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Technology, Media & Telecommunications Practice

Scaling the AI-native telco

With telcos aiming to integrate AI throughout their organizations, here's how they can unlock the full potential while positioning themselves for the next wave of innovation.

This article is a collaborative effort by Benjamim Vieira, Guilherme Cruz, Ignacio Ferrero, Joshan Cherian Abraham, and Tomas Lajous, with Borja Belda and Eric Parsonnet, representing views from McKinsey's Technology, Media & Telecommunications Practice.

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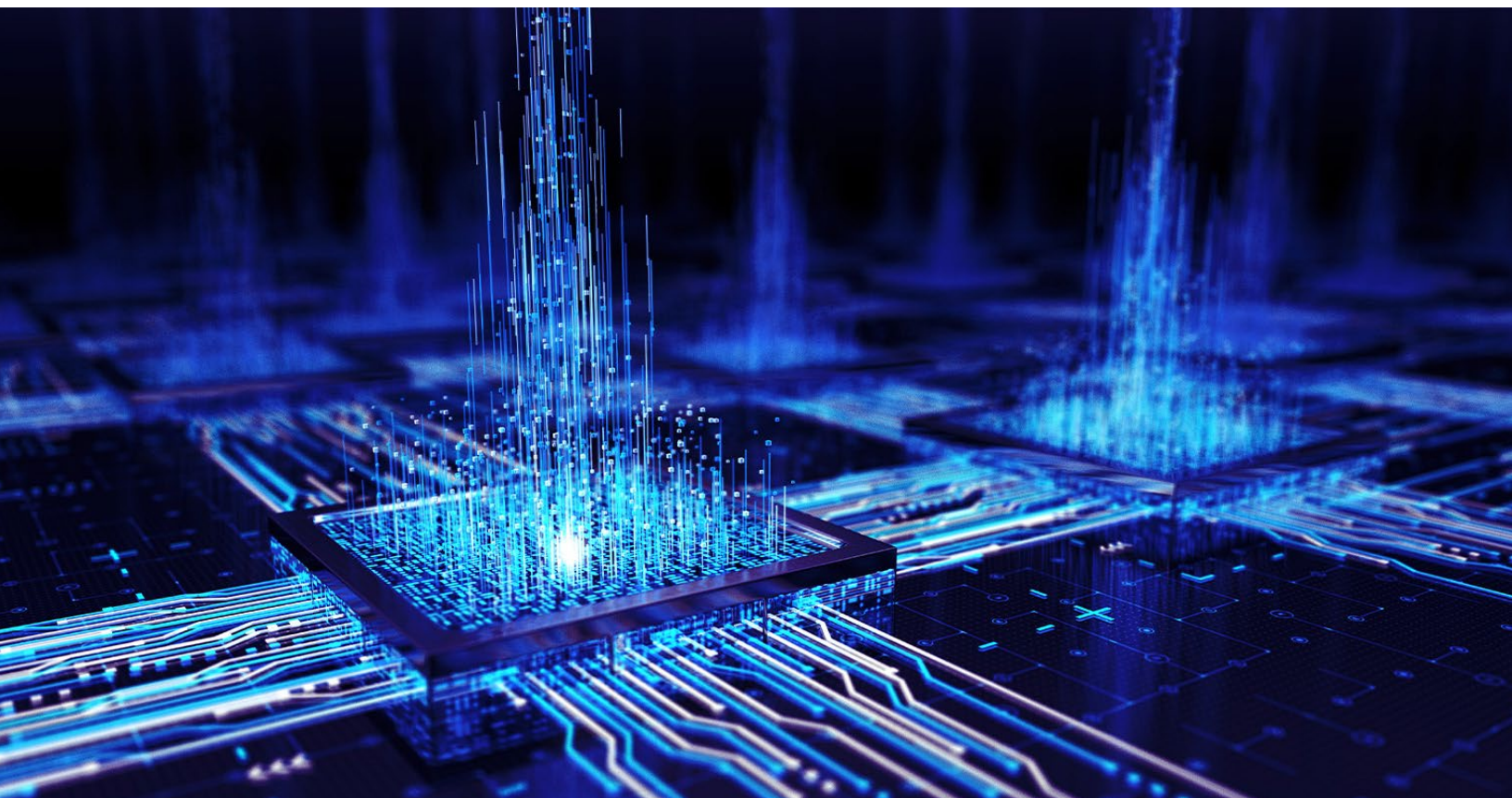
Two years ago, with the introduction of ChatGPT sparking a surge of optimism about the transformative power of artificial intelligence in business, we heralded the rise of the "AI-native" telco. These would be organizations where "AI is viewed as a core competency that powers decision making across all departments and organization layers," where "top executives serve as champions of critical AI initiatives," and where "data and AI capabilities are managed as products, built for scalability and reusability." The opportunity, we argued, was threefold: AI for core operations, AI as a service, and AI for the consumer. And the prize for getting it right was huge.

When we published that analysis, only a few telco operators had fully embraced AI as a priority and adopted an AI-focused mindset designed to scale the technology. Two years later, by contrast, nearly all telco operators are investing in and capturing benefits from the technology—and a few are moving toward doing it at scale. Our most recent survey of C-level executives at telcos finds that about 50 percent are "currently capturing impact from AI/gen AI," compared with some 25 percent in our last survey a year ago. Some early adopters already are reporting significant results, using AI to drive significant cost reductions in select functions and leveraging the technology as a catalyst for growth and customer experience improvements through features like hyper-personalization. For example, one North American telco used AI to harness granular insights on customer experiences on its network— insights that helped it optimize network capital by about 10 percent. A leading European telco used gen AI to accelerate its hyper-personalization efforts for upselling, achieving a 5 to 15 percent increase in average revenue per user (ARPU), depending on customer segment. Yet another telco deployed an AI-driven help desk bot that led to a 35 percent reduction in cost per call and a 60 percent higher customer resolution rate.

These results make it clear that the question of whether AI will create value has been replaced with a slew of new questions: How can companies prepare themselves to capitalize on the next frontier of innovation, particularly regarding agentic AI, a new innovation that promises more seamless workflow redesign and scalability? What is the best way to scale the technology to generate organization-wide value? How can enterprises best integrate "traditional" AI and machine-learning tools with newer gen AI capabilities? And how can operators drive adoption and change behaviors? (Related questions about how telcos can capture a bigger role in the AI value chain and create new services and business models are addressed in a separate article.)

Most telcos already are grappling with these questions: 64 percent of respondents to our recent C-suite survey say they are focused on scaling AI and that they are working to capture impact across the enterprise, aiming for a 10 to 15 percent improvement in EBITDA (Exhibit 1). This will not be easy. But moving slowly or clinging to a wait-and-see attitude is simply not an option. As the recent furor surrounding DeepSeek shows, the pace of innovation is accelerating rapidly, which is forcing business leaders to move faster as well. At the same time, rapid innovation requires organizations to be smarter, ensuring they build the proper data architectures, risk management guardrails, and change management practices.

Fortunately, we've learned a lot over the past two years. In this article, we outline the opportunity from the next frontier, highlighting the key questions organizations must address and sharing our learnings to date. Think of it as a playbook to help telcos get the most out of AI in 2025.

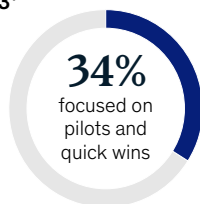## What is AI's next frontier, and how do we prepare for it?

Some 61 percent of C-level executives say they consider AI to be a "blockbuster technology that will transform the industry." One of the key
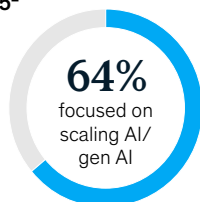
Exhibit 1

Anticipating major cost savings, telco operators are shifting their focus to scaling their AI/gen AI efforts.
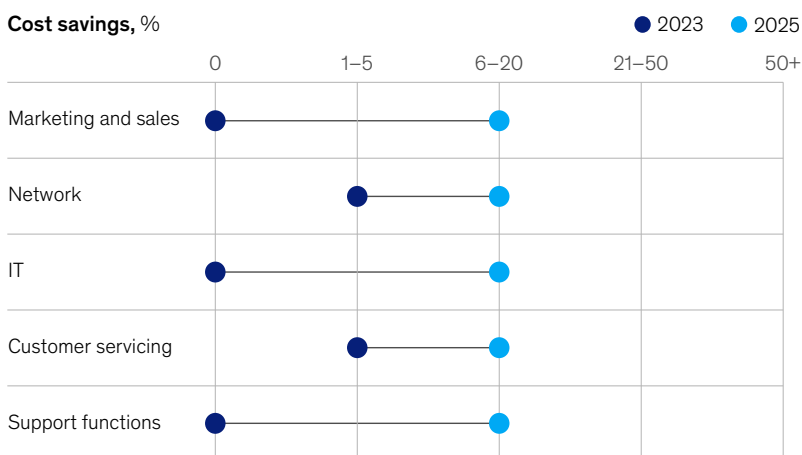
Primary focus

2023[1]

34% focused on pilots and quick wins

2025[2]

64% focused on scaling AI/ gen AI

Estimated impact on cost savings, by function, most common response

Cost savings, %   ● 2023   ● 2025

	0	1–5	6–20	21–50	50+
Marketing and sales	●		●		
Network		●	●		
IT	●		●		
Customer servicing		●	●		
Support functions	●		●		

[1]GenAI CxO Survey 2023 (n = 130).
[2]GenAI CxO Survey 2025 (n = 52).

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drivers of that transformation is the introduction of AI agents (or agentic AI), a technology with the potential to supercharge the already considerable promises of gen AI (Exhibit 2).

While agents remain nascent, telcos already are exploring and deploying the technology, spurred in part by releases from leading tech players (for example, Salesforce's Agentforce). Nearly 42 percent of executives identify scaling agentic use cases across functions as a priority for 2025— notably in customer service, where about 75 percent of executives aim to use the technology. The fundamentals for scaling and realizing impact from AI agents remain largely the same as scaling more "traditional" AI, as discussed later in this article. In particular, the design of agents will need to be driven by close collaboration between subject-matter experts and gen AI practitioners to

clearly define the business problems, reasoning, and tasks that can be offloaded to AI agents.

While agentic AI will support the automation of existing workflows that are driven by humans, such as the creation of a summary after a customer interaction, the technology also can be the basis for new workflows and processes, which could include an AI agent capable of reading prior call transcripts, identifying potential opportunities to upsell, and automatically alerting an outbound call center team. Combined with more traditional tools like robotic process automation (RPA), AI agents could unlock a significantly higher level of automation within telcos. In our survey, 52 percent of executives say they are using or planning to use AI agents to improve existing workflow automation efforts in areas including energy optimization, financial planning, and software development.

Exhibit 2

Gen AI agents are software entities that simulate human behavior.

Gen AI agent capabilities

	Perceive external environment	Gather information through text, image, video, and audio sources, as well as input from upstream/downstream systems
	Make decisions, plan, and execute	Create and implement action plan based on human inputs, breaking the plan into smaller tasks until each is executed
	Use tools	Autonomously utilize tools[1] (eg, RAG,[2] APIs, web browsing, machine learning models, code execution) to process data and integrate with existing systems
	Learn and improve	Create feedback loop to iterate outputs then codify recipes

Agents differ from co-pilots by executing tasks with minimal human input.
In contrast, humans collaborate with a co-pilot throughout the task.

[1]For example, through function-calling, a mechanism that enables agents to connect with external tools and systems. It involves generating an output string that invokes a JSON structure, allowing for explicit calls to tools with fixed parameter.
[2]Retrieval augmented generation.

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AI agents for telcos will likely take on a variety of forms:

— *Simple reflex agents* could take action based on preset rules similar to current next-best-action systems (for instance, sending a bill shock notification to users who are approaching their monthly data limits).

— *Utility-based agents* might be able to independently consider several options and act accordingly. An AI agent for email, for example, might choose whether to automatically reply to an unhappy customer or to draft an email for a service rep to send, depending on the tone and severity of the inbound email.

— *Goal-based agents* could make decisions to achieve specific goals. For example, a recommender agent might suggest upsell offers

to customers based on data usage patterns and revenue goals.

— *Hierarchical agents* could break complex tasks into manageable subtasks, allowing for more organized control and decision making. An example could be an agent designed to create financial reports, which first breaks the task into research and content generation.

— *Multi-agent systems* could be capable of combining multiple autonomous agents working independently and/or cooperatively to achieve a collective goal. The system could, for example, function as a centralized employee assistant capable of driving multiple network-related tasks, such as answering queries, providing recommendations, and auto-completing notes following a site visit.

For telcos that execute on the opportunity, this could be a game changer. Imagine, for instance, a fully realized AI-native telco in which agents augment humans or autonomously execute end-to-end workflows. Here's an example of what that might look like in B2B sales (Exhibit 3):
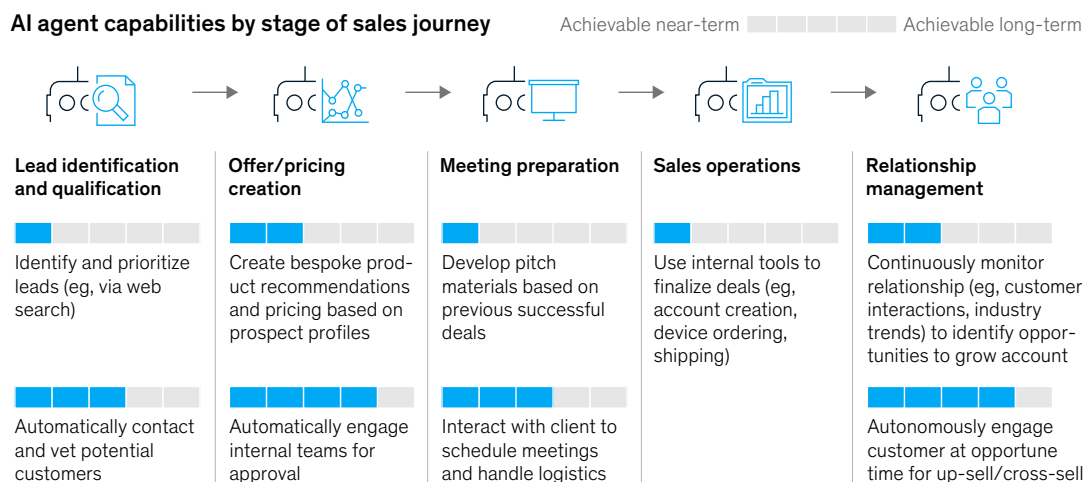
A sales rep turns to the agentic system with open-ended request: "Help me find leads to pursue this week." The system springs into action, with the following steps. First, a research AI agent identifies and prioritizes prospects (determining which, if any, can be handled without any rep intervention) and makes initial contact on behalf of the rep. Second, the agent creates bespoke product recommendations and pricing based on prospects' profiles, autonomously validating with finance. Third, the agent schedules meetings and generates pitch materials for reps, autonomously negotiating lower-value deals. Fourth, the deal is finalized via automated sales ops, such as risk approvals, ordering, and shipping. And fifth, an agent autonomously finds and develops opportunities to further capitalize on the relationship. This kind of automation, heretofore only a fantasy, allows reps to focus on critical client conversations, leading to higher conversion rates, higher sales volumes, and lower overhead costs.

While the common focus with agentic systems tends to be on efficiency gains, AI agents offer much more potential. One telco company is developing an agentic system capable of handling requests related to its network—for example, immediately understanding root causes of network issues and proactively raising potential upcoming issues. This innovation is not just about reaching a solution faster; it's about achieving a better solution where the AI agent acts as both a thought partner and a creator. Additionally, agents can augment transformation teams at telcos and support them in identifying opportunities for impact. They can help drive "one-off" complex and time-consuming analyses (for instance, the optimization of real estate costs at central offices across hundreds of locations.) Agents also can support the assessment and reimagining of business processes – by analyzing, say, documentation on workflows and interviews with subject-matter experts to recommend new, streamlined processes.

Exhibit 3

AI agents could assist across various stages of the sales journey.

AI agent capabilities by stage of sales journey   Achievable near-term ▮▮▮▮▮ Achievable long-term

Lead identification and qualification	Offer/pricing creation	Meeting preparation	Sales operations	Relationship management
Identify and prioritize leads (eg, via web search)	Create bespoke product recommendations and pricing based on prospect profiles	Develop pitch materials based on previous successful deals	Use internal tools to finalize deals (eg, account creation, device ordering, shipping)	Continuously monitor relationship (eg, customer interactions, industry trends) to identify opportunities to grow account
Automatically contact and vet potential customers	Automatically engage internal teams for approval	Interact with client to schedule meetings and handle logistics		Autonomously engage customer at opportune time for up-sell/cross-sell

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Agents are not the only way AI is driving a new wave of creativity and innovation. Already, we are seeing telcos deploying AI not just to boost efficiency but also to develop new features for existing products and create entirely new offerings. A Latin American telco is adding a new gen-AI-enabled service for its B2B customers that offers hyper-personalized messaging capabilities on its B2B messaging platform to enable the management of SMS, email, and WhatsApp messaging; early results have shown a click-through rate of more than 40 percent. Another operator is building a new gen AI software-as-a-service (SaaS) offering that enables the generation, submission, and distribution of electronic tax documents. Some telcos are exploring new ways to upgrade their mobile and home plan offerings by bundling credits for large language model (LLM) providers or providing exclusive access to premium AI capabilities through their partners.

Other telcos are doubling down on enabling the infrastructure to power AI, from connecting new data centers with high-capacity links to offering enterprises more intelligent networks (for example, with latency-based routing and high elasticity) and enabling distributed computing. One Asian operator is moving beyond the connectivity infrastructure and into AI as a service by providing B2B customers a proprietary AI platform to support machine-learning training and inferencing at the edge for AI workloads.

With innovations such as these, leading-edge telcos stand to become a fundamental backbone of the AI economy.

What does it mean to scale AI across the enterprise?

To capitalize on these kinds of future developments, telcos must successfully build the capabilities to scale AI throughout their organizations. We think of scaling as the ability to deploy multiple interconnected AI/gen AI use cases among thousands of employees or hundreds of thousands of customers in a cost-effective manner.

For organizations that are large and complex, this is a difficult task that often proceeds in a series of fits and starts, advances and setbacks. One large organization, for example, deployed a use case for a gen-AI-based IT developer copilot, experiencing initial productivity gains of 25 percent to 40 percent—only to see those gains quickly fall to less than 5 percent, with limited financial impact. Why the drop-off? It turned out that the early adopters in the pilot were more enthusiastic than the rank-and-file users when the program was rolled out throughout the organization. Managers also cited poor communication between tech developers and business teams, incomplete or inconsistent data foundations, and limited change management to drive adoption. Situations like this are hardly unusual; commonly reported inhibitors to scaling include the absence of a shared vision and operating model between development and business/user teams.

Based on our work supporting leading telcos around the globe and through conversations with C-level executives, we have synthesized seven key elements that organizations must get right to scale impact. Think of it as a "scaling framework" for success.

1. Target domains and end-to-end persona workflows for transformational impact

While individual use cases can demonstrate potential and generate excitement, very rarely do they drive meaningful impact. A gen AI use case to automatically create personalized customer messages, for example, won't do much to mitigate high levels of churn. But when a leading telco combined multiple related use cases—an AI-based audiencing tool, a unified churn model, a real-time proactive decisioning/NBX (next best action) tool, and an automated multivariate testing model—into a single solution, it transformed an entire end-to-end workflow. That operator now boasts the least churn in its country of operation.

That organization succeeded because it took a domain view, reimagining a set of critical workflows and persona experiences and developing a set of use cases to work in conjunction to make it happen. In another example, an Americas-based telco expects to reap up to $100 million in productivity gains from a set of AI use cases to support all network operation personas across their most common tasks. Targeting core KPIs like overtime pay, customer experience, average handling time for ticket/dispatch, and upskilling time for new employees, the telco performed a granular mapping of each persona's "day in the life" to ensure the tools' required functionality and capabilities. Not only is this approach transforming workflows today, but the process also collected valuable data and learnings to inform the transition to autonomous networks in the future.

2. Build a scalable, modular AI platform

Many large telcos have seen a proliferation of AI teams, each running its own pilots and experiments. The result: Multiple teams are developing AI use cases in silos, without sharing technology or best practices with one another. At one telco, for instance, the customer care team was developing its own knowledge management use case, unaware the network operations team was pursuing a project leveraging a similar retrieval augmented generation (RAG) architecture. But while unleashing an array of unrelated use cases may be an effective way to drive creativity and drive enthusiasm for AI, it may not be the best way to scale the technology to generate meaningful value.

Leading organizations instead are developing centralized AI platforms that can serve as repositories of proven and maintained AI/gen AI modules, APIs, tools, and code snippets that have been vetted and deemed safe for consumption and use across the organization. This platform approach helps drive quicker implementation of successful use cases while maintaining consistent guardrails and leveraging proven architectures and use-case "recipes"

(Exhibit 4). What's more, such a modular platform allows for easy plug-and-play usage, meaning you can be ready to leverage new innovations, such as cheaper models like DeepSeek, that may emerge.

By building a gen AI platform of about 50 reusable services, one North American telco successfully reduced the time it took to build new use cases from months to about two weeks while ensuring that all similar use cases used similar architectures and that all best practices/learnings were shared to a common repository. Without this kind of centralized repository, by contrast, use cases are slow to generate business value as developers experiment on their own. The siloing of efforts also has the potential to introduce risk.

Two key components of an effective AI platform are a machine-learning ops capability and an AI financial operations capability. The first ensures the organization can continually track and drive improvement for AI use cases deployed to production; the second ensures it can continually measure and optimize the total cost of running an AI solution.

3. Implement adequate data foundations

Thirty percent of the executives we surveyed cite limitations in their data as a core inhibitor of impact at scale. Perhaps more important, 45 percent say data is the core inhibitor they foresee for scaling AI agents. Scaling gen AI requires new discipline in consolidating and managing data. That's because any AI/gen AI solution is only as good as the data it accesses.

Especially with gen AI, the ability to manage unstructured and structured data together is critical, requiring operators to reconcile years and even decades of contracts, annotations, and technical blueprints that have previously been dispersed across the organization. This is especially critical in the context of B2B, wireline, and network settings, which contain legacy and complex business agreements and documents.

One of the key breakthroughs of gen AI is its ability to rapidly analyze and draw insights from "unstructured" data, like contracts, transcripts, and surveys.

Multiple use cases of centralized gen AI platform, illustrative

Blueprints
Common set of gen AI "recipes"

Insight extraction	Knowledge management (chat)	Document generation	…

Insight-extraction use cases[1]
Targeted implementation to solve business problems

- Call center transcripts
- Sales contracts
- Real estate contracts
- Regulatory documents
- Customer sentiment

Components
Collection of approved, maintained, and interoperable code components

Data ingestion	OCR[2] readers	Unstructured data	Splitters chunking	
	Structured data	LLM-based parsers	Table parser	
Data retrieval and storage	Reranking	Vector store adaptors	Object store adaptors	
	Multi-stage retrieval	Metadata-store adaptors		
Processing and generation	Embedding generation	Text to image generation	Chat summarization	Local and cloud LLM providers
	Sketch-to-image	Summary/ doc generation	Metadata filtering	
Advanced functionality	Multi agents library	Tools (eg, web search)	RAG:[3] regular and multimodal	Evaluation
	Chat	Capability specific prompts	Prompt optimizer	
Security and management	Authentication	Authentication	Guardrails	

[1]Non-exhaustive.
[2]Optical character recognition.
[3]Retrieval augmented generation.

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Gen AI copilots draw on large volumes of data to provide real-time help to users with sales, customer service, technical troubleshooting, and more.

Multiple use cases of centralized gen AI platform, illustrative

Blueprints
Common set of gen AI "recipes"

Insight extraction	Knowledge management (chat)	Document generation	…

Knowledge management (chat) use cases[1]
Targeted implementation to solve business problems

- Network tech co-pilot
- Sales rep co-pilot
- Customer care co-pilot
- HR chatbot
- Customer care chatbot

Components
Collection of approved, maintained, and interoperable code components

Data ingestion	OCR[2] readers	Unstructured data	Splitters chunking	
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[1]Non-exhaustive.
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Exhibit 4c

Gen AI tools also can help users create new documents—RFPs, customer emails, sales-pitch materials, and the like.

Multiple use cases of centralized gen AI platform, illustrative

Blueprints
Common set of gen AI "recipes"

Insight extraction	Knowledge management (chat)	Document generation	…

Document generation use cases[1]
Targeted implementation to solve business problems

- Request-for-proposal response
- Email authoring
- Sales account planning
- Sales pitch materials
- Hyper-personalized marketing

Components
Collection of approved, maintained, and interoperable code components

Data ingestion	OCR[2] readers	Unstructured data	Splitters chunking	
	Structured data	LLM-based parsers	Table parser	
Data retrieval and storage	Reranking	Vector store adaptors	Object store adaptors	
	Multi-stage retrieval	Metadata-store adaptors		
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	Sketch-to-image	Summary/ doc generation	Metadata filtering	
Advanced functionality	Multi agents library	Tools (eg, web search)	RAG:[3] regular and multimodal	Evaluation
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Security and management	Authentication	Authentication	Guardrails	

[1]Non-exhaustive.
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At the same time, investing in the core foundations for data remains just as important. While some telcos were early movers in transforming their data capabilities and developing data products and digital twins of key domains like network and call center, most have only started to use the impetus of gen AI to transform their data infrastructures into more modern hybrid lakehouse architectures with structured data products that allow for curated and reusable data across use cases.

4. Drive adoption with best-in-class change management

Telcos are complex organizations with a large number of varied roles—especially frontline roles like call center reps, network technicians, and retail store employees. What's more, telco employees tend to stay in their roles longer—an average of 7.5 years, almost double the tenure in other industries, according to the US Department of Labor. An unintended consequence of these factors can

be a high degree of organizational inertia when it comes to embracing new tools and ways of operating. In one case, a telco developed an AI-based field support tool to drive efficiency, only to see field techs refuse to use it.

To scale AI, it is essential for telcos to develop and execute a comprehensive change management strategy to ensure widespread adoption of new technologies and processes across the organization. At the macro level, it should start at the top, with CEO-led communication on the importance of reimagining the organization through AI, coupled with targeted AI proficiency programs to highlight the benefits and allay the fears of change. At the micro level, change management plans should be built into the design of the AI use cases from the outset; adoption should be a critical part of the development life cycle, rather than being treated as an afterthought. Engagement plans should be built in close collaboration with frontline employees and managers who will be the ultimate users of the tools. With the field support tool in the previous paragraph, for example, managers were able to regroup and drive adoption by adding features for explainability, incentivizing more tenured technicians to use the tool, and encouraging managers to ask about tool usage in one-to-one check-ins. In another example, an operator launched sprints, typically consisting of two to four weeks during which business and tech teams met nearly daily to hash out detailed AI use cases. Only through these sprints were they able to build solutions that were sufficiently backed by users to drive adoption.

5. Develop an AI operating model and talent strategy
One of the key inhibitors to scaling AI solutions is the complexity of the stakeholders involved, including, for example, development teams, CIO/IT teams, product managers, end users, and business-unit leaders. About 85 percent of operators we surveyed say the primary decisions about AI strategy, use case development, and foundational infrastructure take place among different teams. Especially pervasive has been a disconnect between AI development teams and

the business unit leaders, which has resulted in missed opportunities for business-backed features. Another disconnect occurs between AI development teams and CIO/IT teams, especially when it comes to embedding AI solutions into existing systems.

Overcoming such disconnects requires organizations to implement a joint governance cadence between technology and business teams, to prioritize AI solutions and maintain alignment with business goals. This is not just about setting up a cross-functional gen AI center of excellence, which many telcos have done. Telcos must consider how to revamp their existing processes, such as decision making, budget allocation, and intake management, by setting up a governance model that brings together all stakeholders at different levels. Organizations also must invest in AI-focused skills, both by hiring new employees (especially data engineers, data scientists, and AI product managers) and by retraining existing talent across different parts of the organization.

6. Establish a strong AI partnership ecosystem
While many telco operators have relatively advanced IT organizations, it is difficult to keep up with the rapid pace of AI's evolution. Yet most telcos tend to consider large software and tech players, including AI-focused players, to be "vendors" rather than "partners." This is a missed opportunity. Telcos would be wise to take a page from the software industry and curate an ecosystem of trusted partners that can offer support with accelerating use cases. A hyperscaler partner, for example, could augment a telco's own data science and developer teams, as well as help create telco-specific AI capabilities. Telco-specific data, for example, has not necessarily been included in the training sets of some popular foundation models, which could inhibit the next frontier of use cases.

To ensure adequate control over partnerships, operators should avoid engaging in numerous low-impact collaborations and instead link with partners that can add distinctive value and align with the company's unique assets. These ecosystems also can extend beyond technology

partners to include service partners, research laboratories, educational institutions, and even other telcos in noncompeting regions.

7. Manage risks and ensure regulatory adherence

While AI can have significant impact, it is critical to ensure that usage and deployment efforts account for ethical and regulatory factors. Telcos must seek to avoid biases in outputs—both customer and employee facing—by implementing robust guidelines in use cases like customer sentiment analysis, employee performance assessment, and hyper-personalization. While operators already face significant regulatory oversight regarding the use of proprietary data, telcos will need to establish clear information security guardrails and a responsible AI framework that builds trust in AI-driven services to ensure that all AI-generated output meets quality and safety standards and that there are robust data governance and privacy measures to protect consumer data.

This cannot be an afterthought. In fact, responsible AI has the potential to unlock a huge source of differentiation. The rich data sets that telcos

have access to can be leveraged and monetized through AI—but only if customers, employees and regulators trust that the data is being used safely and responsibly.

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While the impact and value of AI are already evident, it's important to remember that we are only at the beginning of the AI revolution. The potential extends beyond operational efficiency to re-accelerating growth and reimagining products, offerings, and business models. As technology evolves, operators must be prepared to evolve alongside it, with the structures and practices in place to meet the moment, whether they are pursuing incremental improvements, such as cheaper models and better performance, or outright reinvention and paradigm shifting, as with AI agents. It is critical for C-level executives to ask, "Am I set up to truly scale AI and capture the full value potential?" The rewards of doing so can be immense, and the competitive pain of not doing so stands to be equally large.

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