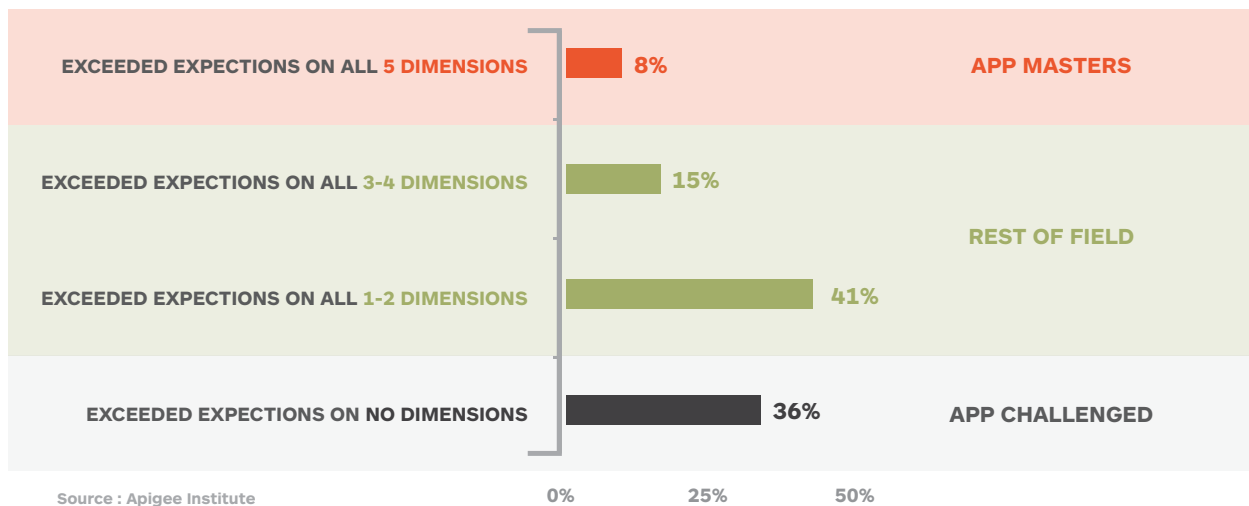
QUALITY/PERFORMANCE OF APPS	★★★⯪☆	11%
THE BUSINESS IMPACT OF THE APPS		16%
THE NUMBER OF APPS		18%
COST OF DEVELOPING THE APPS		18%
TIME TO DEVELOP THE APPS		27%

Source : Apigee Institute

Apps and the keys to mastery

In contrast, some companies seem to have mastered app development. Of the full sample, about 8% reported exceeding expectations on all five metrics for success building and deploying apps: quality and performance, budget, time to delivery, quantity of apps, and business impact.

The companies that reported exceeding expectations on all five metrics for app development success—enterprises that we refer to as "app masters"—are distinguished from others by one significant characteristic: their strikingly different description of their IT organization.

App masters have IT departments that incorporate a two-speed structure to their IT program. They have a "top gear" that features an "outside-in" structure and process to maximize their agility and adaptability. This enables these companies to deliver competitive systems of engagement, while maintaining a first gear that provides the core competencies and support for stable systems of record.

APP DEPLOYMENT EXCEEDING EXPECTATIONS
BY NUMBER OF DIMENSIONS OVER THE PREVIOUS 12 MONTHS

EXCEEDED EXPECTIONS ON ALL 5 DIMENSIONS	8%	APP MASTERS
EXCEEDED EXPECTIONS ON ALL 3-4 DIMENSIONS	15%	
EXCEEDED EXPECTIONS ON ALL 1-2 DIMENSIONS	41%	REST OF FIELD
EXCEEDED EXPECTIONS ON NO DIMENSIONS	36%	APP CHALLENGED

0%   25%   50%

Source : Apigee Institute

Apps and the keys to mastery

Systems of record versus systems of engagement

Understanding the differences between systems of record and systems of engagement is critical to comprehending exactly why enterprise IT is broken in the new digital context.

In a model proposed by Geoffrey Moore regarding legacy IT systems, the systems that many senior IT leaders learned to manage for most of their careers are "systems of record."[7] These systems were designed and optimized to collect, store, recall, or present discrete pieces of information.

In contrast, the digital age has brought systems of engagement to IT. These are not systems premised on the collection of and presentation of discrete data; rather they are decentralized systems that often use the cloud to encourage peer interactions. The problem, as James Staten outlines, is that while systems of engagement need systems of record, the two are fundamentally incompatible.[8]

> " The two systems are as divergent as oil and water in design, operation, and rate of change … This dichotomy is creating a fault line in many enterprises' application portfolio and in their development organizations. "

Relieving the tension requires tackling it head-on. BCG, the Boston Consulting Group, describes the result as "two-speed IT."[9] There's the speed that traditional IT can deliver service to the business. Then there's "digital speed," which is necessary to enable and drive the company's digital agenda, BCG says.

> " Industrial-speed IT, where the primary emphasis is on cost optimization rather than flexibility, is characterized by predictability, long lead times, and siloed, functionally organized teams of individuals who possess specific skills. Digital-speed IT is characterized by unpredictability and places a premium on flexibility, speed, and collaboration. "
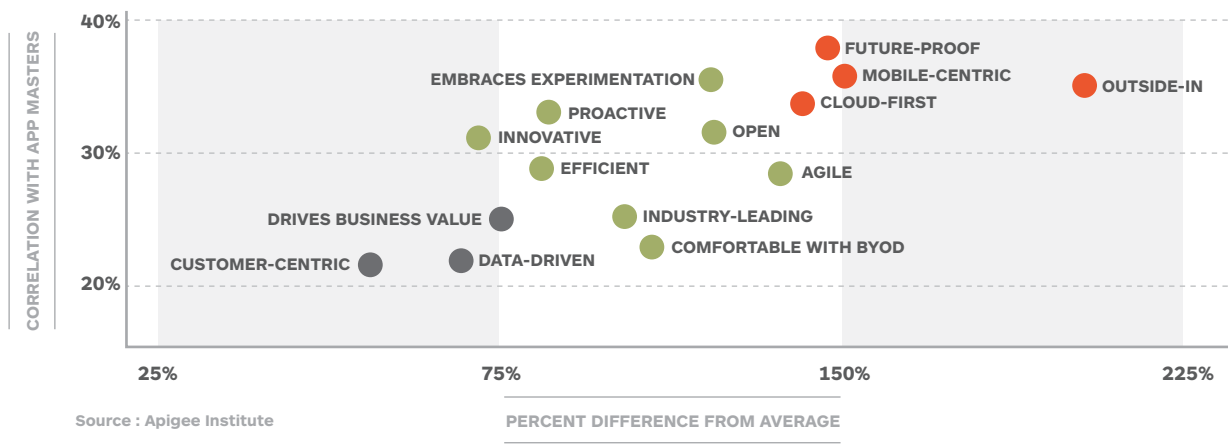
Top gear:
working from the outside in

IT decision makers at app masters have a unique view of their IT departments; they describe them as significantly more cloud-first, mobile-centric, and future-proof.

But the trait that most distinguishes app masters from other enterprises is the degree to which the IT decision

accepting that legacy systems and practices are a constraint, they ask how legacy systems and practices can change or be extended to make their company a digital leader.

Second, they have moved beyond "build versus buy"

IT DEPARTMENT TRAIT DIFFERENTIATION

CORRELATION WITH APP MASTERS

40%

FUTURE-PROOF
MOBILE-CENTRIC
EMBRACES EXPERIMENTATION
CLOUD-FIRST
OUTSIDE-IN
PROACTIVE
INNOVATIVE
OPEN
30%
EFFICIENT
AGILE
DRIVES BUSINESS VALUE
INDUSTRY-LEADING
CUSTOMER-CENTRIC
DATA-DRIVEN
COMFORTABLE WITH BYOD
20%

25%   75%   150%   225%

Source : Apigee Institute

PERCENT DIFFERENCE FROM AVERAGE

makers at these companies describe their department as outside-in. In brief, this describes an IT department that has shifted away from two established patterns of resourcing and development. First, they have embraced delivering digital experiences for employees, customers, and partners as a competitive necessity. Rather than

to view the IT function as an ecosystem orchestrator, aggressively leveraging external resources whenever and wherever they provide an edge.

These IT organizations are looking beyond short-term efficiency and risk avoidance toward longer-term business enablement and top-line growth.

Top gear: working from the outside in

Acting in an outside-in manner translates into fundamental shifts within the IT department in terms of both practices and prioritization. App masters are much more likely to use the cloud. They are also more likely to aggressively pursue external partners for reasons beyond cost reduction. Lastly, IT decision makers at app masters tend to hold much stronger views about the strategic value of external resources such as Mobile-Backend-as-a-Service (MBaaS).

App masters embrace the cloud much more aggressively than the rest of their peers. About half of them (49%) strongly agree that they are committed to leveraging cloud-based resources to meet business needs, compared to only 12% of the full sample.

Eighty-five percent of app masters have replaced legacy components with public or private cloud alternatives. Another 83% of this group reports committing to leveraging cloud-based external resources wherever they meet business needs.

On average, the app master enterprises reported moving 80% of their infrastructure to Infrastructure-as-a-Service (IaaS), and 80% of their application development to Platform-as-a-Service (PaaS). In comparison, the nearly two in five companies that failed to exceed expectations on a single app success metric (the "app challenged") reported moving an average of 44% of their architecture to IaaS and PaaS.

IT from the outside in

This is the first paper to empirically show a positive relationship between outside-in IT departments and real technological business results. The theory around the benefits of outside-in IT however, is well-established. Deloitte identified "Outside In" as one of their top 10 tech trends of 2012.[10] In that report, Dan Pritchett, chief technology officer of Rearden Commerce, explains:

> An outside-in approach has also made it easier to dive into new technologies such as cloud and mobile, because we start with a services mentality. Mobile, for instance, is a logical extension of what we do, and our technology platform has shown to be an excellent foundation as we introduce mobile offerings. As we move deeper into the cloud, we expect to find the same to be true. These capabilities can also allow us to expand the reach of our transparent, outside-in approach among travel consumers and service providers alike.

Previous Apigee Institute research emphasizes the importance of IT and marketing alignment for successful digital transformation.[11] And Forrester Research articulates how an outside-in approach can unify IT and marketing around delivering customer experiences.[12]
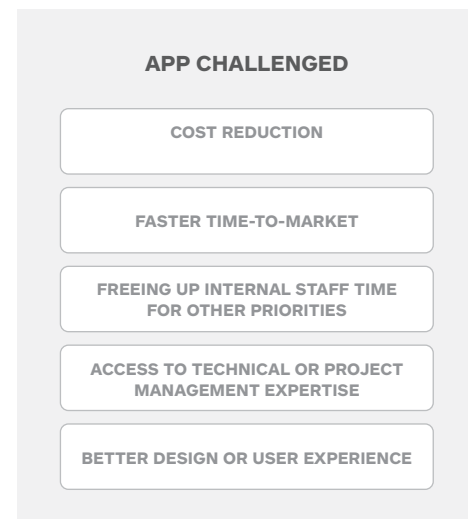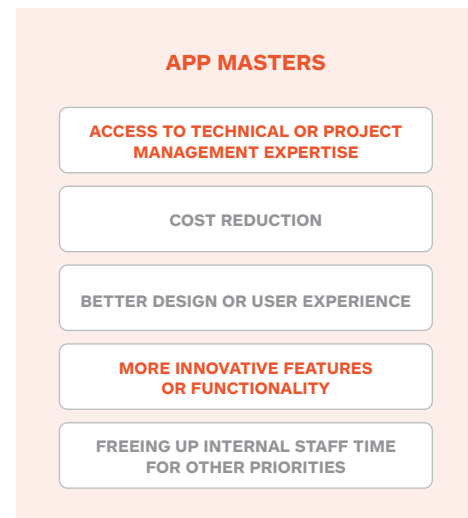
Top gear: working from the outside in

The app-challenged enterprises were on an entirely different page. Only 28% of the IT decision makers at these companies judged using external resources for access to technical or project management expertise as an extremely important reason to use external partners. Four in ten of these IT decision makers saw the same value in using external resources for cost reduction. Overall, the app challenged tended to regard time-to-market, cost, and internal staff time as the top reasons one would use external resources; app masters equally valued technical and design expertise.

App masters also are far more open to working with outside parties. While 32% of app masters mostly or exclusively used outside infrastructure partners to develop and build their apps, only about 15% of the full sample did the same. On the other side of the spectrum, only 11% of the app masters mostly or exclusively used internal resources, compared with more than a quarter of the app challenged.

When asked whether, as a company, they proactively look for external resources instead of prioritizing the use of internal resources, nearly a third of the IT decision makers at the app masters strongly agreed; only 6% of those at the app challenged enterprises did.

App masters aim to use their external partners for more than just cost savings. While cost savings were a top reason for using external partnerships, the same percentage (78%) cited access to technical or project management expertise as an extremely important reason to use external partners.

TOP 5 REASONS
FOR USE OF EXTERNAL RESOURCES
TO DEVELOP AND DEPLOY APPS

APP MASTERS

ACCESS TO TECHNICAL OR PROJECT
MANAGEMENT EXPERTISE

COST REDUCTION

BETTER DESIGN OR USER EXPERIENCE

MORE INNOVATIVE FEATURES
OR FUNCTIONALITY

FREEING UP INTERNAL STAFF TIME
FOR OTHER PRIORITIES

APP CHALLENGED

COST REDUCTION

FASTER TIME-TO-MARKET

FREEING UP INTERNAL STAFF TIME
FOR OTHER PRIORITIES

ACCESS TO TECHNICAL OR PROJECT
MANAGEMENT EXPERTISE

BETTER DESIGN OR USER EXPERIENCE
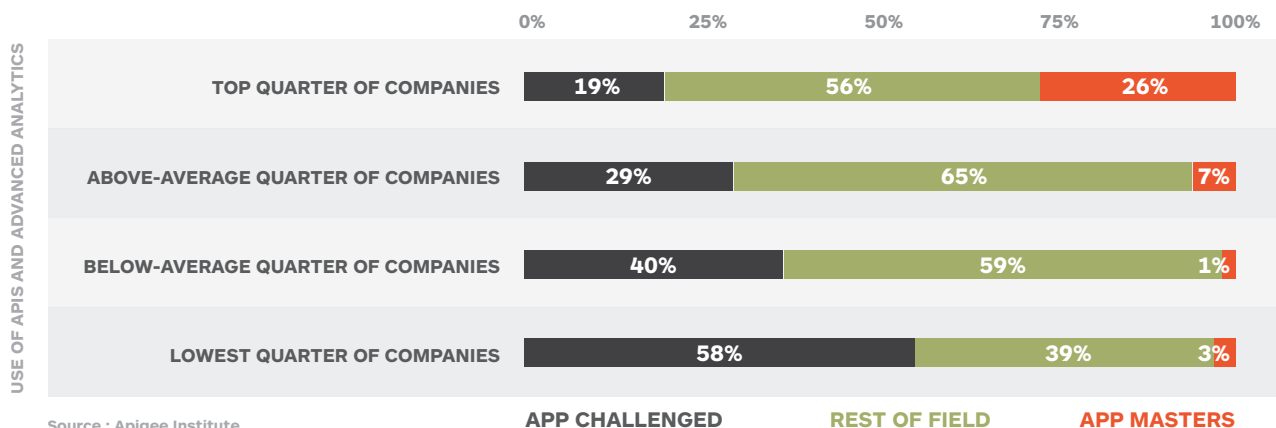
Top gear: working from the outside in

A strong first gear: accelerating apps through APIs and data

Companies that possess above-average capabilities operating APIs and using data analytics see a massive advantage building and deploying apps. As the accompanying chart shows, a majority of the companies that have failed to reach strong capacities with API development and data analysis are app challenged. In contrast, companies that have developed strong API and data capabilities are more than three times as likely to be app masters.

As business drives demand for contextually-aware, highly personalized, predictive apps, delivered to new types of devices, built in tighter timeframes, the application architecture has to move beyond the integration-server/application-server pattern that has characterized much of the last decade of web application development to a four-sided model of API architecture—app-to-client, app-to-backend, app-to-app, and the exploded app built from micro-service APIs.

Once this happens, not only can the application be built in an agile fashion, deployed at scale, and support any form of future front-ends, it can also easily be connected to every other application inside and outside the enterprise. It can easily share the relevant data with analytics systems, and, in turn, deliver back data-driven, contextually-relevant actions based on real-time feedback loops driven from those same analytics systems. For more on how an API-centric architecture can drive stronger app delivery capabilities, see the free ebook "APIs are Different than Integration."

HOW API AND ADVANCED ANALYTICS CAPABILITIES AFFECT THE LIKELIHOOD OF BEING AN APP MASTER

USE OF APIS AND ADVANCED ANALYTICS	0%	25%	50%	75%	100%
TOP QUARTER OF COMPANIES	19%	56%		26%	
ABOVE-AVERAGE QUARTER OF COMPANIES	29%	65%			7%
BELOW-AVERAGE QUARTER OF COMPANIES	40%	59%			1%
LOWEST QUARTER OF COMPANIES	58%	39%			3%

Source : Apigee Institute

APP CHALLENGED   **REST OF FIELD**   **APP MASTERS**

Top gear: working from the outside in

Going outside in does not mean giving up technical expertise within the enterprise. In fact, two-thirds of app masters cite their internal expertise as an asset that moves the company forward— this percentage is higher than the survey average (57%).

Nearly half of the app masters view their existing technology infrastructure as an asset while nearly 60% of the least successful companies cite it as a liability. This especially comes through in relation to APIs and analyzing data, which are key to maintaining the strong system of records first gear.

App masters consider their commitment to outside-in resourcing a strategic advantage that they exploit to stay ahead of the competition. A majority of the respondents

in this survey did not embrace the strategic value of external resourcing: fewer than one in three agreed that being cloud-first by making use of IaaS, PaaS, and Mobile-Backends-as-a-Service (MBaaS) while strategically approaching external resources is extremely relevant to their company's strategic market position.

Even fewer—18%—respondents from app-challenged enterprises agreed that statement was extremely relevant. In contrast, a full 61% of the app masters agreed that being cloud-first by making use of IaaS, PaaS, and MBaaS while strategically approaching external resources is extremely relevant to their company's market position.

Beyond the glass house

When enterprises first deployed mainframes and direct-attached storage, many were so proud that they would put them in centrally located rooms with large windows that enabled visitors to see their impressive machinery humming away. These glass houses put the beating heart of a company's systems of record on display.

Today's systems of engagement are hardly a sideshow. Rather, they define and deliver the digital experiences through which the enterprise wins, serves, and retains customers and partners. Unfortunately, enterprise IT's patterns and practices remain heavily conditioned by a mindset shaped in a world where everyone outside of IT could "look but not touch."

As benchmarked here by the ability of IT organizations to meet expectations for one of the fundamental capabilities every global enterprise needs to compete in the digital world—building and deploying apps—patterns and practices drive real differences in performance. To meet and exceed expectations, IT leaders must move beyond the legacy of an inside-out, control-oriented mindset and toward an outside-in, cloud-first, and digital experience-centric approach.

Systems of record must continue to work reliably at the core, but enterprise IT will remain misaligned until

> ❝ IT leaders must move beyond the legacy of an inside-out, control–oriented mindset and toward an outside-in, cloud-first, and digital experience-centric approach. ❞

business technology, centered around systems of engagement, is recognized as an important but very different function and competency. This is not to say that business technology replaces systems of record. They will continue to serve an important role as an information systems utility.

Like a utility, IT departments still reliably maintain, create, organize, and improve their company's back-end infrastructure and systems of record. After all, even among the app masters, IT departments are still described as efficient. In the same way, they should allow anyone to plug in and power their own systems. The electrical company does not care whether their energy is powering a car, TV, or kitchen blender. In the same way, IT should be able to power internal databases, websites, apps, or whatever new technology takes the world by storm in 2015.

Conclusion

Methodology Note

The Apigee Institute's 2014 Global IT Decision Maker online survey was fielded in January 2014 to 800 IT decision makers at companies with more than $500 million in annual revenue in eight geographies.

All respondents were surveyed in their language of choice; they came from Australia, China, France, Germany, India, Japan, the U.K., and the U.S. The survey was weighted to proportionally represent each country's relative share of Forbes' 2013 Global 2000. Each participant was screened to ensure qualification as an IT decision maker.

The sample was drawn from participants in digital research data provider ResearchNow's online panel; respondents were compensated for participation by receiving credits that could be redeemed for a reward.

The data from our survey empirically shows that those companies with IT departments described as outside-in and leveraged cloud resources, engaged external partners, and embraced the strategic value of external resources are the enterprises that managed to outpace everyone in terms of app development.

These companies have managed to fundamentally shift how they adopt new technology, and created a flexible system that will enable them to scale and shift as new technology demands. This research suggests that, if the rest of the companies do not shift accordingly, they will fall further behind with every wave of new technology.

About Apigee

Apigee is the leading platform for digital acceleration. Apigee empowers enterprises to gain the speed, scale, insight, and agility required to become a digital business. Through the Apigee Edge API platform and Apigee Insights predictive big data analytics, Apigee helps businesses move at the new pace and scale of digital, while predicting and continuously adapting to change. Used together, APIs and predictive analytics create a powerful adaptive cycle of continuous improvement—and the faster an enterprise goes through this cycle, the faster it accelerates to become a digital business.

Many of the world's leading businesses, including 20% of the Fortune 100, use Apigee for digital acceleration. Apigee customers include global enterprises such as Walgreens, eBay, Shell, Live Nation, Kaiser Permanente, and Sears.

For more information, visit apigee.com.

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About the Apigee Institute

The Apigee Institute is a research and strategy organization committed to helping businesses succeed in the new digital world. The Apigee Institute includes executives in Global 2000 corporations, academic researchers, and domain experts who collaboratively shape its research agenda and participate in building a body of empirical data as a shared resource.

For more information, visit The Apigee Institute

About the Authors

Bryan Kirschner is director of the Apigee Institute. He has over twenty years of experience using empirical data to drive strategic change in large enterprises. Prior to joining Apigee, his roles included leading the corporate practice at DC-based strategy consulting firm Greenberg, Quinlan, Rosner Research and director of open source strategy at Microsoft. Bryan is a graduate of Yale University.

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Endnotes

1]   Fitzgerald, Michael. "The Digital C-Suite. " Sloan
      Review, MIT. 27 May 2014 .

2]   CDO Club. "Number of Chief Digital Officers Doubled
      in 2013…" 11 May 2014.

3]   Nicastro, Dom. "CIO Reports to CMO: Technology
      Under Marketing? #gilbane" CMS Wire. 3 Dec 2013

4]   Brinker, Scott and Laura McLellan. "The Rise of the
      Chief Marketing Technologist." The Harvard Business
      Review Magazine. July-August 2014.

5]   Apigee Institute. "An Emerging Digital Divide." May
      2013.

6]   Ellis, Lisa and Greg Gilbert. "The mobile disruption:
      the next enterprise IT shake-up." McKinsey &
      Company. June 2012

7]   Moore, Geoffrey. "Systems of Engagement and The
      Future of Enterprise IT: A Sea Change in Enterprise IT."
      AIIM. 2010.

8]   Staten, James. "The Seismic Shift in Application
      Portfolios." Forrester Research. March 12, 2014.

9]   Gourevitch, Antoine, Benjamin Rehberg, and Jean-
      Francois Bobier. "Two-Speed IT: A Linchpin for
      Success in a Digitized World." BCG Perspectives.

10]   Deloitte Consulting. "Tech Trends 2012: Elevate IT for
      Digital Business."

11]   The topic of IT and Marketing alignment was first
      explored in the Apigee Institute report "An Emerging
      Digital Divide"

12]   Fenwick, Nigel. "The State of Digital Business 2014."
      Forrester. 7 May 2014. Updated 27 May 2014.