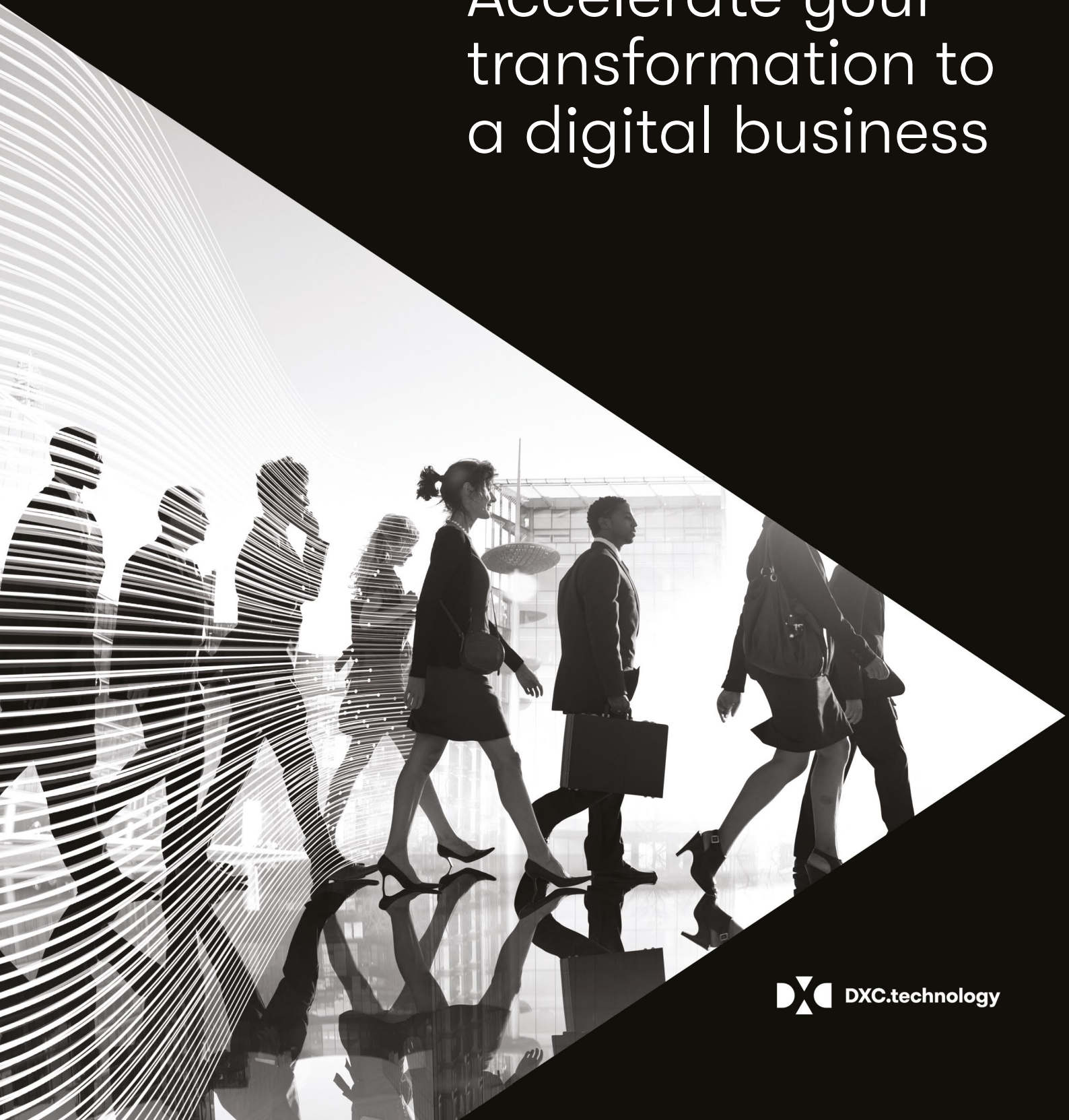
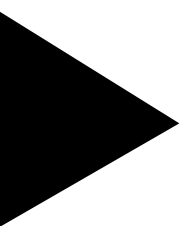


DXC
DIGITAL
DIRECTIONS

Accelerate your
transformation to
a digital business





Digital transformation is entering a new phase. Companies are now looking to rapidly scale their digital efforts, drawing strength from new digital service platforms and deeper integration of enterprise processes. The leaders in this next phase will be the organizations that understand the opportunities that come with mastering information flows and data markets.

Leaders will also be the ones that restructure themselves for the new digital realities – changing their culture, empowering their employees and developing high-performing teams using all of the advanced tools available to them.

The DXC Digital Directions series discusses how the next phase of digital transformation is playing out across major IT domains, including cloud, security, analytics, applications, workplace and delivery. We also highlight the changes in specific industries, including banking, insurance, healthcare and travel, transportation and hospitality.



By 2020, 60% of all enterprises will have fully articulated an organization-wide digital transformation platform strategy and will be in the process of implementing that strategy as the new IT core for competing in the digital economy.

Source: IDC FutureScape: Worldwide IT Industry 2018 Predictions (Doc #US43171317 / Oct 30, 2017)

Digital businesses are emerging at a rapid pace as companies re-architect themselves. As true 21st century enterprises, they are developing substantially different products and services, operating models and organizing strategies. Most now recognize the need for a new digital service platform to enable broad-based transformation using information and core services to rapidly scale their digital efforts.

These efforts are not only reshaping products and services but also driving entry into digital ecosystems and reshaping productivity. Leaders have become masters of information flow, new styles of working, open and inner sourcing, and new business platforms that underwrite the integration of information services.

Look at automotive. As vertically integrated automotive value chains change into horizontal ecosystems, mastery of new information flows determines who has the customer relationship. The intelligence — the information — is in the field, in our cars and throughout their journeys. Huge amounts of data are being created and consumed by our cars — everything from diagnostics, GPS and telemetry to crowdsourced traffic apps and full-blown entertainment systems. And that data flow will only increase as cars take on additional self-driving capabilities. With internet of things (IoT)-driven machine learning acting on these information flows to give frequent software updates, the intelligence to improve the ride experience and the products that make up the car is increasingly moving out into the field.

The devolution of business

Thirty percent of the world's data production is related to health,¹ and an increasing amount of that is personal data. The increasing devolution of health work — such as the rise of “out of hospital” delivery models, crowdsourcing to help diagnose and treat illnesses, and consumer device analytics driving self-diagnosis and preventive treatment — will give the patients who own this data a new level of control. Again,

those companies that are helping to create these information flows and master information markets will ultimately gain the customer relationship.

In the airline industry it won't be long before frequent fliers will be able to arrive at the gate minutes before takeoff and change their flight using their mobile device, with their preferred dinner and entertainment services automatically taken into account. Convenience is moving to the point of consumption, and new opportunities for value integration are becoming expected.

Across many sectors, IoT devices are creating data flows generated at the edge of the organization, and involving the core for transactions, integrated machine learning and AI-predicted insights. Along with increasingly distributed processing, this creates applied intelligence that drives the devolution of work and decision making. Soon, it will be commonplace to see autonomous vehicles on the road delivering packages and remote-controlled drones in the sky performing real-time inspections of telecom, oil and gas, electric and water facilities.

With data as the new currency, data flows are creating new services, new businesses, new monopolies, new politics and – crucially – new economics. These trends are starting to create information markets, both within enterprises and beyond into ecosystems. In these markets, information has a value and is being traded. Platform organizations (e.g., Amazon, Google, Facebook, Alibaba, Tencent and Baidu), and ecosystems in particular, are generating large amounts of data, giving them a potential competitive advantage.

The opportunity: Realizing all value disciplines at once

Mastering information flows and analytic model markets creates tremendous opportunities for companies to deliver better service to their customers, develop deeper levels of engagement and rethink business models, resulting in improved customer satisfaction, new revenue streams and cost reductions. Internally, companies also have the opportunity to empower employees with self-service and more efficient collaboration tools, making them more productive and more fulfilled.

In order to make this happen – that is, to accelerate digital transformation – enterprises need to master these information flows and analytic model markets. The most successful enterprises in the world know that to enable this mastery you need a modern digital platform supported by agile business processes and a collaborative, experimenting culture.

Modern digital platforms connect to many of the players in the ecosystem. They are intelligent, distributed and autonomous. The platforms are composed of software layers that gather and synthesize large volumes of data to make digital services accessible on different devices with superior user experience. They provide economies of scale and scope of data, within and sometimes across organizations. They simplify the complex interactions of new and legacy systems, and allow them to evolve – enabling high levels of innovation at a low total cost of ownership. They make it easier to define and enforce rules about the way work gets done, and they help coordinate activities.

The latest generation of digital platforms is architected as increasingly open, modular and granular services, provisioned using the cloud and delivered as platform as a service (PaaS) and emerging serverless designs. As these intelligent layers of software and data continue to commoditize advances in big data, analytics, artificial intelligence (AI) and automation, and root themselves in agile/DevOps practices, they create low-cost, increasingly automated and smart agile workflows that replace and improve upon human effort.

Understand your data

Understanding four key characteristics of your data is essential to optimize the digital platform and your business:

1. **Data inertia.** As the amount of data increases, particularly data generated by consumers, that data is more difficult and more expensive to move around.
2. **Data gravity.** More data attracts more users and hence more processing. In the future, these “users” will include AI and will demand new sources of computing power that are ever closer to the data.
3. **Data decay.** Data value can decrease over time. Data that decays rapidly must be processed quickly, often as soon as it is produced. (It does no good to process the frequent flier’s dinner order after the plane has taken off.) This also requires localized compute capabilities. Data that is no longer valuable (i.e., has decayed) can be archived in less-costly infrastructure.
4. **Data location.** Data must be secure, in motion and at rest, no matter where it is located. In terms of the physics of networking, distance always plays a role in pure physics constraints. In terms of economics, processing data as close to the source as possible is cheaper. And in terms of regulations, there are constraints to moving data across borders. So, in those cases, data must be processed locally, and derivatives of that data can be aggregated and sent to a more centralized location for analysis that leads to critical business insights.

So how do modern digital platforms create dynamic information flows and markets with data that tends to become more inert, expensive to process and less valuable over time? Digital platforms increase internal and external connectivity, and they reduce data complexity through analysis, abstraction and automation. This increases data fluidity — ensuring that data is accurate, accessible and actionable.² In turn, this enables the devolution or distribution of work and decision making, as our industry examples show.

With the incredible volume of data that is being generated, companies must transition from processes built for human speed to those built for machine speed. This is a step change. The digital platform must be able to support and scale machine-speed processes that leverage the explosion of data. To do this, companies must improve their agility and pace of IT service development.



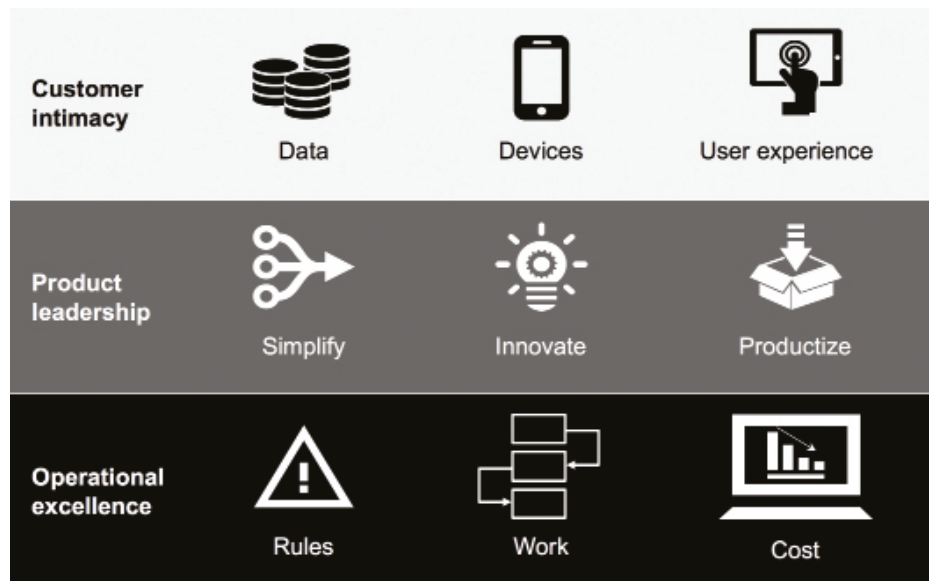


Figure 1. The essential elements of a modern digital platform support the three value disciplines.

Modern digital platforms help traditional and platform organizations alike excel simultaneously in customer intimacy, product leadership and operational excellence — the three value disciplines.³ (See Figure 1.) Once, organizations needed to choose which single discipline to excel in and then settle for being competitive in the other two. Now, digital platforms can reduce the trade-offs between the disciplines, so companies can excel in all three. For example, Amazon and Netflix have highly personalized customer experience, deep product innovation and very efficient operations,⁴ all driven by a common and collaborative, yet singular, information foundation.

Culture change and empowering employees

One of the most pressing needs of a digital enterprise is to establish a culture that integrates horizontally around a requisite set of roles: product management, design, information and technology engineering, and operations. Successful enterprises are bringing the best talent from across the organization to bear on an identified problem. The teams iterate quickly, and use data-driven insights to continually effect improvements that create better products and services. Empowerment comes from leadership’s willingness to support less-than-perfect results as long as the teams use feedback to improve, and share their anti-pattern learning widely to prevent repetition.

A valuable side effect of these role-based teams is the shared learning — domain, technical and operational — that becomes shared organizational knowledge. Employees working in small, empowered teams enable cross-organizational knowledge to be applied, and also act as distribution vehicles for new learning. Employees must be able to dynamically form teams, share information and build services. In effect, they must innovate iteratively, at pace and collaboratively.

Increasingly, IT becomes focused on employee self-service and becomes responsible for creating the technology commons — the platform that enables information services to be developed, composed and reified. The culture begins to reflect “if you see something broken, fix it” and “if you discover something (good or bad), share it.” These dynamics put an increased emphasis on collaboration and low-friction processes.

Developing high-performing teams

The application developer is vital to driving the new wave of productivity in the digital enterprise. It's the developer who introduces new services into the IT landscape, implements continuous delivery and fosters reuse of services on a massive scale. Companies cannot achieve the speed and efficiency they need without empowered developers, including citizen developers, and DevOps teams using agile methodologies.

Having high-performing DevOps teams is essential for success. According to the DevOps Research and Assessment (DORA) "Accelerate: State of DevOps 2018 Report," teams that leverage all of cloud computing's essential characteristics are 23 times more likely to be high performers.⁵ Key practices driving high performance include: monitoring and observability, continuous testing, database change management, and integrating security earlier in the software development process.⁶

In terms of outcomes, high-performing DevOps teams help companies deliver not only on commercial performance (e.g., revenue, profitability and market share) but also on noncommercial performance (e.g., effectiveness, efficiency and customer satisfaction).⁷

A key way they do this is by enabling companies to transition away from their monolithic applications and embrace faster, more-flexible approaches to service delivery. By harnessing analytics and AI to provide real-time insights into the business and operations, applying lean process methodology to optimize workflows, and leveraging automation at scale to improve response times, accuracy and standardization, companies can deliver services with greater speed and efficiency.



By 2020, 25% of Forbes Global 2000 (G2000) companies will have developed digital training programs and digital cooperatives to compete more effectively in talent wars.

Source: IDC FutureScope: Worldwide Digital Transformation 2018 Predictions (Doc #US43154617 / Oct 31, 2017)

Digital directions

Digital transformation is affecting companies in every industry as the center of power shifts from the company to customers and smart things, and from enterprise IT to business units and employees. Having a digital platform is essential to leverage data flow, both in the enterprise and in a larger ecosystem.

To guide your path forward, our **DXC Digital Directions** position papers series explores the fundamentals of a digital platform. These are the essentials that contribute to both top-line growth and cost-based improvements, as well as continuous optimization of business processes:

- **Cloud/Hybrid IT.** Enable traditional IT to work in harmony with analytic-intense data streams located on-premises, in the cloud and at the edge. Spanning these environments, hybrid IT automates and modernizes the applications estate, places workloads in their optimal location, embeds security, enables an IT brokerage model and creates a simple, agile, on-demand environment.
- **Security.** Rethink security and risk management to be analytics-driven, using machine learning and AI to detect abnormal conditions, and fully integrated into DevOps and Continuous Delivery processes. These integrated processes, combined with new operational technologies, can make a material change in the enterprise's risk posture.
- **Analytics.** Operate an information-driven digital business. Leverage industrial analytics and AI to continuously curate and analyze data and develop insights that drive new value, increase automation and give rise to creative workers.
- **Applications.** Create great digital experiences with next-generation applications and platforms. Understand data flows in the context of your customers' journeys and create digital services for them based on a modernized digital business platform.
- **Workplace.** Transform the workplace into a center of innovation. Harness the innovation and passion of employees, embrace new modes such as gesture and conversational interfaces, and monitor quality of experience, not quality of service.
- **Delivery.** Adopt a "design for operations" approach to software development and delivery powered by analytics, lean techniques and automation. This advanced intelligent automation accelerates digital transformation by delivering greater insights, speed, repeatability, scalability and efficiency. The utopia of software delivery is Zero Ops.

Digital transformation is affecting companies in every industry as the center of power shifts from the company to customers and smart things, and from enterprise IT to business units and employees.

Be digital end-to-end

Mastering all three stages of digital transformation is critical for success. If any of the stages break, it becomes harder for the enterprise to realize digital at scale:

- 1. Design digital.** Use a “design thinking” approach when designing IT solutions. Design thinking centers around the user’s needs and the user’s experience, as opposed to considering only technology or processes. Break down IT solutions into small, integrable services and design for continuous development and delivery.
- 2. Develop digital.** Automate continuous integration/continuous delivery pipelines, apply agile principles to achieve a DevOps operating model, and adopt a continuous development and delivery approach.
- 3. Deliver digital.** Automate and log everything. The utopia of this stage is Zero Ops, where systems are self-healing and respond to events automatically — that is, with zero human touch. Continuous development flows directly into continuous deployment, which includes automated testing (including security). This reduces risk and speeds business outcomes.

▼ By 2020, 60% of CIOs will implement an IT business model and culture that shifts focus from IT projects to digitally-oriented products.

Source: IDC FutureScape: Worldwide CIO Agenda 2018 Predictions (Doc #US41789117 / Oct 31, 2017)

Four additional papers examine how specific industries are capitalizing on digital opportunities:

- **Banking.** Understand your customers' needs and your place in the value chain. Determine which services to provide efficiently and which to source from others, and establish a digital platform that takes advantage of new technologies as well as opens core processes to third parties.
- **Healthcare.** Tap patient data to fuel proactive care and improve population health. Establish a rich healthcare information ecosystem backed by a robust healthcare platform to help unlock data silos, contextualize the data, and allow for the free flow of information in a way that leads to healthier people.
- **Insurance.** Deliver differentiating customer experiences, using analytics and automation, based on an ongoing relationship between insurers and policyholders. Drive toward more sophisticated interactions; offerings that are easier to understand, underwrite and buy; and analytical processing, aided by AI decision support and a modern insurance platform.
- **Travel, Transportation & Hospitality.** Give travelers and shippers a fundamentally different experience. Deploy a connected transportation platform that unifies data throughout the travel journey to create new value for both passengers and cargo.

Companies must understand and harness data flows to gain business insight, deliver better customer service, deepen customer engagement, create new business models and empower employees. These companies will ride this new wave of productivity and innovation, and accelerate their digital transformation.

About the author



Dan Hushon, DXC Technology's senior vice president and chief technology officer, drives innovation strategy and growth for the company's solutions and ensures technology excellence. He is responsible for defining DXC's long-term technology strategy and vision, and advocating for that vision with customers.

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1. "Why You're the Reason For Those Health Care Mergers," Fortune.com, March 19, 2018, <http://fortune.com/2018/03/19/cvs-aetna-healthcare-mergers-big-data/>
2. Bill Murray, "Liberating Platform Organizations, Part 2," Leading Edge Forum, July 2018, p. 28, <https://leadingedgeforum.com/publication/liberating-platform-organizations-part-2-the-machinery-of-a-platform-organization/>
3. Michael Treacy and Fred Wiersema, *The Discipline of Market Leaders*, Addison-Wesley, 1995
4. Bill Murray, "Liberating Platform Organizations, Part 2" Leading Edge Forum, July 2018, p. 26, <https://leadingedgeforum.com/publication/liberating-platform-organizations-part-2-the-machinery-of-a-platform-organization/>
5. Dr. Nicole Forsgren, Jez Humble and Gene Kim, "Accelerate: 2018 State of DevOps: Strategies for a New Economy," DevOps Research & Assessment (DORA), p.4 <https://cloudplatformonline.com/2018-state-of-devops.html>
6. Ibid.
7. Ibid., pp. 24-25



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