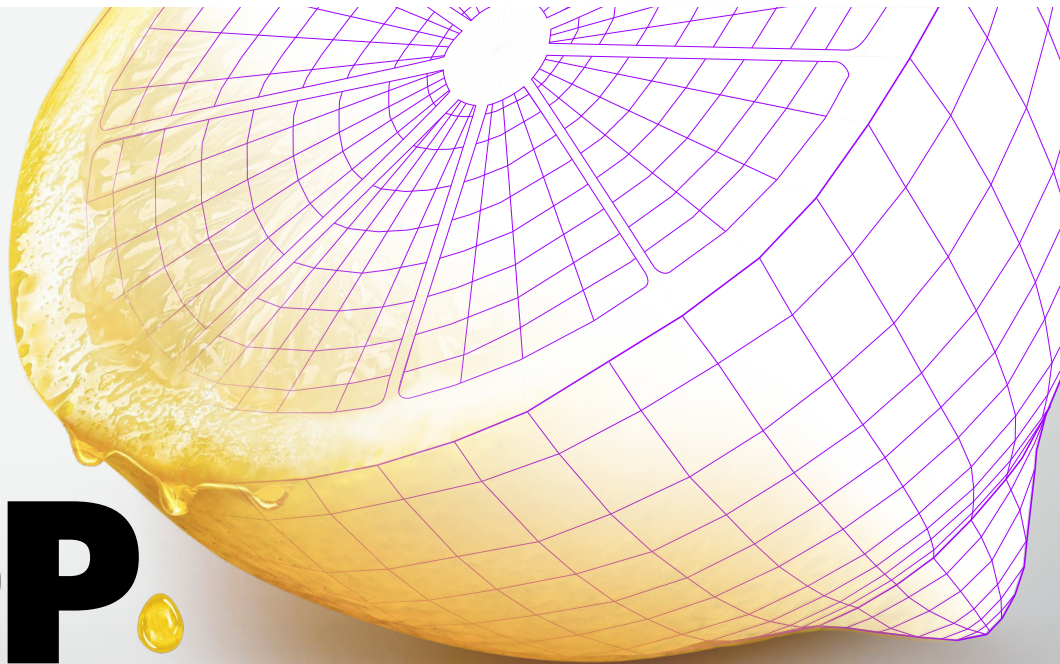# FULL VALUE. FULL STOP.

**How to scale innovation and achieve full value with Future Systems**

accenture

# About the authors

## Bhaskar Ghosh

Dr. Bhaskar Ghosh is group chief executive—Accenture Technology Services. In this role, he directs strategy and investments for Accenture Technology Services, and leads platforms, products, global technology delivery and intelligent cloud and infrastructure services. His focus is to enable enterprises to embrace digital disruption, drive growth through innovation and reinvent their application portfolio. Ghosh and his organization help enterprises transform their business through the adoption of New IT, spanning strategy, technologies, architectures, platforms, methods, organization and operating models.

Under Ghosh's leadership, Accenture Technology Services has rapidly rotated to the New. More than 180,000 Accenture Technology people have been trained around the world in New IT, including automation, Agile development and intelligent platforms. Ghosh has been awarded patents in multiple areas, including IT automation. He is a member of the Accenture Global Management Committee.

**Twitter: @DrBhaskarGhosh**

## Adam Burden

Adam Burden is Accenture's Chief Software Engineer. He leads Accenture's Intelligent Software Engineering Services organization, which includes 35,000+ software and system engineers. In this role, he oversees strategy and operations, client services in the areas of technical architecture and custom systems engineering and the incubation of next-generation capabilities related to blockchain, augmented reality and other disruptive technologies.

During his 27-year career at Accenture, Burden has been part of numerous pioneering engagements, including serving as lead architect for the world's largest wholesale electricity market. He is a certified Solution Architect and Master Technical Architect with specializations in legacy modernization, cloud native applications, DevOps, automation engineering and enterprise architecture. He has also held both client and technical account leadership positions.

**Twitter: @adampburden**

## James Wilson

H. James Wilson is managing director of IT and Business Research at Accenture Research, where he leads global research programs on the impact of technology on work. Wilson is co-author of the best-selling book Human + Machine: Reimagining Work in the Age of AI (Harvard Business Review Press). He is author or contributing author of eight books on the impact of technology on work and society, including most recently, AI, Analytics, & The New Machine Age (HBR Press 2019) and How to Go Digital (MIT Press 2019).

Wilson wrote "The Jobs Artificial Intelligence Will Create," MIT Sloan Management Review's #1 Most-Read article of the year, and is a longtime contributor to The Wall Street Journal and HBR. His latest HBR article is "The Future of AI Will Be About Less Data, Not More."

**Twitter: @hjameswilson**

# EXECUTIVE SUMMMARY

## Strategic use of Future Systems can give your company a clear advantage

80% of success is just showing up, right? Think again.

Today's C-suite is making significant investments in new technologies. Yet they are not necessarily achieving full value. They're deploying technologies in pockets, or silos, of their organizations, without a strategy for scaling the innovation from these technologies across the enterprise. Unable to scale their innovation, they're not realizing the full benefits of their technology investments.

This is creating what we call the *innovation achievement gap*—the difference between potential and realized value from technology investments. For executives who are under relentless pressure to change and grow, it's frustrating to make these investments and still fall behind competitors. Simply showing up—adopting the technologies—does not guarantee success.

To crack the code on scaling innovation and closing the achievement gap, we collected data from companies across three categories: 1) the adoption of key technologies, 2) the penetration of technologies adopted and 3) organization and culture. We then scored them on these factors, calling companies in the top 10% "Leaders," and those in the bottom 25%, "Laggards."

Just how successful are the Leaders compared to the Laggards? **Leaders are seeing more than 2X the revenue growth of Laggards.**

**Laggards often adopt technologies as individual point solutions without a strategy for enabling systems that can achieve enterprise-wide, game-changing innovation. While they might have pockets of brilliance, they can't maximize the value achieved.**
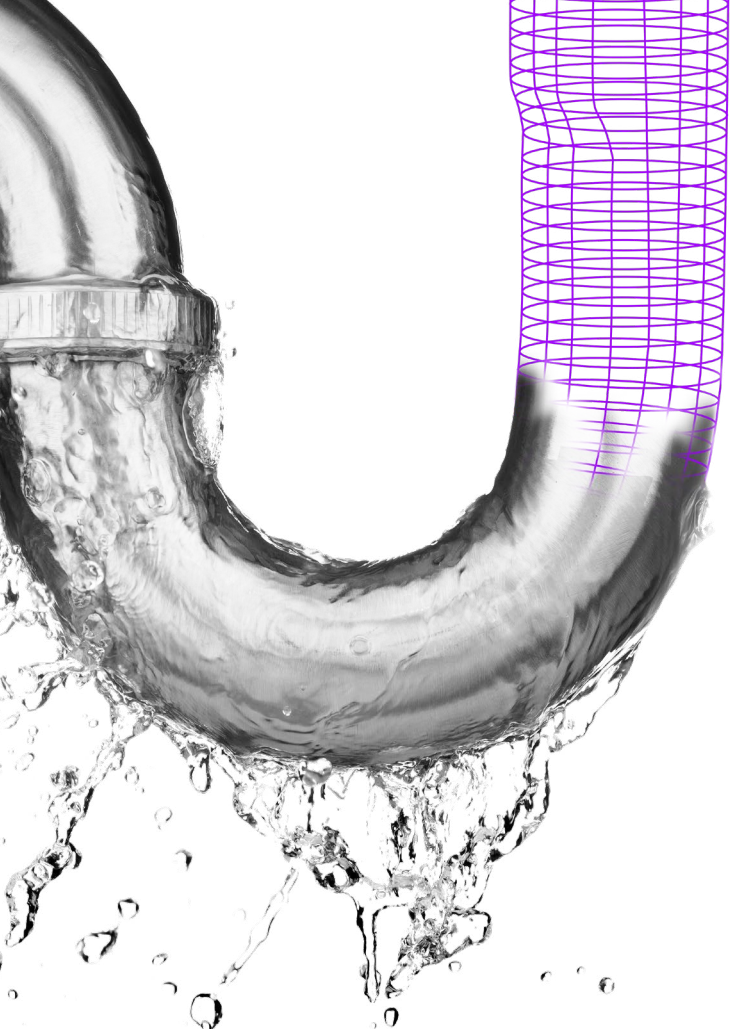
**Even worse, the lost potential is snowballing:**

**In 2018, Laggards had 15% in foregone annual revenue. If they don't change, they could miss out on a staggering 46% of their annual revenue in 2023. And it's not just those with legacy systems that are struggling; not all digital native companies are realizing the full value from technology adoption, either.**

What's so special about those in the top 10%? Their mindset, for starters: Crucially, Leaders think in terms of systems and not individual technologies. With a clear vision, they are evolving to what we call Future Systems, or boundaryless, adaptable and radically human enterprise systems capable of *scaling* innovations repeatedly and making organizations strategically agile.

Their methods are different, too: Leaders adopt earlier, reinvest more frequently and acquire technology in a more deliberate manner. For instance, they install data streaming platforms, or event hubs, that can process millions of actions in real time before they adopt AI. Leaders have directed a greater percentage of their IT budget toward innovation over the past five years and expect to accelerate investment in innovation faster than Laggards over the next five.

Leaders concentrate not only on technology adoption, but also on its penetration across the enterprise, to enable innovation transfer and a nimbler response to market conditions. For example, they ensure that cloud services permeate across the enterprise and treat data—across organization silos—as a corporate asset.

Finally, Leaders carefully consider how new technologies will interact with the people and processes already in place in their organization, and they nurture talent in creative ways.

**While some leaders are born, others are made: Everyone can emulate the mindset and methods of the top 10% to get the value they expect from their significant investments in technology.**

# CLICK THE FUTURE
# INTO PLACE

**Through our in-depth analysis of the data we collected, we've been able to pinpoint the many ways in which leaders stand out in their approach to enterprise technology and how they use it to innovate at scale and drive long-term financial performance.**

Imagine an electrician who installs a new gadget for a customer, such as a video doorbell. If he doesn't figure out a way to integrate it with other devices in the house, like the security system or the family's cell phones, it won't be possible to achieve the benefits of a truly connected home.

A similar scenario plays out on a much grander scale across global organizations. CIOs, CDOs and CEOs understand technology's significance to their company's strategy and growth. So, in every industry, they're adopting technology that spawns new capabilities. But despite these substantial investments, many still struggle to transfer innovations across the enterprise and realize their potential.

**It's causing an innovation achievement gap—the difference between potential and realized value from technology investments.**

## Why is it that technology is everywhere, but value is not?

Value is difficult to capture in part because of the enormous challenge of innovating with legacy systems. The conventional IT "stack"—spanning software applications, data, hardware, telecommunications, facilities and data centers—wasn't built for today's cloud-oriented world of analytics, sensors, mobile computing, artificial intelligence, the Internet of Things (IoT), and billions and billions of devices. Nor was it designed to adapt to the world of tomorrow, whatever that might be.

But it's not the case that digital native companies are closing their innovation achievement gaps, while legacy companies aren't. While they might have started in the cloud, some digital native companies haven't adapted their systems at the pace of technological change. In every kind of company, growth depends on a systematic and sequential adoption strategy in line with Future Systems— enterprise systems capable of scaling innovations repeatedly and giving organizations the strategic agility they need to stay ahead of their competitors.
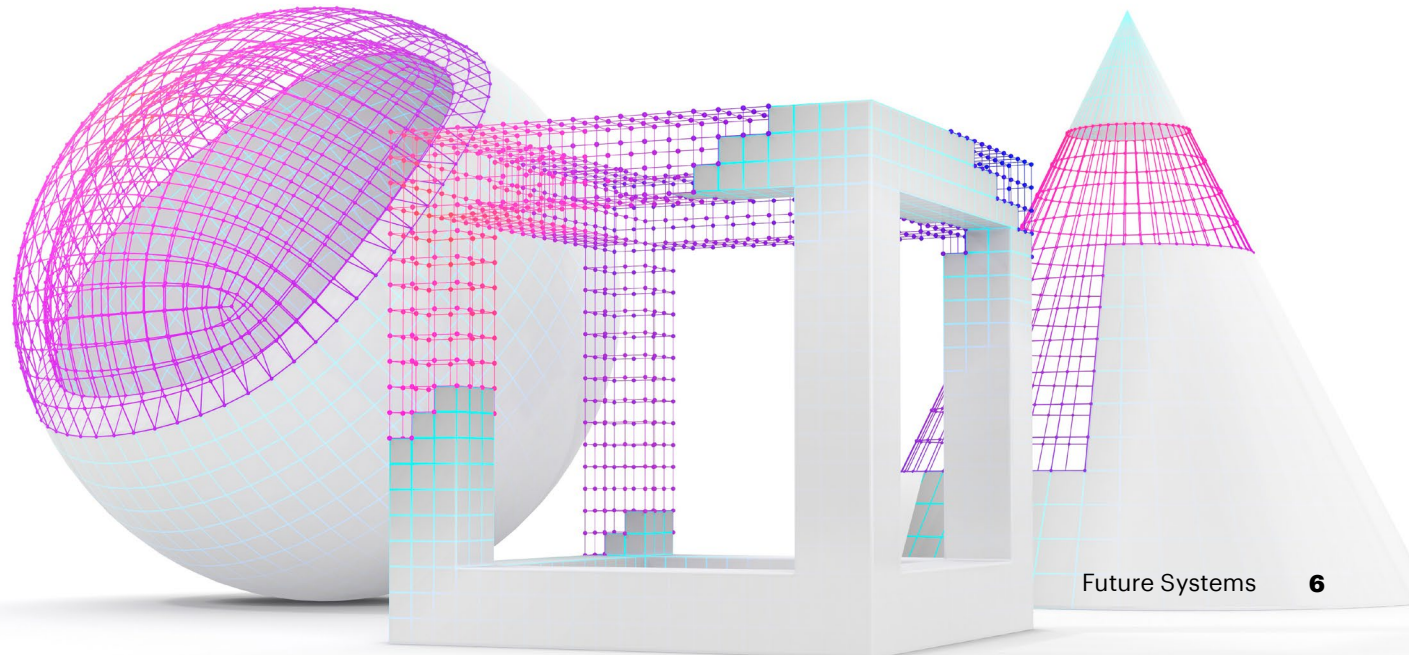
# WORK
# THE SYSTEMS

## Leading companies are achieving significantly more value with the help of Future Systems

How, then, can companies maximize their investment in technology? To crack the code, we conducted our largest enterprise systems survey ever, encompassing C-level executives (half in IT and half in business) at more than 8,300 companies across 20 industries and 20 countries.

We collected data on companies' IT systems strategies—specifically, about 1) the adoption of key technologies, 2) the penetration of technologies adopted and 3) organization and culture. Then we scored them on these dimensions, calling companies in the top 10% Leaders, and those in the bottom 25%, Laggards. By tracking companies' performance indicators between 2015 and 2023 (projected), we can see the relationship between technology adoption and achieved, or expected, value.

**The difference is staggering: Leaders grow revenue at more than twice the rate of Laggards. (See Figure 1)**

In 2018, Laggards had what amounted to 15% foregone annual revenue. If they don't change, they could miss out on as much as 46% of their annual revenue in 2023. (See Figure 2)
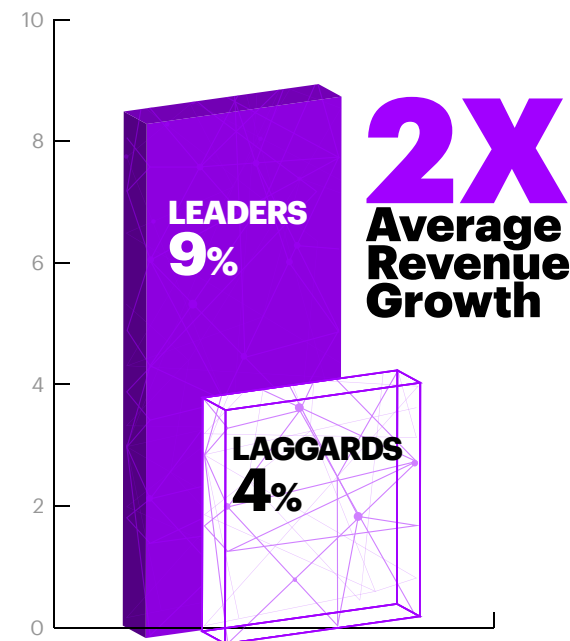
## A staggering difference in revenue growth



**Figure 1:** Leaders—those that are evolving to Future Systems—are growing revenue at more than double the rate of Laggards. Based on average self-reported annual growth rates for 2015-2018.

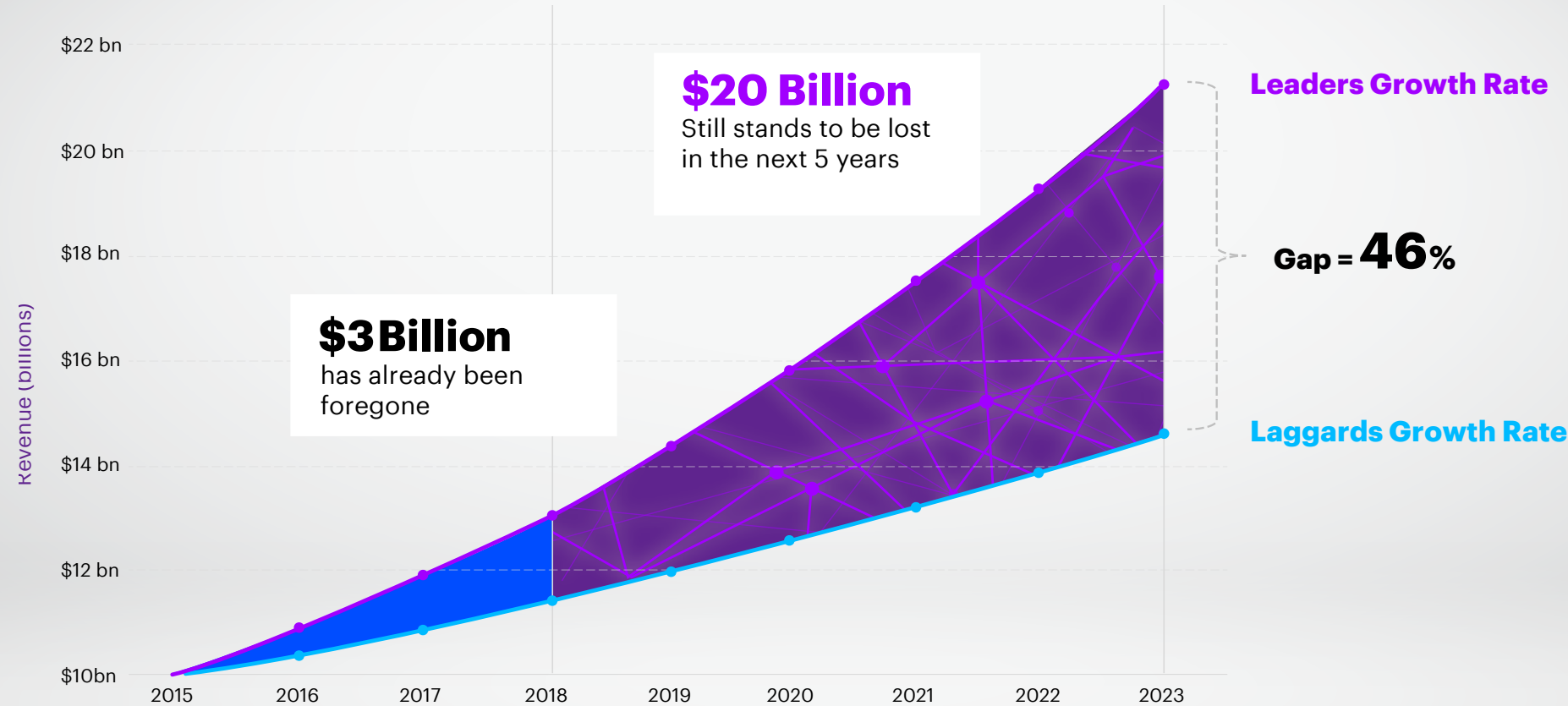# Leaders are poised to extend their advantage over the next five years



**$20 Billion**
Still stands to be lost in the next 5 years

**$3 Billion**
has already been foregone

**Leaders Growth Rate**

**Gap = 46%**

**Laggards Growth Rate**

Revenue (billions)

2015 2016 2017 2018 2019 2020 2021 2022 2023

$22 bn / $20 bn / $18 bn / $16 bn / $14 bn / $12 bn / $10bn

**Figure 2:** An illustrative model of the difference between Leaders and Laggards' revenue growth is projected to widen.

Companies failing to evolve to Future Systems could miss out on as much as 46% of their annual revenue by the year 2023. Leaders' expected growth is represented by the purple line and Laggards the blue line (self-reported). For sake of simplicity, we illustrate the opportunity cost of not evolving to Future Systems using a company with $10 billion in revenue in 2015. Your specific opportunity cost depends on your revenue in 2015. For instance, if your revenue was $5 billion in 2015, you stand to forgo as much as $10 billion between now and 2023.

# THINK LIKE
# THE TOP 10%
## Discover what leaders do differently

**01**    **Leaders invest more in innovation.**

**02**    **Leaders don't just adopt technology, they create systems.**

**03**    **Leaders scale technology innovation across the enterprise.**

**04**    **Leaders understand that Future Systems must be boundaryless, adaptable, radically human.**

# Leaders invest more in innovation



**2015 - 2019**

LAGGARDS: 15%, 21%, 64%

LEADERS: 2%, 5%, 93%

**2019 - 2023**

LAGGARDS: 9%, 17%, 74%

LEADERS: 1%, 2%, 97%

Legend:
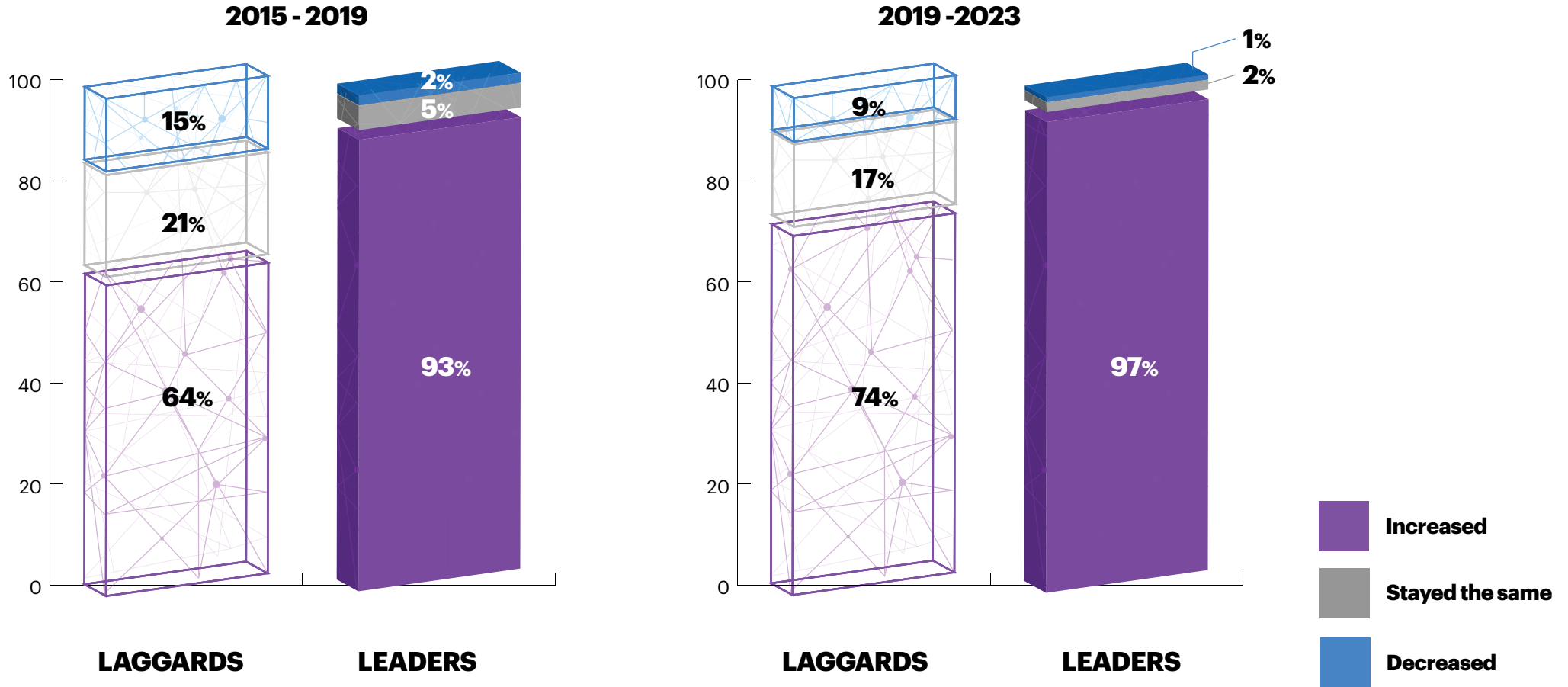- Increased
- Stayed the same
- Decreased

**Figure 3:** Proportion of budget spent on innovation, now and expected. Leaders spend a much higher proportion of their IT budgets on innovation. And, expect to further increase their spend in the future.

Leaders have a deliberate stance toward technology adoption and a clear vision for what their companies' future systems should look like. Leaders have directed a greater percentage of their IT budget toward innovation over the past five years and expect to accelerate **investment in innovation** faster than Laggards over the next five. (See Figure 3)

While technology adoption is pervasive among all the companies surveyed, Leaders show a consistently higher rate than others. (See Figure 7)  They tend to adopt new technologies earlier, develop higher levels of expertise, and prioritize and sequence implementations in optimal ways. In doing so, they **create systems** rather than point technology solutions.

For example, Leaders adopt AI, a fundamental general-purpose technology, at a rate of 98%. And even more revealing, before implementing AI, Leaders set up complementary technologies such as data lakes (a system or repository of data stored in its raw format) and cloud services (any service made available to users on demand via a cloud computing provider's servers).

Laggards, on the other hand, have faith in a "fast follower" approach, taking on technology somewhat haphazardly leading to a patchwork across the organization. Only 42% of Laggards have implemented AI, for instance. Often following fads, they put in place technologies as individual point solutions without a vision for how technologies will complement each other, and without a plan for cultivating enterprise systems. As a result, when a potentially game-changing innovation comes along, they cannot effectively scale it.
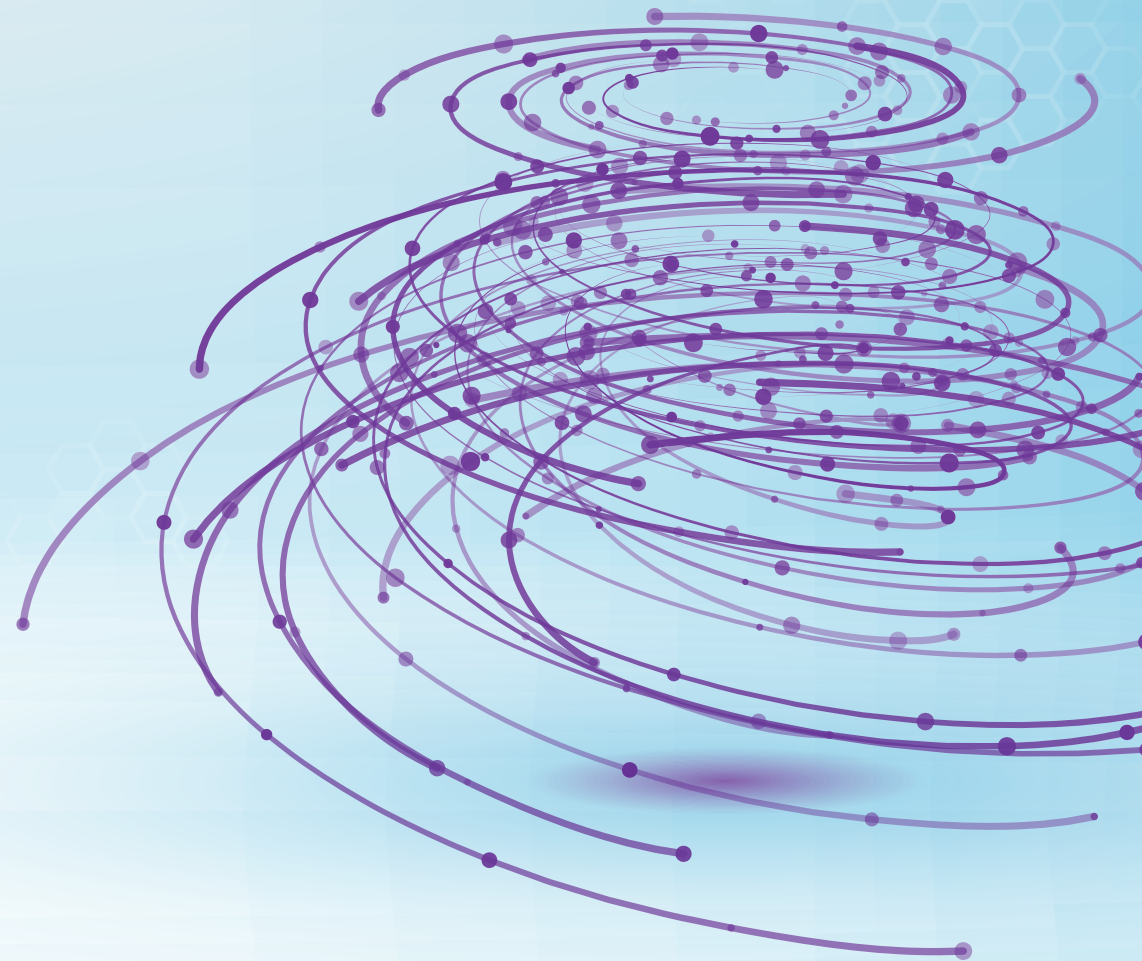
For example, a major apparel manufacturer developed a wearable device to help users track their exercise but failed to generate meaningful insights from the data collected. That would have required building a machine learning-based analytics platform that could harness the data to provide real-time predictive analytics that customers could use. Because the company opted not to, sales were limited. It was forced to cease production, and eventually stop offering support services on apps for existing customers.

While Laggards don't move beyond innovating in pockets, Leaders set their sights on **innovating at scale**. Because of that perspective, they show the highest levels of penetration across the 13 critical business processes our survey covered.[1] In fact, Leaders target 3 times more business processes with technologies they adopt than Laggards. As a result, their systems allow for a seamless flow of product and service innovations from one process to another

**Leaders believe that humans and machines can bring out the best in each other and that innovations within the organizations as well as in their ecosystem of partners can be scaled. It's one reason they're motivated to build Future Systems that are:**

01 **Boundaryless**

02 **Adaptable**

03 **Radically human**

## 01 Boundaryless:

**Boundaryless systems take advantage of blurring boundaries to create new spaces where ideas and partnerships can flourish.**

Historically, the components of the IT-stack—database, applications, and infrastructure—have been treated as independent entities. These days, rigid divisions are fading. More than 75% of our respondents say that systems are breaking down the boundaries between data, infrastructure and applications, between humans and machines, and even between competing organizations. (See Figure 4)

Systems which are boundaryless utilize the cloud, have a uniform approach to data, security and governance, and have established paths for exploring unconventional partnerships—giving businesses almost infinite opportunities to improve how they operate.

**75%**
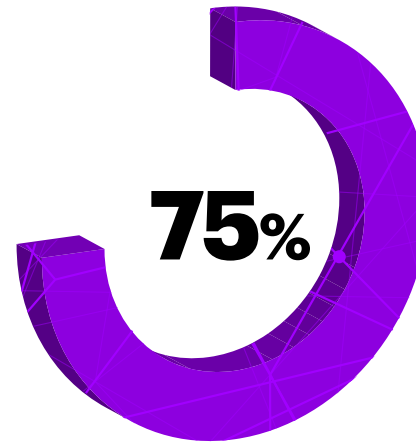
**say systems are breaking down the boundaries between data, infrastructure and applications, between humans and machines, and even between competing organizations.**

**Figure 4**

## 02 Adaptable:

**Adaptable systems learn, improve, and scale by themselves, eliminating the friction that hinders business growth and helping humans make better decisions, much faster.**

Powered by advances in cloud, data, and intelligent technologies, those with adaptable systems aren't fazed by change. The companies we surveyed understand how self-learning systems enable strategic agility: Eighty-three percent want systems that allow them to pivot to new directions.

Key markers of adaptable organizations include enterprise-wide use of automation and AI, a continuous data supply chain in the cloud to power AI in the enterprise, and a stable but modular, flexible, decoupled and constantly evolving architecture. (See Figure 5)

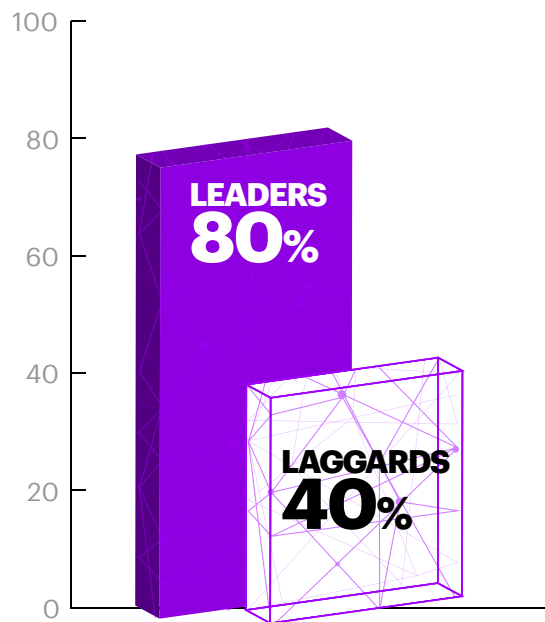## Leaders believe decoupling enables adaptable systems



**Figure 5:** More than 80% of Leaders agree that decoupling the entire IT stack is a key step toward adaptable systems, compared to less than 40% of the Laggards.

## 03 Radically human:

**Radically human systems talk, listen, see and understand just like we do, bringing elegant simplicity to every human-machine interaction.**

A full 80% of our survey respondents believe systems will interact seamlessly with humans, and 78% think these systems will embrace the way humans work.

Radically human companies empower people to break down organizational barriers. Ninety-one percent of Leaders are extremely effective at working with cross-department teams that combine IT and business to create customer-centric solutions, compared with only 41% of Laggards. (See Figure 6)

Thanks to technologies such as natural-language processing, computer vision, voice recognition, and machine learning, these systems are becoming less artificial and more intelligent, making them easier to interact with and more efficient.

Leading radically human companies have a structured, fail-fast approach to evaluate the potential of emerging technologies, they apply responsible AI frameworks to build human-machine trust and they use human-centric design as a standard practice.

Companies that can think in terms of systems, as opposed to point-solutions, stand to outpace others in terms of both revenue and margin growth. It starts with envisioning their own version of boundaryless, adaptable and radically human future systems.
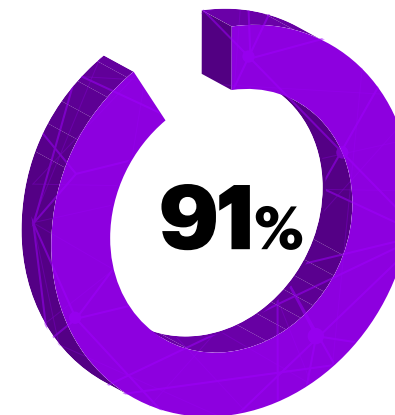


**91%**

**of Leaders are extremely effective at working with cross-department teams that combine IT and business to create customer-centric solutions.**

**Figure 6**

# Leaders master technology adoption

**Leaders**
**Laggards**

| Technology | Leaders | Laggards |
|---|---|---|
| Big data analytics | 100% | 68% |
| Streaming/real-time data | 99% | 59% |
| Cloud SaaS/Software as a service | 97% | 59% |
| Internet of Things (IOT) | 99% | 54% |
| Cloud IaaS/Infrastructure as a service | 97% | 52% |
| Cloud PaaS/Platform as a service | 97% | 51% |
| Data Lakes (data repository) | 98% | 50% |
| Open Source | 98% | 46% |
| Cloud Native Applications (custom) | 98% | 41% |
| Top-Down AI (E.g. expert systems, logic and inference engines) | 98% | 42% |
| Hybrid Cloud | 92% | 48% |
| Bottom-Up AI (E.g. deep learning, machine learning) | 98% | 41% |
| NoSQL databases (key-value, document, graph) | 98% | 35% |

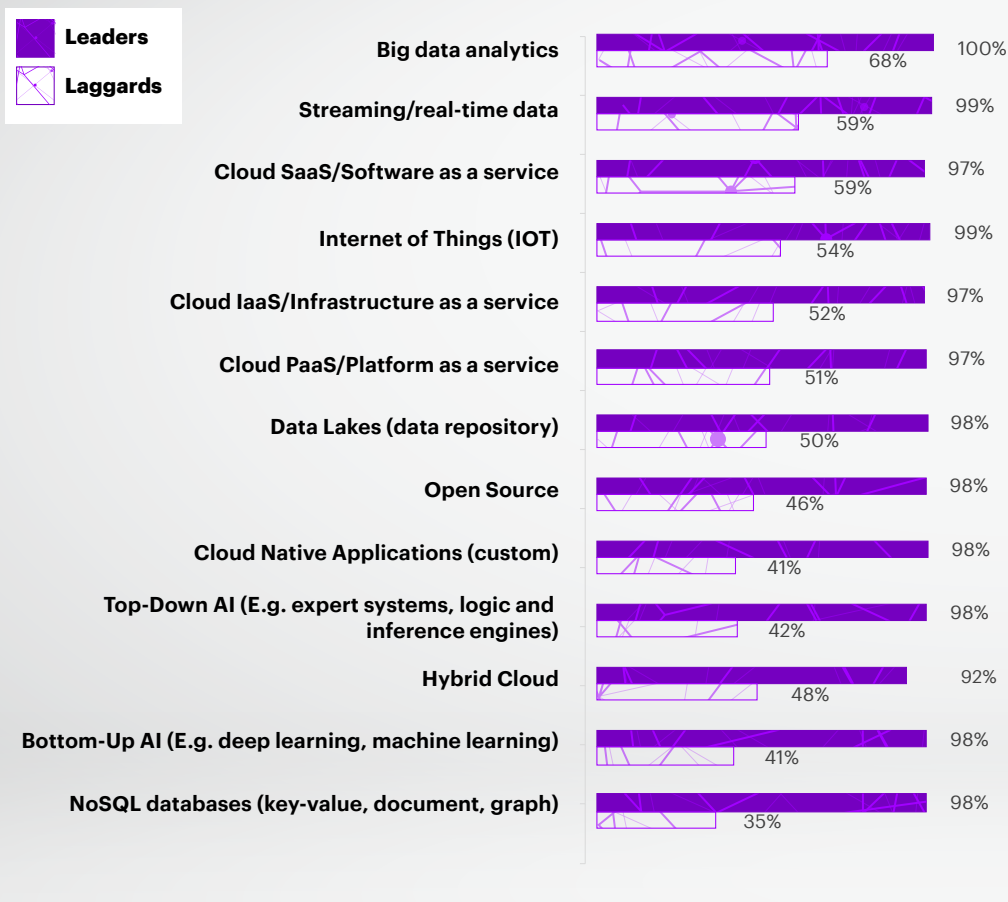| Technology | Leaders | Laggards |
|---|---|---|
| Distributed logs/event hubs | 96% | 30% |
| DevOps automation/CI/CD | 98% | 29% |
| Blockchain | 94% | 34% |
| Robotics | 93% | 41% |
| Edge/Fog Computing | 95% | 32% |
| Microservice Architectures | 97% | 27% |
| RPA (Robotic Process Automation) | 92% | 36% |
| Extended Reality (AR/VR/MR) | 95% | 32% |
| Serverless Computing | 94% | 31% |
| React/Event-driven architectures | 97% | 25% |
| DevSecOps | 97% | 27% |
| FaaS/Functions as a Service | 95% | 25% |
| Containers, Docker, & Kubernetes | 96% | 25% |
| 3D Printing | 90% | 37% |

**Figure 7:** Technology Adoption Rates, Leaders and Laggards. Figures here show rates of adoption of specific technologies in aggregate. Leaders also, by and large, adopt these technologies *earlier* than Laggards.
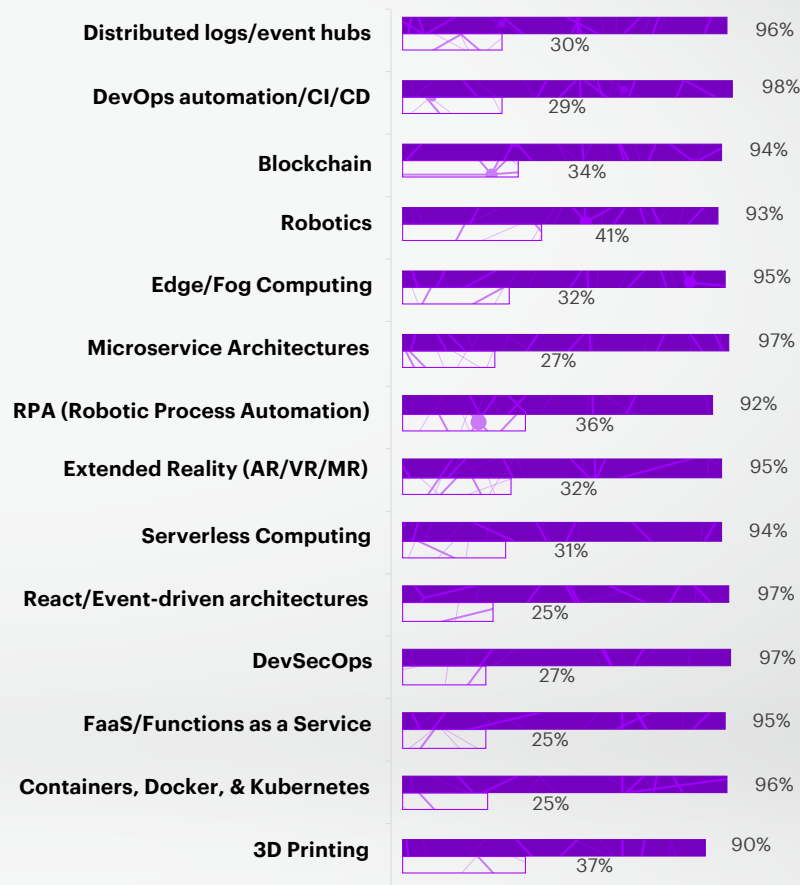
# ACT LIKE
# THE TOP 10%

## There's method in the mindset

Companies have to put their mindset into practice with the right methods, honing the technology and capabilities that will help them rise above the rest. These behaviors come as second nature to some companies, but others can learn to implement them. Here are five key actions Leaders consistently take to close their innovation achievement gaps:

**01** **Adopt technologies that make the organization fast and flexible.**

**02** **Get grounded in cloud computing.**

**03** **Recognize data as being both an asset and a liability.**

**04** **Manage technology investments well—across the enterprise.**

**05** **Find creative ways to nurture talent.**
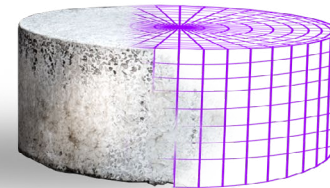
# 01 Adopt technologies that make the organization fast and flexible

Leaders are moving to decoupled data, infrastructure and applications that enable greater flexibility and a faster-moving IT culture. **Eighty-three percent of them agree that it's important to decouple data from legacy infrastructure, compared with only 37% of Laggards.**

Laggards are also far behind in the adoption of DevOps, automation and continuous integration/continuous deployment, with a 29% adoption rate compared with 98% of Leaders. All of these technologies and approaches are designed to help companies eliminate dependencies in their systems and processes, which in turn makes them more agile. Across the world, companies cite architecture flexibility as one of the biggest barriers to innovating at scale. (See Figure 13)

**Leaders' adoption of critical technologies that allow decoupling outpaces that of Laggards by a massive margin: 97% to 30%.** These technologies include microservice architectures (enabled by a suite of tools that break applications into simple, discrete services), containers (a way to package an application so it can be run in isolation from other processes) and Kubernetes (an open-source container-orchestration system for automating application deployment, scaling and management). (See Figure 8)

Even digital native companies are faced with the need to update monolithic enterprise architectures. When one travel industry disruptor first launched their business just over a decade ago, speed to market was paramount, so getting the right long-term, scalable architecture in place wasn't a priority.

Then the company faced the challenge of scaling its platform to meet the demands of a growing customer base and geographic expansion. As part of a decoupling initiative, it migrated its platform to microservices, which allows the company to rapidly respond to change and add new features as it experiences explosive growth.

Leaders opt for flexible, uniform and scalable architectures capable of responding to market demands, like seamless customer payments. Laggards, on the other hand, find it difficult to move away from rigid IT architectures, which leaves them unable to maximize investments in innovation.

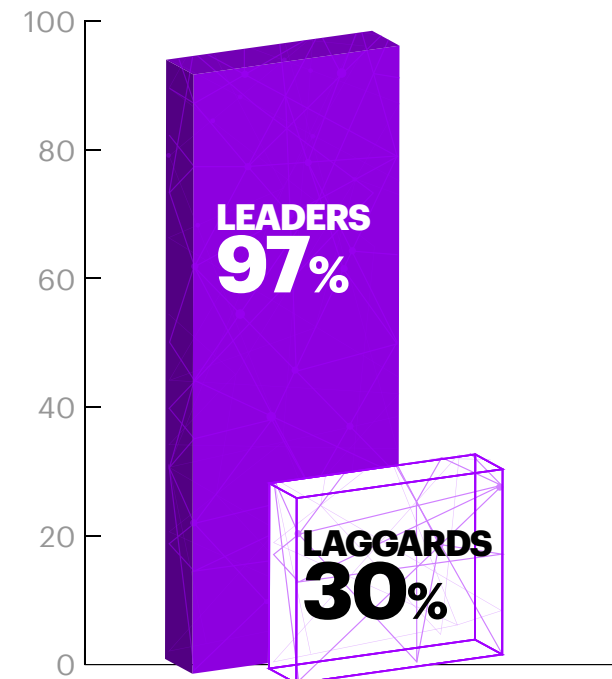## Leaders create architectures and processes built for change



**LEADERS 97%**

**LAGGARDS 30%**

**Figure 8:** Leaders' adoption of critical technologies that allow decoupling outpaces that of Laggards by a massive margin.

## 02 Get grounded in cloud computing

Cloud computing is essential to Future Systems because it enables companies to successfully utilize other technologies, including AI and analytics. As such, Leaders treat the cloud as a catalyst for innovation. **Ninety-five percent of them have adopted sophisticated cloud services like serverless computing, compared to 30% of Laggards,** who tend to see the cloud as a cost-effective "data center." (See Figure 9)

Alibaba Group's financial arm, Ant Financial, for example, is using cloud and AI to offer a range of services in mobile payments, banking, insurance and wealth management.[2] Cloud services and AI are embedded across multiple processes and product lines—adapting to each as needed. As a result, the company can instantly assess the credit risks of underserved people who may not have bank accounts, and even target them with loan offers. It can also enable customers to snap photos after an automobile accident to file claims with their insurers in just a few seconds.[3]

Ant has transferred innovations and lessons at scale across the organization. And it's gone even further, offering its AI capabilities to external ecosystem partners. Caifu Hao, an AI-powered corporate account on the Ant platform, for instance, has brought tangible benefits to 27 fund management companies.[4] The funds have reported a reduction in overall costs by 50%, a ten-fold increase in daily visitors and a three-fold increase in investments by returning customers.[4]
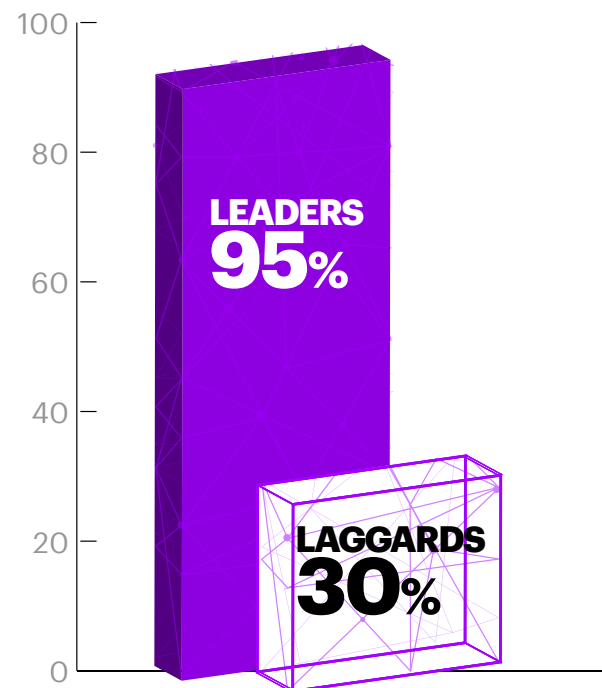
## Leaders adopt sophisticated cloud services



**Figure 9:** 95% percent of Leaders have adopted sophisticated cloud services compared to 30% of Laggards.

## **03** Recognize data as being both an asset and a liability

Out of the 28 technologies we surveyed companies about, respondents ranked "technologies associated with real-time data capture and analysis" as the most important to transforming/improving their business processes. Again, Leaders are ahead of their peers.

Leaders ensure data quality, creating security measures that anticipate threats and building ethically responsible frameworks for managing data and AI. This establishes a virtuous cycle of data creation and consumption, because quality is always improving.

They don't rely on unverified or biased data to make decisions and instead take steps such as using AI itself to detect biased algorithms. **Only 40% of Laggards ensure data quality, but 90% of Leaders do. And while just 54% of Laggards continue to enrich their data, 90% of Leaders are doing so. (See Figure 10)**

As a result, 94% of Leaders trust that the data at their disposal is reliable enough to drive business change, compared with 64% of Laggards. Misuse of employee or customer data can result in a very costly loss of trust, and incorrect decisions borne of bad data and analytics.

AI must gain the trust and confidence of the people who use it to avoid the risk of adverse effects on business performance,

brand reputation and regulatory compliance. Ninety-four percent of Leaders have a systematic way of managing AI in a responsible/ethical manner, compared to 49% of Laggards.

**Bonnier AB, a large media group with more than 180 companies, wanted to achieve full compliance with the European Union's General Data Protection Regulation (GDPR)—a tall order, given that each of these companies managed its own IT systems.[5]**

Against a tight timeline, Bonnier AB implemented an automated solution for GDPR compliance that included advanced pattern-matching and machine learning techniques to automatically discover personal data across its systems. It also brought together the company's disparate data sources and deployed a machine-led compliance solution to help two of its key business units achieve compliance at speed and scale.

Now Bonnier can scan personal data throughout the data lifecycle. It is also able to use powerful visualization of Personally Identifiable Information (PII) through Knowledge Graphs to unlock deep insights from its data landscape. These insights enable the company to develop new offerings, reduce inefficiencies and find new growth opportunities—turning a compliance-led data program into a competitive advantage.
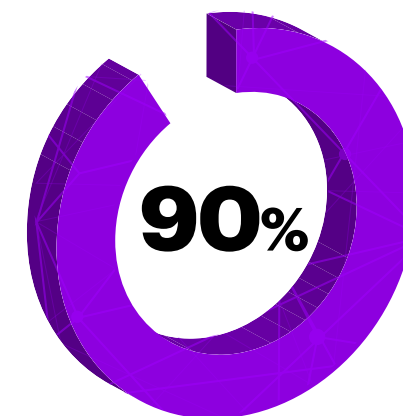
**90%**

**of Leaders continue to enrich their data.**

**Figure 10**

## 04 Manage technology investments well — across the enterprise

Leaders have clear visibility into company-wide technology investments. For example, 94% of them systematically track return on investments in automations across the organization, compared to only 47% of Laggards. (See Figure 11)

Leaders work toward business alignment – a key stepping stone for innovation transfer—by breaking down barriers between IT and other departments. They also establish innovation centers, creating pipelines for innovation transfer. For example, they might consider how improvements in machine-learning-driven sales and customer relationship technology could be used to predict and preempt employee turnover.

**A health insurance company, for instance, is using live dashboards to track bots and automated activities running across their portfolio of businesses. The visibility allows them to calculate the benefits of these investments in real-time—for example, by knowing that one bot saves 15 minutes of someone's time every time it runs, which is 200 times per week.**

The company can also identify new opportunities to expand their automation program. And perhaps the most intangible yet crucial benefit of the dashboards is their power as a visualization tool to persuade non-believers, softening the resistance people have to any kind of culture change and paving the way for greater automation adoption.
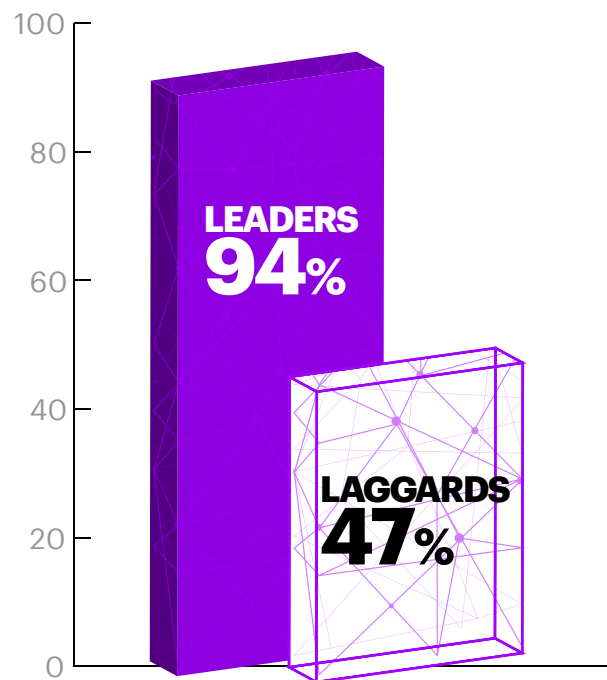
## Leaders track returns on automation



**Figure 11: 94% of Leaders systematically track return on investments in automation across the organization, compared to only 47% of Laggards.**

## **05** Find creative ways to nurture talent

Leaders understand that investing in talent is the best way to advance Future Systems. As these systems evolve, so must the IT workforce. In fact, a workforce immersed in yesterday's technologies is one of the biggest obstacles to creating the expansive, flexible, human-centric systems necessary for success.

Our survey respondents believe that without some retraining, 52% of their IT workforce's skills and almost half (47%) of their non-IT workforce's skills will be obsolete in three years.

Leaders are far outpacing Laggards in skills training: They use experiential learning at three times the rate of Laggards (73% versus 24%) and they launch apprenticeship programs at more than double the rate of Laggards (79% to 36%). Eighty-seven percent of Leaders are using AI and advanced analytics to personalize learning, predict skills needs and match workers' skill requirements with appropriate training modules. Only 35% of Laggards use these techniques.
(See Figure 12)

**A large utilities company is currently exploring how 3D, Extended Reality and AI technologies can help nuclear fleet operators to train their powerplant personnel in any scenario, at any time.**

With VR, they can design training scenarios and simulations that would otherwise be too inaccessible, expensive or dangerous if carried out in the real world. This kind of simulation is also useful in emergency response planning in large, complex sites like shopping malls and theme parks. The human-like interaction with technology can make a notable impact, not just by training workers but by making facilities safer for everyone.

Leaders also make sure their talent is not afraid to experiment and present non-traditional ideas— important components of learning and growing. Eighty-four percent of Leaders have fostered a fail-fast culture, for example, versus only 44% of Laggards.

**87%**
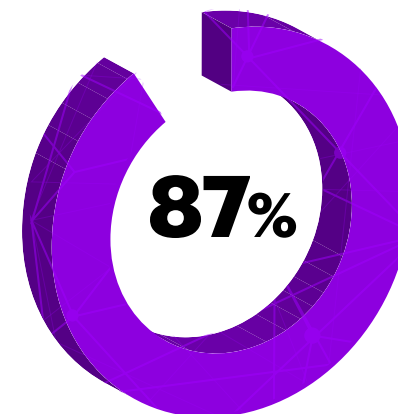
**of Leaders use AI and advanced analytics to personalize learning.**

**Figure 12**

# Architecture is the biggest barrier to innovating at scale

● **System Trust**　　● **Organizational Transaction Costs**　　● **Technology Adoption**　　● **Architecture Flexibility**
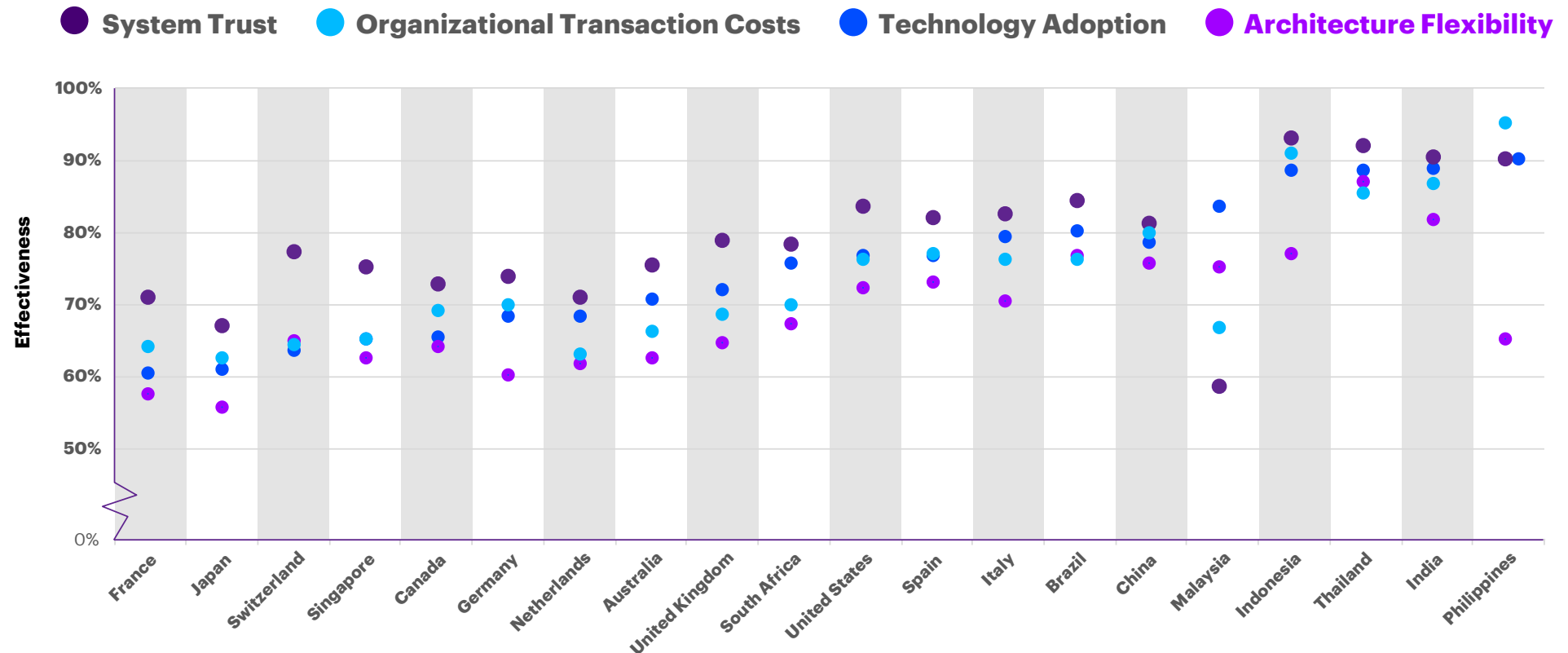


**Figure 13:** Across the world, companies cite architecture flexibility as the biggest of four barriers to innovating at scale. Respondents were asked about their effectiveness in addressing each.

# OUR PLAN,
# YOUR MOVE

**Spending money on the latest technologies and working hard to solve problems as they arise is simply not enough to get to the top in today's fiercely competitive business environment.**

**Though they might both possess knowledge, talent and ambition to spare, the distance between the Leaders and Laggards is huge: Leaders have twice the revenue growth of Laggards, who could miss out on up to 46% of their annual revenues by 2023 if they don't change.**

To scale innovations repeatedly and grow twice as fast as others, companies have to depart from adopting technologies as point-solutions. Instead of a patchwork of technologies, they must evolve future systems by cultivating the mindset and methods of the top 10%, right now. Those that wait will find it increasingly difficult to catch up, as new technologies proliferate and the pace of innovation accelerates.

Leaders already enjoying a considerable head start will not be standing still. The systems they have in place are specifically designed to not only accommodate innovations in technology, but also scale them across the enterprise. The race is not to arrive to some fixed endpoint in the future, but to build boundaryless, adaptable and radically human systems for the future.

# NOW IS THE TIME TO MAKE YOUR MOVE TO FUTURE SYSTEMS. HERE'S HOW:

## ⤷ Boundaryless

1. **Break through the cloud ceiling**
   Cloud isn't the finish line—it's the starting point.

2. **Design for disruption**
   Insulate against change by leveraging flexible architectures and designing interoperable systems.

3. **Decouple the entire IT stack**
   Remove unnecessary dependencies across all layers of the solution stack.

4. **Explore new, unconventional business models**
   When boundaries disappear, new partnerships open up to solve significant problems.

## ⤷ Adaptable

1. **Stage an architectural intervention**
   Let go of old ways of working to create architectures that can constantly flex and adapt.

2. **Identify the biggest friction points in your business**
   Technologies like AI, blockchain, and microservices can help solve your biggest business challenges.

3. **Understand the need for responsible AI**
   Adaptive systems must gain the trust and confidence of the people they work with and for.

4. **Let data be your captain**
   Start with quality data and apply a data-centric approach to your most important business decisions.

## ⤷ Radically Human

1. **Master human-centric development**
   Put humans at the center of your design processes, recognizing that data and technology alone can't solve every problem.

2. **Break down organizational and cultural barriers**
   Scrutinize how organizational or cultural boundaries may hinder speed and accountability. Embed an end-to-end ownership culture from initial idea to user experience.

3. **Don't wait to experiment with emerging technologies**
   Experimenting early is the best way to start socializing and imagining the commercial possibilities of emerging technologies.

# ABOUT THE RESEARCH

We employed a multi-method research approach for Future Systems. Specifically, the research program included surveys, interviews and case study research, and economic and machine learning modelling for diagnostics.

Our research, and that of our partners in our ecosystem, employs ethical and responsible research methods. Respondents reveal their identities voluntarily, we anonymize all data from companies in our data set, and report results in aggregate. We commit to not using the data collected to personally identify the respondents and/or contact the respondents.

## 1. Survey

**The Accenture Future Systems Survey, 2019, is the largest survey of C-Suite executives on enterprise systems. The survey collected data on:**
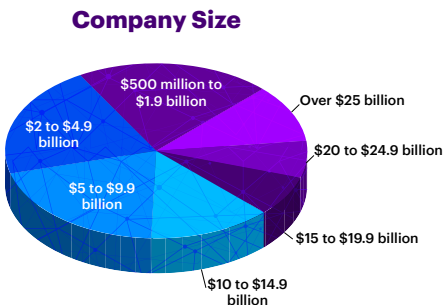
a. Technology adoption
b. Application of technologies at scale across organizational processes
c. Organizational and cultural readiness to adopt and create symbiotic systems of technologies
d. Multiple measures of financial and operational performance

**The graphic opposite summarizes the survey demographics**.

## 8356 companies, global 50% IT, 50% non-IT, C-level only

Our dataset contains a range of companies from very high-growth (16%+) to those witnessing declining revenue and margins, and many in between.

Average Revenue growth: **6.4%**
Average gross margin growth: **5.7%**
Average employee growth: **4.6%**

### Company Size



Pie chart segments: Over $25 billion, $20 to $24.9 billion, $15 to $19.9 billion, $10 to $14.9 billion, $5 to $9.9 billion, $2 to $4.9 billion, $500 million to $1.9 billion

## 20 Industries

**Financial Services**
Banking (524)
Capital Markets (515)
Insurance (515)
**Communications Media & Technology**
Media & Comms. (515)
Telecommunications (351)
High Tech (350)
Software & Platforms (350)

**Resources**
Utilities (515)
Energy (Inc. Oil & Gas) (350)
Metals & Mining (350)
Chemicals (350)
**Health & Public Service**
Health (356)
Public Services (515)
US Federal (353)

**Products**
Retail (351)
Consumer Goods & Services (521)
Travel (350)
Industrial Equipment (358)
Life Sciences (515)
Automotive (352)

## 20 Countries (HQ)

Australia (538)
Brazil (388)
Canada (313)
China (1012)
France (395)
Germany (543)
Italy (366)
India (246)
Japan (631)

Netherlands (155)
South Africa (155)
Singapore (40)
Thailand (61)
Malaysia (12)
Philippines (20)
Indonesia (43)

Spain (396)
Switzerland (209)
UK (579)
USA (2254)

# ABOUT THE RESEARCH

**Inference Approach**

First, we define and group companies into Future System Leaders and Laggards. That is, we identify companies that are ahead in terms of their evolution to Future Systems and those that aren't, or, are evolving slowly. We then investigate if Future Systems leadership is correlated to financial performance.

**Definition of Leaders and Laggards:**

We create a Future Systems Score, composed of three components: 1. Technology adoption. 2. Extent of technology adoption across organizational processes, and 3. Organizational and cultural readiness for technology adoption.

The top 10% of the companies on this score we called Future Systems Leaders, or simply Leaders and the bottom 25% (Future System) Laggards. The rest of the 65% of companies in our sample sit somewhere between Leaders and Laggards.

**Calculation of the Performance difference**

Using the definitions above of Leaders and Laggards, we compare their financial performance—measured by average revenue growth—and calculate the difference in performance between Leaders and Laggards. To ensure that the results were robust, we calculate the difference in performance—the performance gap—in every industry. The results are robust throughout.

## 2. Interviews and Multiple Case Studies

We triangulate our findings from the large-scale primary data from the survey with multiple case studies. Overall, we collected through secondary research and interviews about 30 case studies focusing on issues organizations are facing because of their current IT stack and the evolution of companies toward Future Systems.

## 3.Economic Modelling and Machine Learning

We use economic and machine learning (decision tree) models for arriving at prescriptive insights. We used an ordered logit model to study if the adoption of specific technologies and their application to specific processes can increase the probability of higher revenue and growth rates. In addition, to understand the cultural factors of importance, we ran a machine learning based decision tree classifier and explored correlations between Leaders' Future Systems score with aggregate indices for the company's technology adoption and process transformation indices.

**The regression below summarizes our (simplified) modelling approach:**

*Revenue= $\alpha$ + $\beta_1$\*technologies adopted + $\beta_2$\*processes transformed + $\beta_3$\*technology\*process + $\beta_4$\*control variables +$\mu$*

*Where, $\beta_1$- $\beta_3$ are the key coefficients of interest and $\mu$ is the error term of the regression*

# REFERENCES

1. **https://www.apqc.org/pcf**
   (13 critical business processes as defined by APQC)

2. **https://www.technologyreview.com/s/608103/ant-financial-chinas-giant-of-mobile-payments-is-rethinking-finance-with-ai/**

3. **https://rctom.hbs.org/submission/ant-financial-pioneering-china-fintech-with-machine-learning/**

4. **https://www.businesswire.com/news/home/20180619006514/en/Ant-Financial-Share-Full-Suite-AI-Capabilities**

5. **https://www.accenture.com/in-en/case-studies/technology/success-bonnier-gdpr-compliance-automation**

# ACKNOWLEDGEMENTS

## About Accenture

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions—underpinned by the world's largest delivery network—Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With 492,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives.
Visit us at **www.accenture.com**

## About Accenture Research

Accenture Research shapes trends and creates data driven insights about the most pressing issues global organizations face. Combining the power of innovative research techniques with a deep understanding of our clients' industries, our team of 300 researchers and analysts spans 20 countries and publishes hundreds of reports, articles and points of view every year. Our thought-provoking research—supported by proprietary data and partnerships with leading organizations, such as MIT and Harvard—guides our innovations and allows us to transform theories and fresh ideas into real-world solutions for our clients. For more information, visit **www.accenture.com/research**