

DevOps Heat Map 2017

Landscape: The Modern Service Delivery Playbook

by Robert Stroud and Elinor Klavens

May 11, 2017

Why Read This Report

Development and operations (DevOps), the purview of unicorns, is now transitioning to the mainstream. Business technology (BT) leaders are realizing that Agile is no longer enough; they need to involve the full technology management organization to drive competitiveness in an era when customer centricity is pivotal to success. Infrastructure and operations (I&O) professionals are building the bridge from Agile to DevOps to enable fast, frequent, high-quality releases. Although DevOps is a hot discussion topic, the evidence of DevOps practices varies by industry. Organizations must accelerate their investments in culture, people, process, and technology to ensure effective execution.

Key Takeaways

DevOps Is Growing In Regulated Industries

Financial services, insurance, utilities, and telecommunications are leading the charge to widespread DevOps adoption. These industry segments are balancing compliance with velocity to drive innovation.

I&O Must Prepare To Cut The Fat For Lean Execution

Most organizations have spent decades developing complex processes, many with manual approvals and linear execution. Effective DevOps journeys begin with exercises such as value stream mapping to streamline and remove redundant processes.

Management Support Is A Key To Cultural Transition

Cultural changes are never easy, and the move to a learning culture with product teams will require a foundational transition that will experience bumps along the way. You'll need patience, leadership, and management support as you reposition your people and they develop new skills.

DevOps Heat Map 2017

Landscape: The Modern Service Delivery Playbook

by [Robert Stroud](#) and [Elinor Klavens](#)

with [Eveline Oehrlich](#), Aaron Kinch, and Diane Lynch

May 11, 2017

Table Of Contents

2 DevOps Adoption Is No Longer Just For Unicorns

4 DevOps Adoption And Strategies Vary Across Vertical Segments

Utilities And Telecommunications Lead The Pack To Drive Business Transformation

Financial Services Accelerate To Compete With Fintechs

Retail And Wholesale DevOps Adoption Drive Differentiated Interactions With Clients

Media, Entertainment, And Leisure Embark On The Journey To Differentiate With DevOps

Manufacturing Transitions Beyond Automation To Show DevOps Momentum

Business Services And Construction Ponder The Leap Into Automation

Public Sector And Healthcare Cling To Manual Audit And Compliance Procedures

Recommendations

9 Accelerate Your DevOps Approach Now Or Risk Becoming A Relic

10 Supplemental Material

Related Research Documents

[Brief: How To Deliver Services With Quality, Agility, And Value](#)

[DevOps: The CIO's Guide To Velocity](#)

[Organize And Staff I&O Pros For Successful DevOps Practices](#)

FORRESTER

Forrester Research, Inc., 60 Acorn Park Drive, Cambridge, MA 02140 USA
+1 617-613-6000 | Fax: +1 617-613-5000 | forrester.com

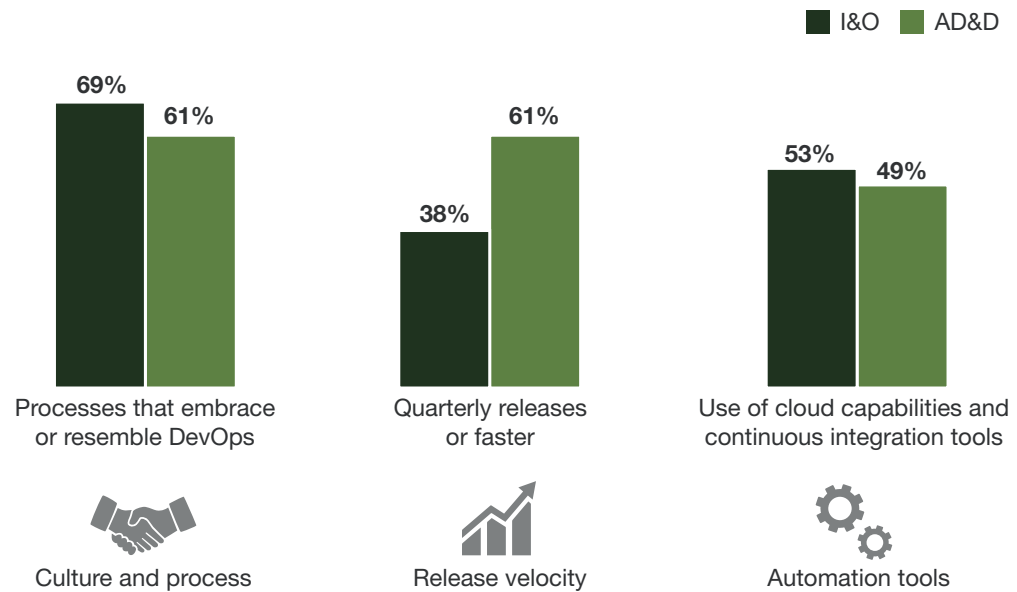
© 2017 Forrester Research, Inc. Opinions reflect judgment at the time and are subject to change. Forrester®, Technographics®, Forrester Wave, TechRadar, and Total Economic Impact are trademarks of Forrester Research, Inc. All other trademarks are the property of their respective companies. Unauthorized copying or distributing is a violation of copyright law. Citations@forrester.com or +1 866-367-7378

DevOps Adoption Is No Longer Just For Unicorns

DevOps is moving to the mainstream; it's no longer just for companies born digital. The first DevOps poster children were unicorns such as Etsy, Facebook, and Netflix.¹ While these companies continue to be models of software process innovation, DevOps momentum is now coming from established organizations; IT leaders at companies of all ages, sizes, and types are eagerly pursuing the same principles.² I&O and application development and delivery (AD&D) pros are adopting DevOps capabilities in key areas, and many application types benefit from DevOps practices (see Figure 1 and see Figure 2). While the state of DevOps varies within industries, there are commonalities:

- › **Culture and people come first; process follows.** DevOps success is a journey and typically starts with a team that the organization tasks with delivering a business capability, product, or service. This type of initiative evolves over time, so a DevOps team focuses on a product or service with end-to-end accountability, from design to delivery.³ Breaking down traditional staffing silos typically enhances a culture of sharing and collaboration among all team members.⁴ At KeyBank, the DevOps journey blossomed after a major outage; uncovering the cause and preventing future occurrences demanded increased collaboration between development and operations teams.⁵
- › **Release velocity is pivotal.** To drive velocity, organizations are leveraging value stream mapping to identify release bottlenecks. Value stream mapping is one technique that highlights waste and excess bureaucracy within existing processes. Embracing Lean principles helps increase release cadence.⁶ Effective testing of all changes, coupled with the delivery of smaller packaged releases, will result in optimized release velocity.
- › **There's no "easy" button.** I&O organizations have traditionally used frameworks such as ITIL, COBIT, and TOGAF to guide their decision making. In an era where velocity is critical, I&O pros must look past the rigid nature of these frameworks, as they're failing to deliver velocity and agility.⁷ However, they aren't totally irrelevant; for instance, incident management provides an excellent platform for feedback after releases are in production. I&O pros must focus on automation of process by removing silos instead of creating artificial boundaries through process silos.

FIGURE 1 DevOps Pros Are Adopting Key Capabilities

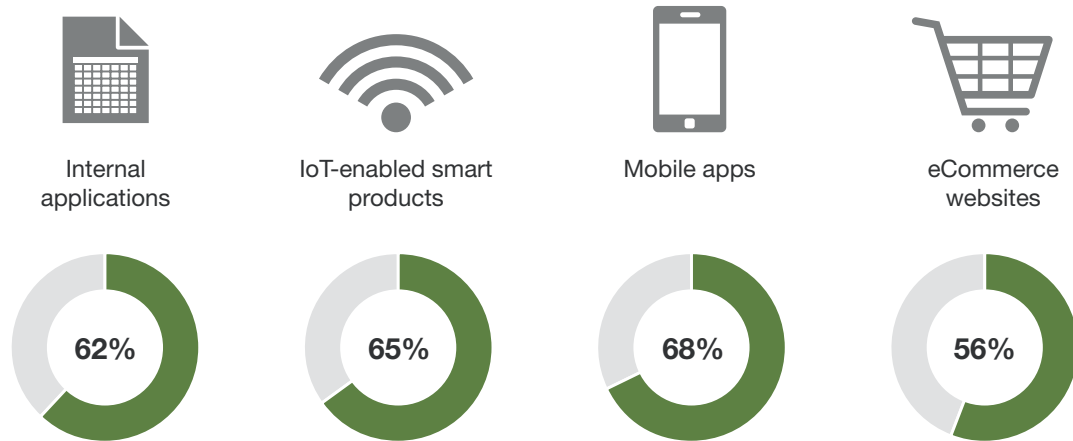


Base: 719 developers and 3,503 infrastructure decision makers

Source: Forrester Data Global Business Technographics® Developer Survey, 2016 and Forrester Data Global Business Technographics Infrastructure Survey, 2016

FIGURE 2 Organizations Are Implementing DevOps Across Applications

“We have implemented DevOps for the following application types:”



Base: 236 DevOps professionals
Source: Forrester's Q1 2017 Global DevOps Benchmark Online Survey

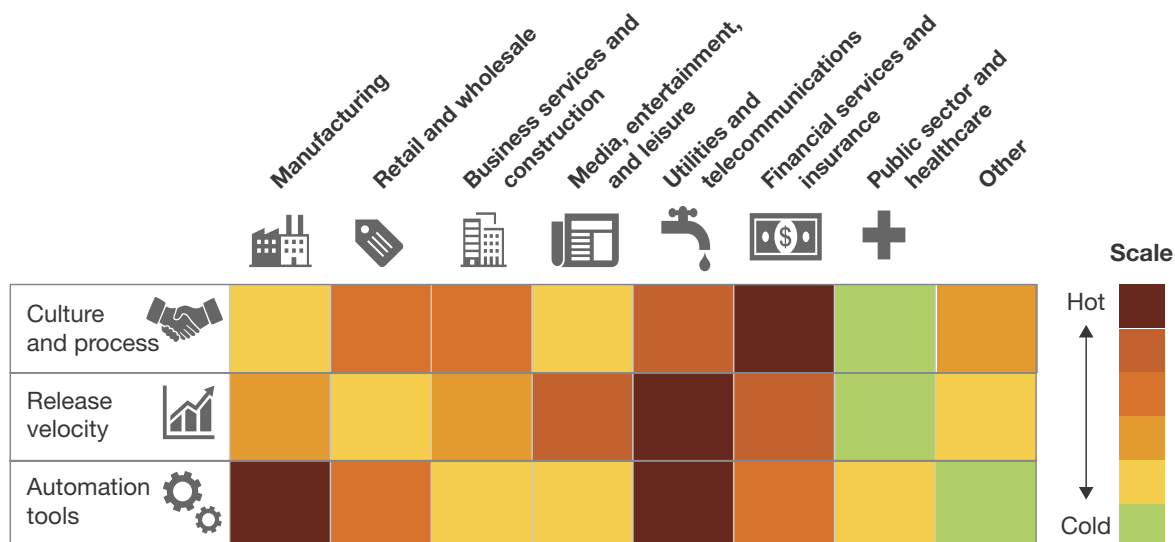
DevOps Adoption And Strategies Vary Across Vertical Segments

We leveraged Forrester Data Business Technographics® data to measure the level of DevOps heat in seven major industries. The data points measured key DevOps capabilities in culture and process, release velocity, and automation tools, as we believe these are critical attributes to support DevOps (see Figure 3). Here's why:

- › **Culture and process.** DevOps needs an integrated development and operations team focused on products and services. Forward-thinking organizations are restructuring from capability silos into integrated product teams. These organizations expect and encourage learning and experimentation with a fail-fast-and-learn execution approach that leverages feedback to loops throughout the life cycle to validate work in progress as products, services, or applications transition from design to delivery.
- › **Release velocity.** AD&D teams have benefited from leveraging Agile methodologies that pivot their release strategies away from monolithic waterfall releases to constant velocity of release. DevOps advocates a complete life-cycle view of software releases; AD&D and I&O teams alike are accountable at each step of the cycle.

- › **Automation tools.** Teams must leverage automation to drive velocity, not within silos but rather across the complete life cycle.⁸ The advent of cloud tools relieves engineers of maintenance requirements, making time available for them to focus on innovation and improvement. When cloud tools have automated and reliable integrations, organizations will best realize the DevOps benefits of cloud.

FIGURE 3 Forrester's DevOps Heat Map



Base: 21 to 244 developers who work for a software company, as game developers, for internal IT, or in technology services and 126 to 935 infrastructure decision makers (sample sizes vary by industry)
 Source: Forrester Data Global Business Technographics® Developer Survey, 2016 and Forrester Data Global Business Technographics Infrastructure Survey, 2016

Utilities And Telecommunications Lead The Pack To Drive Business Transformation

Utilities and telcos are experiencing a rapid transition in their service delivery models, spurred by the proliferation of devices and explosion of data usage. Both industries are trying to solve the problem of scaling data consumption and gleaning insight from connected devices. This segment includes providers in the communications, energy, mining, and utilities industries. AT&T, for one, is also aggressively pivoting its strategy toward the internet of things (IoT).⁹ Commercial pressures force these providers to deliver efficient services, with technology forming the basis of differentiation. DevOps is key to that transition.

- › **Data must drive strategy, with services that emphasize connectivity.** AT&T is one example of how an industry giant moved from a wireline to a data-based business by leveraging DevOps. It must scale and virtualize its network, as customer media consumption grows 40% each month.¹⁰ DevOps teams are driving the effort; AT&T is aiming for 30% virtualized by 2016 and 75% by 2020. Verizon has undergone a complete digitization of its systems development life cycle (SDLC) to drive velocity, allowing it to compete and iterate new digital products faster.¹¹ This lets Verizon take advantage of new customer segments. Philips Lighting has transformed itself from an electronics company to a connected device and experience provider.¹² In 2011, it embarked upon an ambitious project to adopt an Agile software methodology and API-driven strategy.¹³ APIs are key to managing the cloud tool set that DevOps engineers need; they're also the differentiating factor between a normal light bulb and the Philips Hue Light Bulb.¹⁴

Financial Services Accelerate To Compete With Fintechs

Banks need to reinvent themselves to remain valuable, and financial technology (fintech) companies are changing the industry rules. Financial services organizations can now rapidly establish themselves without heavy investment in brick-and-mortar premises, and traditional companies are scurrying to keep pace with new digital offerings.¹⁵ Financial services firms include service providers in insurance, banking, and real estate as well as capital management investment bodies and venture capital firms. These organizations are wholeheartedly embracing the DevOps mantra, which shows in their process and release frequency heat.

- › **DevOps offers key benefits in fraud detection, time-to-market, and scalability.** Financial services firms realize that DevOps-driven differentiation can help them respond to disruptive threats. Capital One is using DevOps to drive and deliver rapid innovation to market and planning to use it to improve fraud detection, delivering greater business effectiveness.¹⁶ Barclays has leveraged its fast and frequent releases to smoothly incorporate customer requirements, which allows it to keep ahead of the emerging competition.¹⁷ KeyBank has embraced DevOps for infrastructure scalability and management and has leveraged this to move all customer-facing applications to containers for improved flexibility.¹⁸

Retail And Wholesale DevOps Adoption Drive Differentiated Interactions With Clients

Empowered customers are leveraging digital devices to engage with brands and retailers while shopping in-store. To provide customers with the personalized experiences they expect, both online and in person, consumer goods and wholesale trade organizations are rushing to update their interaction models and the technology platforms that enable these experiences. In addition, new technologies are transforming point-of-sale operations, allowing stores to operate more efficiently and with greater flexibility.¹⁹

- › **Get ready for the next generation of digital stores.** Retail and wholesale companies must adopt a customer-centric approach; the first step is building a customer engagement network (CEN). A CEN allows retailers to gather customer insight and then adapt their products and services accordingly. Ocado, the UK's largest online supermarket, leverages its Smart Platform to process customer feedback and improve services such as delivery speed.²⁰ Neiman Marcus realized it needed to improve customers' in-store experiences and created technology-driven innovation labs that resulted in Fling Wall and Memory Mirror.²¹ Although not all of the initiatives have been successful, the ability to admit failure and move on is critical to driving success.

Media, Entertainment, And Leisure Embark On The Journey To Differentiate With DevOps

Traditional media providers are reinventing themselves as multimedia providers, with digital content delivering immersive experiences through a variety of devices. Travel and leisure companies are trying to better predict and respond to customer preferences.²² DevOps adoption, although currently weak within this vertical, is relatively strong in culture, but unfortunately, release frequency and automation tools lag.

- › **DevOps drives identification to execution to improve customer experience.** Understanding customer behavior in real time is key to success within this industry. The BBC struggled to offer broadcasting, streaming, and digital content to its customers without performance issues.²³ Adopting DevOps has helped create a holistic, fast response. The BBC's network operations center (NOC) uses a unified monitoring solution to analyze 3,000 metrics, make capacity adjustments, and initiate workflows to product teams. Sporting events are joining the party as well because fans want to enjoy major events, such as a National Football League game or the Tour de France, from the comfort of their own homes.²⁴ This forces entertainment providers to deepen their network capabilities and leverage software to offer their fans a superior virtual experience.

Manufacturing Transitions Beyond Automation To Show DevOps Momentum

Automation of manual processes is nothing new for manufacturing, but introducing software into the assembly line is. Adoption of DevOps tool sets is hot, but culture, process, and agility are less mature. Manufacturing encompasses the production of primary goods, consumer products, and pharmaceuticals as well as hardware and software. The manufacturing industry is under the greatest pressure to cope with the challenges of working side by side with robots to drive down cost and deliver repeatable process at scale.²⁵

- › **Manufacturers improve efficiency and insight by expanding the role of technology.** Boeing has embraced the expanded role of technology in operations.²⁶ Traditionally, the company has kept IT out of the factory; however, introducing robots has also brought an army of Linux servers and the need for expanded IT services. Retailer Zara is benefitting from integrating cloud services into its supply chain.²⁷ To optimize and speed production, it's sharing real-time customer data from retail stores back to manufacturing centers. As part of the iManage initiative, Michelin is adding

RFID tags to its tires to capture performance data and let customers know when it's time for a tire change.²⁸ Merging technology with manufacturing yields results for customers and allows manufacturers to begin the process of software-based improvement.

Business Services And Construction Ponder The Leap Into Automation

Business services and construction still have a long way to go in adopting cloud tool sets and realizing automation benefits. This industry segment includes transportation service providers such as supply chain companies and postal services. Professional services include third-party aggregators and consultants as well as legal and HR service providers. Within the construction industry, large projects are taking 20% longer to finish and are running up to 80% over budget, with financial returns for contractors relatively low.²⁹ Automation remains as an area of weakness, indicating confusion around strategies for successful application deployment, self-service, and information sharing. Until this industry can conquer its weaknesses, it remains ripe for disruption.

- › **Technology is becoming part of the business.** Construction firms have been slow to adopt DevOps, but they're on a collision course with software-driven enhancements. Nanotechnology will improve everything, from cement durability to real-time monitoring of structural health.³⁰ Firms will increasingly rely on this technology to inform their design and repurposing decisions. Business services are evolving, too, becoming dependent on nanotechnology to improve the consumer interface. As adoption grows, firms must create a culture where product teams collectively focus on the product they deliver. Over the next twelve months, this segment will see significant transition, and the automation of planning and technology simulations will be pivotal to success, especially as the use of IoT expands.³¹

Public Sector And Healthcare Cling To Manual Audit And Compliance Procedures

Complex regulations, long budget approval cycles, and reliance on manual audit practices all contribute to the lack of DevOps adoption in the public sector and in healthcare. Regulation concerns will continue to mount across all industries, particularly in Europe, as organizations seek to adjust their data storage practices to comply with new regulations such as the European General Data Protection Regulation.³² Skepticism of the cloud is also high within the industry; in response to a Forrester survey, 53% of infrastructure decision makers said that use of a public cloud platform wasn't on their agenda or was a low priority.³³ Customers, however, don't care about these innovation-limiting factors. Healthcare is experiencing an era of empowered customers who are looking to schedule their own appointments, view lab results, and synch their health data with their providers. This is leading to investment in mobile, web, and patient portals, which are becoming critical to patient engagement.³⁴

- › **Compliance-wary companies need not fear automation.** Like all US healthcare providers, Aetna needed to secure any application that handles patient information to be Health Insurance Portability and Accountability Act (HIPAA)-compliant. Aetna allowed developers to choose testing tools that helped assign risk levels to applications during development and reduced the number of changes they would have to make in the future.³⁵ As a result, Aetna found that DevOps methods

have improved application security. Due to increasing cost pressures and customer empowerment, companies in these industries are beginning the DevOps journey with an integrated, albeit slow, investment in culture, tools, and automation.³⁶

Recommendations

Accelerate Your DevOps Approach Now Or Risk Becoming A Relic

The BT agenda mandates customer centricity, where consumers have power and companies can no longer assume lifetime loyalty. Customer choice and disruptive startups are pressuring all business segments. If you continue ignoring these symptoms and fail to pursue DevOps practices, your lack of velocity could damage your business. All segments are feeling the pressure and transitioning to DevOps practices to accelerate their velocity; drive the quality of their services; and, more importantly, drive experiences that their customers value. Regulated industries such as banking, finance, and insurance are investigating and adopting DevOps. I&O leaders must understand that:

- › **Emerging technology stacks require a new approach.** Adoption of cloud computing, with containers, microservices, and serverless computing, will accelerate the pressure on your current people, processes, and tooling. Supporting the scale of these technologies will require the abandonment of traditional approaches that include silos and a focus on integration.
- › **Automation across the complete life cycle isn't optional.** The frequency of change requires automation of the complete toolchain rather than of individual stages within the life cycle. Successful DevOps organizations review current automation and look for the most effective flow through the process, removing any process that isn't adding value and constantly searching for opportunities to streamline.
- › **Automating testing is worth the investment.** Success in DevOps requires shifting testing left, making it part of the development process rather than an afterthought that teams can skip or shorten to meet a delivery date. Testing should be automated; included as part of the life cycle; and based on production-simulated environments and loads, including end user experience validation.
- › **Management support for this cultural transformation is key.** Cultural change is never easy — the transition from a “blame culture” to one of learning will require management support and patience. At the tactical level, DevOps pioneers have found the transition to product-centric teams to be fundamental to a successful outcome, where the teams own all aspects of the product. This will mandate developing a new way of working as former functional silos dissolve and measurement is of the team rather than individuals.
- › **Teams should experiment, start small, and then evolve.** DevOps isn't a standard, and practices will vary by organization and market segment. Spend time learning from others who've gone through the hard lessons, and be prepared to experiment based on their experiences. Evolve, and then expand.

- › **Dedicating human resources is essential.** Too often, we start our DevOps initiatives as part-time exercises. In this scenario, the outcome can be productive only to the level that the individuals can achieve collective success. Allocate individuals solely to their teams, with their success metrics tied to the success of the products or services they're delivering.

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

To help you put research into practice, connect with an analyst to discuss your questions in a 30-minute phone session — or opt for a response via email.

[Learn more.](#)

Analyst Advisory

Translate research into action by working with an analyst on a specific engagement in the form of custom strategy sessions, workshops, or speeches.

[Learn more.](#)

Webinar

Join our online sessions on the latest research affecting your business. Each call includes analyst Q&A and slides and is available on-demand.

[Learn more.](#)



Forrester's research apps for iPhone® and iPad®

Stay ahead of your competition no matter where you are.

Supplemental Material

Survey Methodology

The Forrester Data Global Business Technographics Infrastructure Survey, 2016 was fielded in June and July 2016. This online survey included 3,503 respondents in Australia/New Zealand, Brazil, Canada, China, France, Germany, India, the UK, and the US from companies with two or more employees.

The Forrester Data Global Business Technographics Developer Survey, 2016, was fielded in January 2016. This online survey included 1,867 respondents in Australia, Brazil, Canada, China, France, Germany, India, New Zealand, the UK, and the US.

Forrester Data Business Technographics ensures that the final survey population contains only those with significant involvement in the planning, funding, and purchasing of business and technology products and services. Research Now fielded this survey on behalf of Forrester. Survey respondent incentives include points redeemable for gift certificates. Please note that the brand questions included in this survey should not be used to measure market share. The purpose of Forrester Data Business Technographics brand questions is to show usage of a brand by a specific target audience at one point in time.

Forrester used Technographics data from the Forrester Data Global Business Technographics Infrastructure Survey, 2016 and the Forrester Data Global Business Technographics Developer Survey, 2016 to measure DevOps adoption by industry. The questions investigated the level at which respondents' organizations have processes that embrace or resemble DevOps. We asked questions about the velocity of release frequency; the level of intrateam collaboration; and the extent to which organizations leverage automation tools for manageability, flexibility, faster time-to-market, and continuous integration. We consolidated responses into three DevOps capabilities of culture and process, release velocity, and automation tools, then measured DevOps heat by the relative strength within each capability.

Forrester's Q1 Global DevOps Benchmark Online Survey was fielded to 623 individuals. Forrester queried respondents on the state of DevOps adoption within their organization, using questions aligned with the CALMSS framework (culture, automation, Lean, measurement and management, sharing, and sourcing). These individuals work in technology management roles and are aware of their organizations' release frequency and automation tool sets. Respondents selected were those who were able to answer the full scope of DevOps questions.

Endnotes

- ¹ The Phoenix Project defines "unicorns" as digitally native companies like Amazon, Etsy, Google, and Netflix. Source: Gene Kim, Kevin Behr, and George Spafford, *The Phoenix Project*, IT Revolution Press, 2013.
- ² The DevOps Enterprise Summit (DOES) emerged as a forum for non-unicorns to showcase their DevOps successes. Source: "DevOps Enterprise Summit," IT Revolution (<http://events.itrevolution.com>).
- ³ For more information on the transition to product teams, see the Forrester report "[DevOps: The CIO's Guide To Velocity](#)."
- ⁴ For more information on organizational structures, see the Forrester report "[Organize And Staff I&O Pros For Successful DevOps Practices](#)."
- ⁵ Source: "Chris McFee, John Rzeszutarski: Banking on DevOps," YouTube video, November 22, 2016 (<https://www.youtube.com/watch?v=XW5E5E5RUJg>).
- ⁶ For more information on value stream mapping, see the Forrester report "[Haste Does Not Make Waste If You Improve Your Service Delivery](#)."
- ⁷ For more information on the relevance of the ITIL framework, see the Forrester report "[I&O Leaders Must Reshape ITIL To Support Customer Obsession](#)."

DevOps Heat Map 2017

Landscape: The Modern Service Delivery Playbook

- ⁸ Only 29% of releases have complete life-cycle automation, which leads to manual handoffs that introduce errors. Source: Forrester's Q1 2016 Global Modern Service Delivery Benchmark Online Survey.
- ⁹ For more on how telcos are offering IoT device management solutions, see the Forrester report "[The State Of IoT Management](#)."
- ¹⁰ Source: "IBM Interconnect 2017: 'Trump Will Tweet Because of This Deal...,'" YouTube video, March 21, 2017 (<https://www.youtube.com/watch?v=ePMn5bAw1Lw>).
- ¹¹ Source: "DOES16 San Francisco - DevOps at Verizon," YouTube video, December 14, 2016 (<https://www.youtube.com/watch?v=1prev5FpRec>).
- ¹² For more information on workplace technology innovation, see the Forrester report "[Breakout Vendors: Workplace Technology Innovation](#)."
- ¹³ Source: Caroline Donnelly, "Case study: Philips takes agile approach to building bridges between business and IT," ComputerWeekly.com, September 2015 (<http://www.computerweekly.com/feature/Case-study-Philips-takes-agile-approach-to-building-bridges-between-business-and-IT>).
- ¹⁴ Source: Kurt Collins, "The Internet of APIs," DevOps.com, February 9, 2015 (<https://devops.com/internet-apis/>).
- ¹⁵ For more information on the transition to digital banking, see the Forrester report "[The Digital Banking Imperative](#)."
- ¹⁶ Source: Clint Boulton, "Capital One shifts into DevOps to keep pace with customers," CIO, October 25, 2016 (<http://www.cio.com/article/3134871/cio-role/capital-one-shifts-to-DevOps-to-keep-pace-with-customers.html>).
- ¹⁷ "Jonathan Smart, head of development services at Barclays, said agile processes and thinking are being incorporated in all areas of its business — not just IT." Barclays has leveraged its fast and frequent releases to smoothly incorporate customer requirements. Source: Caroline Donnelly, "Barclays banks on agile and DevOps to tackle competitive threats in fintech," ComputerWeekly, July 1, 2016 (<http://www.computerweekly.com/news/450299551/Barclays-banks-on-agile-and-DevOps-to-tackle-competitive-threats-in-fintech>).
- ¹⁸ Source: Lisa Morgan, "Containers drive business innovation," SD Times, March 1, 2017 (<http://sdtimes.com/containers-drive-business-innovation/#sthash.klvG66aX.dpuf>).
- ¹⁹ For more information on the digital transformation of retail, see the Forrester report "[The Future Of The Digital Store](#)."
- ²⁰ Source: Anh Nguyen, "Ocado: Online food is not our bread and butter," Computerworld UK, August 20, 2014 (<http://www.computerworlduk.com/it-management/ocado-online-food-is-not-our-bread-butter-3537227/4/>).
- ²¹ Source: Corinne Ruff, "How Neiman Marcus is turning technology innovation into a 'core value,'" Retail Dive, February 27, 2017 (<http://www.retaildive.com/news/how-neiman-marcus-is-turning-technology-innovation-into-a-core-value/436590/>).
- ²² For more information on cloud challenges, see the Forrester report "[Quick Take: Top 10 Cloud Challenges Facing Media And Entertainment](#)."
- ²³ Source: Shani Mashhood, "Unified Monitoring: How BBC Keeps Its Networks Running at Peak Efficiency," TV Technology, July 28, 2016 (<http://www.tvtechnology.com/broadcast-engineering/0029/unified-monitoring-how-bbc-keeps-its-networks-running-at-peak-efficiency/279111>).
- ²⁴ For more information on how networking technologies enable greater immersion, see the Forrester report "[Networking Technologies Immerse Fans In NFL Games And The Tour De France](#)."
- ²⁵ For more information on Forrester's view on the future of jobs, see the Forrester report "[The Future Of Jobs, 2027: Working Side By Side With Robots](#)."

DevOps Heat Map 2017

Landscape: The Modern Service Delivery Playbook

- ²⁶ Source: Gene Kim, “Boeing has a new fleet of robots that are transforming the way it builds planes,” Business Insider, February 27, 2017 (<http://www.businessinsider.com/boeing-new-robots-building-planes-2017-2?utm>) and Dominic Gates, “At Boeing’s 777X wing factory, robots get big jobs,” The Seattle Times, November 28, 2016 (<http://www.seattletimes.com/business/boeing-aerospace/at-boeings-777x-wing-factory-robots-get-big-jobs/>).
- ²⁷ Source: Lindsey Nelson, “Cloud Computing And Fashion Giant Zara,” Digitalist Magazine, April 1, 2013 (<https://www.digitalistmag.com/industries/retail/2013/04/01/cloud-computing-and-fashion-giant-zara-029092>).
- ²⁸ Source: Philippe Ducellier, “Michelin: technical aspects of the tires project connected,” LeMagIT, December 2015 (<http://www.lemagit.fr/etude/Michelin-les-dessous-techniques-du-projet-de-pneus-connectes>).
- ²⁹ Source: Rajat Agarwal, Shankar Chandrasekaran, and Mukund Sridhar, “Imagining construction’s digital future,” McKinsey & Company, June 2016 (<http://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/imagining-constructions-digital-future>).
- ³⁰ Source: “Nanotechnology in the Construction Industry,” Nanowerk (<http://www.nanowerk.com/nanotechnology-in-construction-industry.php>).
- ³¹ Source: Omed Habib, “Digital Transformation in the Construction Industry,” @ThingsExpo Journal, April 3, 2017 (<http://iot.sys-con.com/node/4016440>).
- ³² For more information on the European General Data Protection Regulation and guidance on how to prepare for it, see the Forrester report “[The Five Milestones To GDPR Success](#).”
- ³³ Source: Forrester Data Global Business Technographics Infrastructure Survey, 2016.
- ³⁴ For more information on tools enabling critical patient engagement, see the Forrester report “[2016 Technology Imperatives For US Healthcare Providers](#).”
- ³⁵ Source: Robert Lemos, “How one healthcare giant stays focused on application security,” TechBeacon (<https://techbeacon.com/how-one-healthcare-giant-stays-focused-application-security>).
- ³⁶ Source: Tony Bradley, “Healthcare information provider streamlines deployment with DevOps,” DevOps, February 12, 2015 (<https://devops.com/healthcare-information-provider-streamlines-deployment-with-devops/>).

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.