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TechInsights Report: What Smart Businesses Know About DevOps



Executive Summary

DevOps is real. DevOps is here. Yet DevOps finds itself in a unique position; a majority of IT organizations are doing it and seeing quantifiable benefits from it, yet not everyone agrees on what is the best path to DevOps.

Now more than ever DevOps, a process which helps foster collaboration between the teams that create and test applications with those that maintain them in production environments, is poised for widespread adoption across IT organizations worldwide. New research commissioned by CA Technologies and conducted between May and July 2013 by Vanson Bourne shows many organizations are achieving significant and measurable benefits from DevOps—anywhere from between **17% to 23% improvement** in key business metrics such as revenue, time-to-market and new customer acquisition

This study of 1,300 senior IT decision-makers worldwide proves IT leaders recognize they must change how their organizations work to accelerate time to market, improve software quality, speed application development and meet growing customer demand. It also confirms that two-thirds of IT leaders are deploying new technologies, updating processes and collaborating across IT domains to implement DevOps and achieve these goals. But one in six IT decision-makers is still unfamiliar with the term DevOps, although they may be already implementing key elements. In fact, many different technologies and strategies are identified as falling under DevOps, so there are a variety of approaches organizations can take to begin implementing.

This research paper will help IT leaders understand:

- The wide range of technologies and processes that can be used to implement DevOps initiatives, and what is driving organizations to adopt DevOps
- The investments that will be required to be successful, the obstacles that need addressing and how organizations are measuring results
- The significant, quantifiable business results successful organizations are achieving with DevOps
- Next steps IT leaders should be taking to get started with DevOps, or expand their existing approach to DevOps to achieve additional benefits

There Are Many Paths to DevOps

DevOps is a methodology that combines what used to be the separate and sequential processes of development and operations into a continuous process of understanding a market need, refining an application or service to meet that need, and testing and deploying the solution. DevOps combines the trinity of all disruptive IT trends: people, processes and technology.

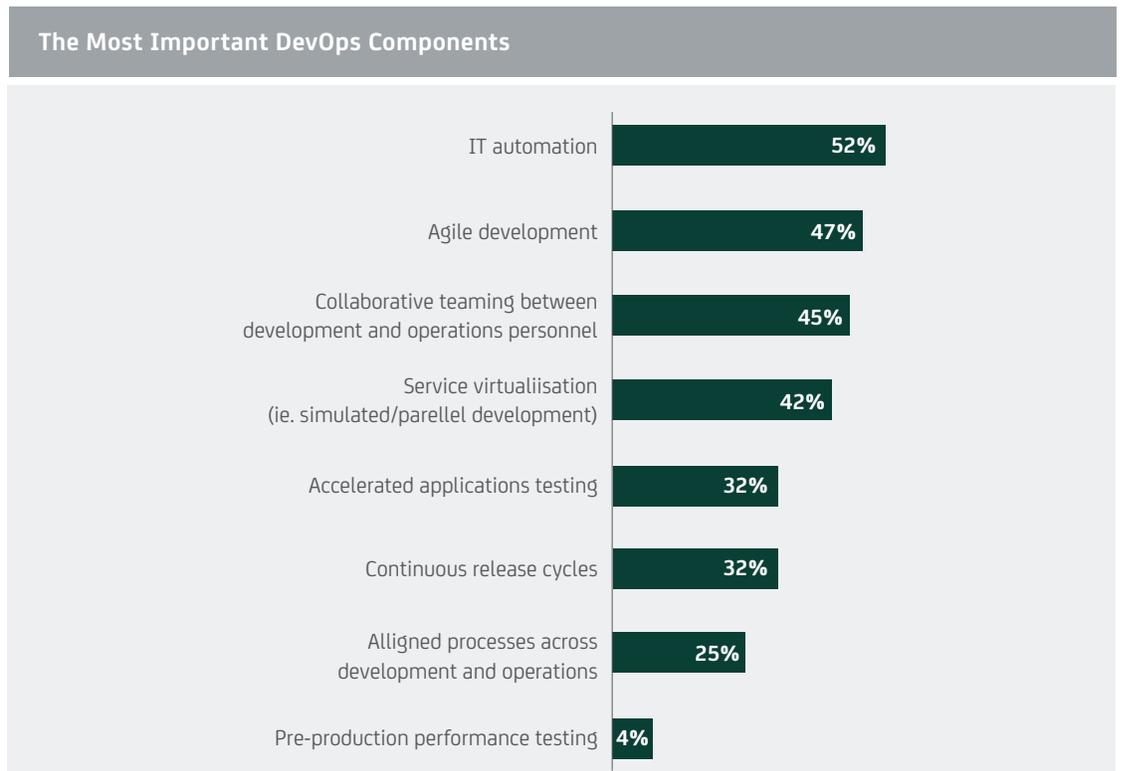
One interesting result from the research is the spectrum of tools and technologies that respondents associated with DevOps.

Technologies such as IT automation (52%) and methodologies like agile development (47%) topped respondents' lists of must-have DevOps components (See Figure A). Process improvements such as collaborative teaming between development and operations (45%) as well as parallel development technologies like service virtualization (42%) also landed on the list. The range of components shows an understanding of the fundamentals of DevOps, but also indicates a need for added direction to get started down the DevOps path.

Figure A.

Which of the following do you think of as the most important components of any DevOps strategy?

Total: 859 respondents who have or plan to have DevOps



For instance, IT automation received the highest percentage of responses as a key component to DevOps, but no organization should implement IT automation until they have designed the appropriate processes to automate. Automating poor process will not lead to the desired improvements DevOps offers. Collaboration among teams, process improvements and the like would precede automation and service virtualization technology adoption, for instance. IT organizations must first get in place the DevOps principles and practices before committing solely to significant technology investments.

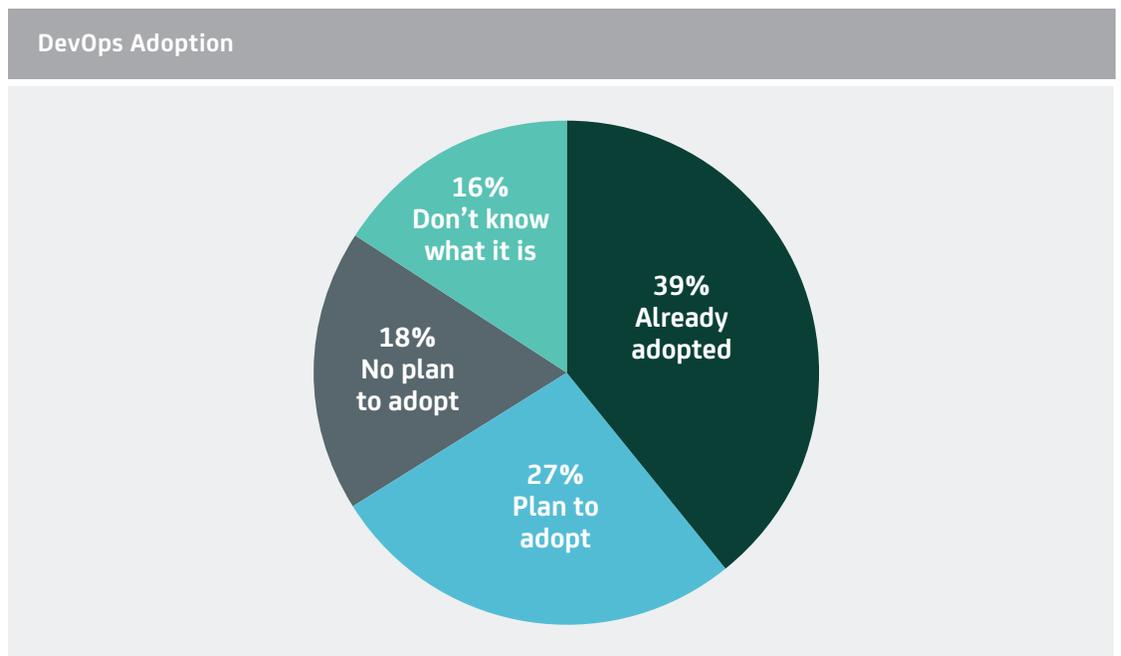
What is Driving DevOps, Now More Than Ever

There is no question DevOps has become prevalent across IT organizations worldwide, with 66% of respondents reporting that DevOps is on their IT agenda, with current or planned deployments under way, and significantly fewer, 18%, anticipating no DevOps-related projects. Another 16% indicated they “do not know what DevOps is” (See Figure B).

Figure B.

Have you adopted a DevOps approach or methodology in your organization?

Total: 1300



In nearly all countries, the majority of respondents indicated that DevOps is needed now more than ever. The reasons for this largely focus on satisfying customer demands. According to IT decision-makers surveyed, the key DevOps drivers range from greater collaboration among IT teams (47%) to a need for accelerated business service delivery (41%) to increased customer satisfaction via an improved customer experience (39%). These survey respondents also pointed to the growing need to develop mobile applications and an increased pressure to deliver applications in virtualized and cloud environments as key DevOps drivers (See Figure C).

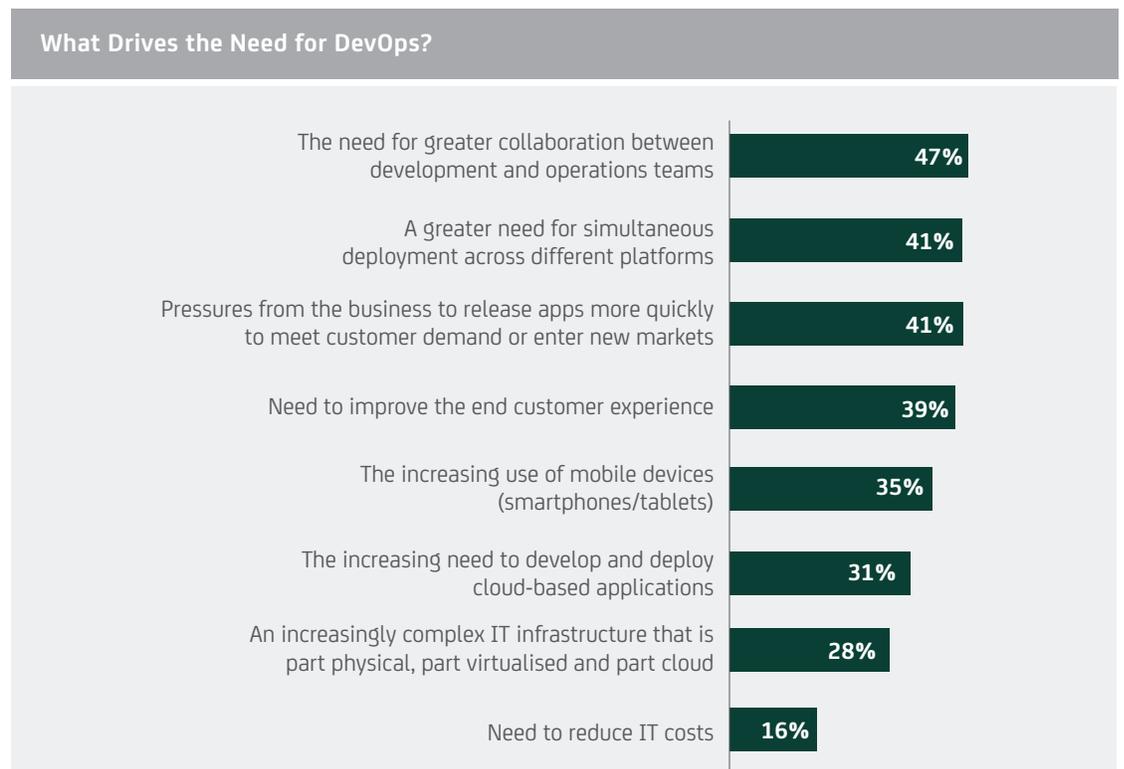
Also interesting to note is that the need to cut costs isn't considered one of the more significant drivers for DevOps, while in many cases DevOps can at the very least be credited with **cost avoidance** in terms of testing infrastructure investment and software defect detection.

The data proves that as disruptive trends challenge IT organizations, the need to improve the practices around application development, quality testing and release management also grows. The variety of reasons given as to why DevOps is needed more than ever and the fact that no one response was the clear frontrunner show that DevOps is still a young concept for many.

Figure C.

What is driving the need for DevOps now more than ever before?

Total: 908, asked of those who said there was a greater need



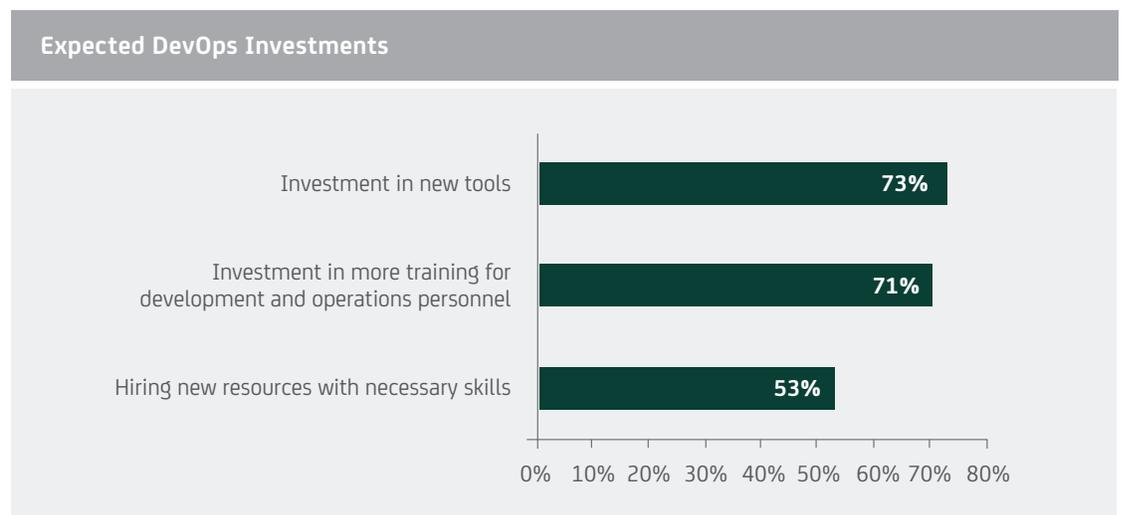
Follow the Money: DevOps Investments

While IT decision-makers do not consider cost cutting as a significant driver to DevOps, the majority do anticipate DevOps will require investment in technologies, tools, training and headcount (see Figure D). Nearly three-fourths of respondents (73%) anticipate investing in new tools due to their DevOps implementation. More than 70% expect to commit more budget dollars to training both development and operations staff on the tenets of DevOps. And more than half (53%) foresee having to hire new personnel with the necessary skills to support a DevOps adoption.

Figure D.

Which of the following are you likely to invest in over the next year as part of your implementation of a DevOps methodology?

Total: 859 respondents who have or plan to have DevOps



These numbers are encouraging. Not only do IT decision-makers realize evolving their approach to development, test and release will require new tools, they also recognize DevOps will require updated and, in some cases, brand new skills. Acknowledging that additional training dollars and potentially acquiring new talent will enable a successful DevOps deployment is a positive sign.

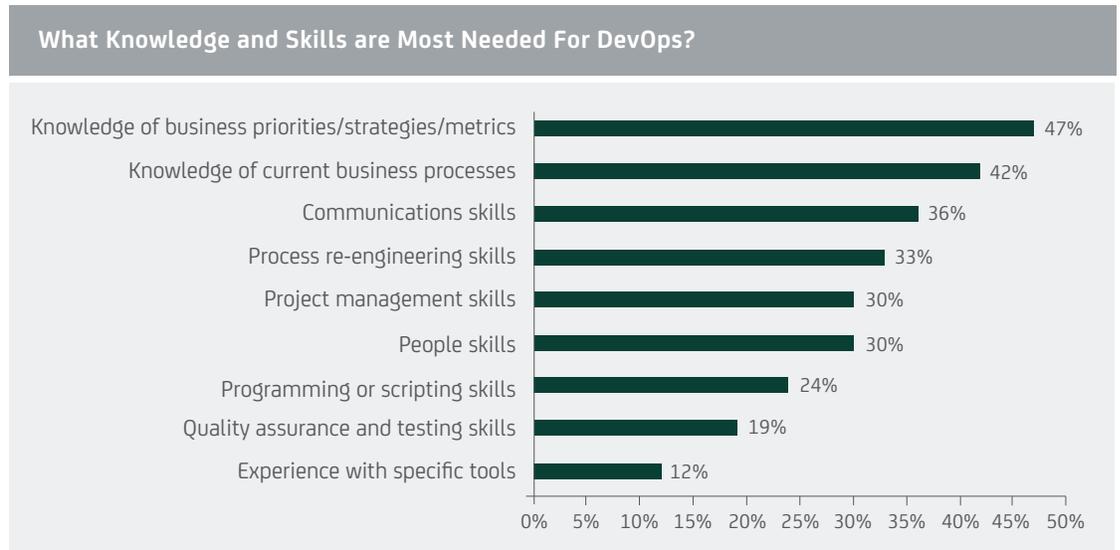
As previously stated, DevOps is about people, processes and technology. IT organizations will not only need to acquire the skills to master the new tools associated with DevOps such as service virtualization and release automation, but they must also add experts in DevOps processes to help streamline their approach before launching technologies to support the implementation. Like disruptive trends such as cloud and technologies like VoIP and virtualization, DevOps will lead to entirely new roles across IT departments. Organizations are already exploring release managers, automation managers and service virtualization experts.

It's clear in the survey that business skills trump technical skills when it comes to DevOps (See Figure E). Knowledge of business strategies, processes and communication skills are mentioned much more frequently than technical skills such as programming/scripting, QA/testing and experiences with specific tools. This data provides another positive indicator that those adopting the methodology understand the importance of process improvements and collaboration across departments.

Figure E.

What knowledge and skills are most needed within development and operations in order to successfully implement a DevOps strategy?

Total: 1,300



Lead, Follow or Get Out of Your Own Way

Even if IT decision-makers can dedicate dollars to DevOps, they could find themselves stalled due to a slew of other reasons. This research shows that the potential pitfalls to a DevOps rollout are wide-ranging, although many are related to people and processes more than technology. The lack of a few clear obstacles poses challenges not only to potential DevOps adopters, but also to the market in general as it looks to provide solutions to ease deployments and enable successful DevOps implementations (See Figure F).

Figure F.

What are the major obstacles to implementing a DevOps strategy in your organization?

Total: 1,300

Top Five DevOps Obstacles	Percentage
Organizational complexity—too many people or departments involved, too many interdependencies	35%
Roles and responsibilities across development and OPS are not aligned	28%
Security or compliance concerns	25%
A lack of understanding of the phases of the entire development lifecycle and who is responsible for which step	24%
No budget or a lack of clarity over whose budget is responsible for what	24%

The top reason (35%) preventing DevOps from taking off is organizational complexity—too many people or departments involved. Another organizational issue presenting an obstacle is lack of role alignment (28%). These and other obstacles listed on previous page help illustrate why DevOps needs strong leadership.

Any DevOps implementation needs to be driven from the top. Executive-level IT leaders that can see the bigger picture across IT domains, including application development, quality testing and IT operations, need to set the mandate for DevOps and ensure departments fall in line. The challenge lies in the lack of understanding of roles outside of the immediate domain and also a history among these disparate groups to direct blame at each other when problems do arise.

Changing how several IT groups work together isn't an IT project with an end date; DevOps requires continual process improvements, allowing companies to speed application delivery based on customer demand and quickly respond to disruptive technologies. These organizational challenges can be overcome, but again, strong leadership needs to set the tone for the many groups to follow suit and organizations must devise recognition programs to reward incremental progress to maintain momentum around DevOps efforts.

The Real Payoff of DevOps: Quantifiable Business Benefits

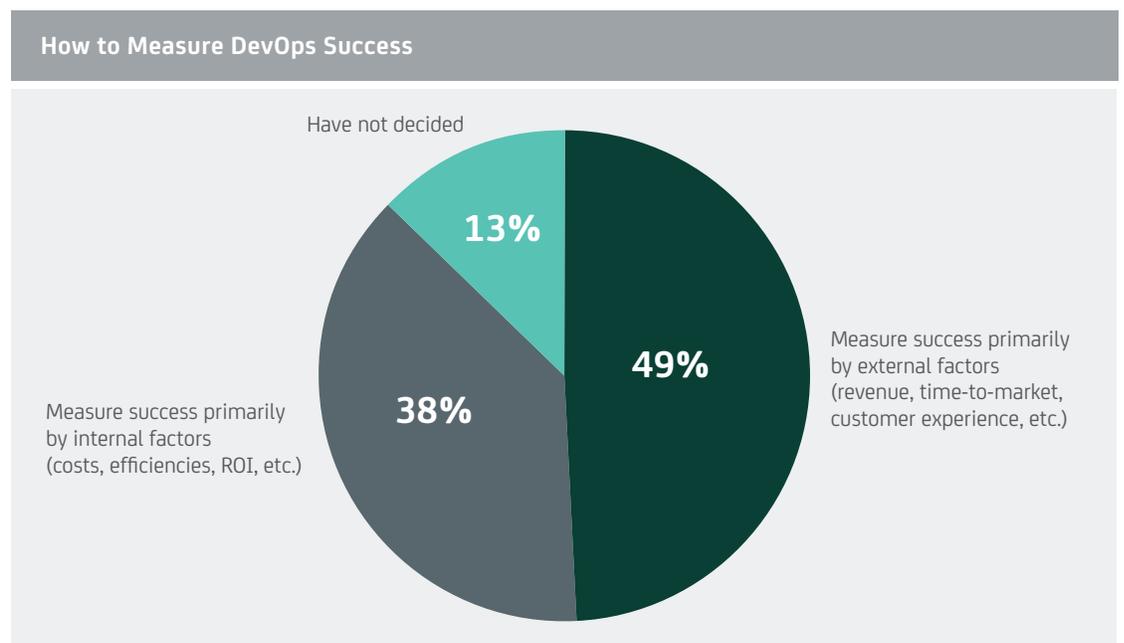
DevOps provides many opportunities, but one theme resonates across several responses: the customer.

While IT decision-makers are nearly split on how to measure the methodology's success, the results prove external measures (for instance, improved customer experience) will represent more indicators than internal. Nearly 50% of respondents expect to use external business measures vs 38% who expect internal measures will provide insight into the success of their DevOps deployment (see Figure G).

Figure G.

Which one of the following statements best describes how you will measure success of your DevOps initiatives?"

Total: 859 respondents who have or plan to have DevOps

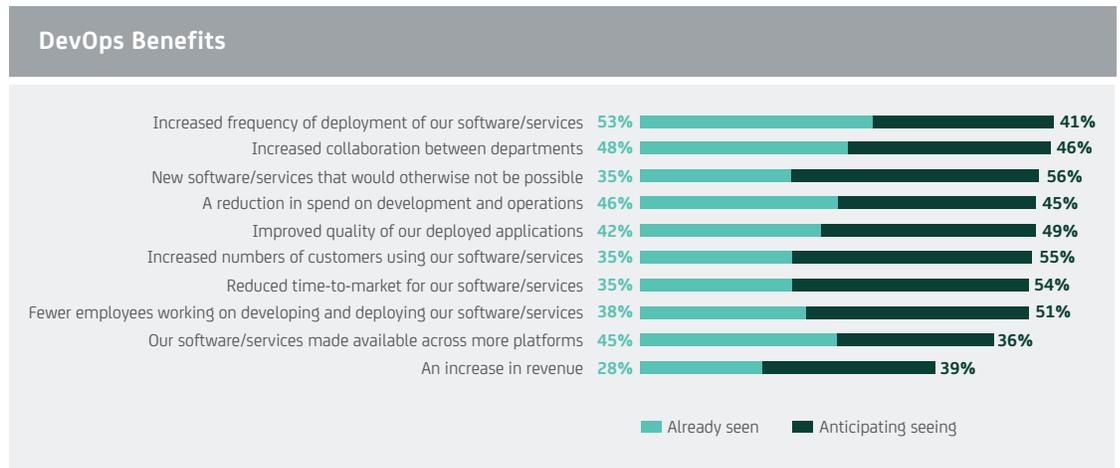


The actual and anticipated benefits include increased collaboration between departments, a reduction in spend on development and operations, and fewer employees working on developing and deploying software, but more often the benefits relate to external customers (See Figure H).

Figure H.

What benefits have you seen or do you anticipate seeing from implementing DevOps in your organization?

Total: 859 who have or plan to have DevOps



Take the top response, increased frequency of the deployment of our software and/or services. While this could indicate internal customers, it also shows IT organizations are looking outside of their own group to see the results. More frequent releases potentially loaded with added features and improvements in many cases would be viewed as positive to most customers.

Some of the most intriguing results from the research show that the impacts of DevOps deployments are real and measurable. The survey asked those DevOps adopters who had already been experiencing benefits to quantify the results, if possible. The research revealed improvements on the order of 17%–23% across a wide range of areas, from increased revenue and faster time-to-market, to improved quality and new customer acquisition (See Figure I). This should provide the proof needed to help IT leaders who maybe be sitting on the fence to move forward with their DevOps strategies.

Figure I.

What has been the percentage improvement, increase, or reduction for each of the quantifiable benefits you have seen? Asked of those who have experienced benefits, number varies by option.

DevOps Improvement Results	
Metric	Percent Improvement
Increased collaboration between departments	23%
Improved quality of our deployed applications	22%
Increased numbers of customers using our software/services	22%
New software/services that would otherwise not be possible/explored	21%
Fewer employees working on developing and deploying our software/services	21%
Reduced time-to-market for our software/services	20%
An increase in revenue	19%
Our software/services made available across more platforms	19%
A reduction in spend on development and operations	18%
Increased frequency of deployments of our software/services	17%

Next Steps: Learnings From the Research and Advice From CA Technologies

The time to tap into the power of DevOps is now. IT organizations worldwide are experiencing the benefits and anticipating many more. All that is needed to amplify DevOps efforts is guidance.

Here are some essential steps you can take now, based on key learnings from this research and the experience of CA Technologies experts who have been working with customers on their DevOps initiatives.

Designate an executive-level DevOps evangelist. The research shows that organizational complexity is a key obstacle to success with DevOps, and it demands executive leadership. Only an executive with a higher-level view across IT domains can communicate the mandate to adopt DevOps and make DevOps a must-do for the IT organization as a whole.

Appoint DevOps-focused team members from each required domain. These individuals must not only understand the concepts around DevOps, but also the practical applications of processes and technologies to make the DevOps implementation successful.

Make a must-have skills list. The research outlines a number of new business and technology skills which will be needed for DevOps. Process experts will help get companies started and tools specialists will put technology designed to accelerate processes in place. The skills could be scarce so additional in-house training programs could be required.

Streamline processes to incorporate input across development, QA/test and operations. Before rolling out technology, DevOps teams should work on business and IT process improvements to ensure they have identified the pitfalls their efforts could encounter and plan how to eliminate glitches. Knowledge of existing business processes is a key skill identified by the research as needed for DevOps.

Budget for talent and technology. The research clearly shows that additional headcount, training programs and new technology will be needed to make DevOps work. Technologies such as application delivery, service virtualization, IT automation and release management will only be successful with knowledgeable staffers taking the reins. And don't forget to conduct an internal inventory of tools, identify gaps and fill the holes needed to support the DevOps methodology.

Identify the trouble-maker applications. IT organizations looking to test DevOps before committing completely might think starting small is the right approach. It's not. The best way to prove the value of DevOps is start with an application that has been causing problems across production and creating headaches for developers trying to work out the code defects. This is the application that will show exactly how much DevOps can do. Use this success to take on the next application, and repeat.

Methodology

This global study was conducted online by Vanson Bourne in May-July 2013 with 1,300 senior IT decision-makers at enterprise organizations across five industry verticals of financial services, healthcare, manufacturing, public sector and telecommunications. The survey was conducted in the following geographies:

Americas: United States, Brazil

Europe: U.K., France, Germany, Italy, Switzerland, Iberia (Spain/Portugal), the Netherlands, the Nordics, Israel

APAC: Australia, China, India, Japan, Singapore, South Korea

Respondents were required to hold IT executive, management, project lead or enterprise architect titles at enterprise organizations with revenues (or equivalent) of at least \$100M.

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