



TELECOMMUNICATIONS & DIGITAL INFRASTRUCTURE

THE TELCO AI VALUE PARADOX

THE PROBLEM: THE GAP BETWEEN AI INVESTMENT AND ENTERPRISE VALUE

Many telecommunications companies have reached the same point: significant investment in AI but still waiting on ROI. Organizations are running a dozen AI-related pilots that never leave the lab, while executives continue searching for scalable operational impact. For these telcos, ambition with AI is not the problem. The real challenge is closing the gap between fragmented, often contradictory data and clear business insight.

Closing the data-to-insight gap needed to successfully deploy AI is especially difficult for telcos. Networks evolve hourly, customers expect zero latency and zero friction, and business operations cannot wait for a clean data model or perfectly rationalized system. Other challenges—including vendor sprawl, data silos, and legacy system complexity—further inhibit the ability of telcos to drive AI results.

Telecom data is inherently complex and fragmented across hundreds of systems, applications, databases, and legacy platforms such as Loop Facility Assignment Control System (LFACS) and Trunks Integrated Record Keeping System (TIRKS), often with uneven quality, security, and accessibility. This makes it difficult for operations teams and executives to gain a clear view of the business, slowing decision-making, complicating automation, and weakening planning. Even when analytics platforms consolidate massive volumes of data, they often struggle to separate the signals that matter from the background noise.

Executive decision-making suffers because of the data-to-insight gap: silos and application sprawl cause slow, inconsistent decisions across major functions such as planning, assurance, care, and finance, while duplicate analyses, frequent escalations, and exception handling consume scarce expert time. The result is often a reactive posture where issues are discovered only after the customer impact or cost overruns have already happened.

At the same time, “digital-native” companies are already reshaping customer expectations through AI-enabled personalization, predictive recommendations, and increasingly automated operations. Amazon continuously refines cross-selling and recommendation journeys, while Uber anticipates customer behavior through contextual prompts and predictive workflows. These experiences are increasingly defining what customers expect from digital engagement.

In this rapidly evolving context, how do telcos successfully move from pilots to enterprise production, and where should they place the next dollar for maximum impact? The answer for operationalizing AI confidently and capturing value fast lies in stronger operational and data foundations. Generative AI tools based on large language models (LLMs) can unlock natural-language access and powerful summarization across telco data, but only if the underlying data inputs are trustworthy and governed.

The paradox of AI value for telcos is that the messiest, highest-risk domains are often where disciplined preparation enables the biggest and fastest AI-driven gains.

This article examines four practical questions:



What successful AI value creation looks like in telcos, and where it is most likely to emerge first



Why many AI initiatives fail to move beyond the pilot stage, and what leaders can learn from stalled efforts



Which data, workflow, and OSS/BSS barriers most often prevent telcos from capturing value at scale



How executives can take a pragmatic, enterprise-scale approach to AI deployment, and the business risks of moving too slowly, including higher costs, weaker customer experience, and lost competitive ground

THE FOUNDATION: CLOSING THE DATA-TO-INSIGHT GAP

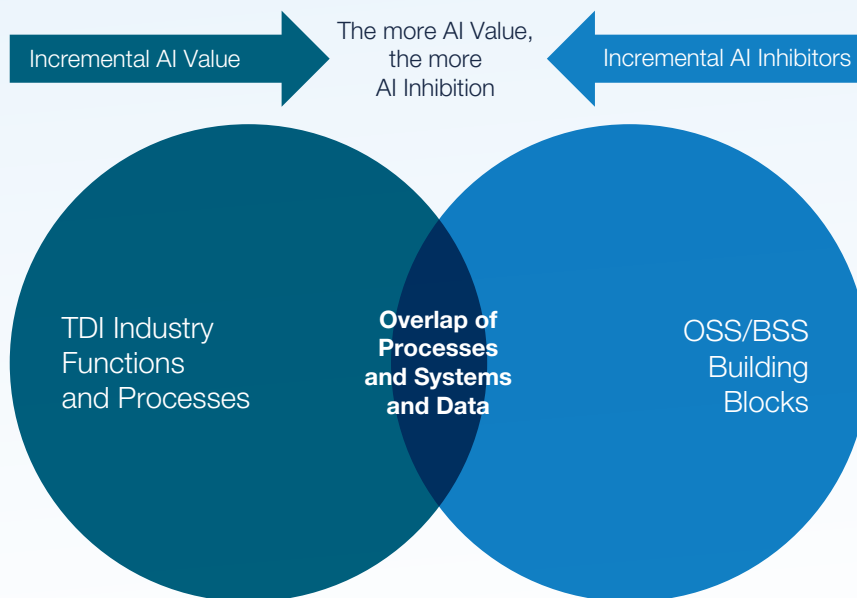
Automation through traditional machine learning (ML) and AI, including LLMs, is already delivering measurable benefits for many digital-native enterprises. Predictive user interfaces, recommendation engines and ‘next-best-offer’, self-healing operations, active cybersecurity, and online care are showing success driving customer engagement and gaining efficiency. The common thread behind these successes is that digital-native companies have spent years carefully collecting, organizing, managing, and mining their core customer and operations data. As a result, providing clean, accessible data for AI training and automation is far less difficult.

Telcos start from a much more challenging position. Years of operating complex, highly regulated, and regionally tailored physical networks—often with several generations of technology operating side-by-side—have created a significant data problem. Providing access for AI and ML process automation is difficult given the range of interfaces, identifiers, data types, access controls, usage restrictions, and existing systems.

In telcos, successful AI deployment is increasingly practical and outcome-driven. In EMEA, operators appear to be making strong progress in customer-facing use cases such as hyper-personalization, next-best-offer recommendations, and AI-supported upsell journeys, often with measurable ARPU uplift as a visible outcome. In the Asia-Pacific region, momentum is visible in network operations, where predictive maintenance, fault detection, and more proactive assurance are helping reduce operating expense and improve service performance. The regional picture is not absolute, but together these examples show that AI in telco is already starting to deliver both revenue growth and cost reduction.

This leads to the central **Telco AI value paradox**: the domains that would most benefit from automation are often the same domains with the least accessible data, highest complexity and greatest potential error risk. **Illustration 1** shows how AI opportunity and operational complexity increasingly converge within the same operational domains. The highest-value opportunities are often concentrated in environments with fragmented systems, inconsistent workflows, and difficult data conditions, which helps explain why many pilots struggle to scale beyond isolated use cases. The core challenge lies not in AI itself, but in AI deployment. Successful projects must bridge from proof of concept to enterprise-scale execution on strong operational and data foundations. If those foundations are not solid, projects will stall or collapse.

Illustration 1: The Paradox of AI value in the Telecoms, Digital Infra Industry



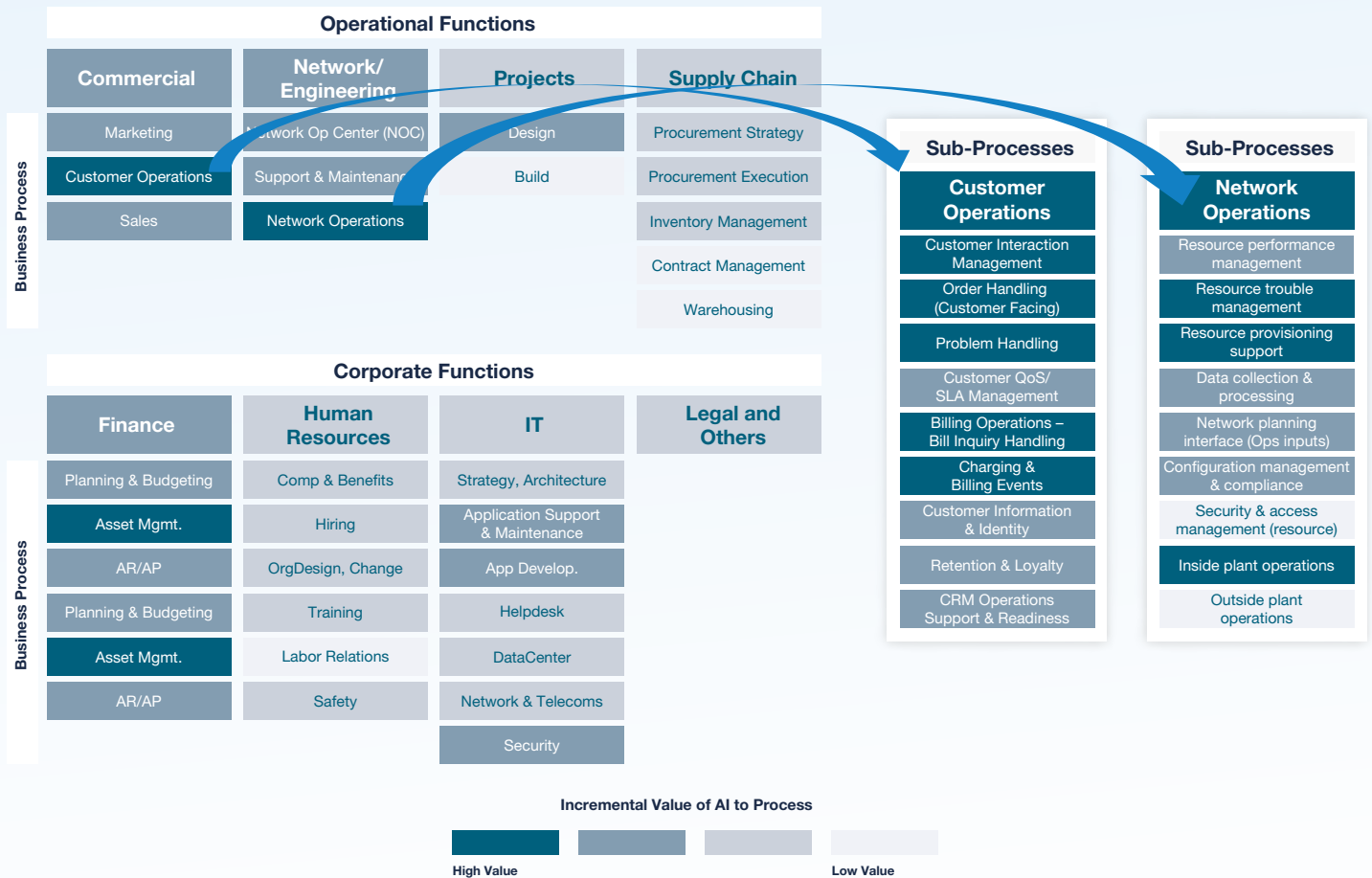
Systematically evaluating each telco process and sub-process for AI value, then mapping that potential against the underlying data and systems environment, reveals both opportunities and gaps. Undiscovered or ignored issues around data quality and accessibility often explain stalled pilots and uneven outcomes.

Our analysis suggests that the majority of near-term AI opportunity in telco sits in two major areas:

- Commercial functions, spanning customer-facing operations such as interaction management and billing events; and
- Network and engineering functions, spanning network operations such as trouble management and provisioning support.

These two areas also align closely with telco’s largest pools of trapped value. In commercial functions, customer care—especially billing-related interactions—often drives both avoidable cost and customer dissatisfaction, while better personalization and recommendation can improve ARPU, revenue conversion, and customer satisfaction scores (CSATs). In network and engineering functions, truck rolls and field service consume significant labor, asset, and time costs. AI can improve fault detection, prioritization, and crew deployment to reduce operating expense and improve efficiency. **Illustration 2** maps where AI value creation is most likely to emerge across key operational domains, particularly where operational cost and customer experience pressures are already concentrated.¹

Illustration 2: Telecommunications Industry Processes – Incremental Value of AI

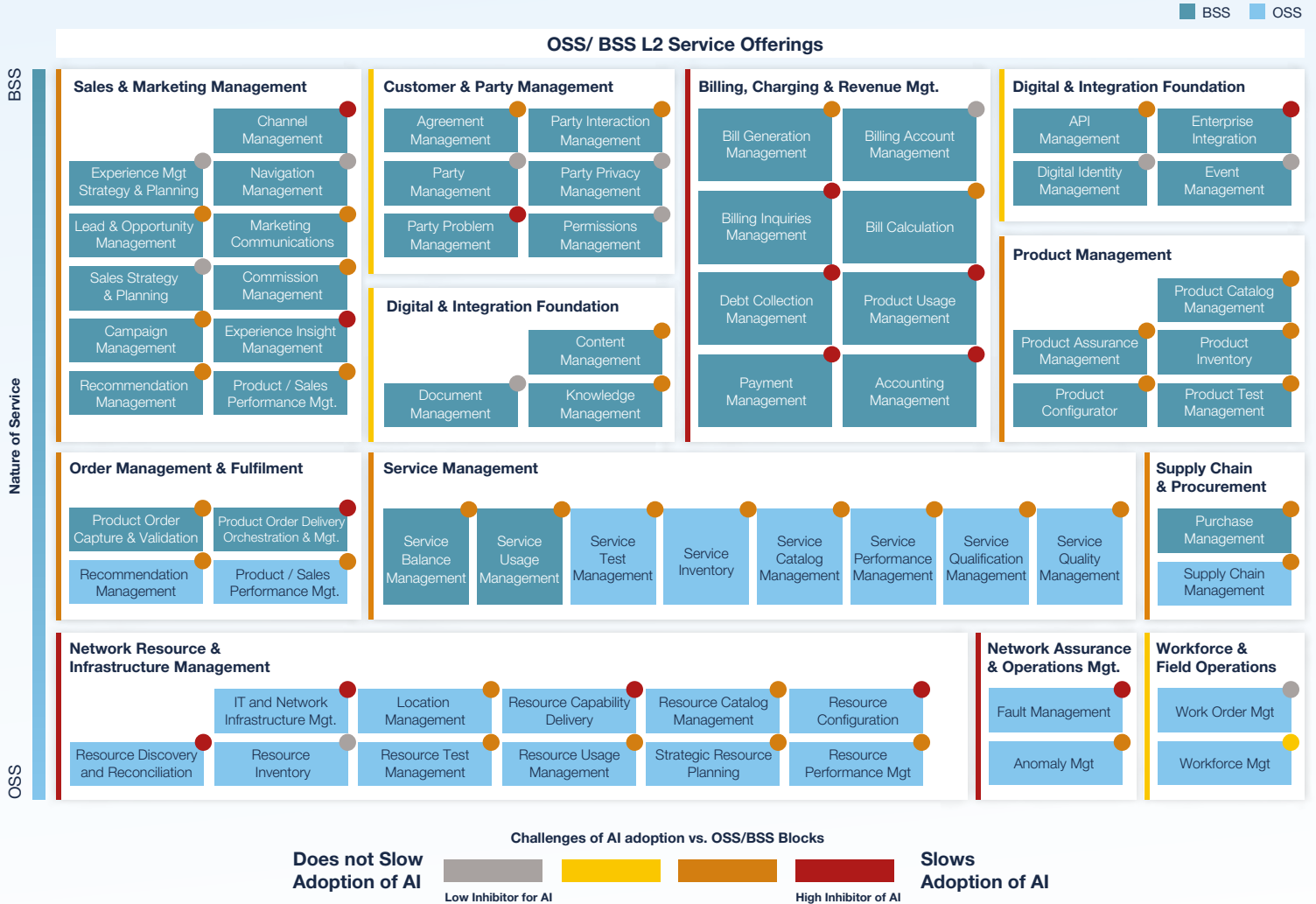


Sources: Alvarez & Marsal Research & Analysis

¹ Illustration 2 shows AI’s incremental value uplift beyond traditional rules-based automation across generative, predictive, and agentic AI. Ratings (high/medium/low/none) reflect factors such as repeatability, guardrails, data quality, governance, and human involvement. Uplift may appear as higher ARPU/revenue, improved CSAT, or greater cost efficiency. Functions and sub-processes are based on established telco frameworks and refined into practical operational categories.

A similar analysis of data gaps, noted as AI inhibitors, shows that the strongest inhibitors are clustered in network management and billing management, which map almost exactly to the areas with the highest-value for AI automation opportunities. This reality explains why value-rich domains often stall without targeted groundwork and operational preparation. **Illustration 3** highlights where fragmented architectures, inconsistent data domains, and OSS/BSS complexity are most likely to slow deployment or undermine scaling efforts.² As it suggests, many of the operational domains with the strongest AI value potential also require the greatest preparation effort before enterprise-scale deployment becomes viable.

Illustration 3: Functional OSS/ BSS Building Blocks vs. AI Inhibition Level



Sources: Alvarez & Marsal Research & Analysis

This does not mean that telcos should abandon highvalue AI ambitions. It means **preparation is critical to success**.

Organizations should focus first on use cases to define where AI fits best now and prioritize processes and underlying systems with clear value paths. Then, rigorously assess data readiness, run tightly scoped pilots with measurable success criteria, and iterate to strengthen performance and controls before scaling investment.

² Illustration 3 maps OSS/BSS building blocks developed through client engagements and telco frameworks including TM Forum. Each capability was scored against activities, use cases, KPIs, data domains, participating applications, human judgment requirements, and system/data complexity. Higher scores indicate broader integration, more complex data handling, and greater reliance on cross-domain coordination or discretionary decision-making.

THE SOLUTION: BUILDING THE FOUNDATIONS FOR AI AT SCALE

Successful implementation of agentic AI use cases (i.e., AI tools capable of reasoning and executing next steps within defined rules) in a typical telco company environment requires robust operational preparation. To deliver this successfully, projects generally need to establish:



Access to sufficient, reliable data

- Address legacy data quality issues related to fragmented, vendor-specific data models across core systems that run network operations, billing, and customer service systems that could limit consistent meaning across data sources and the quality of the data used to train the model.
- Identify incomplete, noisy, or delayed data flows that could degrade model reliability and undermine the performance of automation that detects, decides, and acts without manual intervention.



Clarity of current and target work processes

- Document existing workflows and identify manual activities that require special handling to enable machine-to-machine or policy-driven autonomy.
- Address misalignment between business and technology teams that creates gaps between intended business processes and actual system outcomes.
- Review coordination across multiple business and technology areas to standardize triggers, SLAs, and escalation patterns for AI agents.



Rationalization of platform complexity and vendor sprawl

- Evaluate integration and duplication requirements across heterogeneous telco OSS/BSS environments.
- Assess contractual limitations related to AI use, user access, governance, and support.

Based on where AI creates the most value, two major process groups (**table below**) emerge as strong, common starting points across telco and digital infrastructure enterprises. If pre-requisites and inhibitors are not explicitly identified and addressed in planning, these gaps can easily derail deployment.

Key function/ process	AI capability	Data prerequisites	Environment inhibitors	Recommended actions
Network and engineering: Network operations	Autonomous network or engineering AI agent	Clean, unified network data and documented workflows across network management and resource management functions so that actions map to known processes	Vendor complexity and inconsistent operating procedures	Processes must be simplified and standardized before safe automation
Commercial: Customer operations (billing operations)	Payment risk and collections AI agents	Clean, unified data for overdue balances, payment history, collections cases, activity reminders, and repayment plans and workflows aligned to regulated collections processes	Collections often span billing systems, messaging tools, and external agencies or legal partners	Standardize customer payment communication stages, escalation paths, and promisetopay handling, and verify processes to avoid compliance and operational risks

THE METHODOLOGY: A PRAGMATIC PATH FOR IMPLEMENTING AI AT SCALE

In telco, the winners will be organizations that build from strong foundations and scale from proven results. Successful AI deployment at scale depends on smart use-case selection, operational preparation, and phased execution.

Selection of use cases

Smart selection should come first for two reasons. First, the most obvious high-value opportunities are often also the highest-risk and most likely to fail. Organizations should begin with highly achievable use cases, even if they are smaller or less central. Second, teams need practical experience and visible wins to build the confidence and operational tradecraft required for more complex implementations. In practice, this means starting with use cases that involve cleaner data and fewer integration points before tackling larger opportunities.

Preparation



Preparation should define the target outcome, establish access to key systems, and validate that sufficient data quality exists to support reliable training and inference results. In most telco environments, this requires the organization to do the following:

- Prepare reliable data interfaces, define workflows, and validate outputs.
- Rationalize or redesign operating procedures so agents can execute and act consistently.
- Ensure the data, systems, permissions, and governance structures are available before development begins.

Phased execution

Execution planning should begin with a tightly scoped pilot for the primary use case (identified in the selection stage) and allow sufficient time to complete pre-requisite actions (identified in preparation stage) before AI development begins.

- **0–2 weeks:** Evaluate processes and prioritize use case selection based on team capabilities, process complexity, pre-requisites, and business impact.
- **2–6 weeks:** Conduct preparation work, define outcomes and test expectations, rationalize procedures, and verify that data is accessible and sufficient.
- **6–9 weeks:** Develop and refine a pilot or MVP application and test with a control group to demonstrate successful application.

After core skills and delivery ability are proven, organizations should expand gradually while continuing to prioritize strengthening data, workflow, and operational foundations.

- **0–90 days (in parallel with pilot/MVP):** Select three to five additional use cases and conduct project preparation (define outcomes and KPIs, form cross-functional delivery teams, and secure data access and related pre-requisites).



- **3–6 months (after initial success):** Expand successful automations while strengthening operational support and governance structures for initial automations.
- **6–9 months:** Refactor priority workflows for machine execution, integrate agents through APIs, standardize production management, and establish control dashboards.
- **9–12 months:** Scale successful use cases across markets and business units, rationalize duplicative tools, and agree outcome-linked SLAs with vendors.
- **12–18 months:** Stand-up an executive AI value dashboard, embed AI targets into budgets and incentives, and reinvest savings into data unification and workflow automation.

At that point, success increasingly resembles the AI experiences customers already encounter in more digitally mature sectors—interactions that feel personalized, context-aware, anticipatory, and lower-friction—delivered with greater operational efficiency and at lower cost.

THE TAKEAWAY: AI PROJECTS ARE PRONE TO FAILURE UNLESS THEY ARE BUILT ON A SOLID DATA FOUNDATION

For telco AI transformation, focusing too early on high value and high visibility programs leads to poor performance and program failure. Successful programs drive higher attention and energy into improving underlying data quality, structure, and access first, before building the desired agentic AI architecture.

Process automation with AI can create significant value for telcos; however, the greatest potential for value is concentrated in domains with fragmented data, process complexity, and difficult integration environments. The organizations that succeed will not necessarily be those with the largest AI investments or the most ambitious transformation narratives. They will be the ones that sequence AI operationalization pragmatically: starting with achievable use cases, strengthening data and workflow foundations, and using pilots to learn from failure. They will not be daunted by facing the most difficult domains but start by building confidence before jumping into high-complexity processes.

Digital-native companies are already redefining customer expectations through AI-enabled personalization, automation, and predictive operations. Telcos are not expected to replicate those models overnight, but they do need to close the gap between experimentation and execution fast. The next step is to translate ambition into a practical roadmap: identify where AI can create near-term value, plan around operational complexity, and properly prioritize building needed data foundations. The competitive advantage will belong to organizations that can scale those capabilities faster, more reliably, and more operationally effectively than their peers.

Date: April 2026 – A&M CPI Telcos and Digital Infrastructure

Key Contacts



Andy Walker

Managing Director

andy.walker@alvarezandmarsal.com



Jason Miller

Managing Director

jason.miller@alvarezandmarsal.com



Jordi Goni

Director

jgoni@alvarezandmarsal.com



Jonathan Turner

Director

j.turner@alvarezandmarsal.com

Key Contributors



Vishwa Nathan

Manager

vnathan@alvarezandmarsal.com



Yusuf Ahmedi

Senior Associate

yahmedi@alvarezandmarsal.com

Follow A&M on:

© Copyright 2026 Alvarez & Marsal Holdings, LLC.
All Rights Reserved.
493300-60945/June 26
10072_Stg03

ABOUT ALVAREZ & MARSAL

Founded in 1983, Alvarez & Marsal is a leading global professional services firm. Renowned for its leadership, action and results, Alvarez & Marsal provides advisory, business performance improvement and turnaround management services, delivering practical solutions to address clients' unique challenges. With a world-wide network of experienced operators, world-class consultants, former regulators and industry authorities, Alvarez & Marsal helps corporates, boards, private equity firms, law firms and government agencies drive transformation, mitigate risk and unlock value at every stage of growth.

To learn more, visit: [AlvarezandMarsal.com](https://www.alvarezandmarsal.com)