

Data Innovators Guide: Taking Data to the Next Stage

Start addressing your data challenges today to fuel transformation and radically simplify data and infrastructure management.

Plus: How to determine your position on the Data Innovator Scale—and how to move the needle to the next stage



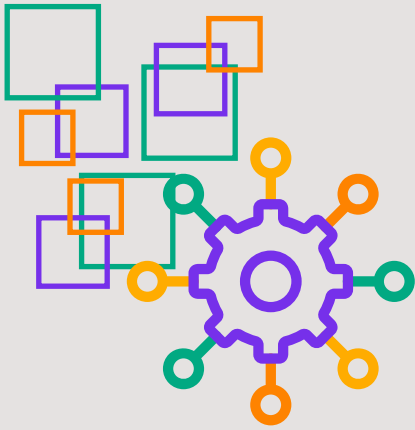
It's clear: Capitalizing on data not only is key to staying solvent in turbulent times but is also the new business differentiator that can move you ahead of your competitors. Simply put, data is at the heart of everything; it has the power to grow market share, increase customer satisfaction, improve operations, help companies become more agile, and more.

It's time to ask yourself: Are you a data innovator, and do you know how to unleash the power of your data?

Many companies think they know what it takes to capitalize on data—indeed, 92% of the respondents to a recent IDG survey said they have a data strategy.

The reality, however, is more complicated than it seems. As enterprises seek to become more data-driven and accelerate transformation, they face both infrastructure and data management complexities. Data management challenges include data growth, data operations management silos, lack of visibility, and manual processes, among others. On the data infrastructure side, ongoing issues include storage management and multiple tiers of storage silos, along with unpredictable data infrastructure demand and spend.

To become a data innovator and truly unlock the value and agility of your data, you need to identify what's standing in the way and then determine the actionable steps you need in order to advance.



Defining Data Management

Data management is all about how data is stored, accessed, protected, searched, mobilized, and managed across its life cycle.

“Data is the lifeblood of every organization,” says Sandeep Singh, Vice President of Storage Marketing at HPE. “Yet operational complexity slows you down, occupies your time, lowers productivity and increases costs. It’s important to find solutions that can help you move faster, save time, and lower costs. Additionally, managing data across its life cycle is incredibly complex. Businesses need to find the right foundation that will empower them to streamline and unify data management—all aimed at accelerating their data driven transformation.”

It’s a tall order to be a data innovator, and it’s complex. But it’s not an uncharted path. Judging from the IDG survey results, those organizations with a sense of urgency and a focus on delivering the best data experience to the business are already unlocking value from their data. What’s more, all companies can learn from the actions and priorities of these data innovators.

IDG conducted two studies on the state of data management and data infrastructure, sponsored by HPE. This e-book:

- Presents and explores the IDG findings on the state of data today
- Examines the state of data, with a close eye on data and infrastructure management in today’s digital enterprise
- Helps organizations determine their position on the Data Innovator Scale
- Identifies three actions to help accelerate data-driven transformation

The Dual Challenges of Infrastructure and Data Management

To better understand where companies sit in terms of advancing their data-driven transformation, IDG established a baseline across all survey respondents. This included exploring their infrastructure and data challenges and then reviewing proposed solutions and plans.

Not surprisingly, the opportunity to extend the agility, speed, and simplicity of the cloud operational experience everywhere is a high priority. In fact, 47% of the respondents said most data still lives at the core/data center but also extends to the edge and the public cloud. This means there’s a huge opportunity to harness the power of a cloud operational experience to achieve the same simplicity, self-service, automation, and “management from anywhere” capabilities for every app, across application lifecycles and from edge to cloud.

The research also explored respondents’ investment plans over the next three years. Not surprisingly, one of the top priorities is having a data platform with artificial-intelligence-driven operations (AIOps).

To maximize the value of data across on-premises environments and the cloud, organizations are looking toward AI-driven data platforms that can help them efficiently store, quickly access, and move this data without being constrained. In addition, companies are moving toward as-a-service delivery models to optimize investments as well as achieve data value benefits.

In addition, as organizations increasingly adopt a mixed infrastructure—one that spans on-premises and multiple clouds—they also recognize the need to unify data operations to improve visibility into what data is stored, copied, and protected. They also need a single pane of glass with global visibility and a consistent experience from edge to cloud for data operations and infrastructure management.

Figure 1
Infrastructure and Data Management Challenges

Source: IDG
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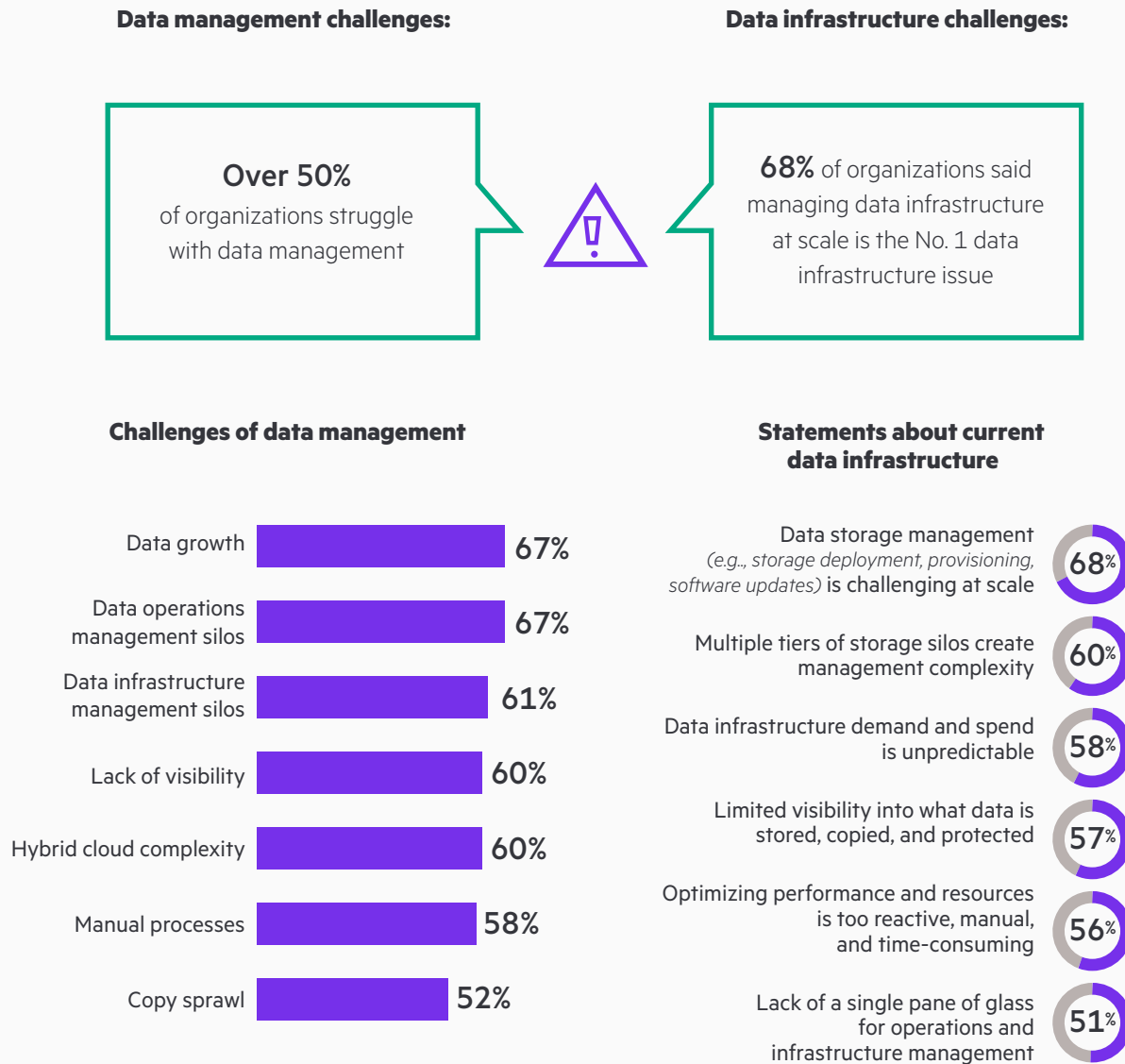
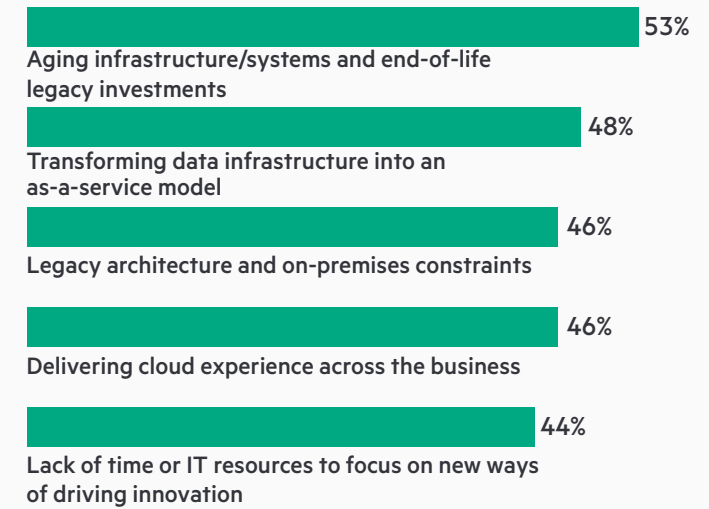


Figure 2
Technological Challenges Run the Gamut

Almost half of enterprises face existing infrastructure complexity, including:



Source: IDG

Unpacking the Challenges That Can Hold You Back and Slow You Down

Not surprisingly, among the greatest obstacles to unleashing the power of data are IT complexity and technological challenges. In the second IDG survey, 60% of the respondents reported being challenged because having multiple tiers of storage silos creates management complexity (see Figure 1).

Other challenges identified by respondents in the first IDG survey (see Figure 2) include legacy architecture, the need to modernize, siloed infrastructure, and lack of time to focus on areas that drive innovation.

“We definitely have trouble moving things,” said the enterprise IT architect for a healthcare organization, attributing that to siloed data. “It’s not that it can’t be done, but it’s slow and painful. We probably don’t do it as often as would be beneficial because it’s hard.”

Figure 3
Data Challenges Abound

Source: IDC
 Source: IDG

Most organizations struggle with multiple data-related issues, including:

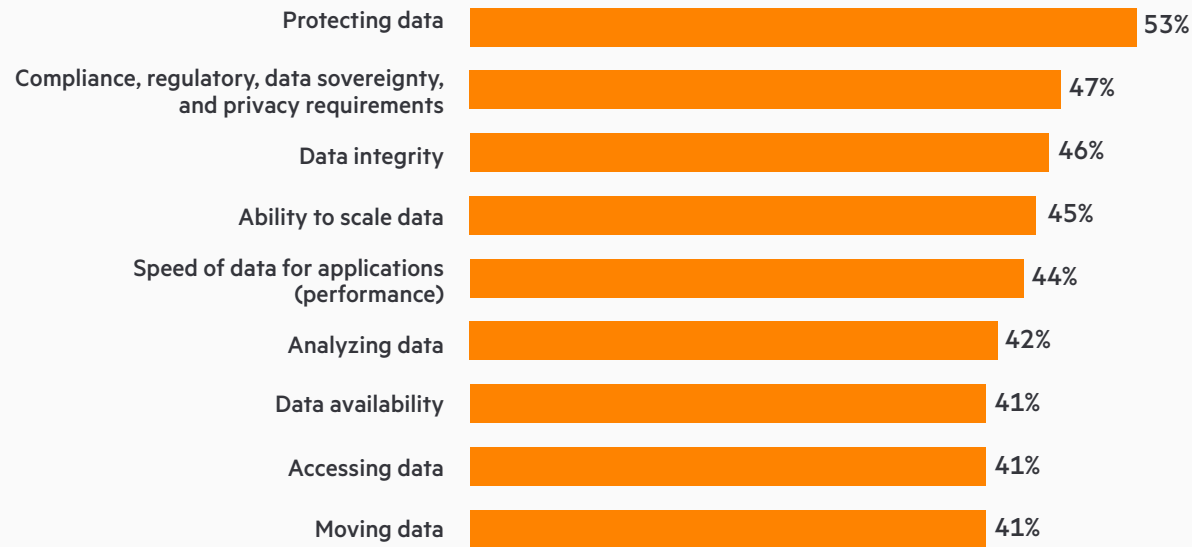


Figure 4
Top Business Challenges

Source: IDG

The list of business challenges connected to data is a long one:



Ultimately, respondents recognize that technology challenges (see *Figure 2*) that they rank as major or significant impede their ability to capitalize on data and advance business objectives. Complexity has the potential to slow the business down, occupy and lower IT productivity, and even increase costs. This is where simplifying with cloud operational agility is a game-changer.

Just as troublesome, organizations are grappling with their data. Across the board, respondents cited significant problems protecting it and ensuring its integrity. They also struggle with addressing compliance/regulatory/privacy requirements, availability, and scale, in addition to a host of other challenges (see *Figure 3*).

These problems are further complicated by complex infrastructures and the inability to stitch together data. Everything slows down, including the ability to generate value.

“Some of our databases are in legacy environments,” said the solution architect of a telecom company. “The problem is that there is no easy way to export the data or migrate it. Having legacy data sources is a big problem.”

“Moving massive data sets is difficult,” said the senior vice president of a financial services company. “We are a global firm, and sometimes regulations in different countries regulate that data cannot be moved away from that geography, so by design, it is siloed.”

In terms of business challenges, security and privacy concerns are always top of mind. Equally challenging: trying to avoid disruption to business functions, creating data value, and ensuring that data is always on and always available (see *Figure 4*).

“Our goal is actionable data that’s delivered quickly and reliably,” said the data architect for a hospitality organization. “The business doesn’t want to hear about the plumbing; they just care that what you’re telling them will work and that it’s the best way to do it.”

Overall, the challenges and frustration run deep. Some executives admitted that their IT environment doesn’t support current or future data strategy needs.

“For our fastest-growing project, we have to create a file share, and it’s growing by terabytes per month. We can’t scale that on-prem,” said the IT director of a manufacturing company. He’s struggling to find a comprehensive, efficient solution. “I can’t believe no one else in the world is having the problem I’m having and that I have to work so hard to do it. That’s one example of how our infrastructure is not supporting our strategy.”

Yet, even those respondents who think their data strategies are relatively mature recognize there is room to improve.

“We’re already doing things with machine learning and AI-driven operations,” said the CIO of a technology services company. “However, I think that even now, two years in, we’re just starting to scratch the surface.”

The Data Innovator Scale

The ways companies have solved these issues, such as adopting certain platforms and services to support their strategy and creating a solid strategy for putting data to work, determine where they land on the Data Innovator Scale (see Figure 5, page 6).

Clearly, innovators have a head start: 96% said their business has a clear data strategy—compared to just 41% of early-stage companies and 75% of intermediate-stage companies. What’s more, 93% of the innovators said they’re proactively using data to accelerate innovation to better compete.

Advice From the Trenches: Data Innovators Speak Out



Use data to create new business opportunities

“Certain achievements have been made, so there is business dependency on data. There is a lot of intelligence in the process that creates new opportunities for the business that allows us to provide better service and better products for the customers.”

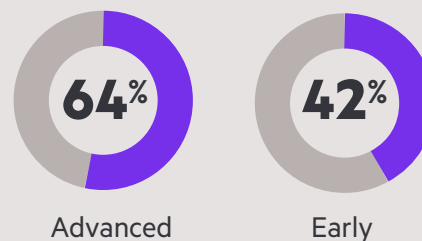


Have mature infrastructure and data management capabilities

“We have all variations of architectures you may have heard of in practice, like data warehouse, data lakes, cloud-based fabric, etc. Certain optimization is only possible when you have significant, mature data management capabilities.”

Data Innovators Versus Early Adopters

Data is critical to overall business success



Data strategy plays a major role in achieving strategic priorities

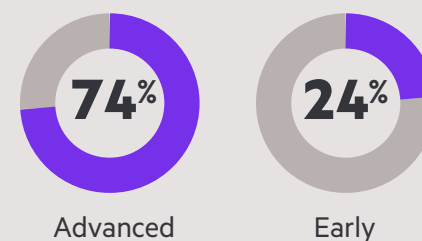
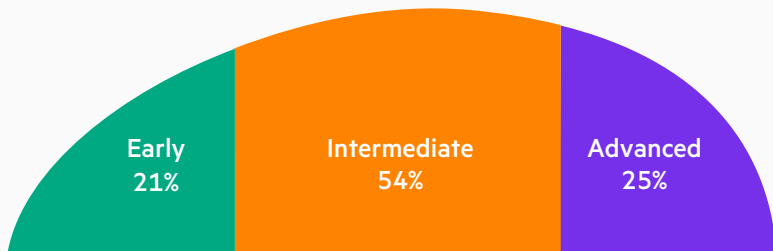


Figure 5

The Data Innovator Scale: Is Your Company an Early, Intermediate, or Advanced Data Innovator?

Source: IDG



Note: Company sizes and industries are equal across all stages.

	Early	Intermediate	Advanced
Move data very well between locations	7%	29%	63%
Have adopted hybrid cloud	25%	41%	54%
Leverage a data platform driven by AIOps	26%	40%	50%
Use HCI to generate value from data	44%	56%	60%
Believe current IT infrastructure will meet future needs	46%	76%	94%

Here are examples of how respondents described and self-identified their stage on the Data Innovator Scale:

Early:

- *“There’s infrastructure age, talent/skill set, and resource gaps in my organization and then data quality issues all over the place. For us, the challenge is having the right data at the right time to make decisions.”*
— CIO at a financial services company
- *“We are just at the very beginning stages of optimizing our IT infrastructure. That’s largely because we have grown through acquisition. The majority of those companies we’ve purchased have had aging and antiquated IT systems.”*
— Senior vice president of supply chain, human resources, IT services, and business for a manufacturing company
- *“We’ve got a lot of discrete data around research projects that is truly siloed and might only have one person who has access to some very important data.”*
— Enterprise IT architect for a healthcare organization

Intermediate:

- *“We recognize the need to capitalize on data, and we’ve done something about it. We’re paying for it, we’re getting value from it, but I don’t think it has permeated. It hasn’t permeated down into all the areas where it could be having a much bigger bang for the buck.”*
— Senior scientist for analytics at a manufacturing firm
- *“We’re still going through the building process. Cloud is always going to be a factor. We are also looking into how AI and IoT can play into our data strategy. It’s still in the early stages, but it’s part of the road map.”*
— Senior IT director, transportation company

Advanced (a.k.a. Innovators):

- *“Technologies like cloud, AI, and edge have a very positive role; they enable our data strategy. In terms of AI, when it comes to operational functionality, we are at the highest level. The concept of data-empowered intelligence is that you have tons of data from tons of sources and you build intelligent models on it. It makes sense to centralize it.”*
— Director, privacy and security, transportation company
- *“There is a lot of intelligence, which creates new opportunities for the business and allows us to provide better service and better products for customers.”*
— Director of trading for a financial services company



Leveraging cloud-native control for data infrastructure also enables global management and monitoring of data infrastructure from any location, from any device.

How to Advance on the Data Innovator Scale

Even the leading data innovators are struggling with complexity. So, how can you move the needle and achieve a better data experience?

First, recognize that unlocking data value and agility is a journey that will take time and that you need to set a clear data strategy. As you do this, it's important to think differently about how you manage data and infrastructure. Your strategic imperative becomes the ability to move from managing storage to unleashing data. By capitalizing on the power of data, cloud, and artificial intelligence (AI), your organization can simplify data and infrastructure management—eliminating silos and complexity to unleash agility and accelerate data-driven transformation.

To get you headed in the right direction, here are three tips to help you create a better data experience—at the intersection of data, cloud, and AI—that radically simplifies data and infrastructure management.

Recommendation #1: Leverage cloud operations for data infrastructure

Harness cloud-native control and operations to deliver the agility of cloud and SaaS-based data and infrastructure services.

Managing data infrastructure on-premises remains expensive and drains resources. What's more, it's plagued with complexity, such as multiple silos and diverse storage resources, to support the variety of apps a typical enterprise runs in a distributed environment. Traditional storage is still a manual, admin-driven process that requires specialized domain expertise to manage its life cycle, from install to upgrade. This approach results in significant operational challenges and inefficiency at scale, continuing to leave IT professionals fighting fires and unable to innovate for their organizations. Plus data growth from edge to cloud is only making it harder for IT.

What you need instead is an architectural model where data infrastructure management is abstracted away—simplifying all the traditional management work across the life cycle of storage, from deployment and provisioning to global management. Rather than managing data and infrastructure manually and in a fragmented approach, you should transform to a model in which you are delivering the agility of a cloud operational experience for your data infrastructure wherever it's located—on-premises, at the edge, or in the cloud.

Cloud-native operation separates the control plane from the underlying hardware and moves it to the cloud. This architectural approach eliminates the complexity, fragmentation, and costs of managing and maintaining on-premises software. Furthermore, it radically simplifies how customers manage infrastructure at scale—unifying management silos under a single SaaS-based web interface with global visibility and a consistent experience.

Leveraging cloud-native control for data infrastructure also enables global management and monitoring of data infrastructure from any location, from any device. And intent-based provisioning brings a paradigm shift from LUN-centric to AI-driven, app-centric storage provisioning. As a result, IT can reduce operating costs while optimizing resource use, move to a generalist model, and shift from managing storage to managing data, thereby refocusing resources and skills on higher-value strategic initiatives.



Artificial intelligence is taking on a much more important role in driving intent-based, data-centric management of IT operations to lower costs, improve resource optimization, reduce security threats, and more.

Recommendation #2: Implement data-centric policies and automation

Utilize data-centric policies and automation across the data life cycle to simplify data management.

Data has a continuous life cycle spanning test/dev, production, protection, and analytics. It needs to be managed holistically across the life cycle, from creation to deletion. Software that can manage only individual parts of that life cycle is inefficient and creates visibility gaps.

Applying holistic, data-centric policies and automation enables a unified data experience that streamlines and simplifies workflows across the data and infrastructure life cycle—collapsing data silos and helping eliminate the complexity of traditional data management operations.

This means applying automated and data-centric policies that:

- Enable access to data as code to developers and data analysts
- Implement policy-based data protection across edge, on-premises, and cloud
- Provide 360-degree visibility into all your data
- Trace the lineage of all copies of data
- Mobilize your data across edge-to-cloud data infrastructure

All of this is delivered from one single pane of glass with a cloud operational experience.

Recommendation #3: Prioritize an AIOps-driven platform

Prioritize AI-driven insights and intelligence to bring AI-powered autonomous operations to infrastructure and data management. This eliminates headaches and wasted time fighting fires and optimizing performance, availability, and resource management across clouds.

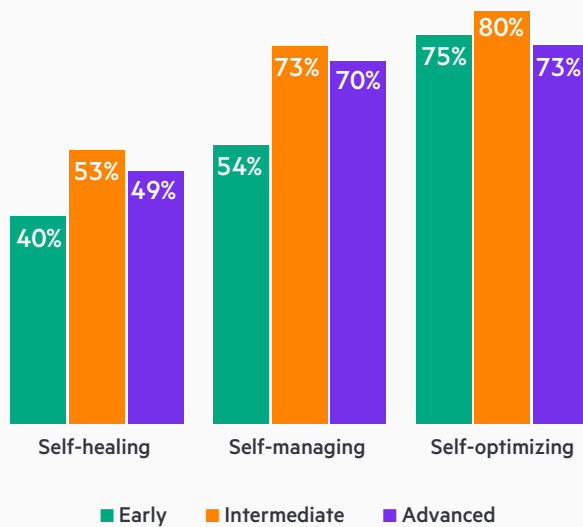
Artificial intelligence is taking on a much more important role in driving intent-based, data-centric management of IT operations to lower costs, improve resource optimization, reduce security threats, and more. The power of AI-driven insights and intelligence, combined with automation, enables a wide range of improvements and innovations to help organizations unleash the power of data. For example, AI insights can help IT avoid disruptions by making a network change, improve application performance by rebalancing workloads in a specific way, or provision applications instantly across the entire fleet without any planning or calculations.

Innovators on the Data Innovator Scale understand the importance of AIOps to resolve issues and drive intelligent insights. Compared with early-stage companies, innovators are:

- Prioritizing AIOps investments
- More likely to have implemented a data platform driven by AIOps
- More confident that AIOps will help achieve business outcomes, including improved quality of experiences, a holistic infrastructure view, better capacity planning, and the ability to manage rapid data growth

Figure 6
Innovators Have Proactive, Predictive Infrastructure

Source: IDG



“Ninety percent of problems happen above the storage layer,” Singh says. “There are issues across the infrastructure stack, and to correlate them requires thousands or even millions of calculations. It’s just too complex for humans to solve. Global intelligence can proactively and predictively resolve these issues while ensuring that data is available and fast.”

An AIOps-driven data platform, embedded with automation and built for the cloud, escalates the ability to optimize workloads, increase IT flexibility, and deliver data value. More granularly, innovators say it improves the protection, consistency, and scaling of data.

Importantly, innovators are seeing results. They’re more confident that their infrastructure is self-healing, self-optimizing, and self-managing (see *Figure 6*). And they’re generating data value from all their workloads—from general-purpose and secondary apps to mission-critical workloads—no matter where they’re located.

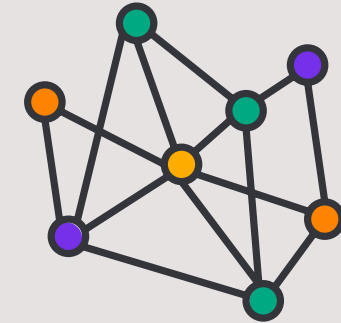
Next Steps: Advice from Data Innovators

No matter where your organization lands on the Data Innovator Scale, it’s time for change.

“Data is a big business driver for us; it’s a competitive advantage” said the director of trading for a financial services firm. He added that seamless access to data supports business objectives such as “better investment decisions, improved customer service, and guaranteed compliance with different regulations.”

They understand that it’s a journey, one that involves thinking creatively and holistically.

“Realize that you have to think about data in three dimensions: What is it? How is it? Where is it?” advised the CIO of a technology services company. “You might think you’ve solved the problem, only to find it’s not extendable because you only thought about things in two dimensions. We did this. Boy, were we wrong! So you have to realize that there’s a box and you’re standing in the middle of it. Step outside of the box!”



HPE is here to help you accelerate your data-driven transformation with Unified DataOps, a new vision for infrastructure and data management that brings a cloud operations model to wherever your infrastructure lives.

Now you can unify data operations across the data life cycle with Unified DataOps, and we make this vision a reality with the Intelligent Data Platform, which brings together cloud data services, cloud infrastructure services, cloud-native infrastructure, and AI-driven intelligence—all delivered as a service with the HPE GreenLake edge-to-cloud platform.

Learn how HPE can help you achieve a new data experience that collapses silos across people, process, and technology in order to unleash data, agility, and innovation across your organization.

Explore now.