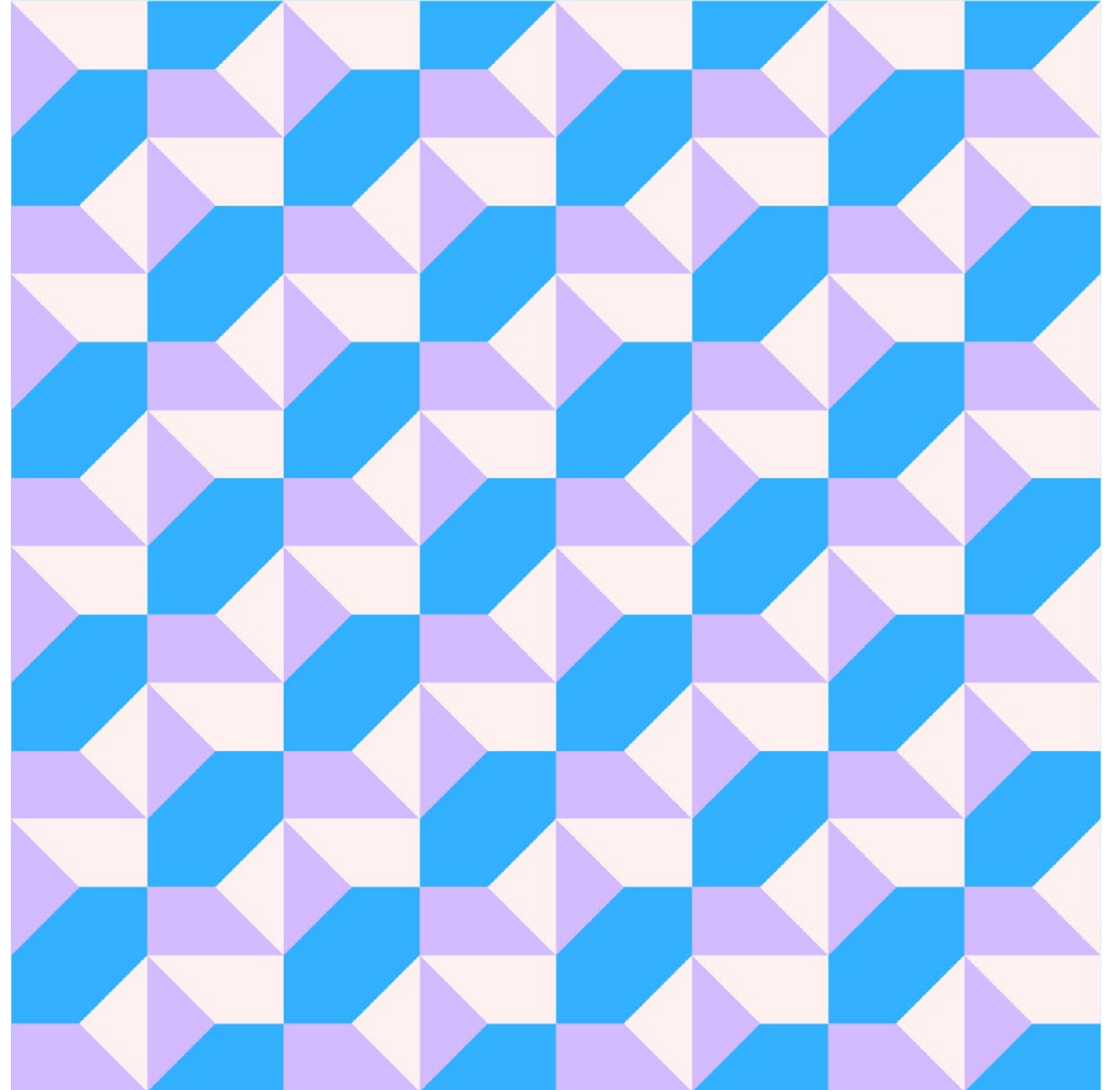


# Pursuing transformation like digital natives

*Lessons for enterprises from tech leaders who have lived it*

In collaboration with



## Introduction

Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

Action guide

About AWS and IBV

# Introduction

In the ongoing—and often challenging—pursuit of digital transformation, traditional enterprises can re-energize their efforts with a fresh perspective. And where better to look for inspiration than their nimble digital-native colleagues?

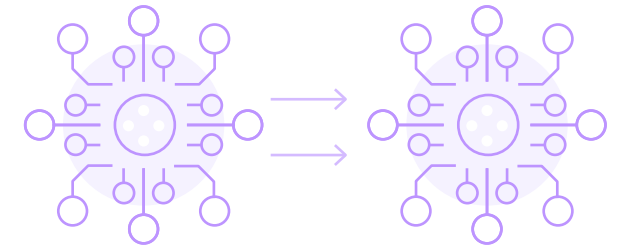
Understanding the philosophies and practices of these quick-moving, born-in-the-cloud companies can help leaders of legacy businesses transition from approaches that worked well in the past to modern tactics that can accelerate their technology adoption and support successful outcomes. To give enterprise executives first-hand insight into digital-native organizations (DNOs), the IBM Institute for Business Value (IBV) partnered with Amazon Web Services (AWS) and Oxford Economics on exclusive qualitative research. Through a series of one-on-one interviews with hand-selected tech leaders who have rich experience at traditional and cloud-created enterprises, an unmistakable set of lessons has emerged, spanning culture, strategy, and execution.

The overarching maxim: digitally native firms approach technology not as an enabler of business strategy, but as a central part of that strategy itself, integral to business direction and opportunity.

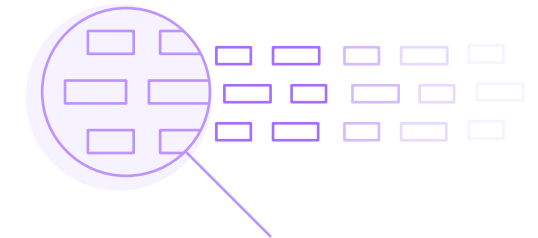
## Perspective

# Questions explored by enterprise leaders:

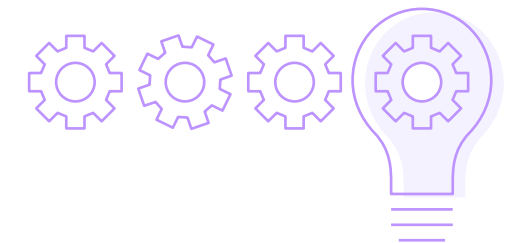
What DNO practices are worth emulating?



Which long-standing enterprise advantages should be preserved?



What legacy processes or technologies could be hindering innovation?



## Introduction

Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

Action guide

About AWS and IBV

“Business strategy and IT strategy must fuel each other,” said Gregor Hohpe, Enterprise Strategist at AWS, and formerly Chief Architect at international finance firm Allianz, Smart Nation Fellow with the Government of Singapore, and Technical Director in the Office of the CTO at Google. “Tech allows you to have business strategies that otherwise would not be feasible.”

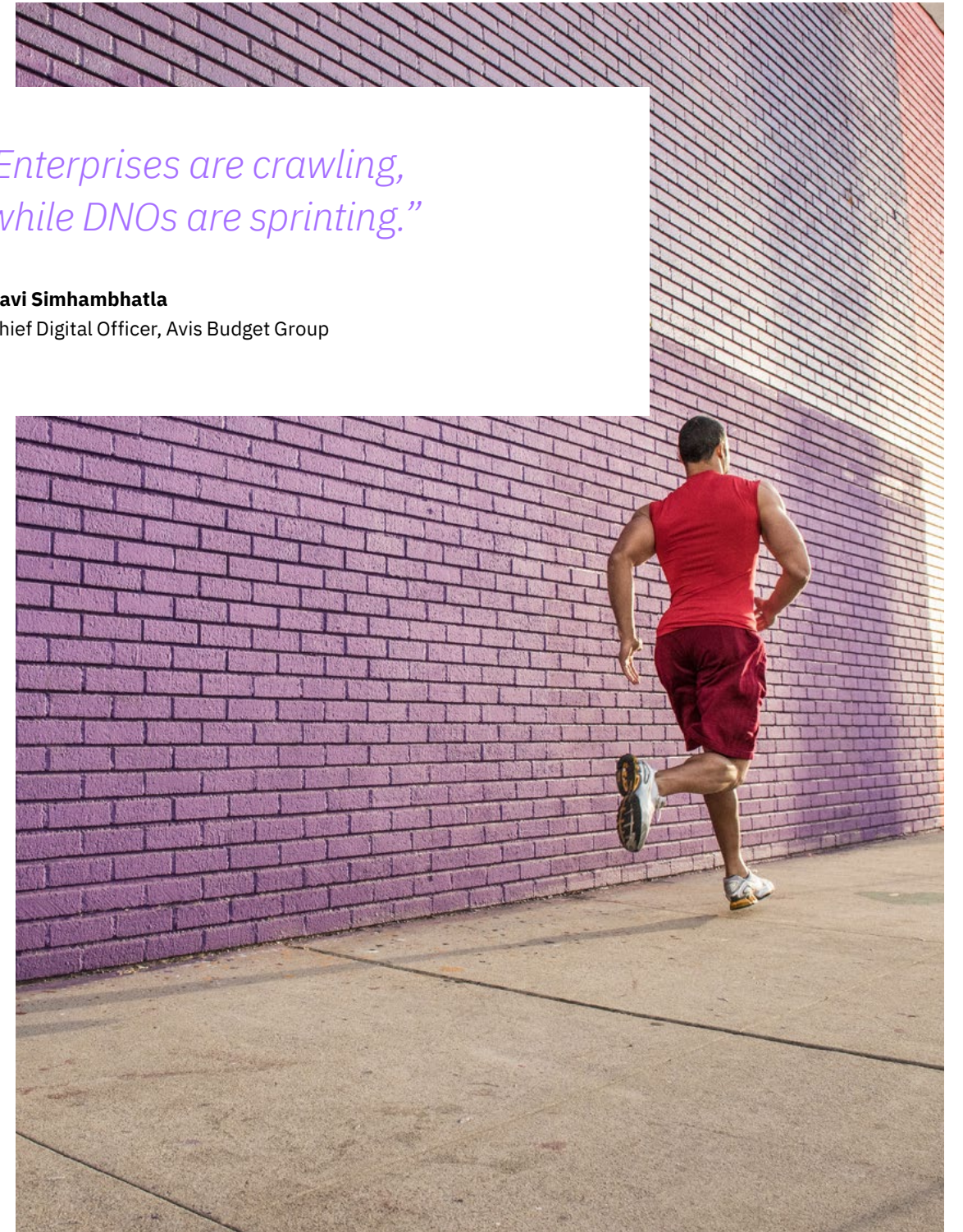
Adopting the approaches of DNOs can unlock competitive advantage for conventional corporations. “At legacy enterprises, their pace, momentum, and trajectory are very different than digital natives,” noted Ravi Simhambhatla, Chief Digital Officer at Avis Budget Group, as well as former executive at United Airlines, Aer Lingus, and Virgin America. “Enterprises are crawling, while DNOs are sprinting.” Mathias Schlecht, CEO of energy data start-up Biota, and who previously led tech efforts at energy giants Baker Hughes and GE, observed, “If you don’t work at pace, with open systems, you will be left behind.”

Established firms that want to make this kind of leap—to implement digital strategy at their cores—must make fundamental shifts in three key areas: leadership mindset, tech infrastructure, and operational processes. In the sections that follow, this report explores each area by contrasting DNOs and legacy companies, as seen through the eyes of tech leaders who’ve been on both sides. In the final section, we offer an action plan, drawn from these insights, for any organization to follow.

*“Enterprises are crawling, while DNOs are sprinting.”*

**Ravi Simhambhatla**

Chief Digital Officer, Avis Budget Group



Introduction

**Changing the leadership mindset**

Scalable tech infrastructure

Loosening operational process

Action guide

About AWS and IBV

## Changing the leadership mindset: From stability to disruption

If the goal is to enhance “the linkage between IT strategy and business strategy,” as AWS’ Hohpe put it, generating buy-in across the organization—starting at the top—is the first step.

The way leaders think is where digitally native organizations begin to distinguish themselves, according to our research. “The difference is mindset,” said Hohpe. “The openness to try something.”

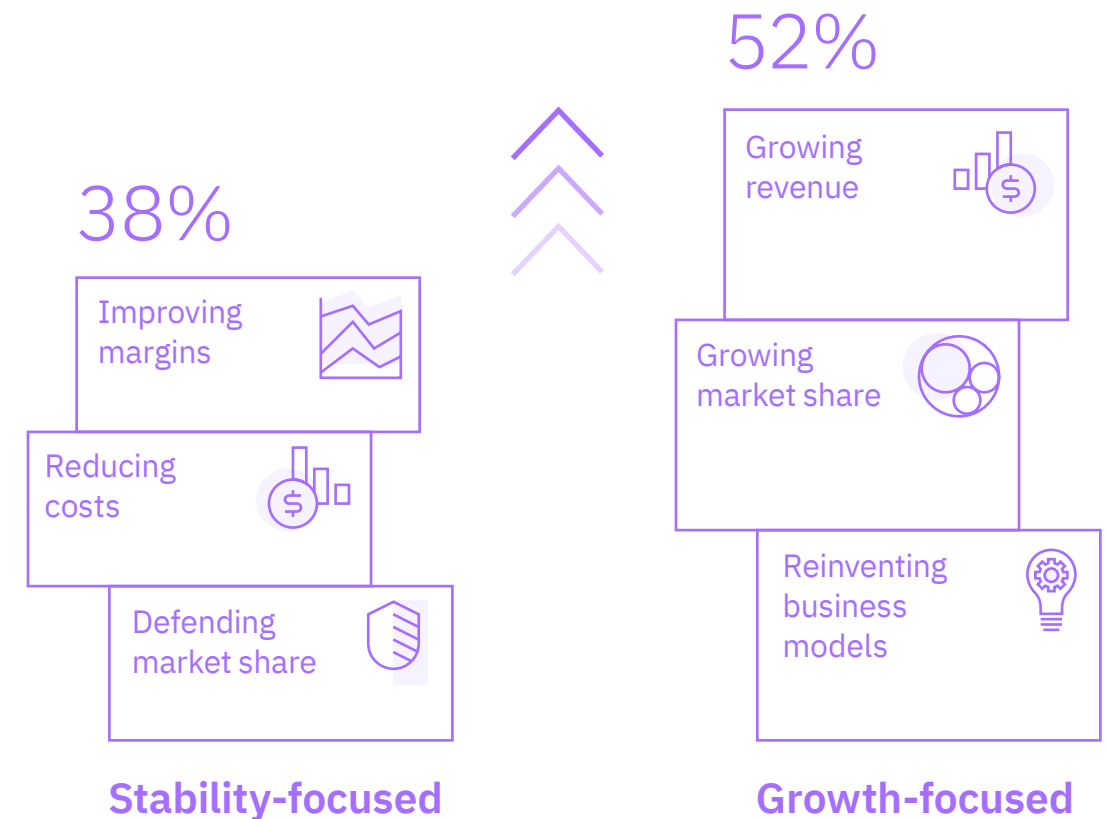
Established, successful organizations may be locked into thinking they have a system that works, and that can become their limitation. “In the legacy world, leadership is rewarded for maintaining stability and performance,” said Simhambhatla. “For digital natives, they get rewarded for disrupting and innovating.”

The 2021 IBV global survey of 2,500 IT leaders backs up Simhambhatla’s observations. A greater percentage of CIOs from DNOs less than 12 years old indicated their success is measured on strategic contributions to the enterprise (for example, successfully launching technology-enabled platforms and subjective assessments of impact on business outcomes). In contrast, a larger percentage of leaders in more mature organizations reported their success is measured by tactical budget and financial performance contributions such as budget performance and internal billing for shared services.<sup>1</sup>

Further insights from the “2022 AWS C-Suite Report: Cloud-Enabled Growth” show that the executive frame of mind is starting to shift, favoring innovation ahead of stability. When asked to rank their top business priorities, 52% of executives selected growth-focused priorities, including increasing revenue, expanding market share, and/or reinventing the business. Even so, 38% chose to prioritize stability-focused objectives, such as defending market share and reducing costs.<sup>2</sup>

### Insight

## Executives’ top business priorities



Source: “2022 AWS C-Suite Report: Cloud-Enabled Growth”

Introduction

## Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

Action guide

About AWS and IBV

Pursuing transformation like digital natives

Refreshing the mentality at legacy firms requires rethinking incentives. Simhambhatla noted: “We are seeing more C-suites and boards of directors changing how they reward leaders and their teams so that they lean toward adoption of new technologies. It’s about rewarding innovators for breaking glass.”

For DNOs, this way of thinking is typically ingrained from the beginning. “For digital natives, it’s all about disrupting themselves,” Simhambhatla said. “It’s part of their very existence.”

“I haven’t encountered digital natives who say ‘I’m going to innovate,’” Simhambhatla continued. “You only hear those statements from legacy organizations because they’re trying to get out of that rut. For legacies wanting to innovate at the pace of DNOs, there’s a lot of foundational work that needs to be done to get them to the point where they can actually start doing it.”

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*“It’s about rewarding innovators for breaking glass.”*

### **Ravi Simhambhatla**

Chief Digital Officer, Avis Budget Group

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Enterprises need to recognize that the DNO mindset impacts varied practices, from decision-making to cost assessments to collaboration. This includes a heightened willingness for team members to share or cede control in service of flexibility and speed.

“In large organizations, teams tend to have a challenge when they need to let go of some authority, some decision-making capacity,” said Schlecht. “There is a hesitation to bring in third-party solutions, especially in areas close to their own core expertise or core products. The movement is typically to try to do it in-house first.”

Hesitation to venture outside the business for technology solutions and tools is often the default within traditional enterprises, Schlecht observed. There’s a resistance to accepting that someone else might do something better and a reluctance to tackle the time and cost of integration versus evolving internal systems. In contrast, the DNO mentality is more open to leveraging expertise from wherever needed. For them, speed takes precedence over almost everything else.

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*“The key difference [with DNOs] I observed is the speed of decision-making and acting on information as it becomes available.”*

### **Mathias Schlecht**

CEO, Biota

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The confidence to leverage expertise and capabilities from third parties requires building and maintaining an ecosystem of partners that can not only bring necessary capabilities, but that can be relied upon to deliver when and where needed. It’s not surprising that CIOs from DNOs have cited enhancing trust and collaboration as the most important objective in furthering relationships with ecosystem partners.<sup>3</sup>

“The key difference [with DNOs] I observed is the speed of decision-making and acting on information as it becomes available,” Schlecht said. “During my time at Baker Hughes, I don’t think I saw somebody make a decision on day one, and it was implemented the next, and everybody was behind it.”

Introduction

## Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

Action guide

About AWS and IBV

In his experience, said Schlecht, creating speed is about company culture and freeing people to break away from their day jobs to iterate quickly on a new solution, which is more difficult to do in larger organizations where significant focus is on keeping systems running.

As noted by Hohpe, in legacy IT departments, speed is often downplayed. “Traditional organizations always look at the faster decision as an inferior decision. It’s deeply baked in their minds that fast can’t be good. But if making a decision takes you two months, the opportunity cost of not having moved in that time is enormous. Digitally native organizations know they might be wrong, but that it’s worse to spend months evaluating.”

There are tactics for helping leaders to think more like DNOs. When he was at Allianz, Hohpe said, there was a “cram school” for top-level executives to help them better understand technology. “That was a CEO-level mandate. If technology is the future of our business, then everybody needs to understand it. That was an initial trigger, and it sent

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*“If making a decision takes you two months, the opportunity cost of not having moved in that time is enormous.”*

### Gregor Hohpe

Enterprise Strategist, AWS

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a very important message into the organization.” Melanie Kolp, Nationwide Insurance CTO who has helped lead the company’s technology transition, noted a similar initiative where every employee is required to have at least eight hours of digital training each year.

Hohpe emphasized that tech leaders must build trust by increasing transparency when working with the business. “IT has traditionally enjoyed the fact that many people don’t understand what it does,” said Hohpe. Instead, he argued, “it’s the mandate of IT to invite the business audience into the decision-making process. You need to do that by de-jargoning, laying out the options, and inviting them into the thinking process.”

This happens more often at DNOs, where IT and business link up naturally—because they have from the beginning. DNOs look to and rely on tech leaders for creative direction and iterative business growth. “It is completely integral,” explained Schlecht. “Innovation goes across the company [at DNOs].”

Nationwide’s Kolp illustrated that a legacy enterprise can adopt this philosophy as well: “Our strategy for the organization was developed among our business leaders and the technology leaders. So, at the highest level, there isn’t a separation between business strategy and a technology strategy. Our enterprise strategy connects technology and business for the future.”

The 2021 IBV global survey of tech executives indicated that CIOs and CTOs seem to be embracing their importance in their companies’ technology modernization efforts, citing “transformation business leader” as the top descriptor of their organizational role.<sup>4</sup>

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*“At the highest level, there isn’t a separation between business strategy and a technology strategy. Our enterprise strategy connects technology and business for the future.”*

### Melanie Kolp

CTO, Nationwide Insurance

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One of the well-known issues for tech leaders at established enterprises is dated infrastructure, but digital-based firms are not immune to their own legacy challenges. Insights from the same IBV survey identified legacy system and architecture constraints as barriers to organizational digital transformation efforts in DNOs as well.<sup>5</sup> However, DNOs are usually quicker to address them. “Did we have legacy systems in Silicon Valley? Absolutely,” admitted Hohpe. “It’s not like we were void of the problem. We were just more conscious about solving it, as opposed to serving corporate ceremony. If it’s a tough issue, too bad. We just bit the bullet.”

“I get these arguments—‘these [DNO] companies have nothing to lose’—and I don’t buy it,” Hohpe said. “They actually have a lot more to lose, because any project that fails, it affects the whole company.” Bigger legacy companies need to recognize that they can afford to take bigger innovation risks—from their tech infrastructure to their operational processes—because they have more resources and established reputations to fall back on if a project is unsuccessful.

Introduction

Changing the leadership mindset

**Scalable tech infrastructure**

Loosening operational process

Action guide

About AWS and IBV

## Scalable tech infrastructure: Why renting is better than owning

When planning for innovation, DNOs have the freedom to start from scratch with their infrastructure. Their typical approach is to keep it as small as possible, build as little as possible, and borrow as much as they can from outside providers.


They start lean, and they stay lean. In doing so, they can continually access the latest leading modern tools while optimizing their flexibility.

“If you go to a legacy enterprise, the vast majority of toolsets, whether they’re apps or databases, they’re normally built in-house,” Simhambhatla said. “They work to keep that world tightly coupled to their company.” And there’s often pressure to maintain that backwards compatibility as they look to modernize.

This slows down progress, noted Nationwide’s Kolp. “Because of how complex a large business like ours can be, and also considering how long we’ve existed, resulting in all of this behind-the-scenes tenure, as I’ll call it, it makes it challenging to move as swiftly as we would love to.”

DNOs don’t have that burden, Simhambhatla explained: “If you go to the digital natives, almost all the tools they use are plug and play, almost like Lego pieces, from the cloud and cloud marketplaces, which is why they’re able to go much, much faster.” Not surprisingly, when asked what technologies they expect to invest in over the next three years, more CIOs from DNOs indicated they intend to increase investments in open source solutions than technology leaders in mature organizations.<sup>6</sup>

Some DNO choices are driven, at least in part, by the resource constraints of smaller and start-up operations, yet they yield great advantages. “You can stitch solutions together to drive great customer experiences, great revenue management,” said Simhambhatla. “Cloud providers have phenomenal AI capabilities that I’ll never be able to replicate in-house. There’s no need for me to do that if I just go to the cloud.”



*“If you go to the digital natives, almost all the tools they use are plug and play, almost like Lego pieces, from the cloud and cloud marketplaces, which is why they’re able to go much, much faster.”*

**Ravi Simhambhatla**

Chief Digital Officer, Avis Budget Group

Introduction

Changing the leadership mindset

**Scalable tech infrastructure**

Loosening operational process

Action guide

About AWS and IBV

As DNOs evolve, their tech stack evolves with them—and such ongoing evolution becomes a standard, expected operating reality. “Moving out of the data center and into a cloud world saves costs and optimizes the business, but that’s just tech strategy,” observed Simhambhatla. “DNO people look at how to continuously modernize their stack.” While legacy companies often focus on tech architecture and IT as two separate roadmaps, DNOs approach them as one.

The advantages enabled by DNOs’ streamlined tech systems are tangible. “At Baker Hughes, a range of legacy—none cloud-based—software systems integral to providing customer services required us to maintain a range of infrastructure, including server farms and high-performance computing clusters, in-house,” said Schlecht. “But at Biota, with scalable web services, we don’t have to worry about infrastructure. Infrastructure is someone else’s challenge. There’s a whole level of maintenance that we don’t have to deal with.”

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*“There is a competitive advantage to being able to tell your customers that whatever system they use, you can easily deploy, easily integrate.”*

**Mathias Schlecht**  
CEO, Biota

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“There is not a single native piece of software in the company installed on any individual machine,” Schlecht continued, describing the approach at Biota. “Everything is cloud-based. They then containerized everything and made it cloud agnostic. Now everything can be easily deployed in different environments.”

That doesn’t just simplify operations for DNOs; it opens the door to enhanced customer engagement. “Being cloud agnostic means if a customer wants to have in-country computing, we can facilitate that without building anything out,” said Schlecht. “Everything is built around ease of getting data in and out, moving data between different systems. There is a competitive advantage to being able to tell your customers that whatever system they use, you can easily deploy, easily integrate.”

“You can even use the cloud to provide trust that a customer’s data is safe,” continued Schlecht. “We can provide a production module where they plug in their data, and none of that data is leaving their system.”

Not everything about the DNO tech infrastructure is simpler. But that too has its advantages. “The traditional question has always been, do I buy versus build?” said Hohpe.<sup>7</sup> “With the cloud and software as a service, that takes on a whole different character. It’s really a buy and build model. The transformation exercise isn’t about resetting the existing dials; it’s about understanding that you’re maneuvering a completely different system.”

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*“The traditional question has always been, do I buy versus build? With the cloud and software as a service, that takes on a whole different character. It’s really a buy and build model.”*

**Gregor Hohpe**

Enterprise Strategist, AWS

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The cloud-born approach allows DNOs to sidestep challenges that compound for traditional organizations as they grow. For traditional carriers in the airline industry, for instance, “in many cases, the commercial and operations department systems do not natively talk to each other,” said Simhambhatla. He called this “natively disconnected.” And that creates problems that go to the core of the business: “The lack of connected data across the airline leads to suboptimal decisions, resulting in operational and customer experience challenges.”

Introduction

Changing the leadership mindset

**Scalable tech infrastructure**

Loosening operational process

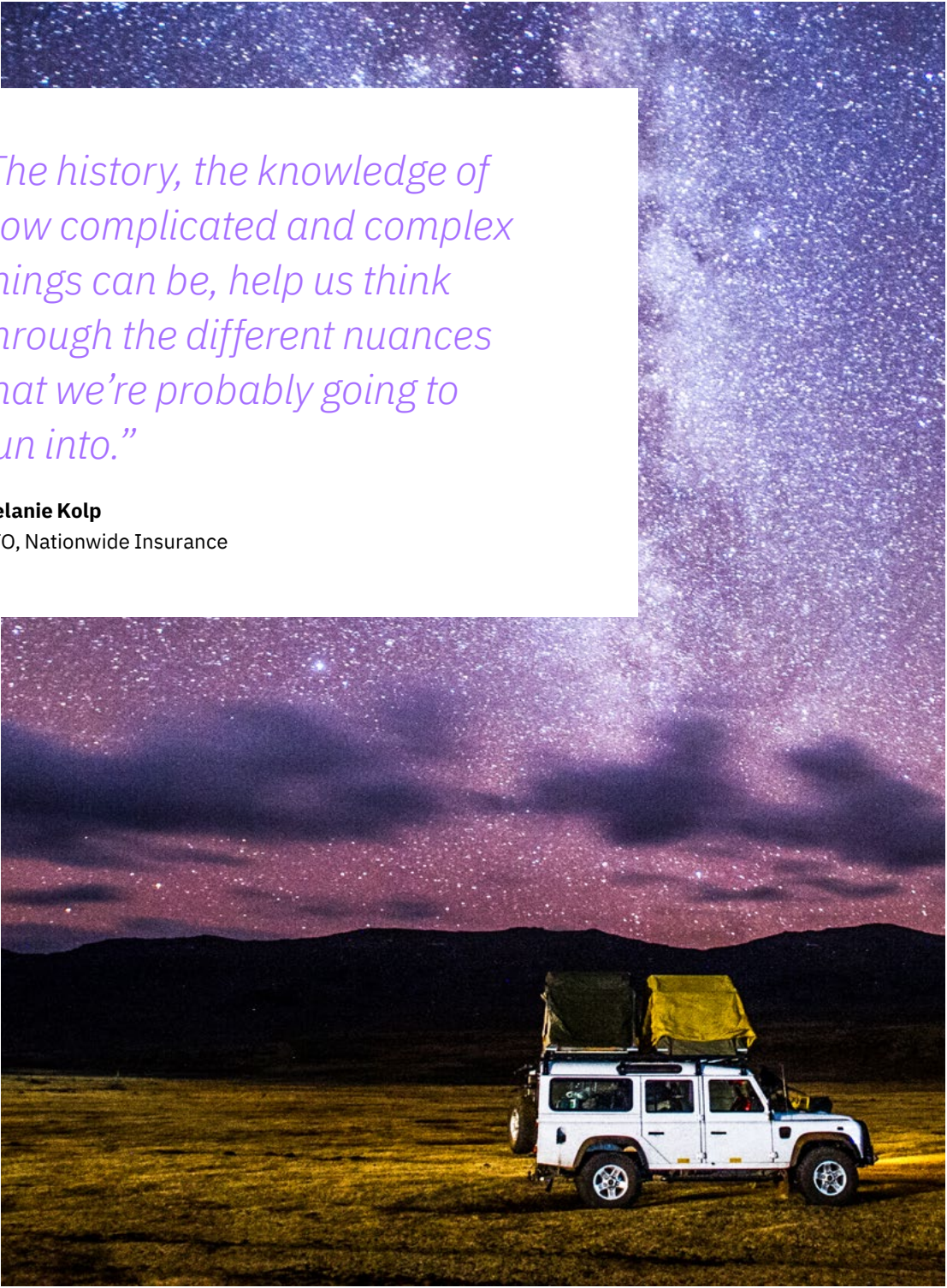
Action guide

About AWS and IBV

But when traditional businesses embrace a DNO-like model, where the tech-business relationship is “a two-way street,” it can unlock great opportunities. Hohpe pointed to the example of a manufacturer transitioning from selling train engines to leasing them based on passenger miles or kilometers traveled. “Without predictive maintenance, IoT sensors, machine learning, cloud capabilities, this would not be possible,” Hohpe observed.

And legacy enterprises can bring the advantage of experience and industry knowledge to solutions, as pointed out by Kolp. “The history, the knowledge of how complicated and complex things can be, help us think through the different nuances that we’re probably going to run into,” she explained. “Even if we are creating something brand new, completely digital, from scratch, we have that knowledge and understanding of how complex it’s going to be and going to get when integrated into the broader system, so we can plan ahead better for pitfalls.”

Enterprise leaders also need to recognize the value of infrastructure changes beyond just the cost. “CFOs of legacy companies say, ‘I want to save money.’ But that doesn’t drive real value,” said Simhambhatla. “The benefit for new tech should not just be cost. If you’re going to move an app from your data center to the cloud, it should enable more teams within your organization, better customer engagement, new possibilities.”

A photograph of a white SUV parked in a field at night. The sky is filled with stars, and the ground is illuminated by a warm light, possibly from a campfire or a light source near the vehicle. The SUV has a yellow tarp on its roof rack.

*“The history, the knowledge of how complicated and complex things can be, help us think through the different nuances that we’re probably going to run into.”*

**Melanie Kolp**  
CTO, Nationwide Insurance

Introduction  
Changing the  
leadership mindset

Scalable tech  
infrastructure

**Loosening operational  
process**

Action guide  
About AWS and IBV

## Loosening operational process: Friction, experimentation, and organized chaos

As with their tech infrastructure, DNOs tend toward leaner, looser processes—and yet despite the less systematic approach, they get a lot done, quickly.

“Digitally native companies have less friction,” said Hohpe, citing excess inventory, long cycle times, and over-utilized employees who are unavailable for decision-making as examples of barriers that slow down progress. “Friction is the enemy— people have ideas but you miss out on the opportunity because of the time it takes going through the system. You cannot overcome friction by pushing harder—a classic failure for transformation. I call this bursting the boiler; it doesn’t work.”

Inspired by DNOs, Hohpe’s solutions for legacy organizations are twofold: “The long-term goal is to simplify the machine. The short-term goal is to use lubricants. Understand the value of short cycle times. One counterintuitive lubricant is to reduce resource utilization. If you are 100% utilized, your wait times go to infinite.”

Experimentation is another lubricant, Hohpe said. “Experimentation is critically important. How can you drive the cost of experimentation down? If you have a faster cycle time, you can make smaller changes, smaller experiments. Don’t underestimate the value of small but continuous innovation.”

*“Don’t underestimate the  
value of small but continuous  
innovation.”*

**Gregor Hohpe**  
Enterprise Strategist, AWS



Introduction

Changing the leadership mindset

Scalable tech infrastructure

**Loosening operational process**

Action guide

About AWS and IBV

IBV research suggests that organizations can improve returns on innovation investments by embracing open innovation. The concept of open innovation—first put forward by theorist Henry Chesbrough in 2003—asserts that sharing ideas and collaborating, both internally and externally, delivers better outcomes.<sup>8</sup> The recent emergence of exponential technologies and the acceleration of digitization, combined with rising stakeholder expectations, have created an urgent imperative for organizations to embrace open innovation. In fact, the research showed that organizations embracing open innovation had a 59% higher rate of revenue growth compared to those that don't.<sup>9</sup>

Another source of friction comes from bloat. “Legacy organizations over time, they just balloon,” said Simhambhatla. “Jobs that could be done by one person are done by 30.”

“Many people judge their career success by the size of the teams they lead,” he added. “They need to stop. We have to change the incentive and compensation structure.”

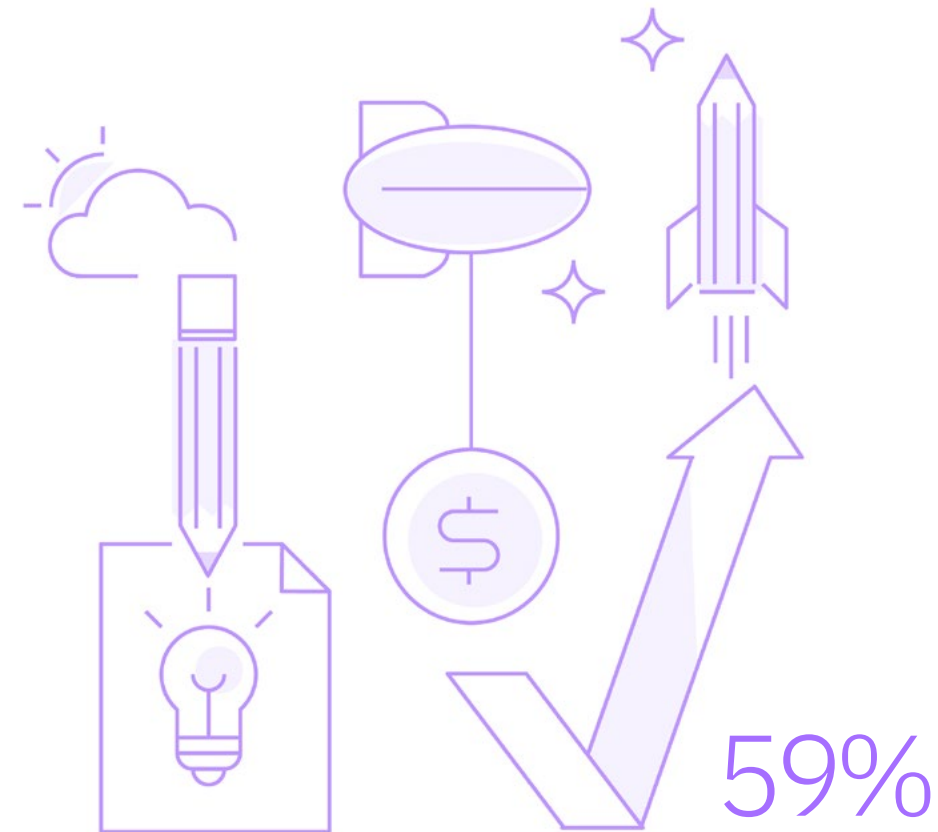
Adopting new technologies such as cloud computing can help ease the bloat and make rapid experimentation as well as day-to-day work easier. Noted Simhambhatla, “I know of examples of cloud adoption where a legacy enterprise moved from 350 system administrators managing over 6,000 servers, to two people.”

Schlecht offered specific examples of how the cloud-born business he now runs at Biota differs from the establishment energy firms where he used to work: “In some field systems, you have hundreds or even thousands of individual field computers that might not even be connected to a network. How do we deploy in this environment? How do you even manage software updates without causing customer downtime? At our new firm, the whole software team is two people—one data architect and one software architect. It doesn't require a huge amount of people to get a lot of things done.”

These leaner DNOs can simply experiment faster. As Schlecht explained: “When I started at Biota and asked for changes, I had timelines in mind based on previous processes and experiences. But it was a quick turnaround to get initial improvements, and if they didn't work out, we made another change. It was a quick iteration—get something in front of the user and go from there.”

## Insight

Organizations embracing open innovation had a **59% higher rate of revenue growth** than those who don't.



Source: “Open the door to open innovation: Realizing the value of ecosystem collaboration.” IBM Institute for Business Value. December 2021.

Introduction

Changing the leadership mindset

Scalable tech infrastructure

**Loosening operational process**

Action guide

About AWS and IBV

Schlecht continued by describing the Biota development process: “Our two-person team sends out a quick questionnaire, what’s working, not working? They have user meetings after that. Based on those, they can decide very quickly, ‘these are the next three features to implement.’ They work on that and do it again. It’s this constant updating of minimum viable products, constant improving of functionality without any significant disruptions.”

“At Baker Hughes, experimentation was much more challenging,” he said. “There wasn’t necessarily a safe space or sandbox that includes the multitude of involved systems and platforms, and every time something was connected to the network, red flags (cybersecurity) came up. Within Biota, we have a dedicated instance for experimentation—all the software development and testing. Once it’s ready, then it’s rolled over.”

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*“We have a dedicated instance for experimentation—all the software development and testing. Once it’s ready, then it’s rolled over.”*

**Mathias Schlecht**

CEO, Biota

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Hohpe pointed out that the quest for efficiency within mature businesses can often work against the kind of experimentation and innovation that is endemic at DNOs. “If you have a systems architecture point of view, the silos and roles found in mature businesses work relatively well for steady state,” he said. “They don’t work nearly as well for rapid change. You just need more overlap of skills and knowledge. Overlap is positive.”

DNOs approach responsibilities differently, Hohpe noted. “At digital companies, there’s a lot more fuzziness at the borders of roles. It sometimes looks like organized chaos because things don’t fit into these neat little boxes. More traditional enterprises need to become comfortable with that.”

Hohpe isn’t a reflexive believer in unfettered bottom-up idea generation. “You need a feedback loop,” he said. “And you need to have a common platform for people to build on. I believe in a large top-down strategy, a funnel for the direction you want energy to go. And then within that funnel, you want a fairly long leash for autonomy.” This involves changing the behavior around how decisions are made by unteaching the assumptions and constraints that have historically been in place for employees.

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*“At digital companies, there’s a lot more fuzziness at the borders of roles. It sometimes looks like organized chaos, because things don’t fit into these neat little boxes.”*

**Gregor Hohpe**

Enterprise Strategist, AWS

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- Introduction
- Changing the leadership mindset
- Scalable tech infrastructure
- Loosening operational process
- Action guide**
- About AWS and IBV

## Action guide: Takeaways for legacy enterprise leaders

Transformation is happening on the business side and on the tech side. Too often, those efforts are siloed. DNOs reveal the opportunity to meld the two together for strategic gain. “This is a beautiful time,” said Simhambhatla, “for the CIO to become the thread that binds the organization together. Over time, the C-suite will necessarily become more technologically savvy.”

For traditional organizations, base assumptions across the organization also need to shift. “As things start moving faster, the steady state is becoming less meaningful,” summarized Hohpe. “Where you’re headed, what you’re going to become, that’s what’s more meaningful. The rate of change doesn’t have linear impact. I call this the economics of speed. Once you’re in the economics of speed, where speed and change are your primary concerns, you look at everything completely differently than you would have when it was largely static.”

The economics of speed aren’t just more favorable for DNOs; they are also driving those economics broader and deeper, within industries and in ways that traditional businesses should consider. “The constraints you had in the past, the way you ran your systems, they have very much influenced the organizational behavior,” Hohpe observed. “If you don’t lift those constraints, you’re basically going to get the same old results, just with fancier technology.”

The DNO playbook can’t simply be copied, but it’s wise to study what’s worth borrowing. When it comes to embracing change, “legacy enterprises love to talk about it; DNOs actually just do it,” said Simhambhatla. His advice to colleagues and peers: “Be absolutely fearless.”



*“Legacy enterprises love to talk about it [change]; DNOs actually just do it. Be absolutely fearless.”*

**Ravi Simhambhatla**  
Chief Digital Officer, Avis Budget Group

Introduction

Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

**Action guide**

About AWS and IBV

How can these insights be applied to your organization?

Here's a set of questions that all organizations, whatever their stage, history, or maturity, should be asking themselves:

## Is technology an integral part of your business strategy?

- How can your business team and technology team work together and align better?
- How are you responding to the economics of speed?
- What opportunities might you be missing?

## Does your organization's leadership mindset prioritize disruption or stability?

- How can your decision-making process be quicker?
- What are you doing to teach your business leaders about the evolving tech landscape (and vice versa)?
- What tough but necessary changes have you been avoiding?

## What are you doing to make your tech infrastructure more scalable, more flexible, more modern?

- What third-party tech tools and cloud capabilities are you considering?
- How might the cloud help you serve customers and access data in new ways?
- How might new tech unleash new opportunities, for your team, for your customers, and for your business?

## How are you working to diminish the friction in your operational processes?

- Are you fully embracing experimentation and the concept of minimum viable products?
- Do you have a system for constant incremental changes in implementation?
- Are your ecosystem partners pushing you toward newer technology or pulling you back to old technology?

Introduction

Changing the leadership mindset

Scalable tech infrastructure

Loosening operational process

Action guide

**About AWS and IBV**

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## About AWS

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## Notes and sources

1. 2021 IBM Institute for Business Value Chief Information Officer (CIO) survey. Unpublished data. n=2,500.
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