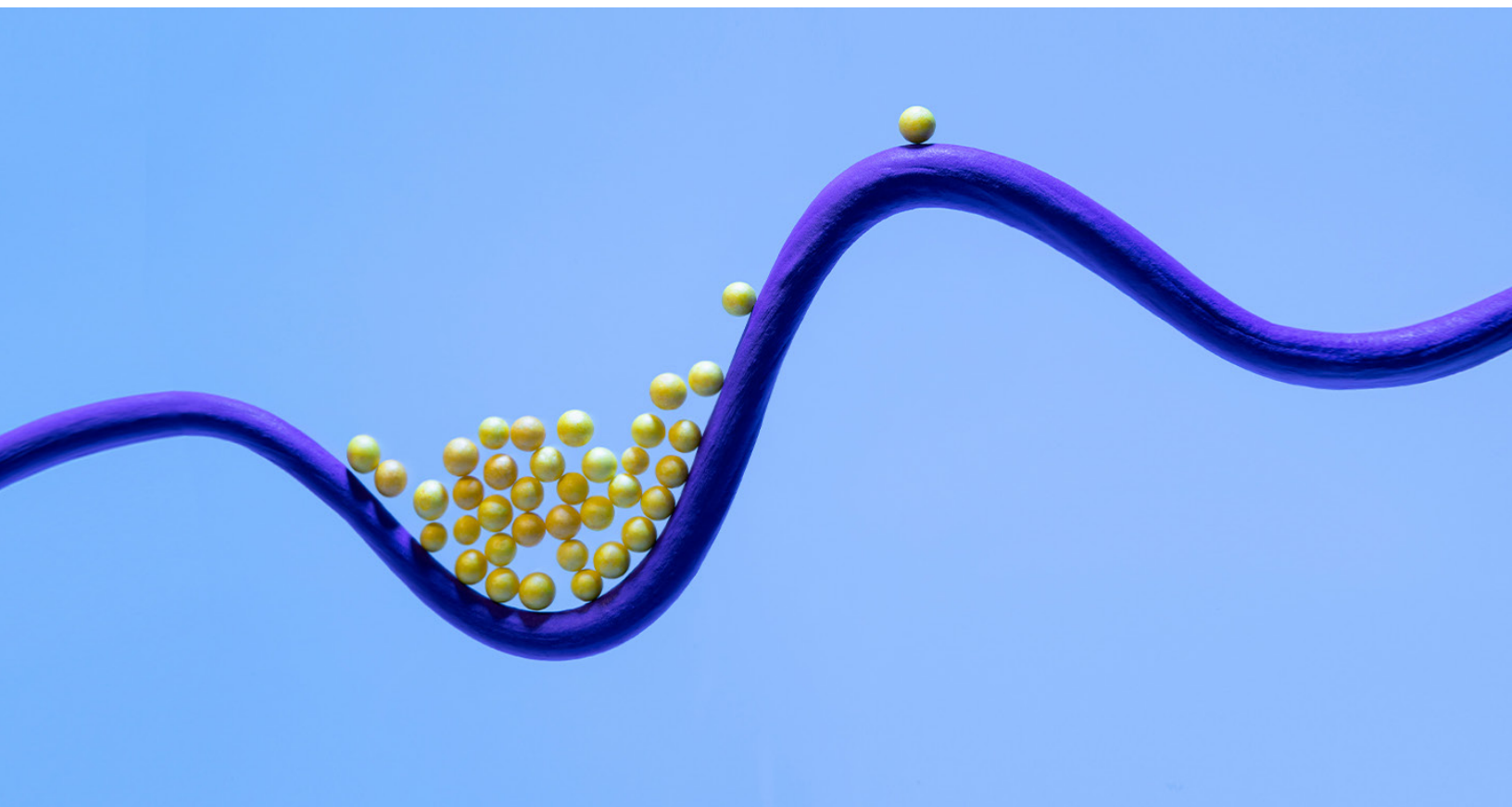


Technology, Media & Telecommunications

# The AI-native telco: Radical transformation to thrive in turbulent times

Artificial intelligence, when deployed at scale, can help telcos protect core revenues and drive margin growth. But capturing this opportunity will require a wholly different approach.

*This article is a collaborative effort by Joshan Abraham, Jorge Amar, Yuval Atsmon, Miguel Frade, and Tomás Lajous, representing views from McKinsey's Technology, Media & Telecommunications Practice.*



**Artificial intelligence (AI) is unlocking use cases** that are transforming industries across a wide swath of the world's economy. From infrastructure that "self-heals" to radically reimaged (and touchless) customer service and experience; from large scale hyper-personalization to automatically created marketing messages and images leveraging Generative AI tools like ChatGPT—it is all a reality today. These AI solutions can powerfully augment and sometimes radically outperform most traditional business roles.

The impact from these solutions is becoming evident. AI leaders—the top quintile of companies that have taken the McKinsey Analytics Quotient assessment—have experienced a five-year revenue CAGR that is 2.1 times higher than that of peers and a total return to shareholders that is 2.5 times larger.

Given the numerous challenges the telecom industry has faced in recent years, such as flagging revenues and ROIC, one might expect the industry would have already adopted a full transition to this technology. Yet, based on our experience with operators across the world, telcos have yet to fully embrace AI and an AI-focused mindset. Instead, models are developed once and not enhanced as the business context evolves. Machine learning (ML) is in name only, limiting the ability of the system to improve from experience. Most regrettably, AI investments are often not aligned with top-level management priorities; lacking that sponsorship, AI deployments stall, investment in technical talent withers, and the technology remains immature.

Contrast this disjointed state of affairs with an AI-native organization. Here, AI is viewed as a core competency that powers decision making across all departments and organization layers. AI investments are required to enable most C-level priorities such as more personalized recommendations for customers and faster speed of answer in call centers. Top executives serve as champions of critical AI initiatives. Data and AI capabilities are managed as products, built for scalability and reusability. AI product managers,

even those working on foundational products, are celebrated for the benefits they generate for the organization.

Reaching this state of AI maturity is no easy task, but it is certainly within the reach of telcos. Indeed, with all the pressures they face, embracing large-scale deployment of AI and transitioning to being AI-native organizations could be key to driving growth and renewal. Telcos that are starting to recognize this is nonnegotiable are scaling AI investments as the business impact generated by the technology materializes.

While isolated applications of the technology can help individual departments improve, it's AI connected holistically at all levels and departments that will be key to protecting core revenue and driving margin growth in even the most difficult of environments. Imagine the following not-so-distant scenarios:

- *Customer focused:* Sarah, a New Yorker, is a high average revenue per user (ARPU) customer. Aware that Sarah spends half of her phone usage time on fitness apps, the AI creates an enticing customized upgrade offer that includes a six-month credit applicable to her favorite fitness subscription and NYC-specific perks, such as a ticket to an upcoming concert sponsored by the operator. Knowing Sarah's high digital propensity<sup>1</sup>, the AI makes the offer available to her as a digital-only promotion.
- *Employee focused:* When Trevor, an associate in a telco mall store, logs in at the start of his shift, he receives a celebratory notification congratulating him on his high-quality interactions with customers the previous day. And because the AI detected that Trevor is underperforming peers in accessory and device protection attach rates, he receives a notification pointing him to coaching resources specifically created to enhance performance in those metrics.

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<sup>1</sup> Preference to transact and engage in digital channels, such as websites and mobile apps.

- *Infrastructure focused:* Lucile, director of a capital planning team, uses AI to inform highly targeted network investment decisions based on a granular understanding of customer-level network experience scores strongly correlated to commercial outcomes (for example, churn). The AI provides tactical recommendations of what and where to build based on where customers use the network and on automatically computed thresholds after which new investments have marginal impact on experience and commercial outcomes for the operator.

How these possibilities could become reality is critical to consider, especially given that most telcos currently deploy AI in limited ways that will not drive sustainable, at-scale success.

## Why now? The case for becoming AI native

Factors supporting this move for telcos include the following:

- *Increasing accessibility of leading AI technology:* AI-native organizations like Meta continue to grow the open-source ecosystem by making new programming languages, data sets, and algorithms widely available. In parallel, cloud providers have developed multiple quick-to-deploy machine-learning APIs like Google Cloud's Natural Language API. Generative AI solutions, such as ChatGPT, that are capable of creating engaging responses to human queries are also accessible through API. These two factors, coupled with dropping costs of data processing and storage, make AI increasingly easier for organizations to leverage.
- *Rapid explosion of usable data:* Operators can collect, structure, and use significantly more data directly than ever before. This information includes dataflows from individualized app usage patterns, site-specific customer experience scores, and what can be purchased or shared from partners or third parties. To answer privacy fears raised by consumers and regulators, telcos must also invest in building digital trust, including actively managing data privacy and having a robust cybersecurity strategy and a framework to guide ethical deployment of AI.
- *Proven use cases and outcomes:* AI-Native organizations across industries have deployed AI to achieve four critical outcomes highly relevant to operators across the world: 1) drive revenue protection and growth through personalization, 2) transform the cost structure, 3) enable a frictionless customer experience, and 4) meet new workplace demands. Operators can learn from all of them. Streaming players, for example, have long been known for providing highly curated personalized content recommendations based on past user behavior. To optimize cost and deliver a seamless customer experience, one of the leading US insurance companies leverages AI assistants to reduce and even eliminate human interactions for users to obtain coverage or cancel policies with other carriers. In turn, some of the leading tech companies in the world are known for using AI to highlight the traits of great managers and high performing teams and use those insights to train company leaders.
- *Technology investments recognized as a business driver:* In a post-pandemic world, there is broad consensus among investors and executives that technology investments are not a mere cost center but a fundamental business driver with profound impacts on the bottom line. Despite prospects of economic turmoil and recessionary fears, IT spending is expected to increase by more than 5 percent in 2023, with technology leaders under growing pressure to demonstrate impact on company financials.<sup>2</sup>
- *Operator bets need hyper charging:* As networks and products converge, operators are making bets on becoming cost and efficiency focused, experience-centric, or ecosystem players. AI use cases that are more relevant for each bet can give them a better chance to hypercharge and leapfrog competition.

For the greatest payoff, this shift requires telcos to embrace the concept of the AI-native

<sup>2</sup> "2023 CIO and Technology Executive Survey," Gartner, October 18, 2022.

organization—a structure where the technology is deeply embedded across the fabric of the entire enterprise.

### **Using AI to reimagine the core business**

Telcos have been under relentless pressure over the past decade as traditional growth drivers eroded and economic value increasingly shifted to tech companies. By using AI to its fullest extent, operators can protect their core business from further erosion while improving margins.

As the industry looks to leverage the power of AI, we see six themes gaining prevalence in strategic agendas based on our experience working with telcos across the world.

#### **Hyper-personalize and architect sales and engagement**

Leveraging the breadth and depth of user-level data at their disposal, operators have been increasingly investing in AI-enabled personalization and channel steering.

For example, a hyper-personalized plan and device recommendation for each line holder could leverage granular behavioral data—such as number of and engagement with apps installed and device feature usage—to create individualized plan recommendations (superior network speed or streaming service add-ons), promos (“Receive unlimited prepaid data to be used for a music streaming service for only \$5 per month”), and messaging for specific devices, locations, and events (“Upgrade to the latest device featuring built-in VR”). Subsequently, using audience segmentation tools, customers can be guided to channels that offer an engaging experience while driving the most profitable sales outcome for the telco. A subscriber, for example, with low-digital propensity<sup>3</sup>, high ARPU, and high churn risk who is living within a few miles of a store, might be a good candidate to nudge to a device upgrade in-store, leading to better customer experience and potentially stronger loyalty for the operator. Or consider a different scenario: this subscriber uses an advanced 5G network in New York

City and is a regular user of fitness apps who travels frequently outside the country. As a result, her telco offers a personalized plan recommendation with superior network access, top fitness app subscription perks, and an attractive international data plan.

*Case study: An Asia–Pacific operator that launched a comprehensive customer value management transformation powered by AI (with personalization at the core) achieved a more than 10 percent reduction in customer churn and a 20 percent uptake in cross-sell.*

#### **Reimagine proactive service**

Earlier investments in digital infrastructure combined with predictive and prescriptive AI capabilities enable operators to develop a personalized service experience based on autonomous resolution and proactive outreach.

With fully autonomous resolution, for example, the system can predict and resolve potential sources of customer dissatisfaction before they are even encountered. After noticing a customer is accruing roaming charges while traveling abroad, the AI system automatically applies the optimal roaming package to her monthly bill to minimize charges. It then follows up with a personalized bill explanation detailing the package optimization and resulting savings for the customer, leading to a surprising and positive CX moment.

Operators are also exploring the redesign of digital service journeys with the help of AI assistants serving as digital concierges. Generative AI technologies, including tools such as ChatGPT, have the potential to enhance existing bots through better understanding of more complex customer intents, more empathetic conversations, and better summarization capabilities (For example, when a bot needs to handover a customer interaction to a human rep). A single unified AI assistant will likely also represent a step change in speed, accuracy, and engagement compared to the interactive voice response systems of today.

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<sup>3</sup> Someone who prefers to transact in, and use, assisted channels, such as retail stores and call centers.

An AI-powered service organization is a key ingredient to releasing the full capacity of specialized reps for high-value interactions while improving overall customer experience—one of the key battlegrounds for telcos around the world.

*Case study: A leading telco is expected to achieve an approximately 10 percent decrease in device troubleshooting calls, powered by a proactive AI engine that considers the customer's likelihood of calling and issue severity to decide whether to push the most effective resolution via SMS. This proactive engine is also a key element of the operator's ambition to have the highest customer satisfaction scores among competitors.*

### **Build the store of the future**

In retail, AI is leading a revolution in the design and running of stores by streamlining operations and elevating the consumer experience.

Some telcos already use virtual retail assistants displayed on floor screens to conduct multiple transactions with customers, including adding balance to a prepaid account and selling prepaid cards and TV subscriptions. A leading European telco leverages AI tools for delivering more-accurate device grading and trade-ins in the store.

The store of the near future includes the following components:

- *Front of house:* Aisle layout and product placement are optimized based on browsing patterns analyzed by machine vision. Digital signage is made relevant to individual customers who are in-store and identified through biometric or geofencing technology. Interactive kiosks serve up personalized promos, service assistance, and wait-time forecasts. Customers are matched with reps who are given nudges with personalized info likely to spark the best interaction and lead to a truly seamless customer experience.
- *Back of house:* Device SKUs are automatically managed to optimize inventory and sales. Stores stock curated assortments based on local preferences surfaced in sales analytics. AI tools such as computer-vision-based grading allows for immediate price guarantees on devices that are traded in.

- *Outside:* Consumers walking near the store receive text or push notifications with a personalized promotion and an invitation to check the product in-store.

*Case study: An Asian telco launched a 5G virtual retail assistant in unmanned pop-up stores. The digital human communicates with customers in a personal and friendly way with engaging facial expressions and body language. She supports customers across multiple transactions, from buying prepaid cards to getting SIM card replacements.*

### **Deploy a self-healing, self-optimizing network**

The AI-native telco will leverage technology to optimize decision making across the network life cycle stages, from planning and building to running and operating. In the planning and building stages, for example, AI can be used to prioritize site-level capacity investments based on granular data, such as customer-level network experience scores.

In the running and operating phases, AI can prioritize the dispatching of emergency crews based on potential revenue loss or impact on customer experience. AI can also enable a self-healing network, which automatically fixes faults—for example, auto-switching customers from one carrier frequency to another because the former was expected to become clogged. This frees up engineering resources for higher-value-added activities.

*Case study: A telecom operator developed an AI-based customer network experience “score” to improve its understanding of how customers perceive their network and to inform network deployment decisions. The AI engine leveraged granular network-level information for every line (eg, signal strength, throughput) with an ML model to create the score tailored to each customer's individual network experience and expectations. The operator used the score, which directly correlated with impact metrics such as customer churn or network care tickets, to monitor network performance trending (how the score fluctuated in different regions), to identify opportunities to refine its buildout plan, and to improve how it managed its customer base.*

### Improve frontline productivity

The AI-native telco also uses AI-enabled tools to optimize workforce planning and coaching of frontline employees across multiple teams, including field force, customer service, and retail associates.

For workforce planning, AI tools enhance traditional applications by forecasting across supply-and-demand metrics for monthly, daily, and intraday time horizons with higher accuracy, more granularity, and full automation. Smart scheduling matches supply with demand, such as reps needed in a call center during particularly busy periods, to meet service level targets as well as customers' expectations.

Acting as an intelligent coaching manager, an AI-enabled nudge engine provides personalized celebratory and improvement opportunity nudges to employees and their supervisors (Exhibit 1). Coupled with advancements in Generative AI, the impact of the AI nudge-engine might go even further by, for example, simulating customer responses under different scenarios to train reps.

*Case study: A telco operator deployed an AI-enabled scheduling and coaching solution for technicians servicing copper and fiber customers. Resulting efficiency gains included 10 to 20 percent capacity generation and improved customer satisfaction scores.*

### Power intelligent internal operations

AI-powered insights will enhance decision making across business functions, beyond the automation of standardized or low-complexity tasks. In finance, for example, AI can flag outlier invoices for further inspection, while on the accounts receivable side it can predict customers likely to default, triggering mitigating actions. In HR, AI can help flag employees with high attrition or absenteeism risk and the respective drivers while also helping identify informal influencers who can lead change management efforts. Generative AI solutions can help with the development of product marketing copy, the synthesis of customer feedback for research purposes or even enable business users to write simple code to quickly adjust IT applications.







Overall, involving AI in decision making and execution results in higher speed and consistency. Its benefits can be felt everywhere, from contract management and supplier search to onboarding and IT maintenance.

*Case study: A UK-based transportation company deployed AI to identify the main drivers of employee attrition and absenteeism. The company then developed targeted interventions for each of the drivers with an estimated 20 to 25 percent reduction in sick pay and attrition costs.*

Exhibit 1

## The 'AI-native' telco leverages AI to provide tailored coaching recommendations both to reps and supervisors.

### Illustrative call-center example

	Before customer interaction	During customer interaction	After customer interaction
<b>Reps</b>	 <p><b>Before each call, AI provides insights/tips</b> based off customer profile and reminds rep of best practices</p>	 <p><b>During call, AI assists rep</b> with suggested key phrases and next best action (NBA) to resolve issue</p>	 <p><b>At End of Week, AI generates</b> report with insights on rep's performance and suggested coaching resources</p>
<b>Supervisors</b>	 <p><b>At the start of the day, AI predicts issues team may face</b> and suggests resources to share in morning huddle</p>	 <p><b>AI notifies supervisors of live calls that require attention</b> with key insights on customer sentiment</p>	 <p><b>At End of Week, AI summarizes</b> team and agent-level performance insights and suggested coaching resources</p>



## Success factors of AI-native transformation

The *what* of envisioning being AI native is the relatively easier part of this journey; the *how* of making the possibilities reality is the tougher challenge. Working on multiyear projects with operators across the world, we've identified critical best practices in three areas that are the hallmarks of a successful AI-native transformation: building AI, managing it, and driving its adoption.

### Building AI best practices

Developing transformative AI requires a carefully-calibrated approach that follows these core guidelines:

- Build core AI capabilities in a modular fashion and with reusability in mind, with the potential to be deployed across multiple contexts in the operator. A core forecasting engine, for instance, can be deployed both in a call center and in a retail setting. This will drive higher

ROI for AI investments by decreasing time to deploy and preventing duplication of work.

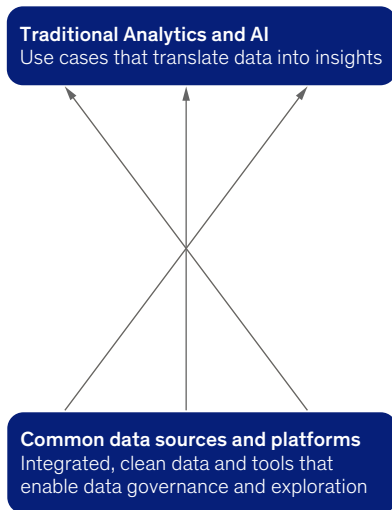
- Tightly integrate AI capabilities with one another based on a model architecture approach that interconnects different AI models to maximize value generation and promote reusability. For example, a digital propensity model will be built as a core model that becomes an input into multiple customer-facing models.
- Use digital twins as the foundation for all AI. Digital twins—virtual representations of a physical asset, person, or process with a data product at its core—are the key to unlocking reusable AI. The data in a digital twin is intentionally structured and modeled to enable easy, reusable consumption and governance across needs, and to serve as the single source of truth for all models (Exhibit 2).

Exhibit 2

## Digital twins create a single source of truth ('build once, use many times') that speeds up time to market of AI use cases.

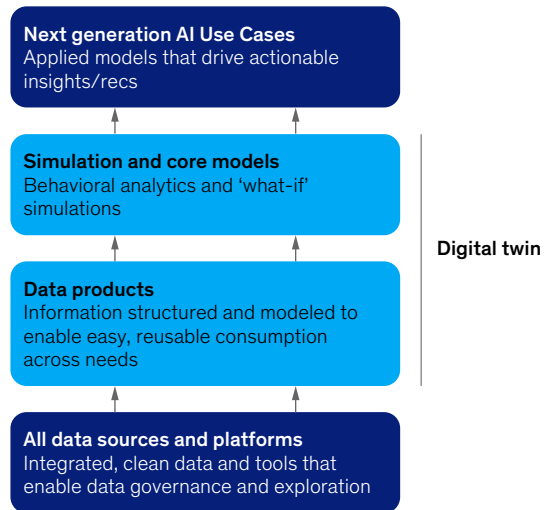
### How do digital twins affect the deployment of AI?

**From:**  
every use case curating data for its own needs



Data consumers tap directly into the data platform, creating use case-specific data assets. This is reactive and inefficient.

**To:**  
one-time curating effort that is leveraged by all use cases



Digital twins meet multiple use cases' needs and are constantly evolved. This drives reuse and ensures alignment to value creation.

- Implement machine learning operations (MLOps) best practices to shorten the analytics development life cycle and increase model stability. MLOps typically involve automating the integration and deployment of code underlying AI capabilities.
- Rethink the tech talent strategy holistically. Without a deep bench of engineering talent, an AI-native ambition will remain a mirage. Employers should consider expanding their sourcing net to a wider range of universities and learning environments. It's also critical to improve conditions that developers work under, because developer experience is a top factor in determining an employer's attractiveness.<sup>4</sup> Constraints on which programming languages and cloud providers' tools can be used, for example, can have meaningful impact on a developer's decision to recruit for and stay with an organization, as well as on the developer's productivity. Because tech talent needs are multifaceted, operators should launch a comprehensive list of initiatives across the employee life cycle.

### Managing AI best practices

Maintaining and improving AI capabilities depends on an experimental, iterative mindset focused squarely on product and tech innovation.

- Treat AI capabilities as true products by assigning dedicated product managers to oversee them. PMs act as translators between the technical and business teams and are mandated to own the product continuously and develop opportunities to improve it. They ensure that it's never built as a onetime solution.
- Set up AI labs for fast experimentation. Dedicated teams of PMs and data scientists or engineers are granted expedited approval to experiment with new models, test for feasibility, and validate business value before scaling.
- Refresh the AI tech stack at least annually to take advantage of new developments. In

recent years, there have been significant enhancements in tooling that drastically transformed AI workflows.

- Speed up IT and Data Modernization efforts (the complexity of which often slows down AI transformations) by leveraging reference architectures that have been road-tested in multiple transformations across industries. Moreover, build the target cloud-native data architecture following an iterative approach, focused on enhancing the components required for the priority AI use cases first (e.g., data streaming might be key to unlock fraud detection use cases).

### Driving AI adoption best practices

Taking a comprehensive approach focused on both what goes into and comes out of models is critical for fostering growing usage of AI:

- Ensure AI solutions are considered trustworthy AI, including dimensions such as model explainability, accountability for the outcomes of AI models, and technical robustness.
- Make change management a day one focus. Operators need to involve end users of AI-enabled insights through all the stages of the model development life cycle and invest in formal and informal capability building. Operators will also need to take a hard look at replacing and revamping existing processes as well as management practices and roles to be centered around AI.

### Next steps toward building the AI-native telco

In many industries, companies have used AI to make their operations more efficient, drive material enhancements in customer experience, and ultimately used it to bring innovative products and services to market more quickly. Operators can learn from these industries and invest in AI to improve their competitiveness in

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<sup>4</sup> David Gibson, "New data: What developers look for in future job opportunities," *Stack Overflow*, December 7, 2021.



the coming years of economic uncertainty and competitive turmoil. Many operators have already started to do so.

Organizations that talk about adopting AI but move at a slow pace, hoping that a few innovation projects developed at the fringes of the organization and in silos that will come together to create a snowball effect to holistically change how technology informs business decision making, are likely to fail.

Ultimately, the biggest drivers of AI adoption will be CEO-level sponsorship and full executive alignment throughout the AI-native transformation. The art of the possible with the technology has long surpassed what companies have been able to absorb. Without active support from the top level to proactively address organizational inertia, communicate an engaging

change story, model new behavior, promote capability building, and make commitments on the required long-term technological investments, AI-native transformation efforts will not succeed.

The journey to becoming AI native will require operators to create a strategic vision and road map that excites and mobilizes the organization, build priority AI capabilities to gain momentum, and bring everyone together to ensure operating model and change management are set up to drive adoption. Embracing large-scale AI deployment across the organization will follow.

The journey is long and requires commitment, but operators that embrace the path to becoming AI native are more likely to emerge as leaders in the next horizon of transformation.

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