



# Telecom automation and AI:

## Let's get real

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**“AI is probably the most important thing humanity has ever worked on. I think of it as something more profound than electricity or fire.”**

– Google CEO Sundar Pichai

**“The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will change the way people work, learn, travel, get health care, and communicate with each other. Entire industries will reorient around it. Businesses will distinguish themselves by how well they use it.”**

–Microsoft co-founder Bill Gates

**“I believe it’s going to change the world more than anything in the history of humanity. More than electricity.”**

– Kai-Fu Lee, investor, ex-President of Google China, founder, Microsoft Research Asia

The communications service provider (CSP) industry is begging to be transformed by artificial intelligence (AI) and automation.

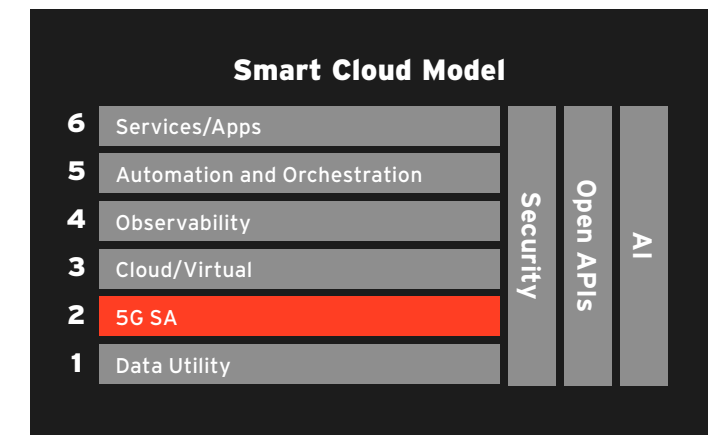
Telcos, wireless carriers, cable providers and other CSPs are squeezed by increased subscriber demand for bandwidth and richer services, rising costs and reduced pricing elasticity. AI and automation have the potential to enhance efficiency, reduce costs and improve service quality, leading to increased customer satisfaction, new business opportunities, and enhanced revenue and profits.

AI can substantially impact network operations. Traditional networks require extensive manual oversight for troubleshooting, maintenance, and optimization tasks. AI-driven automation can streamline these processes through predictive maintenance, anomaly detection, and automated issue resolution. By analyzing vast amounts of network data in real-time, AI can proactively predict and address potential failures, minimizing downtime and ensuring a more reliable network.

### The network holy grail

The holy grail is the fully autonomous network —

the “[smart cloud](#),” or closed-loop network — a network that operates without human oversight. The smart cloud would free network employees and management for creative, high-level tasks.



Another critical transformation area is customer experience. AI-powered chatbots and virtual assistants can provide instant customer support, handle routine inquiries, and resolve common issues without human intervention. This speeds up response times and frees human agents to tackle more complex problems. Additionally, AI can personalize customer interactions by analyzing user behavior and preferences and offering tailored services and recommendations that enhance user satisfaction and loyalty.

AI could provide an end-to-end boost to the moribund CSP market, [according to analysts at IDC](#). Worldwide spending on telecom and pay TV services was \$1.509 trillion last year, up 2.1% year-over-year, and is anticipated to increase at a slower 1.4% this year to \$1.530 trillion.

AI and advanced analytics could be a “powerful new ally” to modernize business operations and improve efficiencies, IDC analyst Kresemir Alic said. Potential use cases include customer service chatbots, virtual assistants and field technicians, network modernization and predictive maintenance, network traffic management, personalized marketing, fraud detection and prevention, churn prediction and revenue assurance.

Telecoms are “operationalizing generative AI,” according to a [report from Deloitte](#), evaluating and experimenting, particularly in customer care, customer service and network performance.

### Getting serious about AI

Generative AI can help CSPs “make sense of the unstructured data they have across different parts of the business,” Deloitte said. “This can enable them to start breaking down data silos, for example, by bringing together customer care transcripts, network logs and maintenance records. Providers may better equip customer service agents, field tech, or tower operators by delivering insights that directly suggest the best response or action. Such copilot relationships can potentially empower productivity across data-driven parts of the business.”

But how serious are CSPs about AI and automation? After all, even though we’re less than halfway through the decade, we’ve already seen so-called “revolutionary” world-changing technology that turned out to be nothing but speculative investment bubbles — the metaverse, crypto, Web3, blockchain. Are AI and automation more of the same? How seriously are CSP leaders thinking and planning about AI and automation?

To find out, we surveyed 129 CSP leaders in April and May 2024. We found that CSPs are taking AI and automation very seriously and making big plans to invest in those technologies to transform their business.

Our findings are fully detailed in this report, where you’ll find insight into:

- The importance of AI and automation for the future of CSPs
- The factors driving AI and automation today
- The challenges of AI adoption
- The vendors CSPs are relying on

We invite you to explore the comprehensive data and insights in the report.

***This report is written by Mitch Wagner, Executive Editor, Research, Fierce Network, and edited by Elizabeth Coyne, Editor in Chief, Fierce Network***



### Key survey findings

- > **96%** of CSPs expect AI and automation to increase in two to three years.
- > CSP executives are focused on **performance, reducing costs and growing revenue.**
- > **CSPs are dissatisfied** with their vendor relationships.
- > CSPs are looking for partners that can **create business opportunities.**
- > **The outlook is bright** for AI and automation’s influence on jobs.

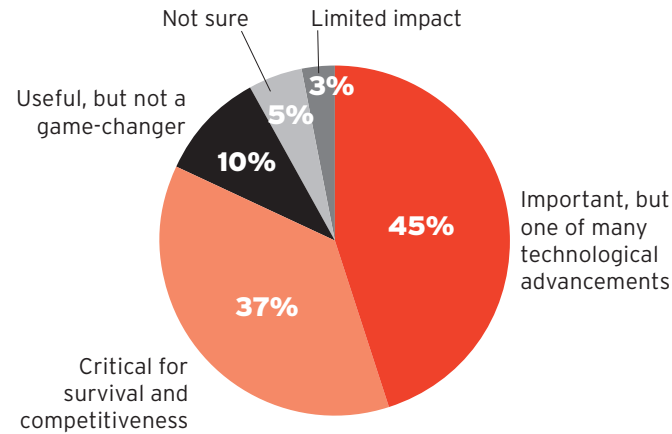
# 1

## AI AND AUTOMATION ARE 'CRITICAL' OR 'IMPORTANT'

For CSP technology decision-makers, AI and automation are crucial to the future success of their business, according to our survey respondents. Many see the technologies as "critical," and many others see it as among the several most important technologies they're focusing on for their companies' futures.

More specifically: AI and automation was seen as critical for survival and competitiveness by more than a third of respondents to our survey. Nearly half saw the technology as important, but among many technological advancements. (See chart: **The importance of AI and automation for CSP futures.**)

### THE IMPORTANCE OF AI AND AUTOMATION FOR CSP FUTURES



But there were skeptics: One in 10 see the technology as useful but not a game-changer.

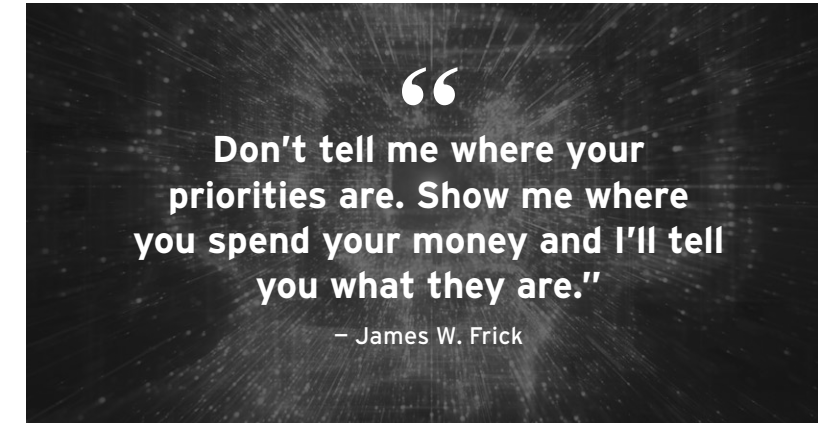
Five percent of respondents are not sure of AI and automation impact. We don't blame them – the technology is moving fast and it's hard to keep up.

And a small number of respondents (3%) see AI and automation as having limited impact. If you dismiss these skeptics as foolish, ignorant or in denial, you'd be mistaken; when we asked their reasoning, skeptics had thoughtful answers:

- "AI is still new and adoption will be very limited at the beginning"

- "AI is still in an early stage"
- "Cost"

While we disagree with the skeptics, we respect their thinking. The best CSP leaders are innovative but also cautious. Indeed, after years of hype in the technology industry about metaverse, Web3, crypto, blockchain – and in telecom Iridium satellite phones, WiMax and 3D TV – any prudent person is skeptical of the next so-called revolution.

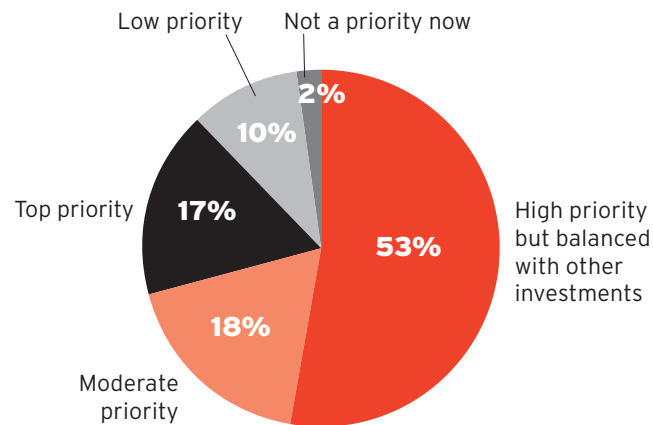


More than four out of five CSP executives (82%) report that AI and automation are critical or important for their future.

### Spending challenges

CSP decision-makers plans for spending on IT and automation are in line with their statements about the relative importance of those technologies (as previously described). Nearly three in four respondents to our survey cited AI and automation as a top priority or high priority for spending. (See chart on next page: **Spending plans: How CSPs prioritize AI and automation.**)

**SPENDING PLANS: HOW CSPS PRIORITIZE AI AND AUTOMATION**



A little under a fifth of respondents rated AI and automation as a top priority for spending, and more than half said it's a high priority but balanced with other investments.

As with our previous question, we had our skeptics among the respondents. Some 10% see spending on AI and automation as a low priority, and 2% say it's not a priority now.

**70% of CSP executives rate AI and automation investments as top priority or high priority compared with other spending.**

**Skeptics speak out**

For those skeptics who ranked spending on AI and automation as low priority or no priority at all, they cited a few reasons: Better return on other investments, the technologies are immature and cost were three. Here's some of what the skeptics had to say:

- "Alternative investments are showing better ROI."
- "In the deployment of 5G, the effort in AI is low. I think that in a year or two this trend will change to make a strong investment in AI."
- "The products are not mature as well as not proven. We have started to adopt AI but will do so gradually as the technology matures."
- "We are a small company. We will rely on larger companies' investments."

- "We don't understand it enough to feel confident implementing it in the business. It will be a gradual adoption."
- "With rigid process, clear KPI and strong auditor, success was always achieved. For me, AI is a luxury."

When CSP leaders look to the future, the overwhelming majority see AI and automation as critical to their business, and they're planning their spending accordingly. There is a small, but vocal contingent of skeptics; their objections are concrete and reasonable and can be turned around with demonstrable results showing the business benefits of the new technologies.



## 2 AI AND AUTOMATION DEPLOYMENTS ARE WELL UNDER WAY

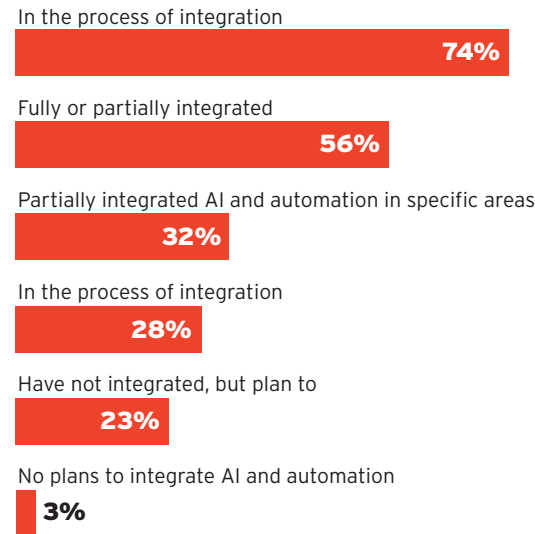
Still in its early days, AI and automation are riding high on the hype curve which is causing many CSP executives to proceed with caution. Is AI going to go the way of Web3, the metaverse, WiMax and 3DTV? Or will it become essential to doing business in the next decade?

The CSP leaders we spoke with told us that their AI and automation are already well under way – amazing considering the aforementioned tech fads.

Nearly three quarters of our survey respondents are already in the process of integrating AI and automation while more than half say they have already fully or partially integrated AI and automation into their tech stacks. (See chart: **The status of AI and automation integration.**)



### THE STATUS OF AI AND AUTOMATION INTEGRATION



Nearly a third of respondents say AI and automation is partially integrated in specific areas, while more than a quarter say they're in the process of integration and nearly a quarter say they have not integrated but plan to. A small, but stubborn contingent of 3% of CSP leaders we spoke with have no plans to integrate AI and automation.

### Deployments ramping up

More than half of respondents say they expect a significant increase in AI and automation deployment in the next two or three years and more than two in five see a moderate

increase in that time frame. Phrased another way: Nearly all respondents expect to increase deployment of AI and automation in the next two or three years.

Combine the answers to the previous two questions and we see that even the 23% of executives who are slow adopters plan to put pedal to the metal and move soon. Their delay is temporary.

Slow adopters and outright skeptics have a variety of reasons for caution. These include high initial costs, integration and security concerns, regulatory and compliance issues, uncertain ROI and customer experience risks.

Overall, we see that most CSPs are aggressively pursuing AI and automation integration onto their networks, with integration already well under way and planned acceleration in the near future. Even many current skeptics see themselves as ready to jump in soon.

According to executives at Intel and Microsoft, telcos are still [moving slowly in bringing AI to the network core](#). However, once the industry gets moving, [telcos could well lead the global AI revolution](#), Silvia Candiani, VP of Microsoft's telco and media business, told Fierce Network at Mobile World Congress in February.

"Telcos are number one, the center of the digital system of every single country," she said.

# 3

## EXPECTATIONS VS. REALITY

**While technology elites stroke their chins and pontificate about AI being more important than electricity or fire (for example, see the quotes we used to introduce this report), CSPs are more practical. They're looking to AI to deliver business benefits, such as enhanced performance, reduced cost and improving revenue. They're already seeing impact in fundamental areas such as network operations, customer experience and service delivery. And they're leveraging AI in functions such as real-time network optimization and automated fault detection and resolution.**

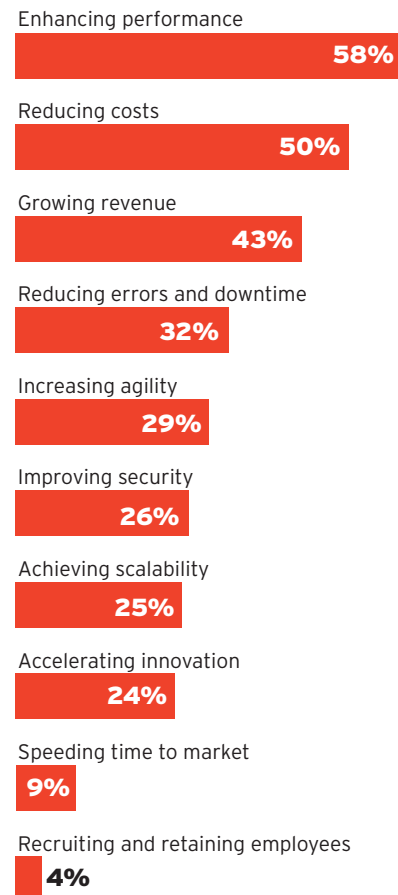
CSPs don't have a lot of time for philosophizing. They have work to do – cutting costs, boosting revenue and delivering value to customers.



We asked respondents to name the factors driving their adoption of AI and automation and encouraged them to make multiple choices where appropriate. There were a broad range of factors – but enhancing performance (cited by more than half of respondents), reducing cost (cited by

half of respondents) and growing revenue (cited by a little less than half of respondents) stood out as particularly significant. (See chart: **Factors driving AI and automation adoption.**)

### FACTORS DRIVING AI AND AUTOMATION ADOPTION



Interestingly, when you examine these results, you can see that popularity increases with measurability. Enhancing performance, reducing costs, growing revenue and reducing errors and downtime are highly measurable outcomes.

Less measurable are increasing agility (cited by 29% of respondents), improving security (26%), achieving scalability (25%), and accelerating innovation are less measurable (24%). Speeding time to market and recruiting and retaining employees are the least popular reasons driving AI and automation (9% and 4% respectively) and they are also the least measurable outcome for AI and automation.

Employee recruitment and retention can benefit from automation, but in the end these outcomes require the human touch.

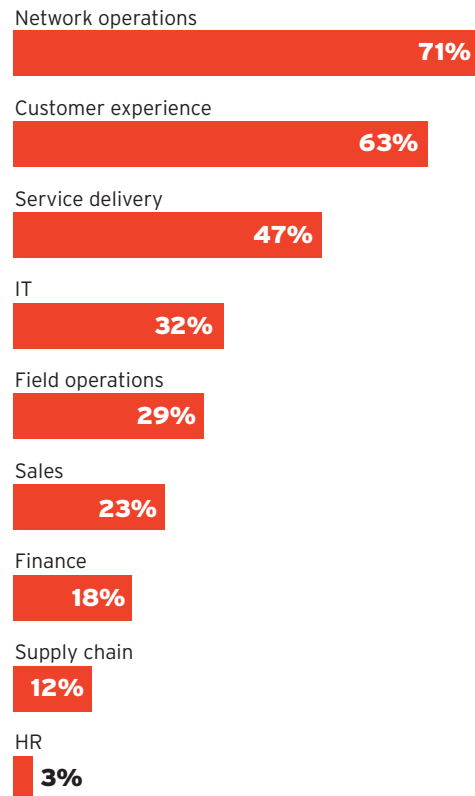


## SECTION 3: EXPECTATIONS VS. REALITY

### Biggest existing impact

The preceding section covers factors driving AI and automation adoption – what CSPs hope to get from the technology. But what about today’s reality?

#### WHERE AI AND AUTOMATION ARE HAVING BIG IMPACT



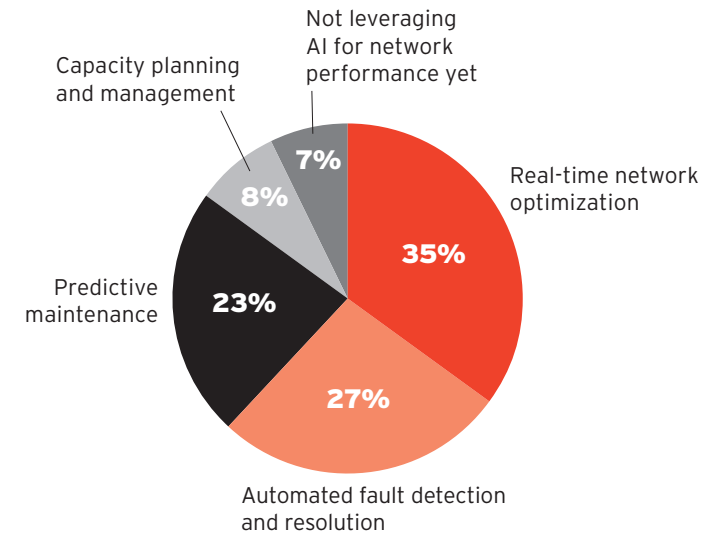
We asked CSP executives where AI and automation are already having their biggest impact. As before, we allowed respondents to make multiple choices. Answers ranged across the business, but two areas – network operations and customer experience – stood out. (See chart: **Where AI and automation are having big impact.**)

Nearly three quarters of CSP leaders responding to our survey said they’re seeing the biggest impact from AI and automation in network operations. Nearly two-thirds said the biggest impact was customer experience, nearly one in eight cite supply chain optimization and fewer than one in 33 see a big impact from human resources (HR).

Deutsche Telekom is one company that has implemented AI to enhance customer experience. The telco is working with Uneeq, a company based out of Auckland, New Zealand, which has developed a “digital human” – a CGI-based humanlike character that customers can talk with to get problems resolved. “Max,” the digital human, has a 10% better success rate at solving problems than a chatbot, handling about 10,000 queries a month and growing.

We drilled down into the areas of network operations and customer experience, particularly with regard to network performance and reliability, and asked our survey respondents to tell us the ways that they are leveraging AI and automation already. (See chart: **How CSPs are leveraging AI and automation.**)

#### HOW CSPS ARE LEVERAGING AI AND AUTOMATION



### Seeking business benefits

More than a third of CSP leaders responding to our survey are using AI and automation for real-time network optimization, more than a quarter using the technologies for automated fault detection and resolution, nearly a quarter for predictive maintenance, almost one in 12 for capacity planning and management and nearly one in 13 are not leveraging AI for network performance just yet.

Verizon is one example of a CSP taking a strategic approach to implementing AI. The company ingests more than 70

### SECTION 3: EXPECTATIONS VS. REALITY

billion data points daily into its AI engines. It applies AI to customer care, “to kind of remove the cognitive load off of the customer care team so they can use their real human elements there,” Craig Silliman, president of Verizon’s Global Services Division, said during an [analyst meeting in February](#).

Google Cloud sees telcos going beyond last year’s focus on chatbots to include a range of AI applications – network operations, field operations sales and marketing, [telco chief Ankur Jain said](#).

We asked which processes CSPs planned to automate in the next year. It was an open-ended question, rather

than multiple choice, and we got a range of answers. The processes mentioned most often are customer service, support and experience, network operations, finance, accounting and billing, operations, service delivery and IT operations.

Expectations surrounding AI and automation adoption are high and the reality shows a complex, promising landscape. CSPs are seeking performance enhancement, cost reduction and revenue growth. As businesses navigate this transformative journey, understanding the nuances between expectations and actual outcomes will be crucial for strategic planning and long-term success. They need to set realistic goals and prepare for the opportunities and challenges that lie ahead.

The answers were not surprising considering what we know about AI and automation in CSPs already – customer service is the go-to use case already.



# 4

## CHALLENGES AND GOALS

**We sought to learn more about the practicalities of CSPs implementing AI and automation. We learned about the biggest challenges CSPs face, how they measure success and the particular network and business functions where CSPs are applying the new technology.**



Integration with existing systems and lack of skilled professionals are the biggest challenges CSPs face in adopting AI and automation. Nearly three-quarters of the CSP executives we surveyed said integrating with existing systems is the biggest challenge their organizations face in adopting AI and automation.

Nearly two-thirds of CSP leaders we surveyed are feeling a pinch due to a shortage of skilled professionals. These leaders can at least console themselves that they're not

alone; [a recent Salesforce survey](#) found that 60% of IT pros in all industries said they were feeling the pain of AI skills shortage.

Data privacy and security concerns were also major challenge for CSP leaders we surveyed, cited by nearly half of respondents. An equal number said they are challenged by unclear ROI.

Rounding out the challenges are regulatory, liability and sustainability concerns.

### Growing pains

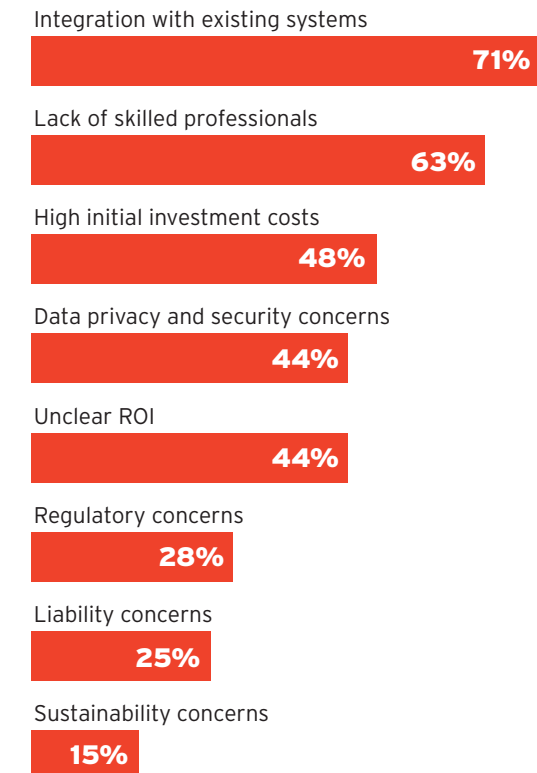
All of these concerns are simply to be expected from emerging technologies like AI and automation. As the technologies mature, existing platforms, skills, regulators and other factors will catch up.

Existing systems are difficult to integrate with new tools; much of CSPs' installed base of equipment and software comprises single-vendor proprietary stacks lacking standard APIs to connect with the type of cloud and containerized applications that are the basis of AI and automation. This is true of networking infrastructure as well as back-office OSS and BSS.

As CSPs move to cloud-based 5G networks and OSS/BSS systems, integration with new AI and automation systems should prove less of a problem.

Similarly, we can expect that time and technology maturity will mitigate the skills gap. CSP professionals will acquire AI and automation skills, drawn by high-paying jobs. (See chart: **The challenges of AI and automation.**)

### THE CHALLENGES OF AI AND AUTOMATION



## SECTION 4: CHALLENGES AND GOALS

Despite concerns around AI and automation, CSPs are pressing on with implementing technology to address business concerns. But they're not flying blind. Companies are measuring outcomes to determine how effectively their investments in AI are proving out for real-world business.

Improved customer satisfaction scoring was the most popular metric that our CSP leaders looked at to measure effectiveness of their AI and automation investments, cited by nearly a third of respondents to our survey.

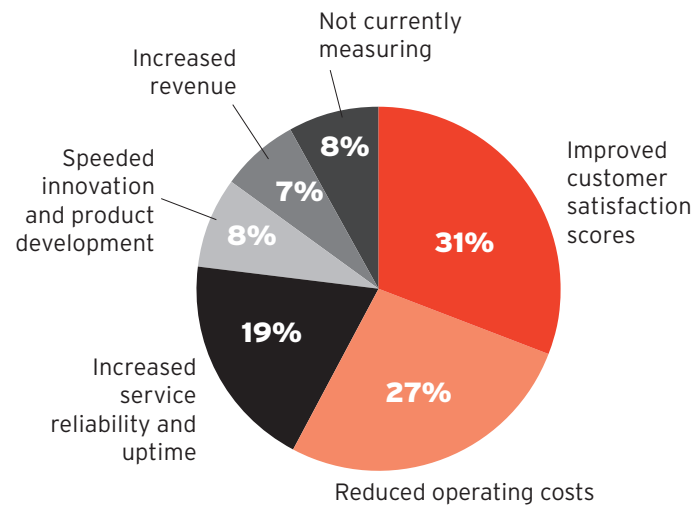
Reduced operating costs was a close second, cited by more than a quarter of respondents. This jibes with a [recent McKinsey survey](#), which found that about 40% of operators responding to their inquiries achieved 1% - 5% cost savings in their network due to AI, and another 15% said they achieved 6% - 20% savings.

Other popular metrics were increased service reliability and uptime, cited by nearly one in five respondents. After that, popularity of metrics drops off – speeded innovation and product development was cited by only about one in 12 respondents, increased revenue by about one in 14 respondents and about one in 12 respondents are not currently measuring AI and automation success.

Again, we see a theme here – while AI is often discussed in futuristic sci-fi/fantasy terms, CSP leaders have hard-nosed concerns, mainly customer satisfaction and reduced costs, which would be familiar to any business leader at any time since the invention of the telephone in the 19th century. (See chart: **How CSPs measure AI and automation success.**)



**HOW CSPS MEASURE AI AND AUTOMATION SUCCESS**



### Application management

Data analytics, network planning, management and operations and process automation are where CSPs most often apply AI and machine learning (ML). In fact, almost two-thirds of respondents are applying AI/ML to data analytics, and nearly half each to network planning, management and operations and process automation.

These priorities make sense, because these areas directly impact the efficiency, reliability, and profitability of their services. Data analytics allows CSPs to gain valuable insights from vast amounts of data, enabling better decision-making and personalized services. Network planning and management benefit from AI and ML by optimizing resource allocation, predicting maintenance needs, and reducing downtime, which enhances overall network performance and customer satisfaction.

Process automation, driven by AI and ML, streamlines routine tasks, reduces human error, and lowers operational costs. By automating complex processes, CSPs can respond more swiftly to market changes and customer demands, maintaining a competitive edge. The application of AI and ML in these areas allows CSPs to improve service quality, operational efficiency, and strategic planning, which are critical for staying ahead in the fast-evolving telecommunications industry.

### Customer service and marketing

More than a third of the CSP leaders who responded to our survey are applying AI and ML to customer service.

About a third of respondents say their organizations are using AI and ML for marketing. There's plenty of room for growth there: marketing automation is a widespread use of AI and ML across industries, and those technologies could see far broader and more advantageous application for CSPs than current usage.

For other uses of AI and ML: Less than a third of respondents are using the technologies for security and fraud detection. This may change if Microsoft has anything to say about it; the company recently introduced [Azure Operator Call Protection](#), which uses real-time AI to analyze voice calls and alert people if a call might be a scam.

A quarter of respondents use AI and automation for sales and general administration. More than an eighth of respondents are using AI and ML for new service offerings and about one in 14 say they are not using AI. (See chart: **How CSPs are applying AI/ML.**)

### HOW CSPS ARE APPLYING AI/ML



### Where network management information comes from

It makes sense that network planning and management were among the most popular applications for AI and automation – keeping the network running and performant are essential for CSPs. Without the network, the business doesn't exist – a CSP runs on its network the way Starbucks runs on coffee beans.

AI and automation need information on everything happening on networks. That information has to come from somewhere. For more than three quarters of executives responding to our survey, that information comes from nodes, IT service management platforms such as ServiceNow, BMC or Microsoft, and routers.

More specifically more than a quarter of respondents are sourcing information from nodes, another quarter each from IT service management platforms and routers. Some 15% rely on data from probes and 7% from other sources.

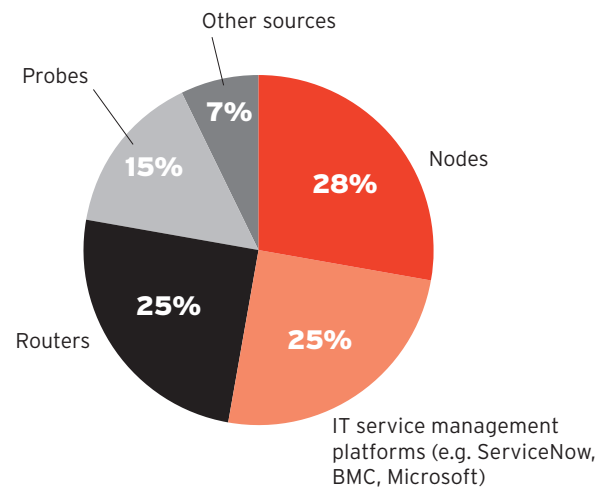
This finding is significant because it shows that more than half of CSPs are going directly to the network hardware itself – the nodes and routers – as well as integrated management platforms, to measure network performance. CSP technology leaders prize these devices and software as primary sources of network information. Probes, used to monitor network performance and traffic, are secondary sources – valuable, but less so than primary sources.

## SECTION 4: CHALLENGES AND GOALS

Overall, the results reflect a balanced approach to sourcing information for AI and automation in network management, with a strong emphasis on both direct infrastructure data and comprehensive management platforms.

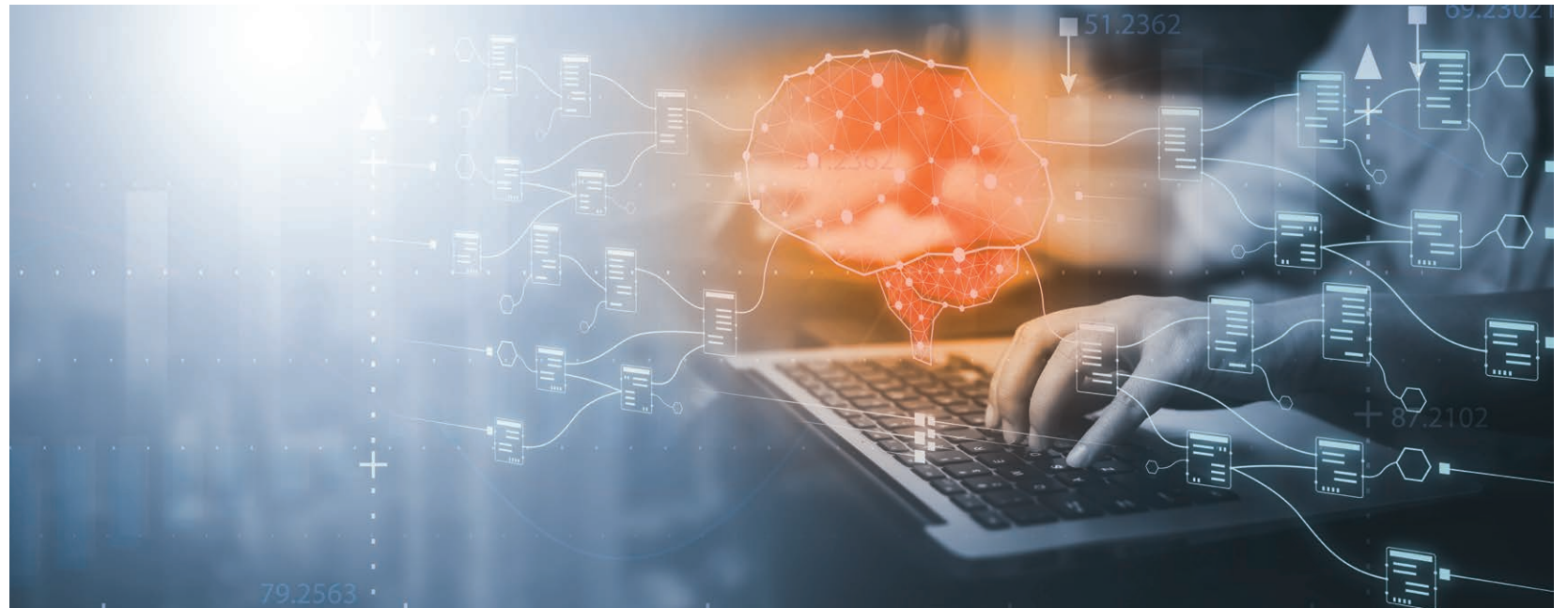
These findings suggest several opportunities for vendors to make headway in this competitive market, by enhancing node technologies, developing advanced AI-driven service management platforms, and developing alternative information sources and custom integration between sources to help diversify network management tools. (See chart: **CSP AI data sources**.)

### CSP AI DATA SOURCES



All business technologies require measurement to succeed. CSP technology leaders look to traditional business metrics such as customer satisfaction and reduced cost to measure the success of their AI and automation implementations.

Similarly, they're applying AI and ML to traditional concerns such as data analytics and network planning, management and operations. They rely primarily on network hardware to tell them how their network is performing. All of these measurements taken together help keep the business on track for success.



# 5

## TOUGH VENDOR MARKET

**It's hard to be a telecom equipment and software vendor in the era of AI and automation. CSP executives responding to our survey aren't showing a lot of love for their vendor partners.**



More than half of telecommunications executives say they are only somewhat satisfied, or that they're outright dissatisfied, that their incumbent vendors are partnering effectively on AI and automation.

Fewer than half of CSP executives report that they are entirely or very satisfied that their incumbent vendors are partnering effectively with their organizations on those technologies.

These results are a red flag for vendors. Their customers are just plain unhappy—ripe to be plucked by a competitor. Vendors need to make an urgent priority out of satisfying customer needs and responding to market pressures. Vendors are, quite simply, not doing their jobs.

That dissatisfaction is reflected in CSP development plans for AI: More than half say they plan to develop AI internally, while only 42% are partnering with one or more vendors.

It's obvious why this is bad news for vendors, who are losing out on business opportunities when CSPs take a go-it-alone strategy. But this outcome is also bad for CSPs: While CSPs obviously know their own business better than anyone, they often lack the R&D resources needed to develop advanced technologies. Vendors have those resources, and can replicate solutions across multiple customers, allowing every CSP to benefit from lessons learned by other operators.

The dysfunctional marriage between CSPs and vendors must be repaired, or everybody suffers. (See chart: **CSP satisfaction with AI/automation vendors.**)



### CSP SATISFACTION WITH AI/AUTOMATION VENDORS

We're somewhat satisfied. They're OK.

**47%**

We're very satisfied. They're keeping up.

**26%**

We're entirely satisfied. They're brilliant.

**17%**

We're somewhat dissatisfied. We're not thrilled but we're staying with them.

**6%**

We're very dissatisfied. We need to have a talk with them. They will not enjoy that talk.

**2%**

We're extremely dissatisfied and firing them.

**2%**

We asked our CSP executives that are partnering with vendors to name the vendors they're partnering with. Six familiar names floated to the surface, with none of them gaining significant market leadership: Huawei and IBM were named by 7% of respondents each, followed by Amazon/AWS and Microsoft at 5% each, and Ericsson and ServiceNow at 4% each.

## SECTION 5: TOUGH VENDOR MARKET

Other vendors receiving single mentions by CSP executive respondents were:

- Accedo
- Aircoins
- Amdocs
- Blue Planet
- FreeWave
- Google
- Ignition
- Inorsa
- Juniper
- NEC
- Netgate
- Nokia
- Ribbon
- Samsung
- Snowflake
- VMware
- Zoom
- ZTE

Twenty-eight percent did not answer or said that the information was confidential.

These responses are suggestive rather than indicative; we just don't have enough patterns in our responses to draw conclusions. However, the responses suggest that leadership in the AI and automation realm is wide open; no vendor has a majority or plurality of market share. The market is highly competitive, with plenty of space for an incumbent vendor to revitalize their business, or a startup to quickly bloom to annual revenues of tens or 100+ billion dollars.

Other noteworthy observations about our findings regarding vendor partnerships: First, vendors traditionally considered as enterprise players, such as Microsoft and AWS, seem to be doing about as well as traditional CSP suppliers like Huawei and Ericsson. Also of interest, Huawei is making about as strong a showing as anybody else, despite the bans on using its equipment in the U.S. and elsewhere.

Finally and potentially indicative of failing market leadership in this space, Nokia and Cisco are notably absent from the

named AI/automation provider list. This is dire news indeed for those two former market-dominating players – when CSP technology leaders are listing their partners, those two companies' names don't even come up.

Our survey results reflect business realities – Cisco has been plagued by [layoffs](#), it's losing to a competitor in [at least one key market](#) and [most recently quarterly revenue](#) as of this writing was down year-over-year. Similarly, [Nokia revenue tumbled 20%](#) year-over-year in the first quarter of 2024.

### AI factories, sovereign clouds

According to our survey findings, most CSPs are seeking partnerships with leading infrastructure and cloud services providers to establish local market AI factories and sovereign clouds.

But, before moving on to discuss how CSPs are partnering with cloud providers and vendors, let's take a moment to explain a few key terms that are important for the AI and automation process.

An "[AI factory](#)" is a framework for developing, training, deploying and managing AI at scale, involving significant automation through the entire process from data collection to preprocessing to model training to deployment, often leveraging cloud infrastructure.

The phrase "[sovereign cloud](#)" is more well-known: It's a cloud where information pertaining to residents and organizations in a specific country or region are kept within

the geographic borders of that country or region. Often, management tools are also required to run within the country or region, operated by residents of that country or region working with its boundaries. Sovereign clouds are a reaction to regional laws and regulations such as the European General Data Protection Regulation (GDPR).

How are CSPs thinking about their strategies with regard to those two important technologies? Are they partnering or going it alone? We asked our group of CSP technology leaders.

About two thirds of respondents (67%) told us they're seeking partnerships with leading infrastructure and cloud services providers to establish local market AI factories and sovereign clouds. More than a third (36%) say they're currently establishing partnerships or have already done so, and a little under a third are planning to do so within the next year (31%).

Of the remaining CSPs, more than a quarter (28%) have no plans for such partnerships within the next year, but they might partner in the longer term. And only 5% say their organization doesn't have an AI or data sovereignty strategy.

Slicing the numbers another way: More than half of CSPs are looking for partnerships for their AI factories and sovereign clouds or are open to forming such relationships. It's an open market but closing fast, and infrastructure and cloud services providers had best move quickly to take advantage of demand for their services.

# 6

## CAREER OUTLOOK

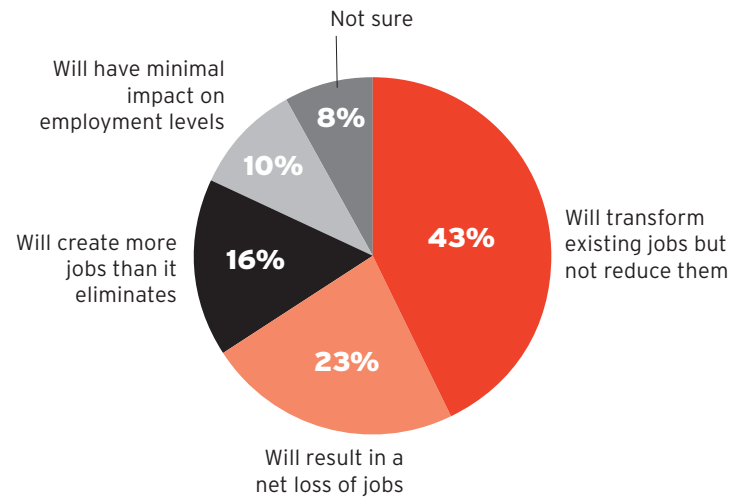
**Is AI a job-killer? Half of today's work activities could be automated between 2030 and 2060, according to a 2023 prediction from McKinsey. Also that year, IBM CEO Arvind Krishna said he can see 30% of back-office jobs being replaced by AI over five years**

The U.K. tabloid The Sun proclaimed: "AI 'job-pocalypse' coming as bots could take nearly ONE BILLION jobs from people - and they will be better than humans."

However, CSP executives responding to our survey are optimistic about the impact of AI and automation on jobs. In fact, more than two-thirds of respondents said AI and automation will increase job numbers, or at least have minimal effect on those numbers. Fewer than a quarter of respondents said AI and automation will eliminate jobs. (See chart: **The impact of AI and automation on jobs.**)

But there's one important category of work at CSPs that AI and automation will be able to do, and that's operating the network. Just over half of CSP executives responding to our survey say AI and automation tools will be able to operate networks themselves – without human intervention or supervision – within five years.

### THE IMPACT OF AI AND AUTOMATION ON JOBS



How can we reconcile these two apparently contradictory conclusions? On the one hand, CSP tech leaders are saying AI and automation won't take jobs, but on the other hand, these respondents say that AI and automation will be able to operate the network without human intervention. If people aren't operating the network, what will they do?

As AI and automation take over routine work, humans will shift towards overseeing AI systems, managing exceptions, and focusing on strategic, creative, and complex problem-solving tasks that AI can't handle. Humans will also work on improving AI systems, ensuring cybersecurity, and

developing new technologies and services. This transition highlights a shift from routine operational tasks to more value-added roles that leverage human creativity and oversight.

### Historical precedent

As a society and industry, we've been through this before. Telephone operation was among the most common jobs for American women at the turn of the 20th century, and phone operators were ubiquitous, according to a November, 2020 [study](#) by James Feigenbaum and Daniel P. Gross at the National Bureau of Economic Research. But AT&T automated that job between 1920 and 1940, replacing operators with mechanical switching.



## SECTION 6: CAREER OUTLOOK

Automation eliminated most phone operator jobs, but this trend was counteracted by employment growth in middle-skill clerical jobs and lower-skill services jobs, including new categories of work.

The study isn't entirely rosy, however, noting that many operators were in lower-paying occupations or no longer working a decade later.

We've seen similar societal shifts in the 1930s and 1960s; automation eliminating some jobs and creating others, according to the [MIT Technology Review](#).

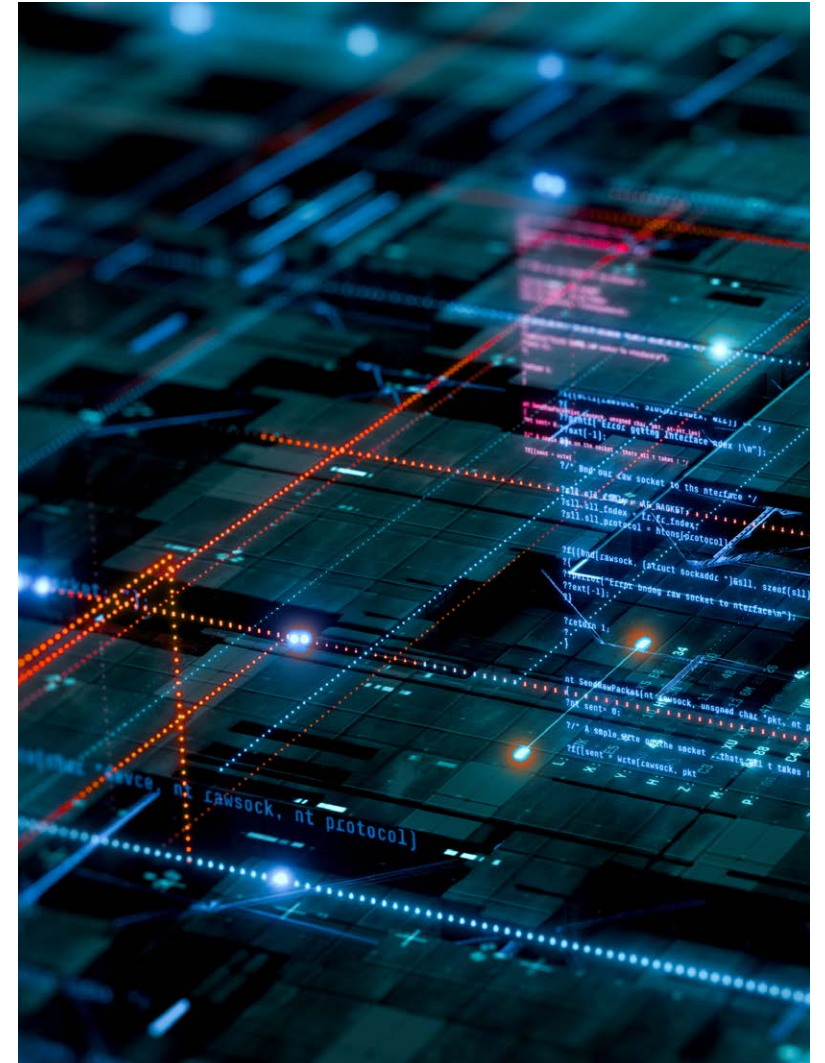
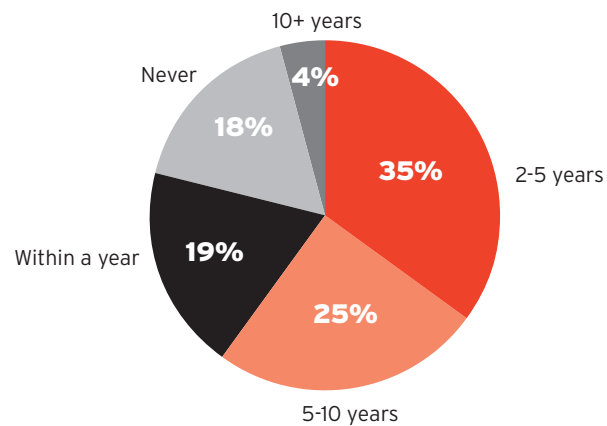
In other industries: The invention of the ATM machine actually preceded an [increase in the number of bank tellers](#), as automation permitted banks to open more branches and put a couple of bank tellers at each branch, according to James Pethokoukis at the American Enterprise Institute. And the advent of the spreadsheet in the 1980s [decreased the number of bookkeepers and accounting clerks](#) but increased the number of accountants. Accounting got cheaper and people expected a lot more of it.

We can expect a similar transition for the CSP industry, driven by AI and automation. Networking will get cheaper but people will need more of it, to serve smart cars, factories, agriculture and myriad other applications enabled by AI and automation. (See chart: **When will AI and automation tools operate without humans?**)

This transition to AI might be bumpy. To ease the way, Verizon created an [AI Leadership Council](#), an internal team comprising top executives from legal, IT, security, network and several other departments. The company is not ready to turn decision-making over to AI without human oversight, Debika Bhattacharya, Verizon chief technology officer, who sits on the council, told Fierce Network.

"There's always a human in the loop because we think it's still early days that everything that we do with generative AI, we do have a human who is part of the process," she said.

### WHEN WILL AI AND AUTOMATION TOOLS OPERATE WITHOUT HUMANS?



# 7

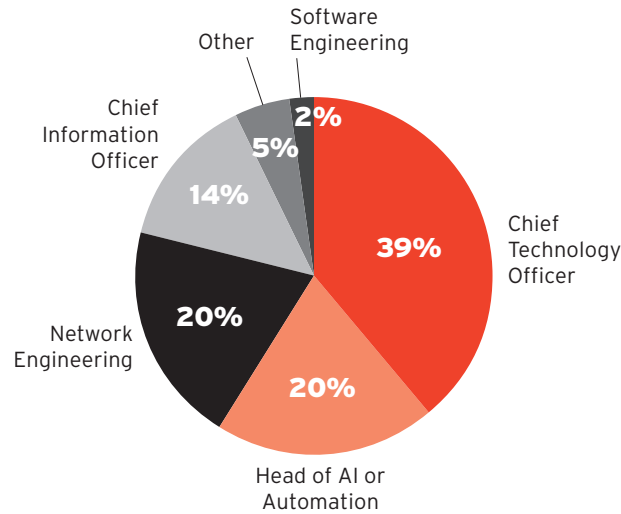
## HOW AI AND AUTOMATION IMPLEMENTATION DECISIONS GET MADE

**Ideally, decisions on implementing AI and automation should be made at all levels of the organization, because these are strategic technologies. C-level executives should review the technology's impact on the overall business and overall network. The head of AI or automation should vet the AI and automation elements, and network engineering and/or software engineering staff should ensure the technology is sound and impacts positively with the network and business software infrastructure.**

Instead, fewer than a quarter of CSP technology leaders who responded to our survey told us network engineering and software engineering were involved in AI and automation adoption decisions.

The chief technology officer (CTO) is most often cited as the individual who influences decisions regarding the adoption of AI and automation in telecommunications, for nearly two out of five respondents, followed by the head of AI or automation. The chief information officer was named as an influencer in just 14% of cases. (See chart: **Who influences AI and automation adoption decisions?**)

### WHO INFLUENCES AI AND AUTOMATION ADOPTION DECISIONS?



Lack of involvement by people with hands-on responsibility for implementing and operating the network – network engineering and software engineering – is a cause for concern, suggesting that implementation of AI and automation might prove problematic in practical details.

Limited involvement of technical teams could lead to decisions that overlook practical challenges and result in solutions that are difficult to implement and maintain.

To address this concern, CSPs should increase cross-functional collaboration, involving engineers more in the decision-making process. This ensures decisions are technically sound and aligned with operational realities. Empowering technical teams and establishing continuous feedback loops between strategic leaders and implementers can improve the adoption and success of AI and automation initiatives.



# CONCLUSION

## CSPS EMBRACE THE AUTOMATED, ARTIFICIALLY INTELLIGENT FUTURE

Our research reveals that the communications industry is on the cusp of a significant transformation driven by AI and automation. The overwhelming majority of CSP executives recognize the critical importance of these technologies for enhancing performance, reducing costs and increasing revenue. While some skepticism persists, in part due to concerns about integration challenges and the maturity of AI solutions, the commitment to adopting AI and automation is clear and robust.

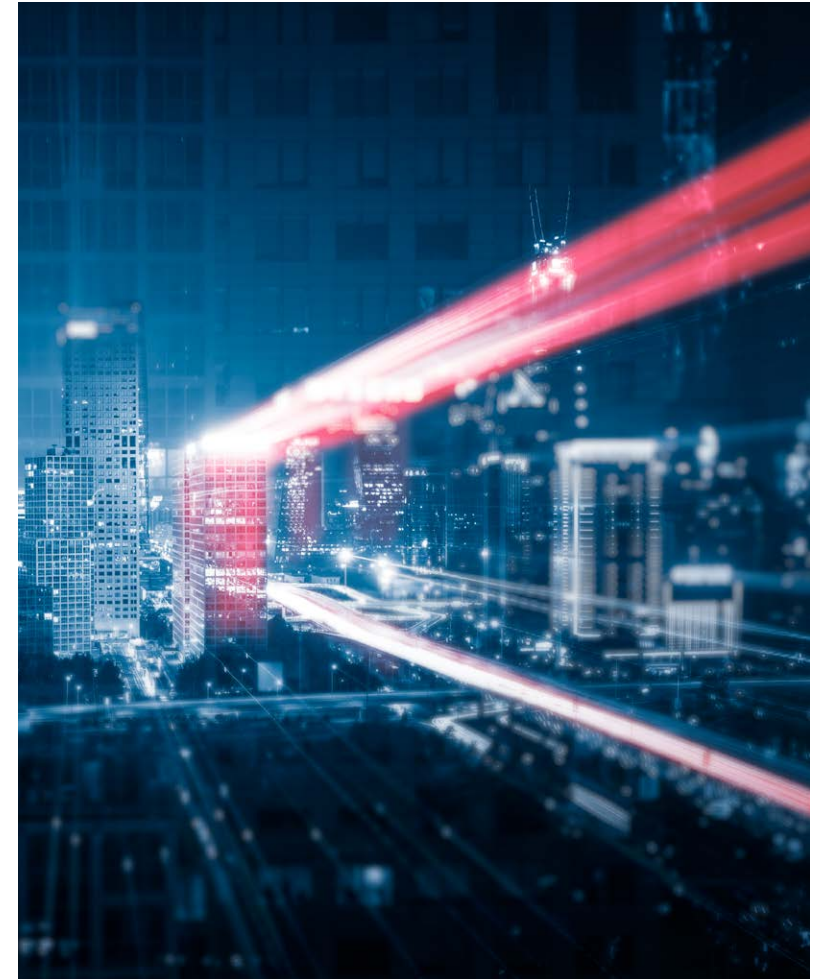
The insights gathered from our survey of 129 CSP executives highlight a rapidly evolving landscape where AI and automation are already making substantial impacts, particularly in network operations and customer experience. These technologies are not just theoretical concepts but are being actively integrated and prioritized within organizations, with significant investments expected in the coming years.

Despite the challenges, including a shortage of skilled professionals and data privacy concerns, the potential benefits of AI and automation are too significant to ignore. Improved customer satisfaction, reduced operating costs, and enhanced network reliability are just a few of the positive outcomes that CSPs are beginning to realize.

Furthermore, the competitive vendor market presents both challenges and opportunities. While dissatisfaction with current vendors is notable, there is ample room for innovation and leadership. CSPs are increasingly looking to establish partnerships with leading infrastructure and cloud services providers to create AI factories and sovereign clouds, underscoring the strategic importance of AI in the industry's future.

The career outlook within the industry remains optimistic, with many executives believing that AI and automation will create new job opportunities and transform existing roles rather than eliminate them. As we move forward, the ability of AI and automation to operate networks autonomously will be a key area of development, potentially reshaping the industry's workforce dynamics.

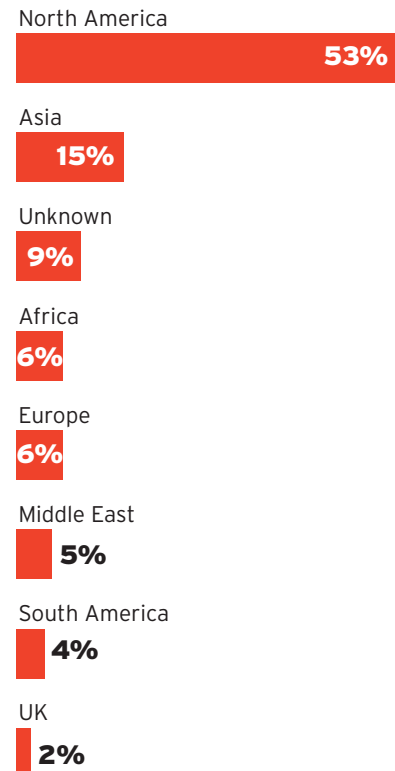
Overall, the telecommunications industry is poised for a transformative journey with AI and automation at its core. The proactive steps being taken by CSPs to embrace these technologies reflect a pragmatic approach focused on tangible business benefits, positioning the industry for a future of enhanced efficiency, innovation, and growth.



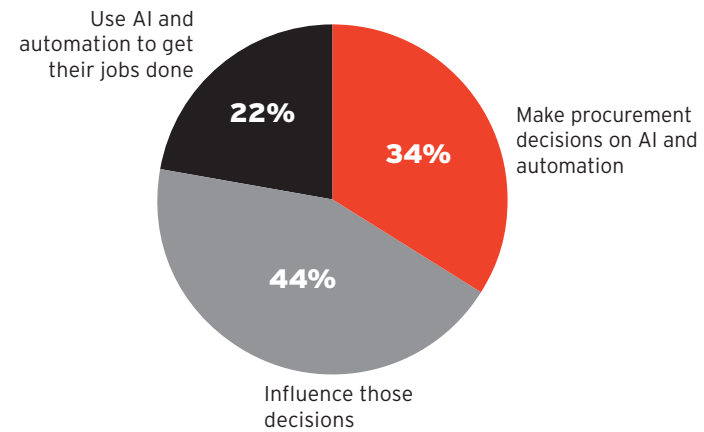
# RESEARCH DESIGN

Fierce Network conducted research online using Questex databases to reach 129 CSP executives from April 19 to May 7, 2024.

## % OF PARTICIPANTS BY LOCATION



## AI RESPONSIBILITIES





**Richard Fulwiler**  
Chief Solutions Architect  
Netscout

Fulwiler leverages almost three decades of technology experience in the telecom industry to his position in the CTO Office as a chief solutions architect at Netscout working closely with global customers and strategic partners on 5G, analytics and virtualization. Prior to moving to this role in 2016, Fulwiler spent three years as Vice President of Sales-EMEA for Tektronix Communications in their U.K. office. Before his international role, he served as Tektronix communications director of sales for the Americas since 2006. He also spent five years as the director of North American sales for Ixia and seven years as the director, North American sales for Tekelec.

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**It will take at least five to 10 years until the carrier network is seen as a 100% autonomous. Not saying that carriers move slow, but SS7 was a standardized in 1988 and still in use today.**  
”

—Richard Fulwiler, Chief Solutions Architect, Netscout

### **What are some of the operational and technical challenges that NETSCOUT is hearing from its customers working to implement AI and automation?**

Some of the common comments we hear include:

- The data needs to be real-time to drive the modern artificial intelligence operations (AIOps) pipeline for fast decision making
- We have massive volumes of network level data which takes a very long time to assemble and analyze
- Data is not always provided in an easy, consumable standard open format
- There isn't sufficient focus on application quality of experience, by subscriber, by service offering
- Lack of correlation of subscriber identification to data, service, and application that the subscriber is utilizing
- Lack of understanding how carrier network services are being utilized down to a subscriber or corporate enterprise level
- Inability to know how security issues are affecting the network and subscriber experience
- Inability to see the network as an end-to-end service provides only "piecemeal data"
- Lack of business intelligence – device and application behavior on the network

### **What steps should network operators take to improve innovation and differentiate using AI and automation?**

Network operators need to focus on use cases that can drive the largest business ROI. Let's not boil the ocean, but rather take on a few small wins by leveraging the network-level data at scale. Don't become overly enamored with the AI part and lose site of the critical network data that drives the AIOps engine. Understanding the use cases and data that are required is critical.

The leaner and more curated the data through the AIOps pipeline, the more efficient the AIOps engine. Taking network-level data for network data's sake, without a level of context of what the data means and its relationship to other network data collected, is like taking packet level data and piping it into a big data lake and expecting interesting outcomes to magically appear.

Well, we have all seen that movie multiple times and it always ends the same! Carriers end up utilizing numerous resources, both labor and hardware, without the expected results.

### **How is Netscout's approach to AI and automation unique?**

We believe that packet level data is the source of truth and provides what is really happening at any given instance of time within the carrier network, and that data needs that important refinement process just like gold from a mine.

Our approach is to provide our customers:

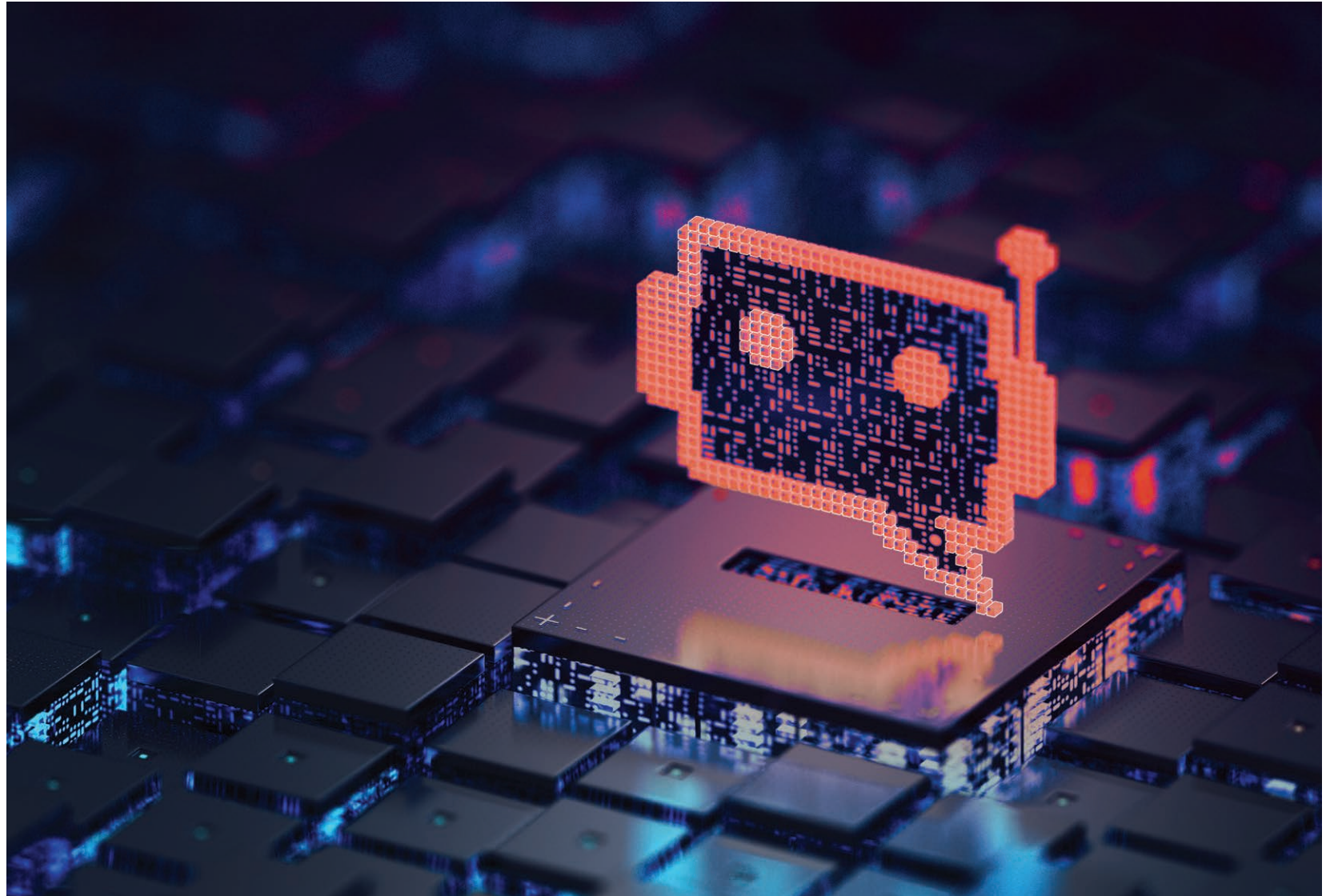
- Packet-level data that is universally available for 3G, 4G, VoLTE, standalone (SA) 5G, along with the trace port data from the radio access network (RAN) elements.
- Context to the network quality that is being provided to each subscriber – the who, what, when and where, along with network conditions that are affecting service quality.
- An end-to-end view, RAN-MEC-CORE visibility, all packaged together and available for consumption for the AIOps pipeline.
- Packaged pre-analysis logic into an intelligent outcome and sent to AIOps for processing with other data sets – keeping in mind that AIOps algorithms thrive on well-curated data. This allows them to generate more precise insights, leading to better anomaly detection, classification, and prediction tasks.

**What are some of the key trends you see in AI and automation that will guide Netscout's strategy in the coming year?**

We are just scratching the surface in how to leverage generative AI for carrier network trouble isolation and "digital butler" to drive real-time executive interaction with network-level data to produce actionable intelligence for more informed decisions and monetization use cases.

**Will AI and automation enable "smart clouds" – networks that operate themselves, without human intervention? If so, when and if not, why not?**

There will be a time when this will happen as we give more control over to the AI engines. However, it will be a trust-but-verify process that will take at least five to 10 more years to where the carrier network is seen as a 100% autonomous environment. Not saying that carriers move slow, but SS7 was a standardized in 1988 and still in use today.





**Bob Sacunas**

VP, Strategic Engagements, Telecom,  
UiPath

Sacunas is responsible for guiding and empowering telecommunications companies across North America to achieve transformative outcomes through AI and automation. He has over 20 years of experience in the telecommunications industry serving in diverse roles across numerous business units and disciplines including product, operations, technology and strategic development. He began his professional journey at Comcast, where he was one of the pioneering members of Comcast Business.

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**AI and automation can shift technology and process focus to more proactive solutions and this can significantly improve customer and network experience.**

”

—Bob Sacunas, VP, Strategic Engagements, Telecom, UiPath

### **What are some of the operational and technical challenges that UiPath is hearing from its customers working to implement AI and automation?**

Legacy Systems are a significant hurdle, which can constitute up to 60% of applications and tools in a telecommunications company. These older systems often lack the necessary APIs, keeping critical data inaccessible for real-time AI decision-making and action-taking. The lack of systems integration has resulted in siloed data that is inconsistent and inaccurate making it difficult to leverage for artificial intelligence (AI) and automation solutions.

In terms of governance and compliance, data privacy is a paramount concern due to the large volumes of customer data handled by telecom companies. The cloud-native nature of most AI solutions poses challenges for those companies that prefer to keep their data within their own ecosystems. Additionally, there is a need to address potential biases in AI models and establish robust governance and auditing procedures to ensure responsible AI usage and compliance with regulations. The technology advancement is outpacing the ability to develop internal processes for AI oversight leading to delays in the evaluation and approval of AI initiatives. Also, while human-in-the-loop processes are suggested for AI oversight, the industry often lacks the tools and resources for implementing such oversight at scale.

Lastly, there is a lack of skilled resources for AI and automation, as well as cultural resistance within organizations. The necessary skills for developing AI-powered automation are new, leading to a scarcity of qualified personnel. There may also be organizational resistance due to fears of job loss or distrust in new technologies.

These challenges require strategic planning, investment in new technologies and training, and a cultural shift towards embracing AI and automation to unlock their full potential.

### **What steps should network operators take to improve innovation and differentiate using AI and automation?**

To enhance innovation and stand out with AI and automation, network operators can adopt several strategies. Automating routine tasks is a key preliminary step, as it reallocates resources towards upskilling in AI and automation for more complex tasks. Investing in talent and training is equally important, with a focus on hiring or upskilling employees in AI and automation technologies to foster a culture of continuous learning and experimentation.

Emphasizing specialized AI solutions that deliver specific outcomes is also a good starting point and often more effective than attempting to apply AI across entire end-to-end workflows. For instance, specialized document

understanding models are successful in extracting data from documents for ERP or CRM system entry, and communications mining can read conversational text in emails or service tickets to extract critical intent, context and sentiment making this data available for automation activities.

Ultimately, AI and automation can shift technology and process focus to more proactive solutions, rather than reacting to issues as they arise, and this can significantly improve customer and network experience. Predictive analytics can be used to foresee network failures or congestion, allowing for preemptive action to maintain service quality. In the event of issues, automated communications keep customers informed, and personalized summaries or loyalty offers can be provided as follow-up. Predictive churn models built upon the vast amount of customer experience data that Telecommunications companies collect can be developed to help identify customers that are having sub-par experiences and trigger automations designed to get the customer back on the happy path.

By focusing on these areas, network operators will improve their operations and create a distinctive presence in the market through innovative use of AI and automation.

## How is UiPath's approach to AI and automation unique?

UiPath's approach to AI and automation is distinguished by its comprehensive capabilities that cater to both UI and API automation, allowing for the seamless integration of legacy and modern systems. The platform's ability to automate complex workflows end-to-end is facilitated by connectors that integrate with partner systems such as SAP, ServiceNow, Workday, Salesforce and Microsoft.

At the core of UiPath's uniqueness is the Intelligent Automation Platform, which combines AI's decision-making and predictive intelligence with RPA's ability to interact with disparate systems. This synergy enables the creation of powerful automations that can gather critical context and take action on AI outputs.

Moreover, UiPath ensures governance and trust in AI through its AI Trust Layer, which provides governance, control, and auditability to AI experiences. This layer includes features like PII, CPNI, and harmful content filtering, a secure LLM gateway, extensive audit logs, and transparency into the reasoning behind AI predictions.

The platform's extensive ecosystem is another standout feature, offering pre-built activities, specialized AI models for document understanding and communications mining, and a marketplace for sharing reusable components.

Lastly, UiPath's strong community and robust support system empower developers and users to contribute to the platform's growth and maximize the potential of their AI and automation projects. This collaborative environment is pivotal to the continuous evolution and success of UiPath's offerings.

## What are some of the key trends you see in AI and automation that will guide UiPath's strategy in the coming year?

One of the trends we see occurring more often is the combination of specialized AI and generative AI (GenAI) to enable more intricate automations. One example is in the handling of email queries and complaints, where specialized AI discerns crucial information such as intent, context, and sentiment from emails, and automation routes these insights for further processing. GenAI complements this by crafting responses for customers, which undergo a final human review before delivery to the customer. These solutions reduce handling and resolution times and expand the scope of customer engagement.

Another trend is the emergence of large action models (LAMs) that combine AI's analytical strengths with execution capabilities. LAMs build on the foundation created by large language models (LLMs) but expand their capabilities to include action. By combining LAMs with specialized AI tools, such as those that analyze processes

and tasks, and using APIs and RPA to perform actions, we can unlock new possibilities for automation and process orchestration.

Additionally, AI-powered test automation is revolutionizing testing by facilitating new approaches such as continuous testing and comprehensive audits. This innovation not only broadens the scope of testing but also embeds it seamlessly into the continuous delivery pipeline, enabling testing in domains once deemed impossible.

Finally, the democratization of AI and automation through platforms such as UiPath is rapidly expanding access to these technologies, paving the way for their ubiquitous use. Empowering individuals with varying technical expertise to both work alongside and to develop AI and automation is essential to unlock its full potential.

These trends collectively shape UiPath's vision, driving the creation of cutting-edge solutions that solidify its leadership in the dynamic landscape of AI and automation.

## Will AI and automation enable smart clouds – networks that operate themselves, without human intervention? If so, when and if not, why not?

Networks have been evolving toward greater intelligence for some time and I expect this trend will accelerate. However, the prospect of large network operators relinquishing control to AI for fully autonomous networks seems unlikely

in the near term, primarily due to their historical aversion to risk. Moreover, the orchestration of a telecommunications network is a complex endeavor, heavily reliant on IT and field engineers. This human element is integral and not easily replaced by virtual solutions.

Moving forward, we anticipate seeing progressive, incremental advancements. These will be shaped by the rate of AI innovation, modernization of outdated hardware, and a growing confidence stemming from controlled experimentation and proven successes. The trajectory of AI development is unpredictable, and while it's challenging to foresee exactly where we'll stand in a year, it's reasonable to assume that network upgrades and Telecom's risk appetite will follow a more predictable path, with fewer unexpected advancements.

We are already witnessing the integration of AI and automation in the network to drive predictive maintenance, forecasting capacity and construction needs, managing network congestion, and detecting and responding to cyber threats. Additionally, intelligent automation is revolutionizing network testing by accelerating the pace of network upgrades and enabling new continuous testing methods to boost reliability.

As these autonomous capabilities evolve and are incorporated with new AI technologies such as LAMs, networks will get ever smarter. These advancements will not eliminate the need for human oversight and intervention but will help networks keep pace with the ever-increasing demand and continue to serve as catalyst to technological advancement.





**Kevin Cochran**  
CMO  
Vultr

Kevin Cochran is a 25+ year pioneer of the digital experience space. He co-founded his first start-up, Interwoven, in 1996, pioneered open source content management at Alfresco in 2006, and built a global leader in digital experience management as CMO of Day Software and later Adobe. Cochran has also held senior executive positions at OpenText, Bloomreach, and SAP. Now at Vultr, he is now working to build Vultr's global brand presence as a leader in the independent Cloud platform market.

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**A human being is always going to be involved to ensure ethical outcomes and elimination of bias in any models deployed.**  
”

– Kevin Cochran, CMO, Vultr

**What are some of the operational and technical challenges that Vultr is hearing from its customers working to implement AI and automation?**

A key operational challenge we're hearing is the lack of global availability of GPUs for both training and inference. Global provisioning and utilization of GPUs in a containerized environment is hard to do – and cloud providers don't always make this easy. Additionally, there are obstacles around data operations and data security compliance to support AI initiatives.

**What steps should network operators take to improve innovation and differentiate using AI and automation?**

Network operations can differentiate by building core, trusted, AI models that can be made available on demand for their customers across business functions and verticals. Network operators can leverage a core cloud infrastructure provider like Vultr to provision the core global GPU and CPU infrastructure needed to enable operators to build bespoke AI-powered cloud services that can be delivered on demand and scaled on demand worldwide.

**How is Vultr's approach to AI and automation unique?**

Vultr is the first independent cloud platform to automate the end-to-end lifecycle of AI-native applications. First, we enable enterprises to deploy any GPU at any scale in any location for training, tuning, and inference with pre-built support for private container registries to store and mobilize assets through a CIDC pipeline. Second, we integrate AI engineering with cloud-native engineering to provide a single, secure, compliant control plane for managing the worldwide fleet of containers (models and applications artifacts) and compute resources (GPU and CPU) to power an AI-native app.

**What are some of the key trends you see in AI and automation that will guide Vultr's strategy in the coming year?**

One is the coupling of cloud native engineering pipelines to AI engineering pipelines. Second, the CISO is going to step in and start establishing guardrails and governance around how models are built and tested and how data is utilized to train and infer those models. Third, organizations are going to radically reinvent retrieval augmented generation (RAG) to reimagine all customer and employee-facing applications experiences.

**Will AI and automation enable "smart clouds"—networks that operate themselves, without human intervention? If so, when and if not, why not?**

The answer is yes and no. We will always drive to the asymptotic limit, even with AI. We will however get to the plateau of productivity. A human being however is always going to be involved to ensure ethical outcomes and elimination of bias in any models deployed. For example, in the provisioning of services by making certain that the services offered are equal regardless of a user's location or background (ie: democratizing access to GPUs and cloud services).



**Nikos Katinakis**  
CTO  
Zayo Group

Nikos Katinakis is Zayo's CTO, leveraging over 30 years of leadership experience in technology with a deep understanding of the telecommunication and software industries. Before joining Zayo, he was Group Executive for Global Networks and Technology at Telstra, where he spearheaded wireless, fixed, transport and international network strategy, deployment and operations, as well as IT, Data and AI, Cloud, and Cyber Security. Prior to his tenure at Telstra, Katinakis served as the EVP at Reliance Jio, the largest communications company in India, contributing to the launch of wireless and fixed networks. He also held positions at Rogers Communications in Canada and Ericsson.

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**We are concentrating on the most impactful processes for our customers, and we are embedding capabilities, such as AI, analytics and machine learning, into those processes from day one to ensure they are not an afterthought or just a tool that came along.**  
”

– Nikos Katinakis, CTO, Zayo Group

### What are some of the operational and technical challenges that Zayo Group is hearing from its customers working to implement AI and automation?

Several interesting challenges are emerging for companies implementing AI and automation in their core processes:

- **Business case:** It is not inexpensive to implement AI, after you factor in the data, training of models, additional network infrastructure and cloud charges, etc., that the enterprise needs to put in place. Having clarity on the problem you are trying to solve and the cost structure makes these decisions a lot easier. Several companies jumped in “because they need to be tech leaders.” These initiatives will die quickly as there is no definition of a problem to solve. Using AI to write your emails is most likely not worth the investment.
- **The pursuit of perfect data:** Data will never be perfect, so don’t start by stating that the first thing that needs to happen is to have perfect data. However, a lot of companies are finding out that there is a lack of clarity of where the source of each piece of data is – there are duplicate data sets, unclear rules as to which set is the master, etc. That is worth cleaning up before embarking on the AI journey.
- **Understanding the limitations:** Tools, AI engines, models, etc., will continue to evolve. AI models will become obsolete, or it will be discovered that they

have inherent biases that the enterprise may be uncomfortable with – make sure you are not stuck with a particular implementation.

- **Infrastructure to scale:** Challenges we hear from our hyperscale customers are focused on getting the underlying infrastructure in place to scale AI. The focus in the industry so far has been on chips and data center power, but we are seeing similar concerns and demand for network and fiber infrastructure connecting these new locations. Many of the locations where power is available are more remote and don’t have the same amount of available networks as a dense metro area. Accordingly, we are seeing increased interest and demand in remote locations that are proximate to our long-haul fiber network.

### What steps should network operators take to improve innovation and differentiate using AI and automation?

The long-term use cases for AI are exponential. Because of the rate this technology is growing, it will be hard to nail down what innovation and differentiation will look like in the next three years, or even one year.

In the short term, there are steps network operators should be taking to ensure they’re ready for whatever does come next.

For a network operator that is consumer-facing, the AI implemented in customer-facing processes must be

accurate. It is prudent to first test the AI capabilities as an assistant to a human to make sure that the customer is actually getting what they are looking for.

In B2B environments, it is a bit cleaner as it is more about automating the interfaces and adding intelligence. For example, improving the ordering process (including add/change/delete processes) for something that an enterprise has ordered is an area ready to be harvested, but it requires a lot of prep work by the network operator. This is where the differentiation will come between operators.

For us at Zayo, we’re taking a very pragmatic approach. Rather than focusing on new use cases and or user experiences, AI can be a great tool for making the things we already do today easier and more streamlined. This includes data collection and normalization, existing workflow automation, etc. Getting these things locked now will enable us to be more innovative and differentiate ourselves further in the future.

### How is Zayo Group’s approach to AI and automation unique?

Our approach at Zayo is to be thoughtful and methodical. We have identified 1) the processes that will have the biggest positive impact on our customers, 2) the internal preparatory work we need to do, and 3) a set of partners that can help us put the puzzle together. As we execute our plan, we must maintain clarity of what the objectives are:

We are not addressing every possible challenge out there. We are concentrating on the most impactful processes for our customers, and we are embedding capabilities such as AI, analytics, machine learning, etc., into those processes from day one to ensure they are not an afterthought or just a tool that came along.

**What are some of the key trends you see in AI and automation that will guide Zayo Group's strategy in the coming year?**

The AI landscape is constantly evolving, necessitating our flexibility to keep pace with these changes. We want to avoid committing to an AI model that fails to adapt to market shifts and the evolving needs of our business and customers. The most valuable asset we have is our data, which trains these models. Therefore, a key part of our strategy will involve continuously testing the validity of our models.

As AI capabilities enhance, the potential applications for our intelligence solutions expand. For instance, using real-time video to help field ops do their work correctly is hard today, it could become a standard practice as AI performance and intelligence improve.

**Will AI and automation enable "smart clouds"—networks that operate themselves, without human intervention? If so, when and if not, why not?**

It would be beautiful, in some sense, if networks could operate autonomously. The idea of fully autonomous networks, or "smart clouds," where systems operate without human intervention, is partially realized today. For example, cellular radio networks can adjust themselves by steering devices to different spectrum bands to manage congestion, or by shutting down underutilized cells during low traffic periods like overnight.

However, when considering the entire network – from applications down to the physical links like fiber, microwave, or satellite – complete automation faces significant challenges and costs. For instance, if a fiber path serving a location is severed, that site will go down no matter the level of automation. Implementing diverse paths can mitigate such risks, but it's often not financially feasible. Self-healing networks are partially possible today and are expected to advance further as software continues to evolve and understand the difference between different connectivity options.

The greater challenges in achieving full network automation often stem from commercial and financial factors rather than purely technical limitations. These commercial elements are

more difficult for AI to address and complicate the realization of fully autonomous networks. Although networks will continue to evolve toward greater self-healing capabilities, the vision of 'smart clouds' and complete autonomy is impeded by technological and economic obstacles, presenting a substantial challenge in this endeavor.

