CLOUDFLARE

GLOBAL REPORT

Cloudflare App Innovation Report

Rearchitecting applications for AI, trust, and speed

2026

Contents

EXECUTIVE SUMMARY

The modernization advantage

In an era marked by persistent economic disruption, application modernization is a survival imperative.

While some organizations are still debating strategy, leaders are laying the groundwork that makes rapid innovation not only possible, but inevitable. For them, the process of modernizing their application infrastructure and internal workflows represents a systemic shift, one that reshapes how their organizations operate and deliver value.

This transformation sits at a true inflection point, driven by three powerful forces.

1. First, **the rise of agentic artificial intelligence (AI) magnifies the potential ROI of modernization initiatives.** AI-powered systems demand agile infrastructure, real-time data access, and applications that can integrate and adapt on the fly. By driving modernization initiatives to support these goals, organizations are better-positioned to expand their AI use cases and see bigger results.

2. Second, **sophisticated cyber threats demand sophisticated threat responses.** To stay ahead of advanced, complex, and evolving threats — without compromising on application performance or the user experience — organizations need security that is embedded across their infrastructure by design. Detecting and responding to these threats requires deep observability across the entire stack, which is only possible when organizations are able to unify their applications and infrastructure on a single, well-integrated platform.

3. And third, **users have raised the bar.** They have come to expect instant, personalized, and seamless digital experiences as the default, rather than the exception. By failing to meet the threshold for secure, high-performing applications, organizations risk losing relevance, revenue, and user trust.

EXECUTIVE SUMMARY

The modernization advantage

The real divide — between those who are leading the conversation and those who are left behind — is both a technical and cultural one. Leaders make strategic moves from a culture of discipline, focus, trust, boldness, and confidence. They take time to perfect their internal processes, view security as a growth multiplier, and take calculated risks to maximize on innovative technologies like AI.

Those who lag behind, by contrast, are forced to manage an ever-expanding technical debt. Without a solid core, internal alignment, and resource optimization, they lose out on key opportunities for expansion, waste resources patching security gaps, and struggle to support AI initiatives with the same efficiency and speed as their peers.

The urgency here is clear: Agentic AI, accelerating cyber threats, and surging user expectations are rewriting the rules of competition. Organizations that understand how to modernize effectively are the ones who shape markets, define experiences, and set the standard for what comes next.

For the rest, the call to action is simple.

Modernize the entire stack — applications and infrastructure together, built on a unified platform — or risk being defined by those who already have.

R. Houssaini

Ramy Houssaini
Chief Cyber Solutions Officer, Cloudflare

How to use this report

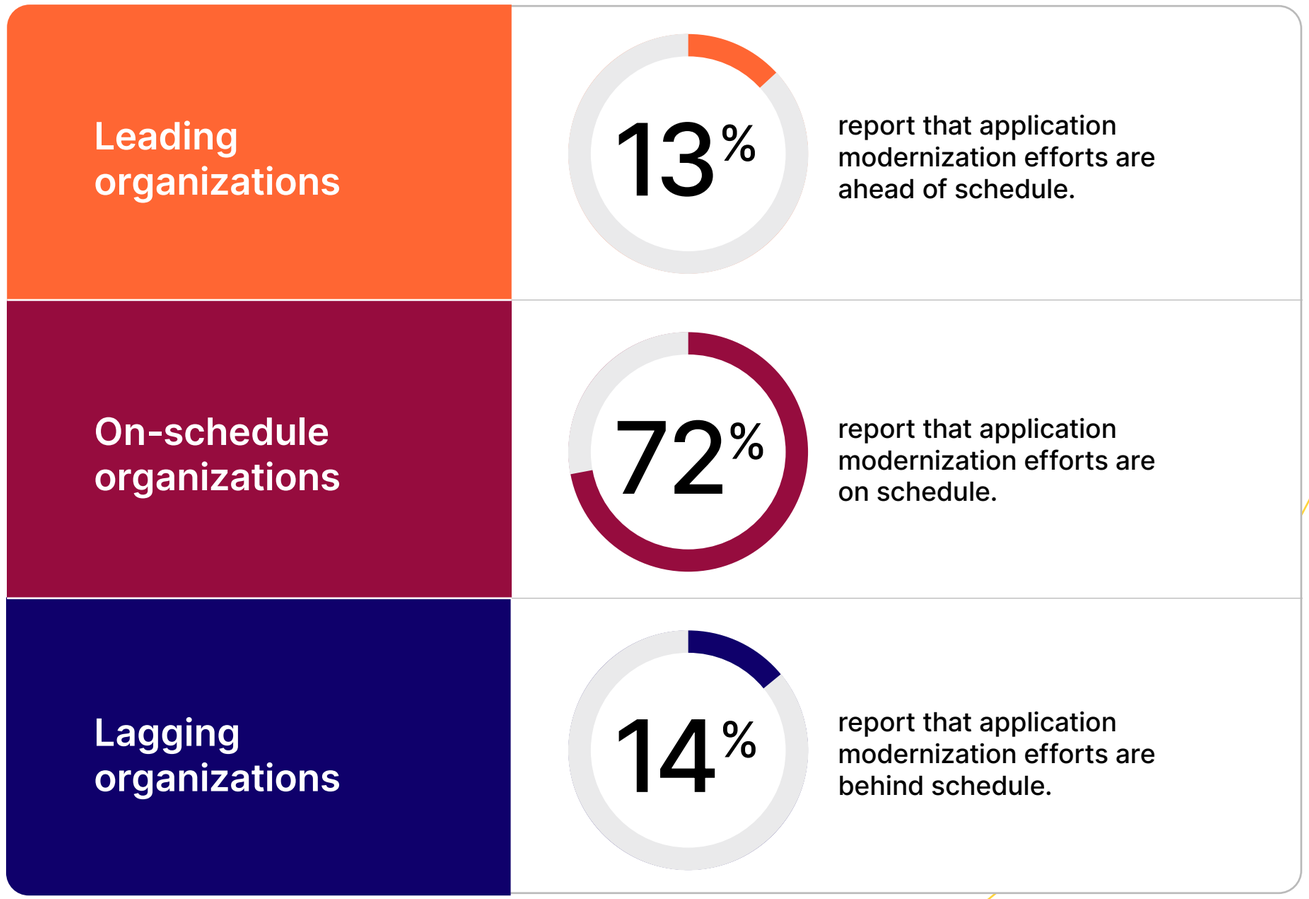
With growing initiatives and investments in AI, this report looks to explore the role application modernization plays in maximizing an organization's ability to innovate at scale. **We surveyed over 2,350 leaders in large-scale companies across the globe to better understand leadership strategies, application roadmaps, security alignment, and how these tools are being developed — looking for what truly sets them apart from their competitors.**

Within this report, "leading organizations" or "leaders" refers to organizations that report they are ahead of schedule with their application modernization efforts, have much more developed AI capabilities, and are very confident in their infrastructure. Opposite these leaders are "lagging organizations" or "laggards" — those who are behind schedule on their application modernization timelines.

Comparing these two sets of organizations reveals differences that go beyond technology and reflect distinct operational patterns in their approaches to modernization. Leading organizations report more consistent application performance, greater progress with AI, greater organizational agility, and more resilient application security.

This isn't just better performance; it's a fundamental shift where technology becomes a force multiplier. Their consistent methods provide better user experiences and a significant competitive edge, offering a guide for others to follow.

This report is your blueprint for innovation.



The anatomy of a leading organization

Leaders gain advantage by building a strategic foundation, not just by working harder.

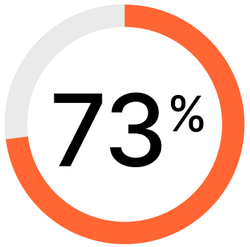
In the race to take advantage of new technologies, leading organizations understand the importance of prioritizing a solid foundation. They not only optimize their application infrastructure to maximize resilience and security, but create an environment where good ideas accelerate naturally — making innovation an inevitable outcome instead of a chance occurrence.

This foundational strength is why leading organizations are poised to dominate the age of AI. With a resilient and agile infrastructure already in place, they can incorporate new technologies with remarkable speed and confidence. They aren't scrambling to adapt, but are instead able to allocate resources toward widening their competitive advantage and pursuing business-driving opportunities.

While every leading organization in this report has different structures and priorities, they each share four defining traits: a streamlined decision-making process, an aggressive, "AI-first" approach, security by design, and a focus on continuous innovation.

The anatomy of a leading organization

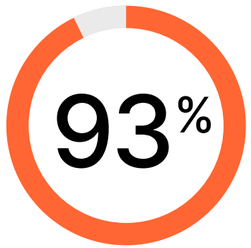
Streamlined decision-making



of leaders centralize decision-making with only a few people.

Leaders are defined by how they make decisions. Those who have simplified their command structures enable quick, decisive actions backed by bolder financial commitments. This agile structure is the key to overcoming roadblocks and turning innovation into an inevitable outcome while others remain stalled by bureaucracy.

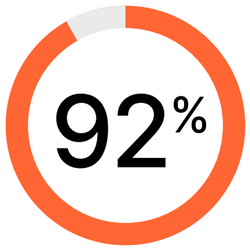
An aggressive, "AI-first" approach



of leaders report application modernization efforts very positively impact AI use.

A clear competitive gap is widening. Leaders who use an "AI-first" strategy are nearly three times more likely to see a clear payoff from their investment. While others debate the merits of AI, leaders have developed strategic business cases for it — and have the infrastructure and agility to implement it in a meaningful way.

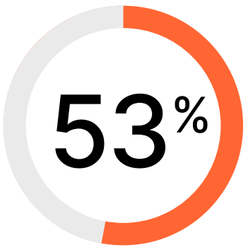
Security by design



of leaders with high alignment* have already built new applications with AI.

Leaders build security into their applications by design — not as an afterthought. Not only does this bring their organization into greater alignment, but it allows them to spend fewer internal resources remediating security incidents and more time and effort on expansion, innovation, and better user experiences.

Developer enablement



of leaders say their developers spend more time maintaining existing systems vs. building entirely new ones.

Leaders empower their developers to focus on strategic efforts, rather than fixing broken systems or rebuilding from scratch. This helps build lasting success, as leaders are able to quickly and effectively scale applications, take advantage of the latest AI technologies, and devote more resources to meet business imperatives.

*Leading organizations who report high alignment between security and application modernization initiatives.

Agility at scale

The agility thesis

Organizational agility is the key to keeping modernization efforts ahead of schedule.

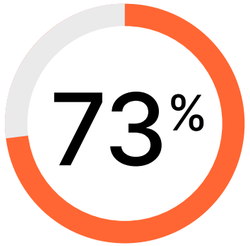
There's no easy hack to application modernization. Every organization faces different challenges, balances different priorities, and has different resources at their disposal. Those who are ahead of schedule, however, have this in common: they succeed by fundamentally changing how work gets done.

They have put in place the decisive structures and streamlined processes needed to overcome the roadblocks that stall their peers. **This creates an environment where good ideas accelerate naturally rather than dying in committee, and innovation becomes an inevitable outcome of their design.**

This report shows that the gap between leaders and laggards is not just about technology — it's about the organizational agility that allows them to make smarter decisions, deploy resources more effectively, and invest bigger with greater confidence.

The agility thesis

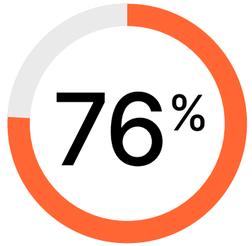
Decisive command structure



report that only a few people hold decision-making power **(vs. 36% of laggards).**

Leaders have drastically simplified their command structure — allowing their teams to quickly and effectively drive complex initiatives forward. On-schedule and lagging organizations are more likely to struggle with bureaucracy and insufficient cross-functional collaboration.

Bolder financial commitments



expect a large budget increase for application modernization **(vs. 36% of laggards).**

Leaders confidently make bigger, bolder bets on modernization efforts. This is likely because they have already found success in keeping these initiatives on schedule, and have seen positive results from their efforts. The rest may find it harder to show clear returns on investment, which can result in smaller budget increases.

Avoiding decision paralysis

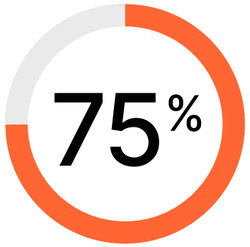
Leading organizations are nearly twice as likely to streamline their decision-making process.

Leading organizations are set apart by their structure. When asked how many people hold decision-making power for modernizing their application infrastructure — and whether that decision-making process is streamlined or fractured — leaders answered positively in both areas. Leaders have only a few people who hold decision-making power (73%) and are more likely to report that their decision-making is streamlined (75%).

While fractured decision-making impacts only 35% of all organizations, it disproportionately impacts those who are behind on their application modernization timelines. 54% of those organizations report that their decision-making process is fractured, which may stem from a difference of opinion in priorities and timing — creating a delay that can set modernization timelines back toward internal misalignment, lack of resources, or miscommunication on timing and priorities.

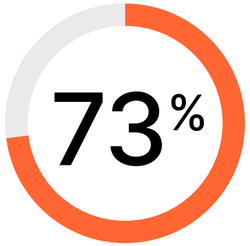
In general, about two out of every three organizations report that this process is not fractured, suggesting that most organizations believe they have a high level of internal alignment.

Streamlined decision-making



of leading organizations have a streamlined decision-making process **(vs. 46% of laggards).**

Who holds decision-making power



of leading organizations report that only a few people hold decision-making power **(vs. 36% of laggards).**

Stop tinkering, start transforming

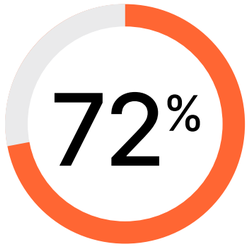
It's not about *if* you're increasing the budget, but by *how much* — and leaders are betting big on AI and the cloud.

Over the next year, organizations are preparing to invest more in application modernization — and put more purchasing power behind it, too. This expected increase is tied to a greater push for both AI adoption (64%) and cloud changes (53%).

The investment gap between leading and lagging organizations does not appear to be whether or not organizations are increasing their modernization budgets, but by how much they are planning to do so. 76% of leaders report that they expect a significant increase in their modernization budgets over the next year, allowing them to place bigger, bolder bets on new technologies and modernization payoffs.

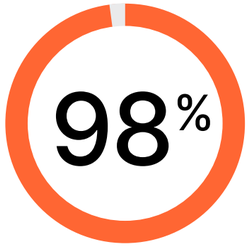
On the other hand, 53% of lagging organizations expect their budgets to increase only "a little bit" in the next year, making it more difficult for them to position themselves strategically or implement new and emerging application technologies.

AI is the biggest driver of budget increases



of leading organizations attribute expected budget changes to AI adoption **(vs. 59% of laggards).**

Leaders invest *more* in application modernization



of leading organizations anticipate a budget increase for application modernization in the next year **(vs. 86% of laggards).**

The hidden tax of scalability

The real challenge isn't supporting a global user base, but *consistently* deploying changes.

Supporting a global user base — keeping applications secure, available, and high-performing for users across the world — is key to an organization's success.

Overall, leaders are much more likely to report that it is easy to support their global user base, compared to lagging organizations. Leaders are also more confident than laggards when evaluating the ability of their infrastructure to withstand growth challenges over the next 5–7 years, and attribute the success of their global expansion to their modernization efforts — indicating they have already invested in global application infrastructure and are seeing payoffs.

Because leaders have already found success in their scalability efforts, their challenges are related to maintaining compliance, control, and visibility across multiple regions and markets. To an extent, laggards also face these hurdles, but are more likely to struggle to establish themselves in global markets or find the resources needed to scale.

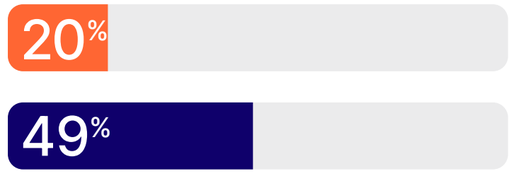
Top 5 scalability challenges

Difficulty deploying changes across all regions / markets

Competition in global markets

Difficulty maintaining compliance in global markets

Lack of resources in global markets



Fragmented application control / visibility across regions

Agility at scale: Key takeaways

These findings show that application modernization leaders tend to have agile project leadership, streamlined decision-making processes, and a willingness to invest additional budget and resources in accompanying technology.

Of course, most security and engineering teams are all too aware of their own organizations' challenges. Several next steps can help close the gap:

1. **Engage the C-suite and board to boost agility.** Work with them to identify areas of inefficiency, and use their influence to cut red tape.
2. **Inventory your applications and related assets.** Legacy apps and app components proliferate over time. Defining ownership and process is easier when you understand your project's full scope up front.
3. **Justify new investment by cutting other costs.** No executive likes increasing budgets, but the pill will go down easier if it creates future savings.

Cloudflare's connectivity cloud supports the latter two practices. It provides a single point of visibility and control for complex application architectures and cloud environments, helping organizations track and manage apps with greater efficiency. More tactically, it lets organizations discover shadow apps and APIs, and cuts egress fees, bandwidth costs, and other ongoing app expenditures.

Learn more about maximizing agility and modernizing applications in our ebook, *The buyer's guide for application services* — or keep reading to see other findings from app modernization leaders.

> "Cloudflare's low cost and global presence offer us endless opportunities as we shift more toward infrastructure-as-code, programmability and automation, AI, and a greater understanding of how we can use zero trust to improve cloud security and visibility."
>
> **Michael Lee,**
> Manager of Network Engineering, **VistaPrint**
>
> Learn how they do it >

The AI catalyst

The widening AI gap

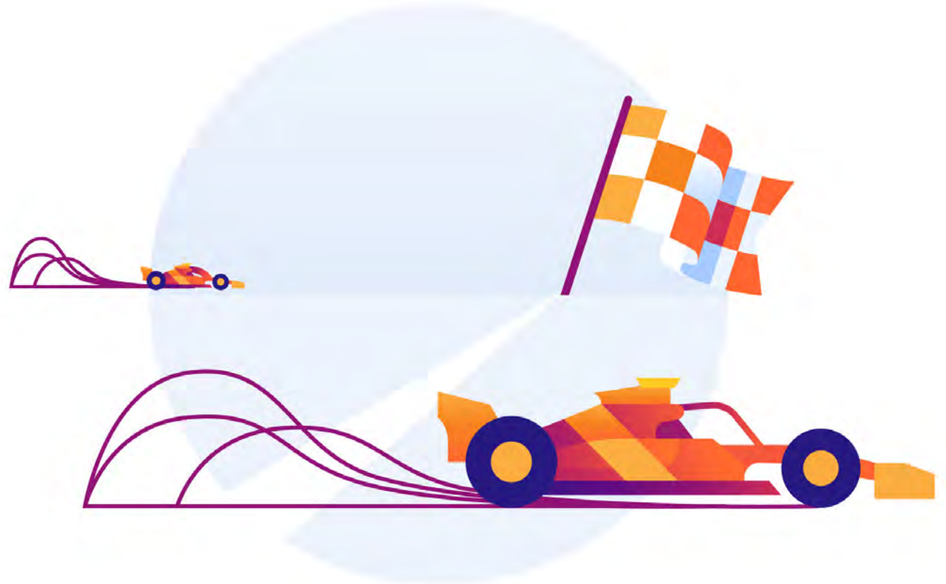
The race for the AI advantage is no longer about adoption; it's about acceleration.

While others pilot AI projects, leaders are already scaling AI-driven innovation. They don't see AI as another technology initiative, but as the ultimate test of their application modernization decisions.

The key factor here is a modernized application infrastructure that is flexible, robust, and secure. This provides the necessary foundation to deploy AI effectively and quickly across a growing user base. To this point, leading organizations are far more confident that their application modernization efforts efforts have a "very positive" impact on their ability to use AI (93% vs. 49% of laggards), in large part because their infrastructure is sufficient for AI development (96% vs. 74%).

Beyond technology, leaders accelerate AI by removing organizational friction. They have deep confidence in their internal talent to meet AI development needs, and have mastered the alignment between security and modernization initiatives. Organizations who find this alignment "very easy" are nearly four times more likely to be much more developed in their AI use than those who find it "difficult."

By aligning their decision-making processes and resource allocation, leaders create a self-reinforcing cycle where their strong foundation enables more meaningful AI deployments, and success with AI justifies further investment in future modernization efforts. Together, this enables them to perpetually widen their competitive lead.



The widening AI gap

Ability to use AI

Modernizing applications has a "very positive" impact on their ability to use AI.

A modern infrastructure is the foundation for effective AI, which in turn becomes the primary driver for new modernization efforts. Because leaders have already built a solid foundation and reduced operational pressures, they are able to fully capitalize on the promise of AI.

AI integration

Plan to double down on AI integration in the next year.

The AI race has shifted from adoption to deep integration, creating a gap that widens daily. Leaders are moving ahead with meaningful application integration, using AI to drive revenue *now*. Others, by comparison, are still focused on rearchitecting their foundational infrastructure.

Builders vs. bystanders

Infrastructure:

96% Leaders

74% Laggards

Talent:

95% Leaders

72% Laggards

Believe their existing tech infrastructure and talent is sufficient for AI development.

The AI gap is a mindset issue: builders vs. bystanders. Leaders are builders, fueled by high confidence in their infrastructure and talent — which translates into action. Those who are less confident in their infrastructure and talent find it more difficult to accelerate their AI use and close the competitive gap.

The AI-modernization flywheel

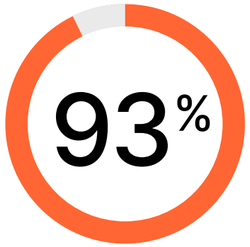
Leaders make the most of AI by treating it as both the driver for and result of application modernization.

The relationship between AI and application modernization is a self-reinforcing cycle of compounding benefits. A modern infrastructure — one that is designed for optimal resiliency, security, and performance — is essential for implementing AI effectively, and leading organizations are seeing a clear payoff from their investments.

This has made the push to use AI the single biggest driver of new modernization efforts for all organizations. Leaders intentionally modernize their application infrastructure in order to integrate AI, further improve the user experience, and fuel growth. In general, they are AI-first — to the extent that they are nearly three times more likely to prioritize AI development ahead of application modernization. They allow new AI capabilities to define and pull those modernization efforts forward, creating a mutually beneficial cycle that widens their competitive edge.

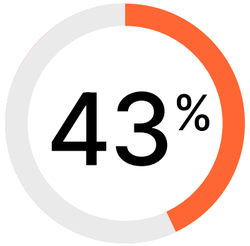
Those who are behind on their application timelines, by contrast, believe that AI development should follow modernization efforts. This approach may have to do with resource allocation. Because lagging organizations are focused on relieving immediate pressures, like meeting compliance standards or remediating security incidents, they do not have as many resources to devote to AI initiatives.

The impact of application modernization efforts on AI effectiveness



of leading organizations report their modernization efforts have "very positively" impacted their ability to use AI **(vs. 49% of laggards).**

AI development vs. application modernization



of leading organizations think that AI feature development should happen before modernization efforts are complete **(vs. 14% of laggards).**

End the AI sandbox

AI use is now table stakes — and leaders create an advantage with deeper, more meaningful integration.

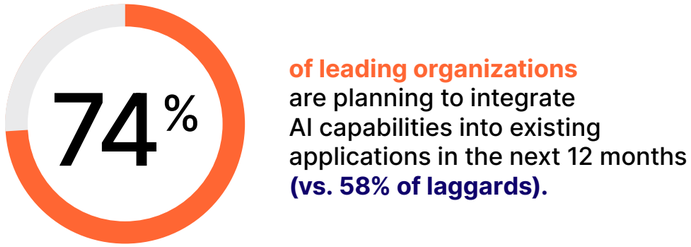
A widening gap has opened between organizations looking to capitalize on AI integration.

Leaders have already made the leap from AI adoption to meaningful use, carving out a massive 37-point lead in AI integration within their existing application portfolio (91% vs. 54%). This gap is likely to increase further, as 74% of leaders intend to double down on AI integration in the next year.

For leaders, AI is the engine that helps drive revenue, streamline operations, and creates powerful user experiences *right now*. They see their technology not as a static system, but as a living platform for relentless, AI-fueled innovation.

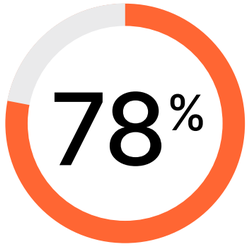
By contrast, organizations who have not completed their modernization efforts have yet to tap into the full potential of AI. Only a slight majority of lagging organizations use AI to inform their revenue-generating initiatives, suggesting that they may be using AI on a smaller scale, or have not built the infrastructure needed to support more impactful AI integrations.

Plans for AI integration

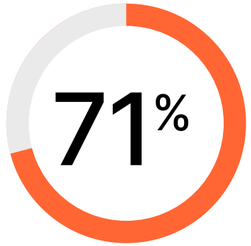


of leading organizations are planning to integrate AI capabilities into existing applications in the next 12 months **(vs. 58% of laggards).**

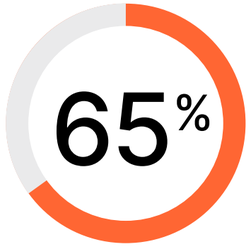
Top AI use cases



of leading organizations use AI to *improve their internal workflows* **(vs. 61% of laggards).**



of leading organizations use AI to *inform revenue-generating initiatives* **(vs. 55% of laggards).**



of leading organizations use AI to *build content-driven applications* **(vs. 54% of laggards).**

Building the future with AI

More confident in their people and platforms, leading organizations pursue more ambitious AI plans.

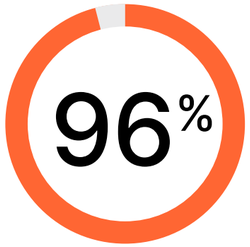
Differences in AI progress can be traced to two distinct mindsets: builders and bystanders. This divergence isn't about technology alone, but about the organizational confidence required to build with it.

Leaders who actively build their future with AI report a higher level of confidence in both their technology and their talent. This confidence translates directly into action, as they are able to consistently move forward by integrating AI into existing applications (74%) and developing new AI agents (72%).

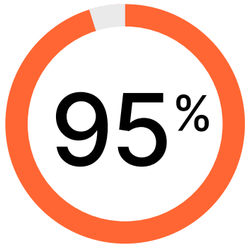
Organizations who report lower levels of confidence in their underlying infrastructure and their teams' capabilities, meanwhile, are also less certain that they have the foundation necessary to advance with AI. Only 29% of organizations with low confidence in their infrastructure have integrated AI into their applications, and 38% have built new applications with AI.

Ultimately, the gap between these two groups is measured not just in percentages, but in proactivity. The most critical resource may be the conviction to move from observation to action — allowing them to shape the future with these new tools.

Confidence in meeting future needs



of leading organizations say current technological infrastructure is sufficient for AI development **(vs. 74% of laggards).**



of leading organizations say internal staffing and talent is sufficient for AI development **(vs. 72% of laggards).**

The AI catalyst: Key takeaways

These findings show a clear connection between an organization's AI commitment and their app modernization confidence. AI is a common and significant element of many app modernization projects, so it makes sense that the 'rising tide' of strong investment, thoughtful security, and good infrastructure and talent would lift both boats.

How can organizations make faster progress in those areas? Consider these next steps:

1. **Balance hiring with helping developers do more.** AI experts are in high demand, and don't come cheap. Find ways to do more with your current resources.
2. **Security automation.** The right AI infrastructure comes with many protections built in, and lets you deploy the rest more consistently via infrastructure-as-code.
3. **Choose cost-effective AI infrastructure.** Justifying additional investment is easier if you can demonstrate that you're prioritizing greater efficiency and flexibility in compute, storage, networking, and security.

The Cloudflare AI Security Suite helps you secure workforce AI services, AI-powered apps, and the AI you build. In addition, Cloudflare's developer platform only charges you for the AI you use, and includes pre-built models and SDKs to help your existing developers build AI with less effort.

Learn more about securing AI, and read on to see findings about other app modernization security challenges.

> "Powered by Workers AI, VSCO Canvas delivers a dynamic, creative experience that feels limitless — while remaining secure and easily scalable as traffic changes. The superior performance and availability of Cloudflare's edge network enable us to deliver a best-in-class experience without added infrastructure costs."
>
> **Chris Haire,**
> CTO, **VSCO**
>
> Learn how they do it >

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Secure by design

Security as an innovation accelerator

Innovation is impossible without deep organizational alignment.

Application efforts and security initiatives can't afford to operate in silos. Anticipating and mitigating every threat (from phishing attempts to malicious bots, supply chain attacks, and API risks) can keep an organization in limbo if they don't have the proper protection and protocols in place. But when this consumes the majority of an organization's time and resources, it may lead to them putting off critical modernization projects indefinitely — and losing out on opportunities for innovation and growth.

Aligning the two, then, is of paramount importance if organizations want to maximize internal agility and resilience. And the numbers reflect this understanding: For those who are ahead of schedule in their modernization efforts, 71% say that this alignment feels "very easy" — enabling their teams to create more resilient applications, ensure better user experiences, and respond faster and more effectively to emerging threats.

Without this structure in place, organizations may get bogged down by more pressing issues, spending more of their time and resources fighting against cyberattacks and patching vulnerabilities. This constant firefighting can drain productivity and keep them a step behind — with only 32% of lagging organizations reporting that aligning security and application modernization efforts is "very easy."

Ultimately, leaders aren't just building more secure applications; they are architecting more resilient systems that perform under pressure, recover faster, and enable teams to move with speed and confidence.

Security as an innovation accelerator

Security and application alignment

Leading organizations with high internal alignment* are better-positioned to use AI.

A strong alignment between security and application modernization initiatives is a critical enabler for AI. Organizations that find this alignment "easy" are far more prepared and confident in their tech and talent, seeing a massive return on their modernization efforts, expanding their AI use, and setting them even further apart from the competition.

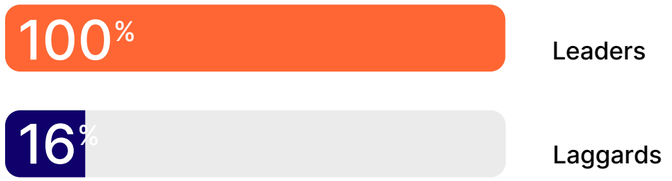
*Leading organizations who report high alignment between security and application modernization initiatives say their application modernization efforts have had a very positive impact on AI usage.

Balancing speed and security

Leading organizations find it easier to balance speed-to-market and system reliability, helping them stay agile and compliant.

While most organizations handle basic compliance well, leaders excel at the crucial balance between speed-to-market and system reliability. They are also more efficient at managing security events over time, freeing up resources for innovation and growth while maintaining a secure and responsive user experience.

The cost of security as an afterthought



With great internal alignment, leaders always stay ahead of their peers in AI development vs. laggards.*

Organizations that struggle to align security initiatives with their application modernization efforts are vastly less prepared for AI development. This can create significant roadblocks — including a lack of confidence in their infrastructure and talent — and leave them more vulnerable to high costs and security concerns.

*Lagging organizations who report low alignment between security and application modernization initiatives.

The velocity trap

Leaders grapple with challenges of coordination and scale, while laggards struggle with scarcity.

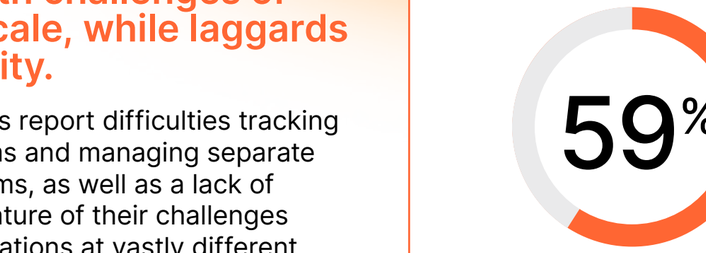
While half of all organizations report difficulties tracking risks across complex systems and managing separate security and application teams, as well as a lack of visibility into systems, the nature of their challenges reveals two types of organizations at vastly different stages of their journey.

Leaders grapple with problems of internal visibility across their application landscape. This is a "second-order" problem that arises precisely because they are actively driving progress — and are focused on optimizing a complex process that is already in motion.

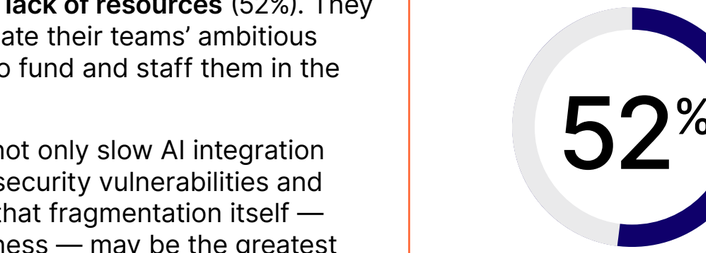
In stark contrast, **lagging organizations report that their top barrier is a fundamental lack of resources** (52%). They are not struggling to coordinate their teams' ambitious efforts; they are struggling to fund and staff them in the first place.

Together, these challenges not only slow AI integration efforts, but also compound security vulnerabilities and visibility issues, suggesting that fragmentation itself — rather than any single weakness — may be the greatest barrier to progress.

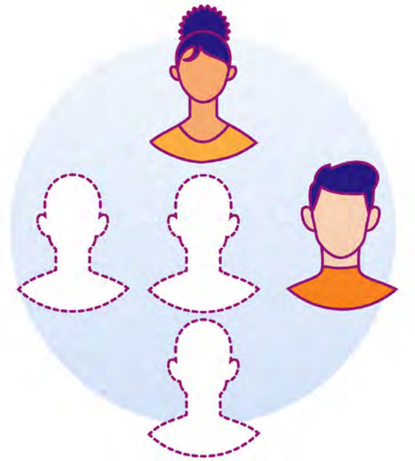
Top alignment challenges



Over half of leading organizations struggle with alignment because they have limited visibility into application and API risks.



Over half of lagging organizations struggle with alignment because they don't have the resources needed to streamline the process.



Setting the foundation with security first

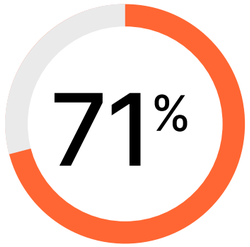
A strong alignment between security and applications is a key advantage for leaders, allowing them to expand their AI efforts with confidence.

Internal alignment — especially between their security and application teams — is a critical enabler for organizations to integrate and expand their AI efforts. Often, the success of these AI initiatives is directly tied to how easy or difficult organizations find this alignment.

Organizations who find it "easy" to coordinate efforts across these teams also view themselves as far ahead of their peers in AI development — and the data proves them right. They are more likely to be ahead of schedule in their modernization efforts, have already implemented AI, have future plans to continue using it, and feel prepared for additional use cases in terms of both technology and talent.

Crucially, they also see a massive return on their prior investments. 95% of leading organizations who *also* report high alignment between their security and application initiatives say that their modernization efforts have had a very positive impact on their ability to use AI.

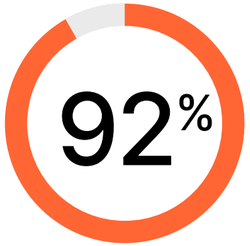
Profile of a well-aligned organization



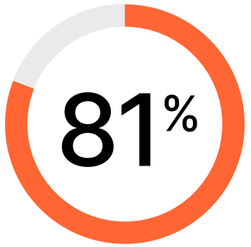
of all leading organizations report that aligning efforts across security and application modernization initiatives is "very easy" for them **(vs. 35% of laggards).**

Trends among leading organizations with high internal alignment*

say that their AI use is much more developed compared to their industry peers.



have already built new applications designed to use AI.



have plans to develop new AI applications.

*Leading organizations who report high alignment between security and application modernization initiatives.

Why silos sink AI

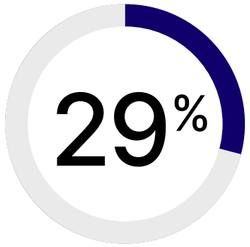
Operational barriers extend far beyond AI usage alone.

Misaligned organizations — those who report that it is "somewhat" or "very" difficult to align their security and application initiatives — are far less likely to be able to take advantage of AI.

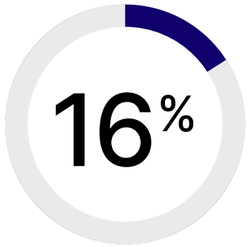
Overall, these organizations feel vastly less prepared to tackle AI development, with just over 15% reporting that their existing infrastructure and talent is "entirely sufficient" to do so.

And for those who are also behind on their own modernization timelines, this misalignment can impact their ability to remain competitive, as only 16% of lagging organizations say their AI use is much more developed than that of their competitors.

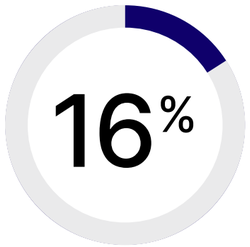
Trends among lagging organizations with low internal alignment*



say that application modernization has very positively impacted their ability to use AI **(vs. 88% of leaders with low alignment).**



say that their AI use is much more developed compared to their industry peers **(vs. 100% of leaders with low alignment).**



report that their internal staffing and talent is entirely sufficient for AI development **(vs. 41% of leaders with low alignment).**

*Lagging organizations who report low alignment between security and application modernization initiatives.

Top barriers to AI implementation for laggards with low internal alignment

Ongoing security and privacy concerns

Lack of talent and resources

High costs

A drain on developer time

Reliability is the new speed limit

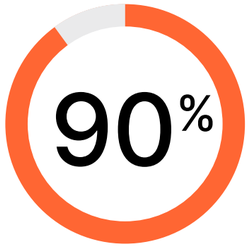
The key differentiator for modern organizations is not just managing compliance, but excelling at balancing market speed with system reliability.

Securing and maintaining compliance for a sprawling — and ever-expanding — application landscape is a critical priority for all organizations. Security events continue to increase in volume and sophistication, and new regulations can complicate remediation efforts. Staying on top of both can slow speed-to-market for organizations that find themselves underprepared.

Over the course of this survey, organizations were asked to consider the difficulty of tracking and ensuring compliance within both their organization and across new markets, as well as remediating any related security events. They also weighed the trade-offs between speed-to-market and maintaining system reliability, both of which are critical to keep them competitive and resilient.

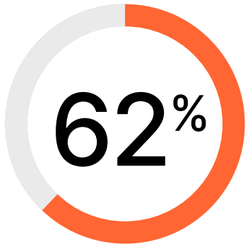
Leading organizations outpaced lagging organizations in every area, suggesting that their modernized foundation allows them to more easily expand their global efforts and allocate resources without compromising on innovation or other business-driving initiatives.

Balance of speed-to-market and system reliability

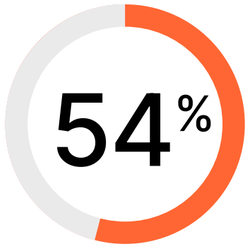


of all leading organizations find it "easy" to balance speed-to-market and system reliability **(vs. 75% of laggards).**

Ease of security and compliance tasks



of all leading organizations find it "very easy" to effectively track their organization's current level of security compliance **(vs. 35% of laggards).**



of all leading organizations find it "very easy" to ensure security compliance in new markets **(vs. 38% of laggards).**

Winning the battle against time

Leaders create a critical advantage by mastering the efficiency of their security event response.

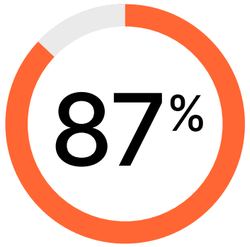
On the surface, all organizations report high levels of confidence in their ability to ensure compliance in new markets, meet evolving regulatory requirements, and remediate application security events that result in noncompliance.

However, this surface-level parity masks a deeper divergence between leading and lagging organizations — one that is creating a significant competitive gap.

When looking at the year-over-year trend in time spent responding to application security events, leaders prove far more effective at managing their workload over time. They have figured out how to break the cycle of ever-increasing security demands, allowing them to meet compliance standards while freeing up valuable time and resources for innovation.

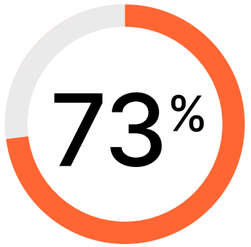
For lagging organizations, the focus remains on patching security gaps, ensuring visibility across disparate systems and infrastructure, and maintaining compliance — leaving fewer resources for forward-looking initiatives.

Remediating application security events



of leading organizations find it "easy" to remediate application security events that result in noncompliance **(vs. 80% of laggards).**

Time spent addressing application security events (year-over-year)



of leading organizations saw an increase in time spent on application security events **(vs. 80% of laggards).**

The widening impact of security events

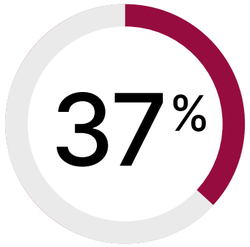
Application security events can have ripple effects across all organizations — from lost employee productivity to skyrocketing remediation costs.

When it comes to application security events (like data breaches, DDoS attacks, and other threats), the cost of recovery can be steep. 98% of organizations who experienced an application security event in the last year have reported multiple negative consequences of those incidents, the largest of which has been system recovery and restoration costs.

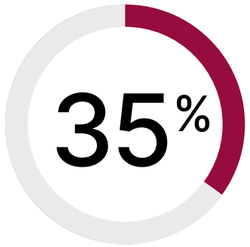
Associated costs come in the form of lost employee productivity, insurance premium hikes, and rising data breach costs.

Those who are behind schedule in modernizing their application landscape report higher costs related to incident response and investigation, suggesting that they are less likely to have the structures and processes in place to effectively respond to application security events as they arise.

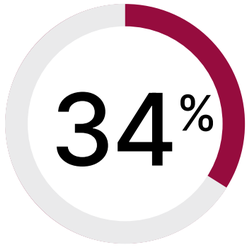
Top application security event costs for all organizations



system recovery / restoration



employee productivity losses



data breach costs

Secure by design: Key takeaways

These findings show several important security capabilities associated with successful app modernization: good visibility and observability, security agility during regional expansion, and a lack of trade-offs between innovation and reliability.

But organizations hoping to level up in those areas should also consider:

Cloudflare security services are built to run anywhere in our 330+ city global network and work with any cloud model, helping organizations manage security from a single platform. These services can be automated via infrastructure-as-code, and our Data Localization Suite lets you control where user data and logs are processed without compromising on global reliability.

1. **Security consolidation.**
Modernizing applications often involves spreading workloads across multiple clouds or incorporating APIs and third-party code. Securing this expanded attack surface is easier with a simplified security stack.

2. **Security automation.**
For time-pressed engineering teams, security can feel like a hindrance to rebuilding application features. Security automation via infrastructure-as-code can lessen the hurt (for example, ensuring certain security features are always deployed for every launch).

3. **Trade-offs between global availability and regional compliance.**
Modernization projects often aim to optimize the app for users globally. Unfortunately, regional data localization needs can make it hard to provide performant experiences everywhere.

> "Cloudflare is much cleaner. It's organized logically, so our engineers know exactly where to go to make changes and apply new configuration settings. That promotes a sense of confidence in our security and content delivery services we didn't have before."

Darren Boyer,
Information Security Architect, **Fossil**

Learn how they do it >

FOSSIL

Enabling developers

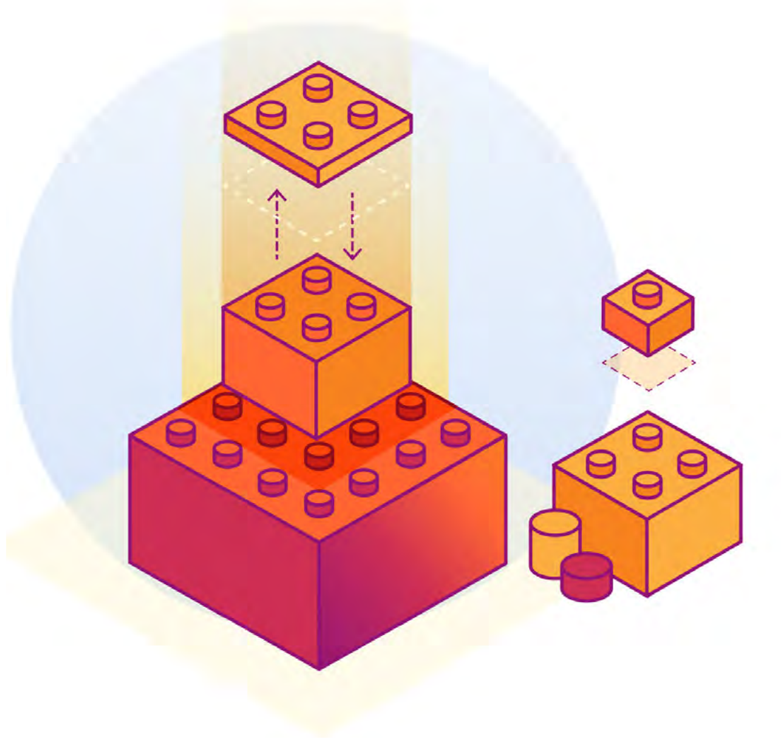
Fuel the innovation engine

Developer productivity drives effective modernization — but support for them is lacking.

Developer workflows are the backbone of innovation, enabling organizations to make the most of cloud-based technologies and expand to new markets. But enabling developers to work quickly — and prioritize modernization initiatives — is easier said than done.

Often, this issue comes down to prioritization. By making smart investments in their infrastructure and internal processes, leaders are able to maximize their developers' time and efforts, empowering them to focus more on innovation, expansion, and other business-driving outcomes.

Without a modernized foundation in place, organizations are forced to make trickier decisions. They must allocate developer resources toward the most critical, time-sensitive problems — leaving less time to complete their modernization goals or push forward with new technologies.



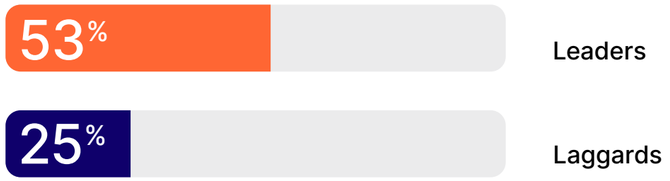
Fuel the innovation engine

Resource constraints

All organizations report that the primary challenge they struggle with is implementation complexity.

As the tech stack grows in complexity, organizations — both those ahead of and behind their modernization timelines — continue to struggle with a lack of developer resources, complex implementations, and vendor sprawl.

Modernization vs. maintenance



Leaders focus more developer time on maintaining existing systems vs. building new ones.

Because leading organizations have a strong foundation to build upon, most of their developer resources go toward maintaining systems, structures, and processes that already work. Those who are left completing their initial modernization efforts, meanwhile, spend more of their time rebuilding from scratch.

Proactive vs. reactive strategies

53%
of leading organizations are modernizing to *improve global expansion of their organization or target market.*

40%
of lagging organizations are modernizing to *implement cloud technologies and AI elements.*

Believe their existing tech infrastructure and talent is sufficient for AI development.

Leading organizations modernize *proactively* to push toward global expansion and launch new applications and products. Those behind the curve are more likely to modernize reactively to implement cloud technologies or address foundational security needs.

The universal bottleneck

While implementation complexity affects all organizations, it's not the only thing organizations have to contend with.

Aspects of application modernization remain challenging for all organizations. One of the largest hurdles is the constraint on developers' time.

Instead of implementing new technologies or optimizing applications for the cloud, developers are forced to spend more of their time on configuration, maintenance, or secondary business priorities. As a result, this can slow down modernization timelines and create roadblocks for future or long-term initiatives.

Alleviating this bottleneck may come down to questions of corporate bureaucracy. Across the board, organizations are tasked with proving the business value of modernization to those in charge, overcoming decision-making delays, and trying to maximize operational efficiency within their vendor ecosystem.

By proving the value of effective application modernization to those in charge, organizations may be better equipped to make the most of their internal resources and talent, freeing up their developers to push forward on innovation and growth.

Top modernization roadblocks

Developers' time is spent on configuration, maintenance, or other priorities

Implementation complexity (with multiple vendors)

Proving business value to leaders

To build or to innovate?

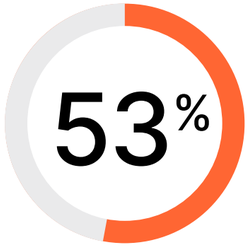
Leading organizations focus on refining their existing foundation, while laggards get stuck rebuilding from scratch.

A key strategic difference between leading organizations and laggards lies in where they focus their developer resources. The data appears to reveal a surprising paradox: 53% of leading organizations report that their developers spend more time maintaining and modernizing existing systems, while 75% of lagging organizations spend more time building entirely new ones.

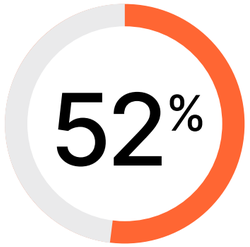
Upon closer examination, however, this does not suggest that lagging organizations are somehow ahead of the curve when it comes to their leading counterparts. Leading organizations have already built a stable foundation, with 100% feeling "very confident" in their current infrastructure. Now, they are able to focus more of their efforts on maintaining the systems that already work — and continuing to improve the user experience, expand to global markets, and meet evolving accessibility requirements.

Conversely, lagging organizations' focus on "new development" is part and parcel of the modernization process. They are still building out their foundation, so it makes sense that they would spend more time constructing new infrastructure and systems than maintaining existing ones. For some organizations, this may also point toward more of a reactive scramble to patch infrastructure, implement cloud technologies, or respond to recent security incidents — rather than innovating on top of a trusted, stable core.

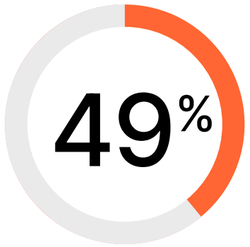
Leaders focus on *proactive initiatives*



do so to *push for global expansion.*

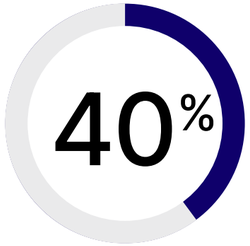


do so to *increase AI usage.*

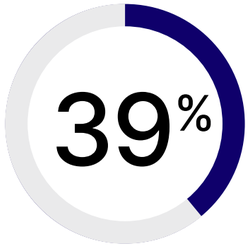


do so to *support application and product launches.*

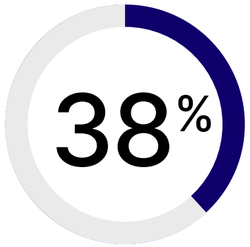
Laggards focus on *reactive initiatives*



do so to *implement cloud and AI technologies.*



do so to *meet new industry compliance requirements.*



do so to *address a recent security breach.*

The consolidation divide

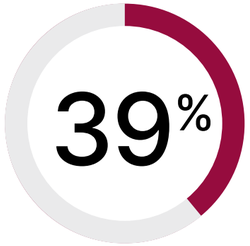
While nearly everyone struggles to consolidate their tech stack, leaders pass the test because their foundation is already built.

All organizations, no matter where they are in their application modernization timeline, face similar hurdles when consolidating their tech stack, with over 96% of all organizations reporting spending time on it in the last 12 months. The vast majority also report that at least one aspect of this process presents a challenge, often because they are struggling to secure multicloud and hybrid cloud environments, and / or make meaningful strides with a lack of resources.

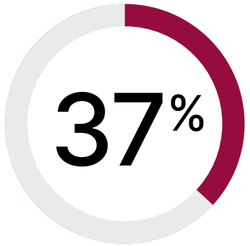
When it comes to securing disparate environments, there are many factors that can complicate the modernization process. For instance, legacy applications may not be designed for cloud environments, new technologies may not integrate well with existing application infrastructure, data may be siloed in various places, and vendor lock-in can make it difficult to find the most streamlined and efficient way of aligning critical applications, systems, and processes.

Along the same lines, resource constraints can also impact an organization's ability to easily consolidate their tech stack. All organizations report a similar level of frustration in this area: Around 40% say that they are allocating more resources to reactive projects (e.g., security incident remediation), leaving them with less time and talent to devote to consolidation and other business-driving initiatives.

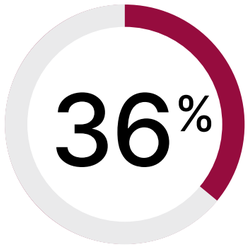
Top tech stack challenges for all organizations



struggle to secure multicloud or hybrid cloud environments

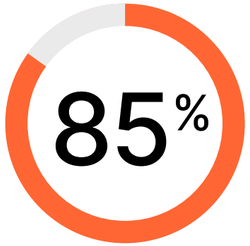


find that their resources are consumed by reactive projects and initiatives



struggle with restrictions due to operational overhead

Tech stack consolidation



of leading organizations have spent a lot of effort consolidating their tech stack over the past 12 months **(vs. 49% of laggards).**

Enabling developers: Key takeaways

Among other trends, these findings demonstrate how often reactive work like configuration, maintenance, and compliance management slow down app modernization efforts. In a cruel irony, such obstacles are often part of the reason organizations decide to modernize in the first place.

Several strategies can give organizations a way around this dilemma:

1. **Platform consolidation.**
Fewer platforms and vendors to manage makes configuration and maintenance easier.

2. **Investing in global resilience.**
Preparing modernized applications for new traffic surges is a common configuration hurdle. Ideally, organizations should invest in systems or platforms which help the app scale automatically with minimal configuration or regional customization.

3. **Automation.**
As described in previous sections, intelligent automation gives developers more time to build.

The Cloudflare network spans 330+ cities and has 449 Tbps of network capacity (as of this report's publication), helping applications scale to any demand or weather any volumetric attack without configuration. As mentioned previously, it also includes built-in security with always-on DDoS mitigation and protections that can be automatically deployed to new app features. All of this also applies to apps built on our developer platform in a refactoring context, giving developers fewer boxes to check and integrations to manage before and after the app goes live.

Learn more about accelerating developer velocity, and read on for this report's final conclusions.

> "Cloudflare made it possible for us to migrate our assets quickly and start saving money. Using Workers, we found a creative way to pull everything over to R2 at once and limit our exposure to data egress fees."
>
> **Chris Haire,**
> CTO, **VSCO**
>
> Learn how they do it >

VSCO

Build for what's next

A framework for modernization leaders

Innovation is the result of *deliberate* organizational design.

Application modernization projects surface many difficult trade-offs, organizational silos, and technological inefficiencies. The leaders are organizations who chart a path through those non-ideal circumstances via self reflection, smart technology investments, and a willingness to question accepted processes. For those aspiring to join their ranks, the path forward requires a strong commitment to these four guiding principles.

First, **commit to decisive agility.** Inventory your applications and related assets, get the C-suite and board involved in boosting agility, and justify new investment by cutting other costs.

Ask yourself...

What process or approval step is slowing down my app modernization the most?

Second, **think of AI as a strategic springboard, not an experiment.** Explore security automation, choose cost-effective AI infrastructure, and find ways to do more with the current developer resources you have rather than focusing on hiring.

Ask your team...

What aspects of AI scaling do they find least efficient?

Third, **treat security as an essential layer** — something built into the processes and structure of your organization. Consider security consolidation, security automation, and ways to avoid performance and compliance trade-offs.

Ask yourself...

What percentage of your app's attack surface is unprotected?

Finally, **remove developer obstacles.** Pursue platform consolidation, global resilience, and automation across your IT stack.

Ask yourself...

How much time do our developers spend on maintenance vs. building?

The Cloudflare difference

Cloudflare was created to help organizations achieve these capabilities during any app modernization project: rehosting, replatforming, refactoring, or building entirely new features.

Our connectivity cloud enhances app scalability and cost-effectiveness, and unifies data visibility and security control across apps, AI, and hybrid and multicloud environments. In addition, it enables your developers to build with AI and app primitives and regain control over complex app infrastructure with our application, developer, and SASE services.

Cloudflare supports rapid, efficient application modernization.

Learn more

Additional resources

3 paths to modernize applications and build AI services

Learn how to strategically rehost, refactor, and replatform your applications to effectively modernize them and build AI services.

Read more

Beyond the App Stack

Go behind the buzzwords. Tech leaders unpack the tools, decisions, and tradeoffs that drive real app innovation; no theory, just lessons from teams building what's next.

Watch now

The buyer's guide for application services

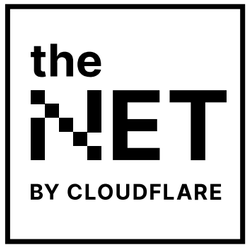
Modern applications enable organizations to deliver even more personalized, real-time, and intelligent user experiences. But knowing where to start can be difficult.

Read more

theNET

Application modernization efforts require a clear strategy. Discover how CISOs can strengthen security, accelerate business agility, and deliver lasting value.

Read more



Appendix

Methodology

We partnered with Qualtrics to consolidate our research from individual regions and vertical studies to one streamlined investigation, intended to inform our organization as a whole what the industry attitudes are towards application modernization, security, performance, and related AI initiatives.

To accomplish this, we interviewed organization leaders who live in one of our target countries in NAMER, EMEA, or APAC regions. We limited the scope of our interviews to those who are currently a director, VP, C-suite executive, or owner of their organization; who work full-time in target roles within IT, security, product, or engineering; and who have at least some influence on IT infrastructure or vendor decisions. Those who work for organizations with fewer than 1,000 employees did not qualify for this research.

The survey fielded from June 13 to July 21, 2025. 2,351 organizational leaders submitted responses and the survey was conducted online. The average time it took each respondent to complete the survey was 15 minutes. Data analysis was conducted from August to November 2025.

The target countries for this survey are listed below:

- **North America (NAMER):** US, Canada, Brazil, Mexico
  - US (n = 401, 57%), Canada (n = 150, 21%), Brazil (n = 75, 11%), Mexico (n = 75, 11%)
- **Europe, Middle East, and Africa (EMEA):** Netherlands, Poland, Saudi Arabia, Spain, Sweden, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, France, Germany, and Italy
  - Netherlands (n = 50, 6%), Poland (n = 50, 6%), Saudi Arabia (n = 50, 6%), Spain (n = 75, 9%), Sweden (n = 50, 6%), United Arab Emirates (n = 50, 6%), United Kingdom of Great Britain and Northern Ireland (n = 150, 19%), France (n = 125, 16%), Germany (n = 125, 16%), Italy (n = 75, 9%)
- **Asia Pacific (APAC):** New Zealand, Singapore, South Korea, Thailand, China, Hong Kong (S.A.R.), India, Indonesia, Australia
  - New Zealand (n = 27, 3%), Singapore (n = 101, 12%), South Korea (n = 99, 12%), Thailand (n = 50, 6%), China (n = 75, 9%), Hong Kong (S.A.R.) (n = 40, 5%), India (n = 200, 24%), Indonesia (n = 60, 7%), Australia (n = 73, 9%)
- **Japan** (n = 125, 15%)