



Machine Data Outlook: Operationalizing AI in Communications and Media

AI has moved from experimental curiosity to the center of the global economy. For communications and media organizations, it is becoming integral to how networks are built and managed.

The mandate for technology leaders has shifted from showcasing AI's potential to delivering tangible returns. Communications and media companies are trying to translate AI investments into more reliable and secure services, better customer experience, and more efficient operations. Longer term, these investments will also create the foundation for autonomous networking and agentic operations.

76%

say AI and automation are creating moderate or significant data management challenges.

Yet, the AI conversation often overlooks the massive machine data explosion accompanying it. IDC projects that by 2028, [global data volume will reach 394 zettabytes](#), with 55% of the growth attributed to machine data.

Machine data is the lifeblood of AI. It's the operational context AI needs to act reliably — yet managing it is becoming a substantial hurdle. We surveyed cybersecurity, AI, engineering, and other technology decision-makers in communications and media to understand how AI is pushing machine data infrastructure to its limit.

Read on for more about the reciprocal relationship between AI and machine data and how communications and media respondents are balancing that cycle.

Let's dive in.

The continuous AI + machine data cycle

AI and machine data create a self-sustaining loop where each fuels the other's growth, but raw telemetry alone is not enough to drive reliable AI outcomes. Communications and media organizations need business and operational context to make data AI ready.

AI accelerates machine data growth

Every AI interaction — whether a model inference, automated workflow, or agentic decision — can produce machine data.

Machine data is everywhere in communications and media organizations, from network usage patterns and application logs to infrastructure metrics, service events, and customer interactions. As AI reaches deeper into an organization's systems, that stream becomes a flood: 91% report an increase in machine data over the last 12 months, and 90% expect it to keep growing over the next year.

Top three drivers of machine data growth

55% AI-assisted software development

49% Autonomous AI agents

44% Cloud and multicloud adoption

More than half (53%) of respondents have *fully deployed* or are *rolling out* custom-built autonomous AI agents, while 52% have done the same with vendor-provided AI tools.

Each AI deployment yields its own operational footprint that adds to the volume and complexity of machine data that organizations must manage. That expanding footprint is also becoming central to how AI performs, with AI use cases increasingly informed or enhanced by machine data in communications and media:

AI development, such as model training

52% 

Observability for AI

50% 

Autonomous AI agent workflows

47% 

Machine data fuels AI value

Machine data gives real-time context to understand what's happening across networks, services, applications, and customer interactions. That context will only become more valuable as AI scales: 40% of communications and media leaders say machine data will be *extremely important* to AI adoption over the next two to three years.

The value flows both ways: AI is helping organizations make better use of machine data, with 46% reporting that it improves the trustworthiness of automated decisions, 47% saying it reduces manual data management work, and 48% sharing that it helps leadership make faster, data-backed decisions. Additionally, 44% of leaders say it contributes to faster detection and response to threats.

Taking a broader view, business and operational data play a vital role in AI outcomes. A network alarm becomes more useful when it is connected to the affected service, customer, location, or service level agreements (SLAs). A security event becomes actionable when it is enriched with information about the user, asset, and business risk.

Looking ahead, 53% of technology leaders in communications and media identify improving model accuracy and reliability as a leading opportunity for machine data over the next 12 months. Nearly as many (54%) see an opportunity to connect operations more closely with business outcomes.

66%

call enriching machine data with business and operational context a *high* or *critical* priority for AI success

The rising cost of AI-ready data

AI doesn't only consume data; it burns infrastructure, compute, and — increasingly — tokens. Agentic workflows do not behave like simple queries. They reason, verify results, and generate new telemetry along the way.

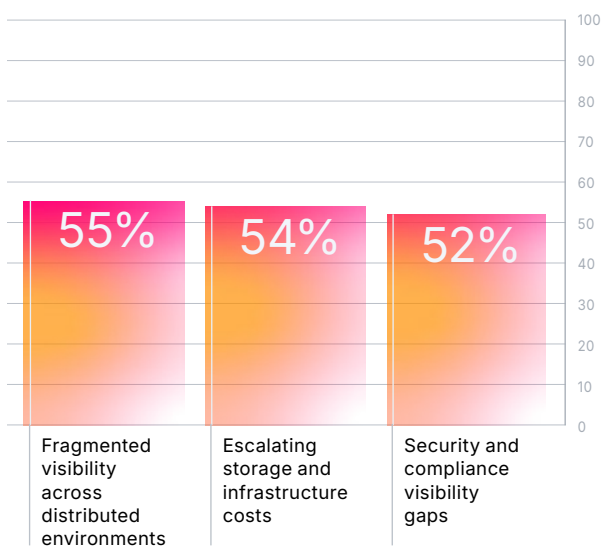
Communications and media leaders are feeling the pinch of machine data growth. Data management expenses are a major concern, with 51% ranking combined storage, processing, and AI consumption costs as the top three barriers to realizing the full value of machine data for AI initiatives. At the same time, data fragmentation and silos that prevent unified access and sharing across teams is another top barrier limiting AI's potential (45%).

Data management investment lags data growth

On its own, the cost of AI-ready data is a dilemma. But a larger problem is looming. Machine data volume is growing faster than the investment needed to manage it.

Over the past 12 months, 30% of communications and media technology leaders reported a *significant increase* in machine data volume, and 35% expect this to continue over the next 12 months. Only 28% of respondents expect a significant increase in data management investment over the next 12 months.

The growth of machine data makes everything harder



Cost control measures erode context

Organizations are making hard — but practical — choices about what data to store, retain, and process. Communications and media respondents admit they *frequently* or *always* adopt the following measures to get a tighter grip on machine data management costs:

- shorten retention windows to lower storage costs (70%)
- prioritize compliance over operational utility (68%)
- discard or sample data to avoid ingestion/processing costs (63%)
- limit data collection due to budget or infrastructure constraints (55%)

These measures may reduce immediate costs when applied thoughtfully, but they can also remove the historical evidence and operational context needed for AI and strategic decisions. Respondents report *always* or *frequently* lacking critical machine data for supporting AI or automated system decision-making (56%) and informing strategic or investment planning (58%).

The friction is even more pronounced in daily operations: 62% of organizations *always* or *frequently* lack the machine data needed to resolve major incidents or disruptions. In comparison, 55% lack the data needed to troubleshoot customer-facing services and applications.

The consequences of fragmentation

Communications and media organizations operate across some of the most complex and distributed digital environments. Data silos can leave teams and AI models with only pieces of the picture. Connecting those pieces gives AI agents the context to make more reliable decisions.

Organizations balance distributed and centralized data management based on scale, performance, cost, and compliance. Communications and media respondents use multiple locations to store and manage machine data, with 57% using a federated model. Forty-six percent rely on on-premises data centers compared with 40% across industries.

This mix may reflect data sovereignty requirements across multi-region networks that support critical services and face heightened cyber risk. Keeping sensitive data within defined jurisdictions can be as important as making it accessible.

Different environments receive mixed reviews for discovering, querying, and accessing machine data. Communications and media leaders rate their organization as *very effective* in cloud environments (48%). That falls to 41% for on-premises data centers and 35% at the edge.

This gap matters as networks produce growing volumes of data across edge infrastructure, endpoints, 5G environments, and next-generation services that live close to where customer and network activity occurs. Yet those sources are among the hardest to query and connect.

Fragmentation compromises context

Fragmentation makes it difficult to preserve machine data context and connect signals across disparate systems, so AI agents and humans can interpret them.

The consequences extend across people and AI.

- 56% say AI and automation act on incomplete context when their organization lacks a unified view of machine data, leading to unreliable outputs.
- 58% say leaders are forced to make decisions without the full picture.

This helps explain why 73% of communications and media respondents prioritize unified machine data as a *high* or *critical* priority for the success of their AI strategy.

58%

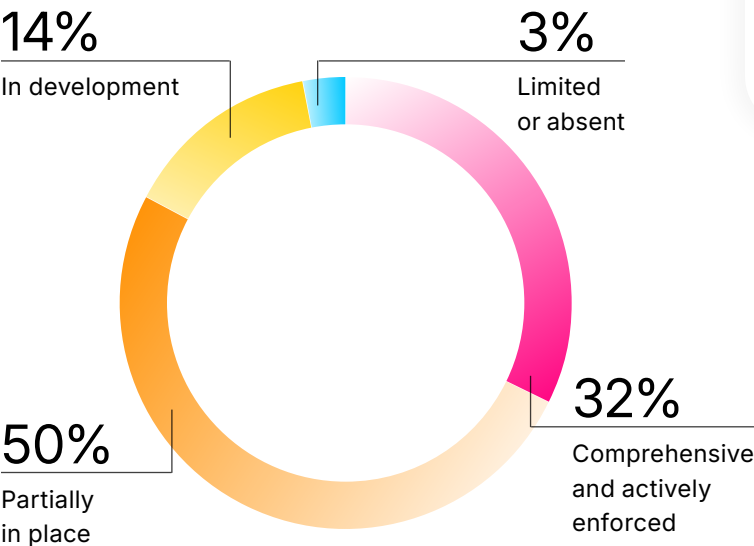
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Governance boosts trust in AI

Trust and transparency carry more weight as AI moves from recommending the next step to taking it. Leaders remain skeptical: 66% are *somewhat* or *very concerned* that their AI systems could make poor or misleading recommendations.

Confidence remains limited: only 43% are *very confident* in AI-generated insights, and 42% are *very confident* in AI-initiated actions.

For most organizations, machine data governance is a work in progress or non-existent



*Percentages may not add up to 100 due to rounding

As AI agents gain more autonomy, governance determines what those agents can access, what actions they can take, and when human review is required. Strong governance will be what allows autonomy and agentic workflows to expand in communications and media with greater trust and control.

Learn more about operationalizing AI in the Machine Data Outlook report.

[Read the full report>](#)
[Communications and media overview>](#)



Are you ready to turn machine data into the fuel for AI?

AI runs on context. AI agents need connected machine data to understand what's happening across networks, services, applications, and customers — and choose the right next move.

Use these questions to see where your data foundation stands and where a few practical changes could help.

Question to ask	How do I compare?	What action should I take?
Am I prioritizing context preservation for teams and AI? Yes: ☐ No: ☐	63% <i>frequently or always</i> sample or discard data to avoid ingesting/processing costs.	☐ Map data sources, ownership, and relationships before pruning. ☐ Match retention and sampling policies to specific use cases. ☐ Move lower-priority data to economical storage instead of deleting it.
Can AI access the data needed to make informed decisions? Yes: ☐ No: ☐	56% <i>frequently or always</i> lack the critical machine data needed to support AI or automated decision-making.	☐ Enrich telemetry with service, customer, network, and business context. ☐ Preserve metadata for discoverability and clarity. ☐ Prioritize data access for critical network and service workflows.
Can I understand and validate the actions AI agents take? Yes: ☐ No: ☐	42% <i>are very confident</i> in the reliability and trustworthiness of AI-initiated actions.	☐ Observe agent inputs, reasoning, tool use, and outcomes. ☐ Use federation to search and analyze data. ☐ Give teams and AI agents shared context.
Is governance keeping pace with AI deployment? Yes: ☐ No: ☐	32% <i>say</i> governance is comprehensively and actively enforced: they have some governance controls, but coverage is inconsistent, and enforcement is not always reliable.	☐ Define which data and tools each agent may access. ☐ Build permissions, boundaries, and escalation paths into agentic workflows. ☐ Maintain an auditable record of AI-driven decisions and actions.

If you answered “no” to any of these questions, [contact us](#) to learn how you can strengthen your data foundation for AI initiatives.

Learn how Splunk can help communications and media organizations turn distributed machine data into trusted context for AI-powered operations.



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