NTN IN INDUSTRIAL IOT

How industrial enterprises are approaching direct-to-device: opportunities and barriers

Viasat™

The Great Connectivity Convergence

Index

CHAPTER ONE

Chapter 1: What is the Great Connectivity Convergence?

For decades, enterprises deploying connected technologies have combined cellular and satellite networks, each serving different needs depending on location, application, and scale.

Satellite offers reliability and global reach but often comes with higher costs and heavier hardware. Cellular, by contrast, provides affordability, low power use, and high performance — but only within areas of terrestrial coverage. Where terrestrial connectivity was patchy, satellite often filled the gaps.

That separation extends to the operational side of the technology. From hardware to software to contracts, working with satellite and cellular usually meant operating within different systems.

However, that on-off relationship is now evolving into something far more symbiotic. More harmonious. More efficient. And crucially, a more powerful agent of change.

An enterprise's connectivity choice has traditionally depended on weighing up a complex mix of factors — reach, cost, power use, and practical deployment constraints. Cellular networks have historically only covered a small portion of the Earth's surface and – for certain use cases – dedicated satellite devices have been needed. This reliance on separate terrestrial and satellite hardware added cost and complexity to the challenge of staying connected.

The problem is that these decisions are rarely clear-cut, and businesses often face conflicting variables that make the "right" choice difficult. So, while satellite offers the reliability a logistics company needs to operate across vast distances and national borders, the additional hardware required to retrofit trucks and trains for satellite connectivity can introduce bulk, weight, and significant costs when scaled across an entire fleet in a retrofit or line fit process.

But with the dawn of Direct-to-Device (D2D) connectivity, industries can finally move beyond this binary, with terrestrial and satellite networks integrated into one system for the first time. This advancement means a wide range of devices — from sensors to handsets to dongles — can now be adapted to communicate directly with satellites, using the same chips and modules that connect to cellular networks.

This huge shift — the "Great Connectivity Convergence" — gained momentum when the standards body, the 3rd Generation Partnership Project (3GPP), wrote satellite into the global mobile "rulebook." Release 17 (R.17) introduced support for non-terrestrial networks (NTN), enabling messaging, voice, and data traffic to be carried over satellite using the same protocols as terrestrial cellular networks. This ensures that chipsets, devices, and networks can interoperate seamlessly, without custom workarounds or additional hardware, as long as they are able to connect to radio frequency (RF) band n255.

From a reliability perspective, the ability to switch seamlessly between connectivity modes will allow industries to collect and share data almost continuously — even in the world's most remote and challenging environments. In practical terms, that means fewer operational blind spots and costly interruptions, and a more complete picture of what's happening across every asset, process, and location.

By eliminating the need to make costly hardware modifications to devices to enable them to connect to satellite, the technology can dramatically expand the reach of IoT. **Less complex hardware means cheaper devices, and cheaper devices means more deployment options, as use cases that did not make economic sense in the old paradigm suddenly become far more affordable and indeed valuable.**

At a strategic level, D2D also redefines how organizations think about connectivity. It becomes a foundation for innovation, automation, and intelligent operations anywhere on the planet. Because for the first time, enterprises prioritize performance and business need above the constraints of terrestrial networks and infrastructure costs, with cost-effective and interoperable hybrid connectivity systems.
As the wider ecosystem — from chipset vendors and original equipment manufacturers (OEMs) to module manufacturers and network operators — aligns and forms partnerships around this new unified model, D2D capability is rapidly becoming part of the next generation of connected products and services. And with it comes the vision of something that has long been out of reach: truly ubiquitous, resilient, and cost-efficient connectivity.

What is the Industrial Internet of Things opportunity in the Great Connectivity Convergence?

In last year's State of Industrial IoT in 2024 report, we revealed the extent to which the Internet of Things (IoT) has become a keystone technology: embedded across enterprise operations, it's now critical to how modern industries function.

When it comes to the sectors that keep the world running — from energy and utilities to transport, mining, and agriculture — IoT deployments play a vital role. Often located in remote environments where satellite connectivity underpins essential communication, these sensors and systems help organizations operate more efficiently, safely, and effectively.

With the Great Connectivity Convergence upon us, there's now the potential to significantly expand the scope of industrial IoT. Historically, IoT connectivity has been divided into two ecosystems: terrestrial technologies like cellular, Ethernet, and Wi-Fi have enabled most Industrial IoT deployments, while satellite has relied on VSAT terminals and other specialized ground equipment in remote areas.

As these two ecosystems require separate devices, infrastructure — and therefore, budgets — they have traditionally operated in parallel. However, D2D technology upends this model by making it far more affordable to connect devices beyond the reach of terrestrial networks. It also eliminates the need for a specialized gateway or additional hardware, allowing a single IoT device to connect to both cellular and satellite networks and switch automatically as needed.

With these advancements enabling seamless data collection from both connected and previously unconnected areas, D2D technology effectively extends the digital reach of enterprises to virtually anywhere on the planet. And by reducing the need for specialized hardware modifications to accommodate dedicated terminals for satellite coverage, D2D helps to drive down costs, making satellite-enabled IoT much more economical to deploy at scale.

Together, these shifts signal a step-change in industrial connectivity. But how ready are end-user organizations for this change? Is there a genuine appetite for the technology? Do decision-makers understand its benefits — and what barriers still stand in the way of adoption?

To answer these questions, and to build on the findings of last year's State of Industrial IoT report, our research explores not only the technology driving that change, but also how industrial decision-makers view D2D's potential; what excites them, what holds them back, and how their perspectives will shape the next phase of IoT adoption.

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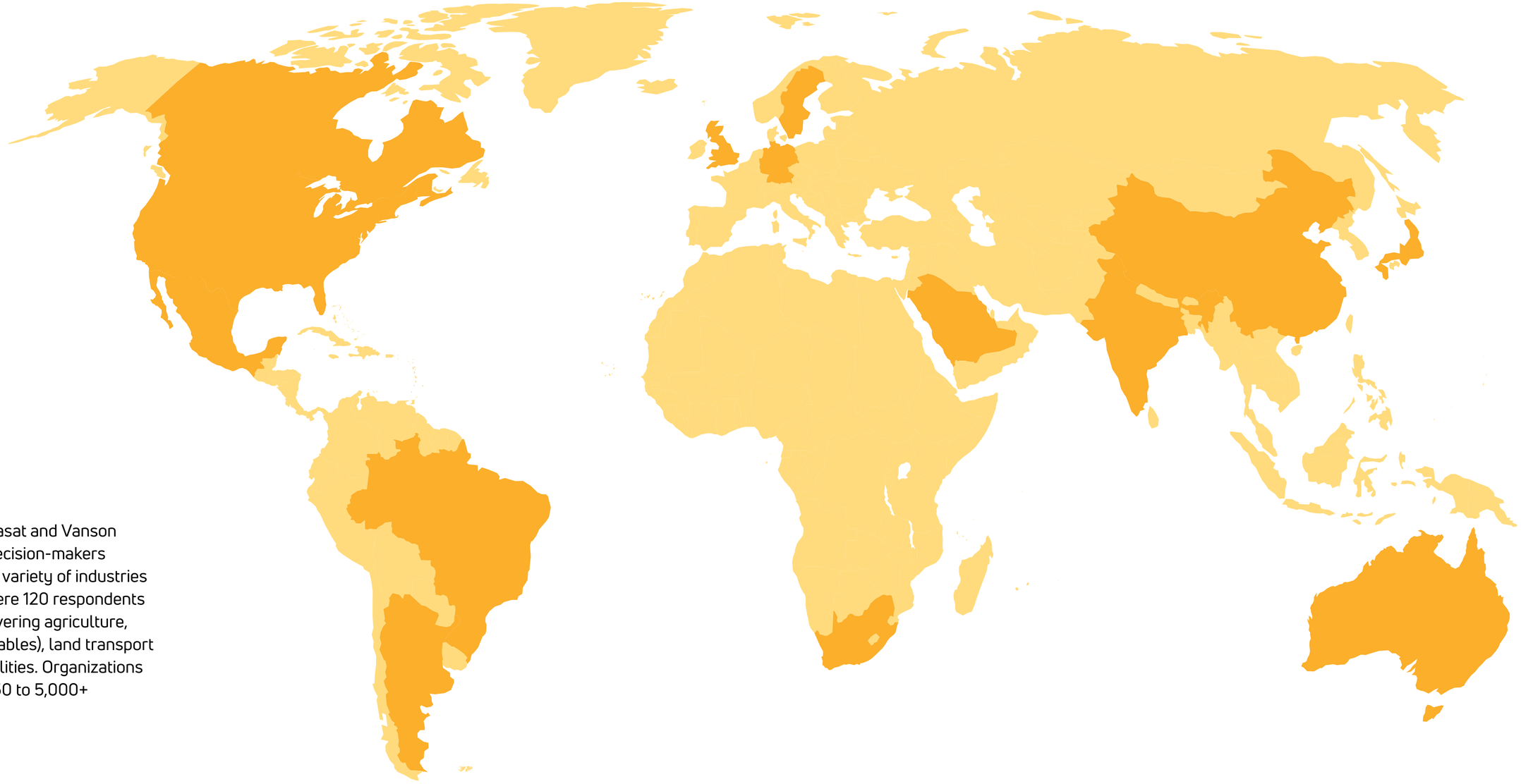


Methodology

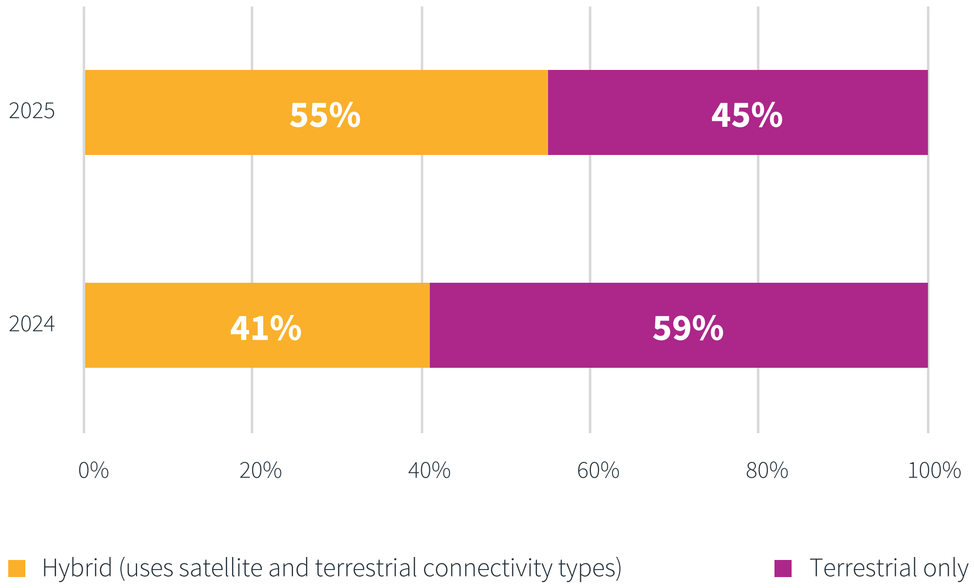
In July and August 2025, Viasat and Vanson Bourne surveyed 600 IoT decision-makers across the globe and from a variety of industries about IoT and D2D. There were 120 respondents in each industry vertical, covering agriculture, energy (oil & gas and renewables), land transport and logistics, mining, and utilities. Organizations represented ranged from 250 to 5,000+ employees.

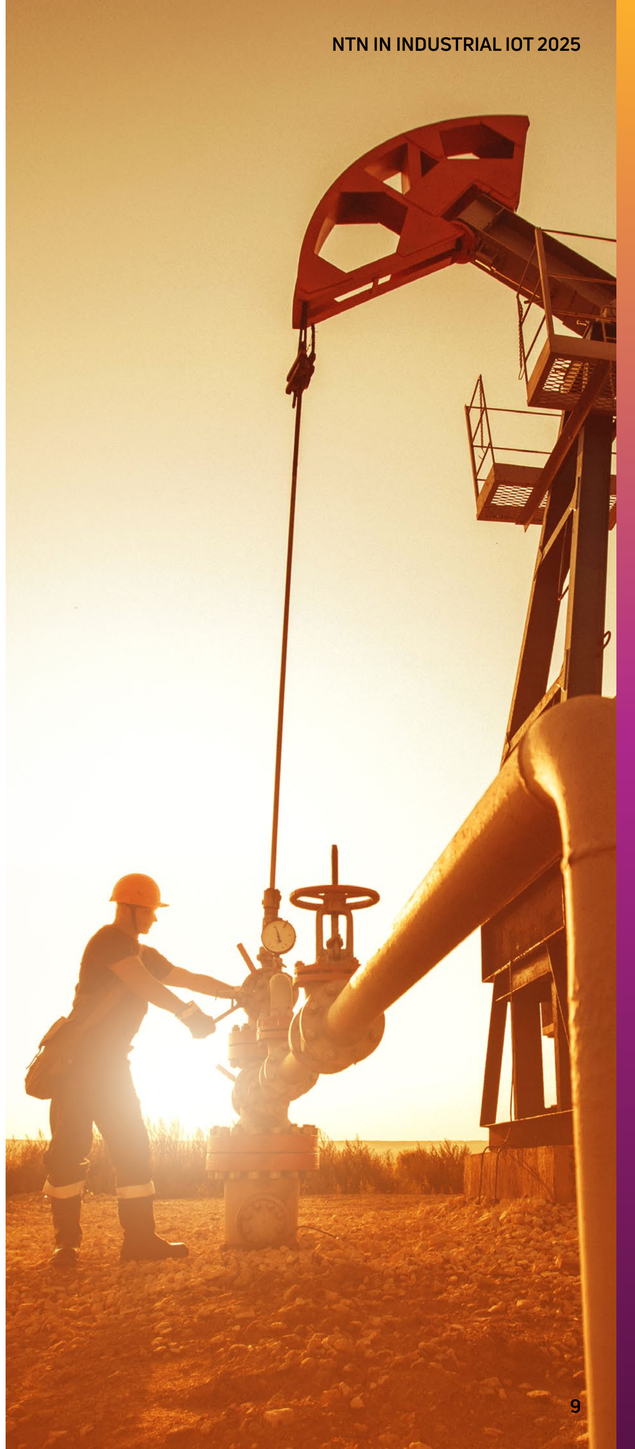
CHAPTER TWO

Chapter 2: The state of Industrial IoT

Industrial IoT adoption is rapidly gaining pace: in 2025, 78% of respondents say their organizations' progress has increased over the past 12 months — up from 68% in 2024. Moreover, organizations are increasingly integrating satellite into their deployments: in this year's survey, more than half of organizations (55%) reported using satellite in their IoT estates. In last year's research the share of respondents who used satellite connectivity was significantly lower, at 41%, suggesting that **as deployments progress, satellite connectivity is becoming an increasingly integral part of modern IoT systems.**

How industrial organizations connect their IoT deployments

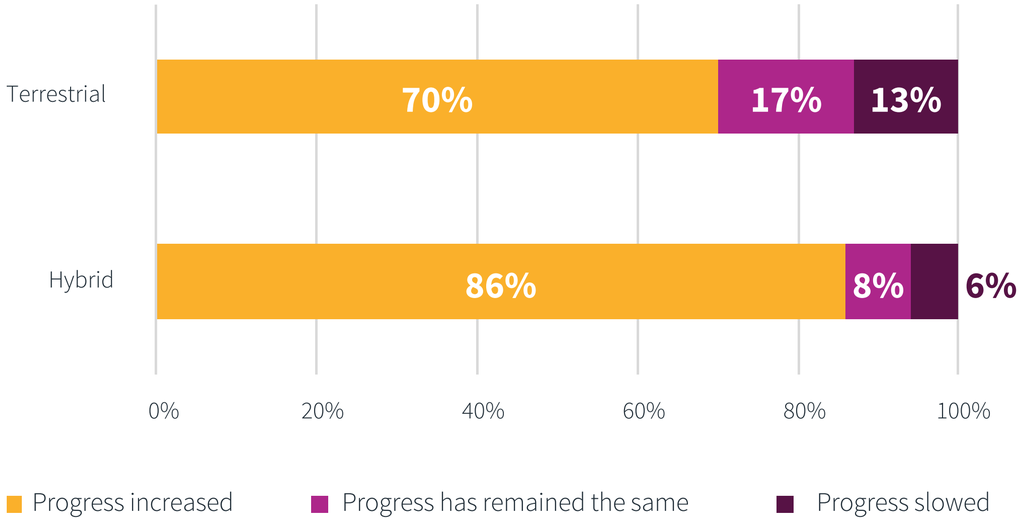




A clear performance gap is emerging between the two groups, with terrestrial-only users less likely to report increased progress (70%) than those who blend satellite and cellular connectivity (86%). This disparity could indicate that incorporating satellite connectivity makes IoT deployments more effective – or it could be that organizations that have enjoyed greater progress are more likely to invest in satellite connectivity.

However, while momentum is building globally, the pace of progress is far from uniform across regions. In Europe, for instance, 69% of respondents reported increased progress — up from 53% last year. But this still lags behind other regions, as 84% of respondents in the Middle East and Africa report acceleration in progress (up from 63%), and in APAC, it's 83% (up from 78%).

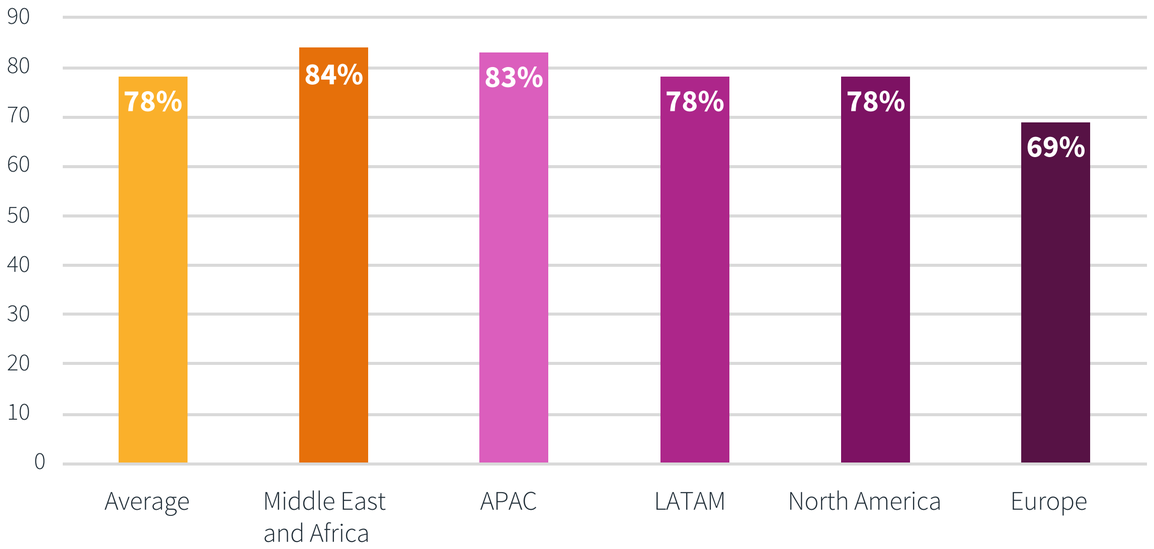
Which of the following statements best describes your organization's progress with IoT over the last 12 months?



There are many factors that could contribute to these distinctions; from the relative maturity of existing deployments (it's harder to increase progress when you have reached a certain level already), to cultural attitudes to risk, to wider macroeconomic factors that impact willingness to make capital investments in technology.

At the same time, the acceleration across markets suggests that this progress is translating into tangible business outcomes — and the data backs this up. When asked what their organizations have already achieved from IoT projects, respondents highlight significant benefits: better decision-making (95%), competitive advantage (94%), higher operational efficiency (94%), and cost efficiencies (93%).

Respondents who reported increased IoT progress over the last 12 months

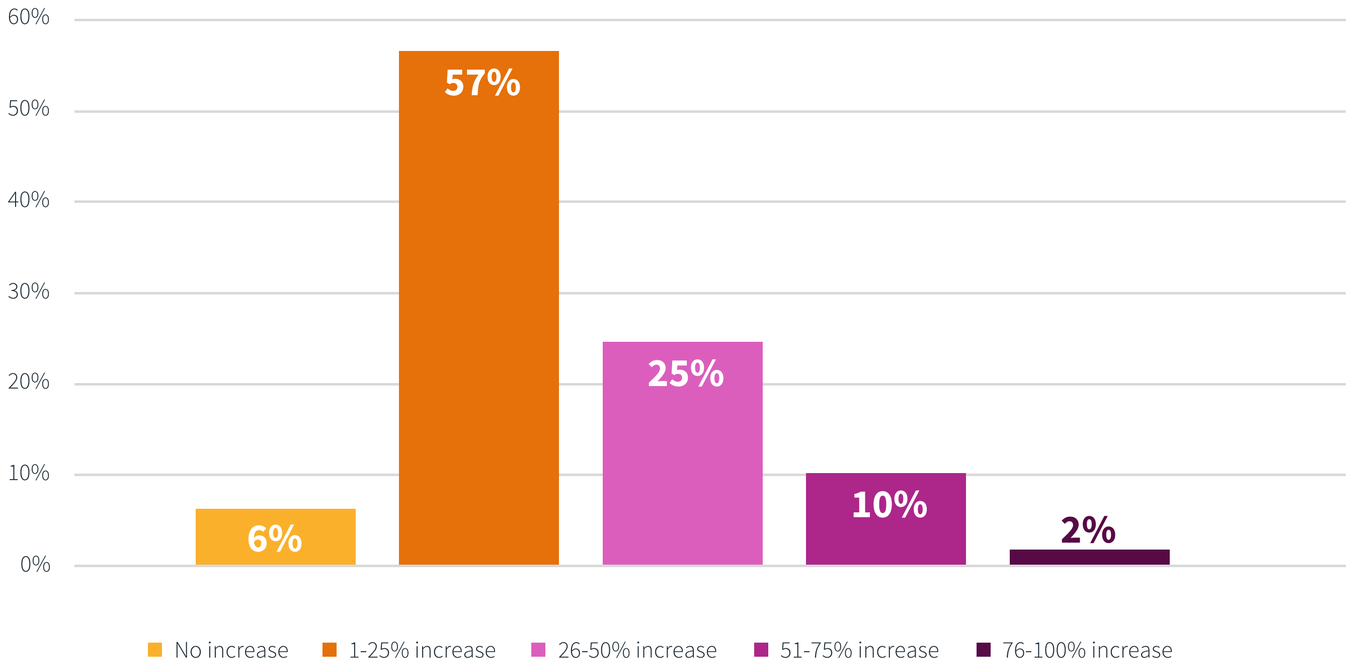


As the value of these technologies becomes increasingly clear, budgets are rising to match. This year, 93% of respondents say their organization plans to increase IoT spending, with an average uptick of 27% (as a percentage of their existing budget), and among those seeing significant IoT progress, 97% are boosting budgets by an average of 34%. But even those reporting only slight gains or none at all still plan to invest more, with 93% of hybrid-connectivity users and 93% of terrestrial-only users expecting an average increase of 24% and 29% respectively.

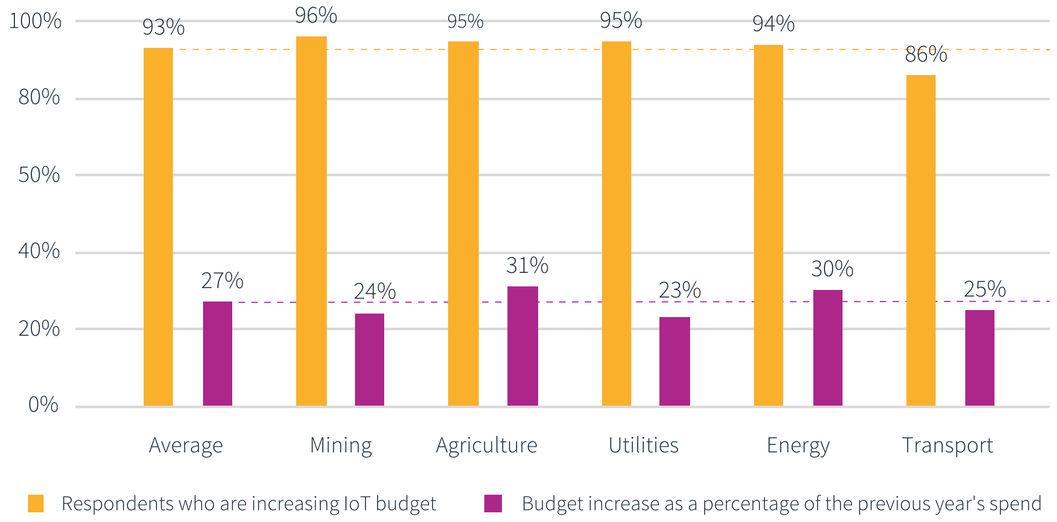
This year, 93% of respondents say their organization plans to increase IoT spending, with an average uptick of 27%

So, it's not only success fueling investment — conviction is too. **With even the cautious players doubling down on the technology, it's clear that IoT has become far too strategically important to neglect.**

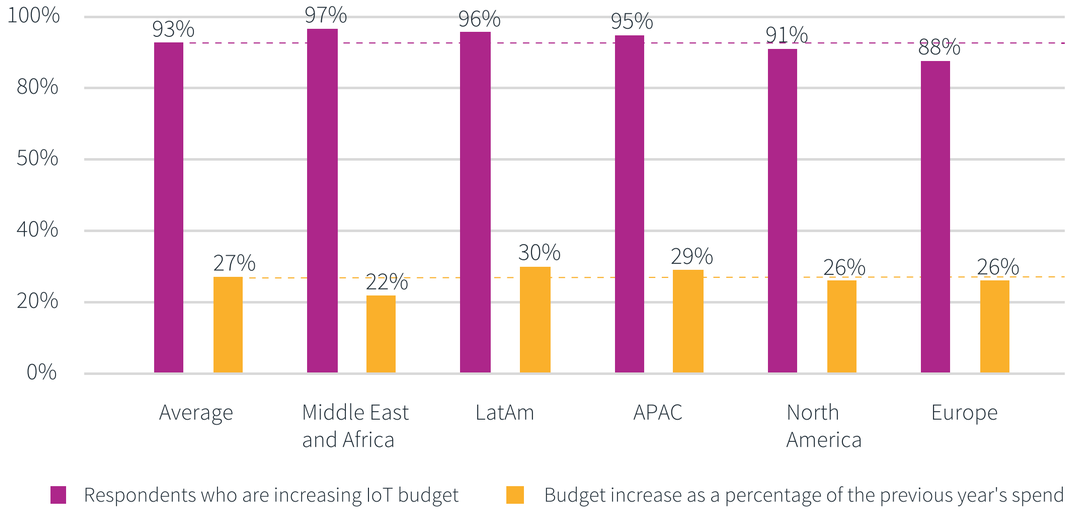
In the next year, how does your organization's planned spend on IoT technology compare to the last year?



IIoT budget increases: per region



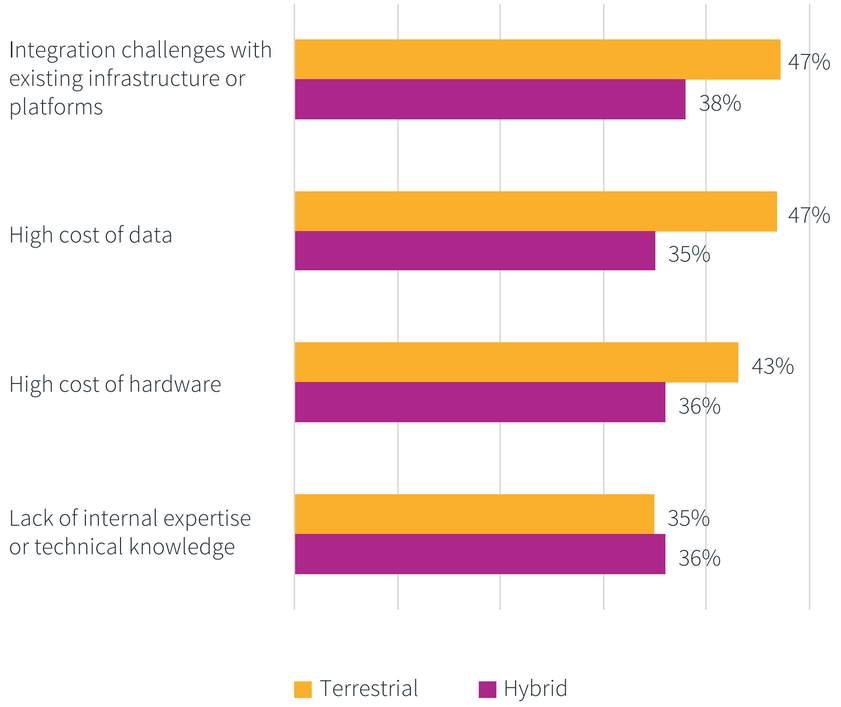
IIoT budget increases: per region

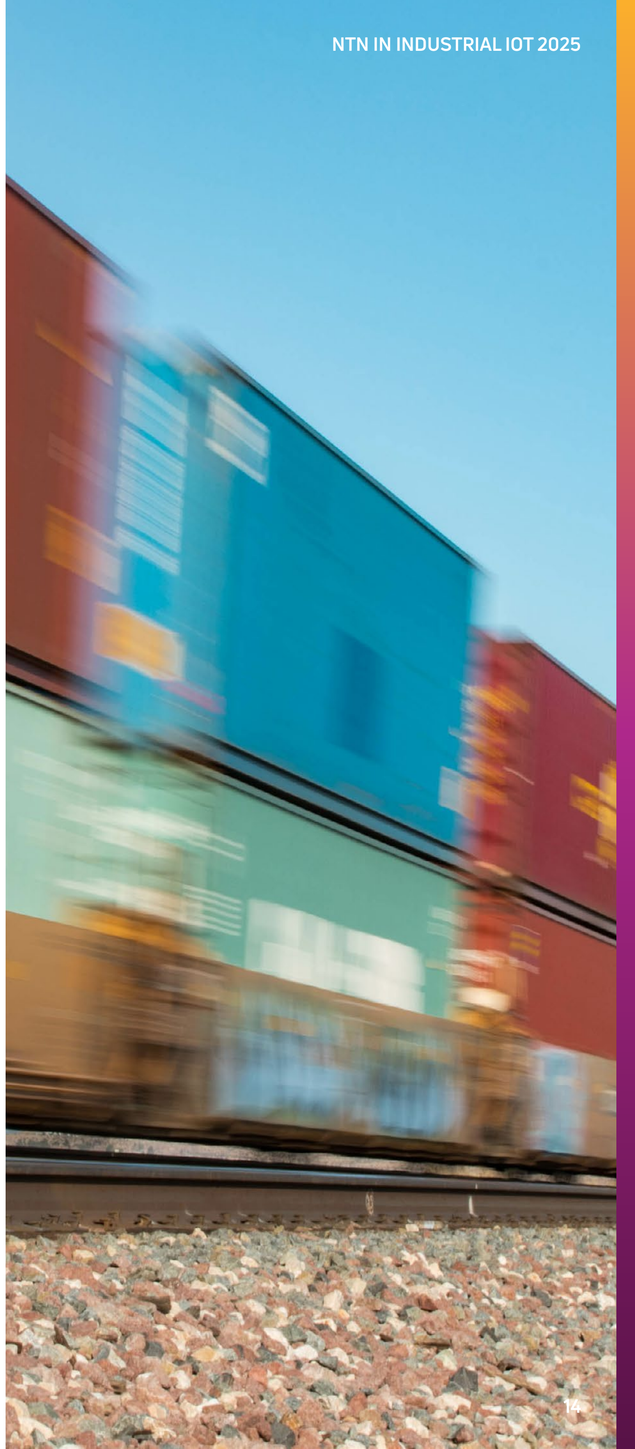


Barriers to satellite adoption in industrial IoT

Industrial IoT has made significant strides in recent years, but decades of operating within two separate ecosystems have left a legacy of barriers. These hurdles continue to hold organizations back — preventing some from deploying satellite within IoT projects and others from fully realizing the technology's potential.

What are the main barriers your organization faces that prevents it from adopting satellite for IoT projects?





Cost is a major obstacle, with 69% of terrestrial-only respondents and 57% of hybrid-connectivity users citing it as a challenge when deploying satellite connectivity for IoT projects. The current limited availability of compatible IoT devices is another top concern — highlighted by 39% of terrestrial-only and 35% of hybrid-connectivity users. The two factors might be directly related, with the scarcity of IoT devices potentially contributing to high hardware costs (a barrier identified by 43% of terrestrial only respondents and 36% of hybrid connectivity respondents), as fewer devices on the market may limit competition and economies of scale, keeping prices high.

Integration is also posing difficulties, with 47% of terrestrial-only teams citing challenges around linking satellite into existing platforms, compared with 38% of hybrid-connectivity users. And for hybrid users especially complexity is a barrier (60%) — whether it originates from managing both networks (35%) or simply managing the satellite IoT solutions themselves (35%).

At the sector level, there are further nuances for terrestrial users - in agriculture, for example, where 48% of respondents point to "limited availability of compatible IoT devices" as a concern. Considering that these same respondents also cite a lack of internal expertise at a higher-than-average rate (44% for agriculture respondents vs. 35% total respondents), there are opportunities for the IoT ecosystem to better address the needs of this important sector, which is held back by cost sensitivity and a lack of in-house IoT skills indicating external guidance may be needed to compensate for the shortage.

In energy, respondents who only use terrestrial connectivity are more likely to point to hardware costs as a barrier than in other sectors (50% for energy respondents vs. 43% total across all respondents), likely reflecting the premium on ruggedized, satellite-ready equipment capable of operating in harsh environments.

And in land transport organizations, hybrid-connectivity respondents report above-average integration challenges (51% transport only vs. 38%total hybrid-connectivity users) and difficulty managing dual connectivity (43% transport only vs. 35% total hybrid-connectivity users). This likely stems from the complexities of operating large fleets across vast regions and multiple jurisdictions. Operators must account for varying coverage conditions, roaming requirements, and regulatory frameworks — all of which demand more tailored integrations and tighter coordination across networks.

Together, these findings paint a picture of two halves. On one side, industrial IoT is advancing rapidly — its value is proven, and budgets are expanding in response. On the other, the legacy of the two-stack reality continues to create avoidable cost and complexity.

This is precisely where the Great Connectivity Convergence matters. Direct-to-Device (D2D) has the potential to remove many of these frictions and unlock the next wave of industrial IoT adoption.

CHAPTER THREE

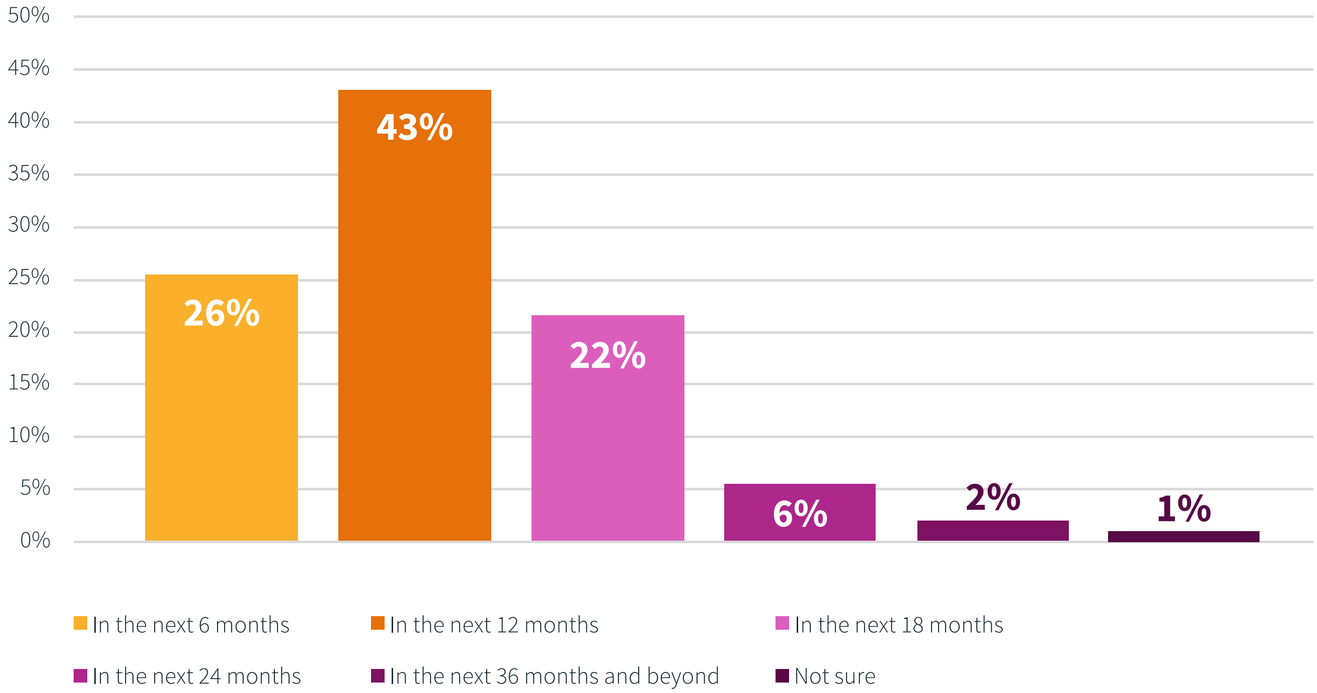
Chapter 3: Rising urgency around adoption

The advent of Direct-to-Device (D2D) is breaking down many of the barriers that have long held back industrial IoT. **By enabling satellite and terrestrial connectivity to run through a single module — and within a single ecosystem — it eliminates the need for specialized gateways and reduces management complexity and hardware costs.**

90% of IoT decision makers agree that D2D will accelerate IoT adoption globally. Terrestrial users in particular are keen to tap into the technology to expand their deployments beyond the boundaries of terrestrial coverage that have historically limited them, with almost a third (32%) planning to adopt in the next 6 months.

But this sense of urgency is not confined to those who do not have satellite connectivity within their IoT mix at the moment. In fact, across all IoT decision-makers surveyed, over a quarter (26%) intend to adopt within 6 months, over two third (69%) within 12 months, and almost all (91%) within 18 months.

When will your organization adopt D2D IoT technology?



Regionally, Europe leads when it comes to short-term adoption intent, with 35% of respondents planning to adopt within 6 months — potentially a testament to growing confidence in evolving EU and UK frameworks, or a push to jump-start progress where it's still lagging. By contrast, only 17% of respondents in the Middle East and Africa have a 6-month adoption plan, which may signal a weaker sense of urgency in markets which are already seeing rapidly accelerating progress with IoT and which therefore may not see as much need to charge forward with D2D adoption.

At the industry level, intent varies even more. In the energy industry, 61% plan to adopt within 12 months — lower than the overall total (69%) — which may speak to a necessary sense of caution in an industry where health and safety at remote sites is a key concern. However, as awareness grows around D2D's ability to simplify and strengthen safety-focused deployments, adoption in this sector is likely to rise.

Transportation, on the other hand, shows the strongest intent to deploy D2D, with 81% planning adoption within 12 months. This suggests that D2D is viewed as a practical way to overcome the integration and complexity challenges that have long slowed the sector's hybrid connectivity ambitions.

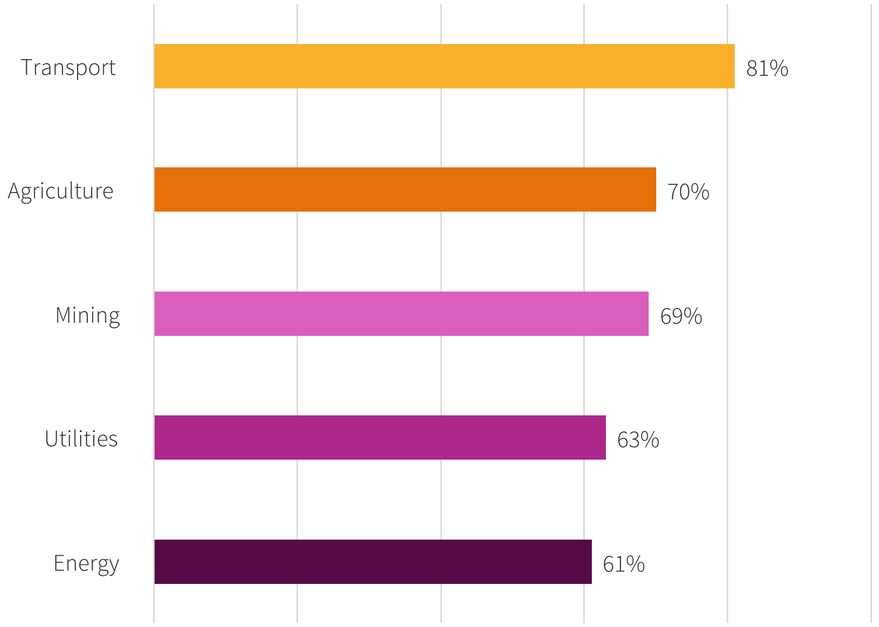
Overall, only 2% of respondents were unsure when their organization would adopt D2D, and absolutely none said they had no plans to — underscoring the widespread recognition of its relevance, a remarkable achievement for an emerging technology.

Our findings also support the growing belief that D2D will soon underpin the next generation of industrial IoT. 89% of organizations say they would consider replacing their current IoT connectivity with D2D within the next 2–3 years.

This speaks to the market's confidence in the technology's long-term role — one capable of delivering near-ubiquitous coverage and ultimately replacing many of today's existing connectivity solutions altogether.

So, the next 18 months will be defined by proofs of concept and targeted rollouts that reduce the risk of complexity, validate coverage, and strengthen integrations. And as manufacturers scale up production of devices that connect to satellites out of the box, higher volumes will drive down prices across the ecosystem. That will help D2D to evolve from a promising add-on to a foundational layer over a 2–3-year horizon — reshaping how industrial IoT connects, operates, and scales

D2D adoption willingness in the next 12 months or less, by sector



CHAPTER FOUR

Chapter 4: Unlocking new possibilities for Industrial IoT with D2D

Multiple factors underpin respondents' near-universal confidence in Direct-to-Device's potential. But they all stem from one central point: that, with a D2D-enabled SIM card, satellite connectivity can now be easily and cost-effectively integrated into a wide variety of specialized devices — from lightweight hardware in transit to large-scale networks operating across remote environments.

While its importance varies by industry, the physical size of IoT devices plays a key role in shaping deployment strategies. In energy and utilities, sensors and transmitters must operate reliably for years in harsh outdoor conditions. So, when satellite modules are large or power-hungry, that limits installation options and raises maintenance demands.

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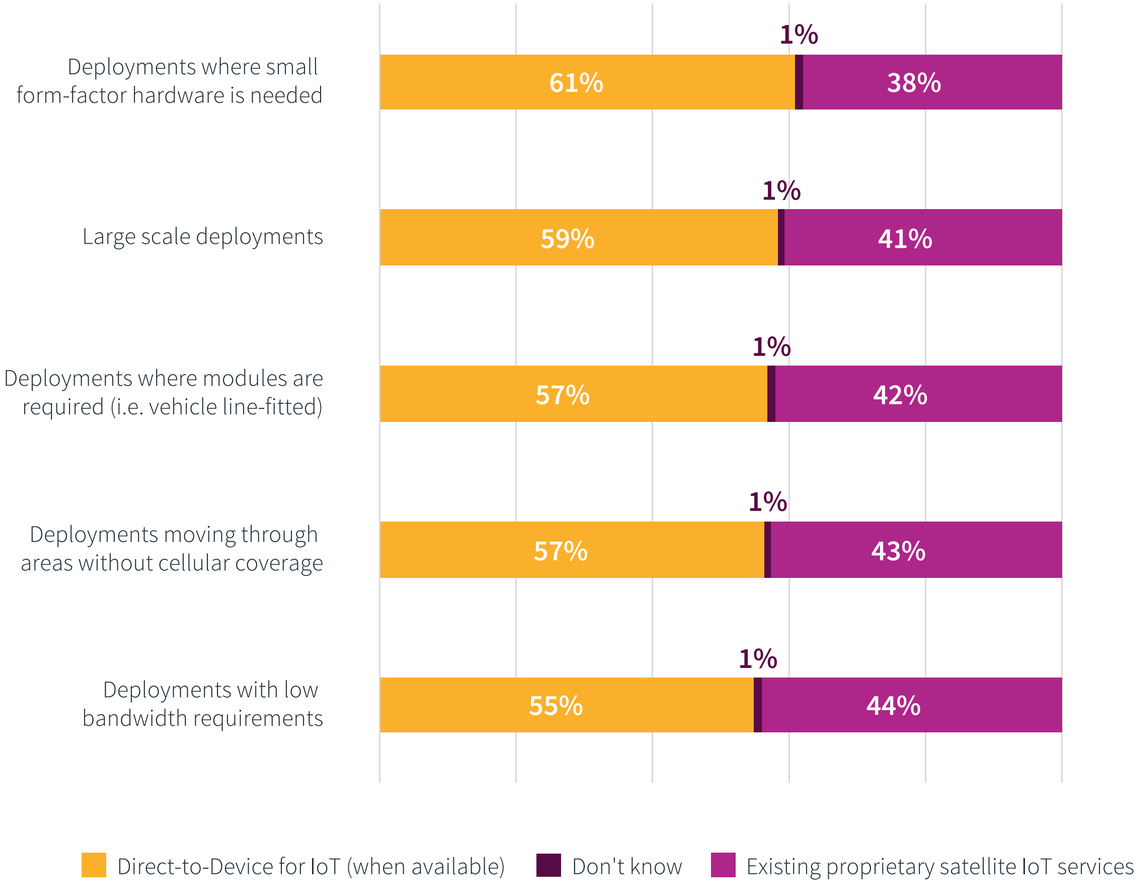
Connectivity type that will provide the strongest advantages/capabilities



Similarly, in sectors such as logistics and agriculture, device size and power efficiency play equally vital roles. Compact hardware keeps costs down and enables large-scale deployment, while low-power operation helps extend battery life and reduce maintenance needs.

Although major strides have been made in making IoT devices smaller, the continued need to integrate specialized satellite-only hardware has placed practical limits on how much smaller they can get, depending on how and where they're deployed.

This makes small form-factor hardware a major area of opportunity, as eliminating the need for bulky, satellite-specific components could be transformative for some sectors.

Respondents from the transportation sector are the most likely (67%) to emphasize D2D's advantages here. Space and weight constraints on vehicles make compact hardware essential, where every bit of added drag carries a cost. There's also a clear incentive to minimize the footprint of sensors or tracking devices on containers so that precious space can be retained for cargo.

As one transport respondent put it, D2D enables, "real time adjustment of routes based on weather and traffic data to achieve visibility in freight tracking," which underscores the value of lightweight, always-connected devices that don't compromise payload.

Large-scale deployments were also frequently highlighted — unsurprising given the potential cost efficiencies D2D could deliver through simpler, lower-cost hardware. Respondents from the mining sector (65%) are particularly likely to cite this use case, reflecting the industry's need to monitor equipment and personnel across vast, remote, and often hazardous environments. Another respondent commented:

"Using D2D to connect gas, temperature, and vibration sensors in mines means data is transmitted directly between devices and sent in real time to the control center, enabling early detection of explosion or collapse risks."

Agriculture respondents, meanwhile, place greater emphasis on D2D's benefits for deployments moving through areas without cellular coverage (65%). Many agricultural operations are in extremely remote areas, yet require continuous connectivity for sensors, vehicles, and livestock tracking.

It's clear that end user organizations appreciate D2D's transformative potential and are actively thinking about specific use cases where it could generate huge operational benefits. But there are many barriers to fulfilling that promise.

Top extremely transformative use cases per sector

Agriculture

- **33%** Crop storage monitoring
- **32%** Livestock monitoring
- **32%** Machinery and vehicle monitoring
- **32%** Vehicular and asset tracking and route optimization

Mining

- **36%** Automated haulage vehicles
- **35%** Shipment/ supply chain tracking
- **34%** People tracking to enhance health and safety

Transport

- **43%** Vehicular tracking and route optimization
- **33%** Shipment/ supply chain tracking
- **32%** Cold chain tracking

Utilities

- **43%** Water infrastructure monitoring/ Vehicle tracking
- **41%** People tracking to enhance health and safety
- **34%** Substation monitoring

Energy

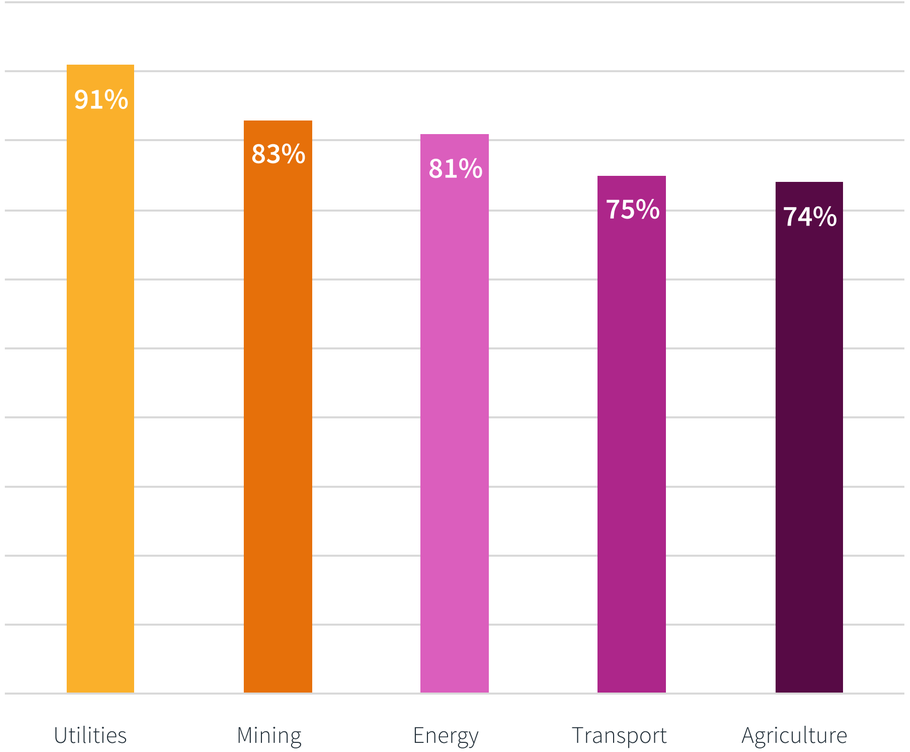
- **33%** Well head monitoring/ artificial lift
- **29%** Climate/ weather monitoring sensors
- **28%** Renewable energy generation monitoring

CHAPTER FIVE

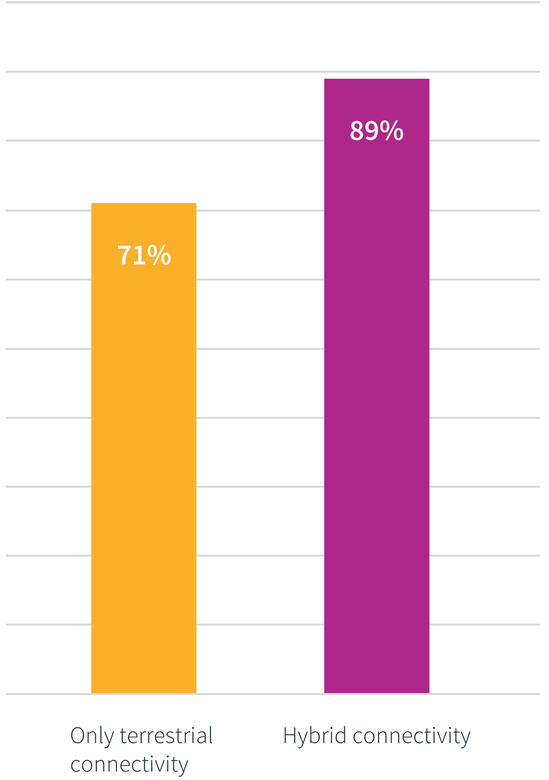
Chapter 5: Barriers to D2D adoption

When it comes to Direct-to-Device adoption, ambition and feasibility aren't necessarily moving in lockstep. **While intent is high, many decision-makers question how quickly their organizations can move, with 81% saying D2D adoption for IoT would only be feasible after the next 1–2 years.** This view is particularly strong among hybrid-connectivity users (89%) compared to terrestrial-only users (71%). Their greater familiarity with satellite connectivity may explain this, as they recognize that integration often takes longer in practice than in theory.

By sector



By connectivity type

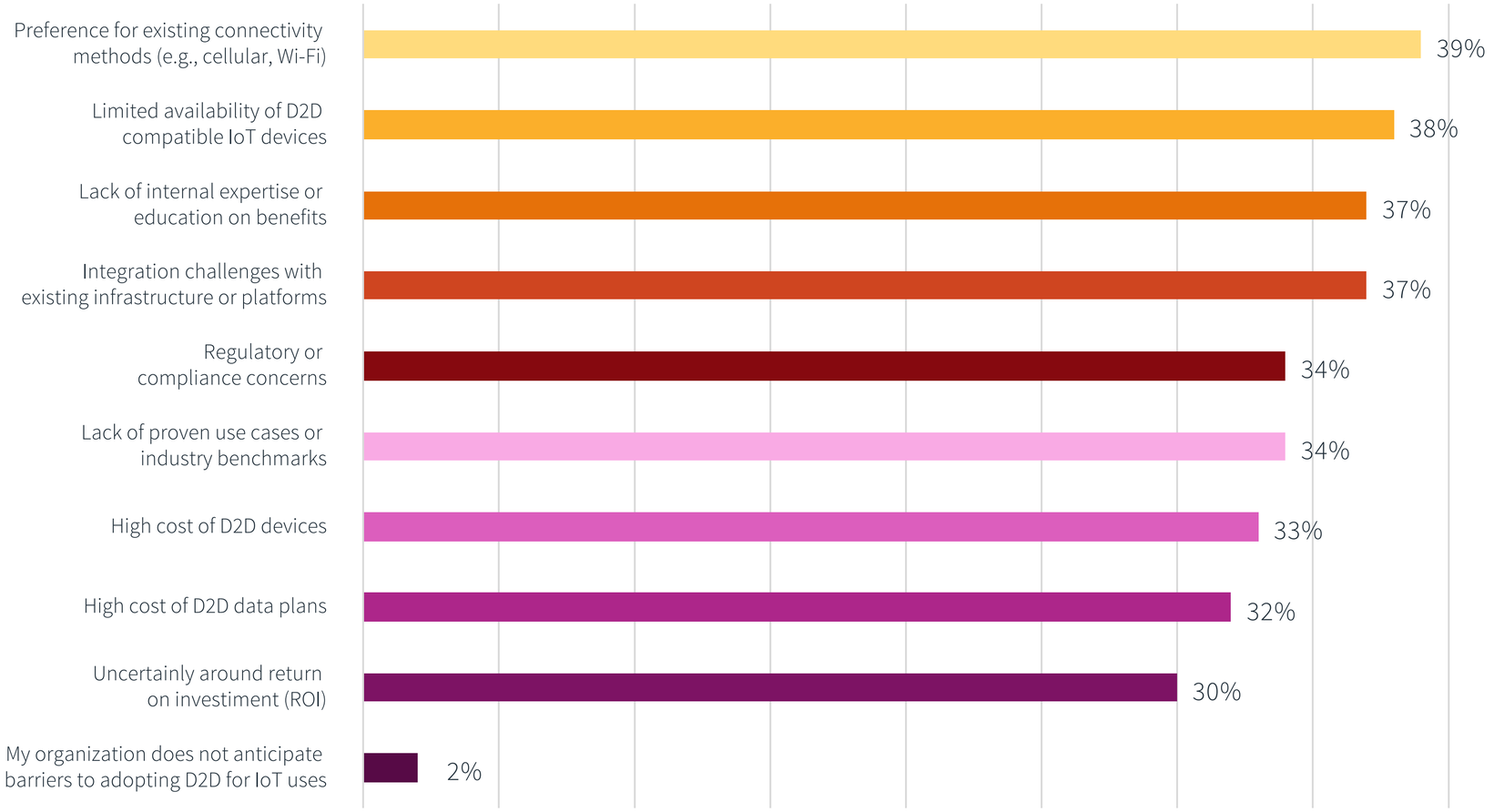


In other words, there's a timing gap between when teams want to adopt and when they believe both the market and their own organizations will be ready.

Two sets of issues are shaping that gap:

1. External factors linked to the maturity of the D2D ecosystem and the wider IoT landscape.
2. Internal factors rooted in organizational culture, skills, and governance.

What are the main barriers your organization faces that prevents it from adopting satellite for IoT projects?



External barriers: a market still maturing

The external picture is what you'd expect from any developing ecosystem: costs that are still higher than the ideal price point for customers, there's limited choice of hardware, and a marked lack of real-world proof. Of course, as the ecosystem develops these factors will change – but for now, they present barriers to would-be users. On the cost front, 53% cite it as a barrier — a pressure felt more sharply in the Middle East and Africa (65%) than in North America (45%), likely reflecting differences in market maturity, infrastructure availability, and access to local manufacturing and supply chains.

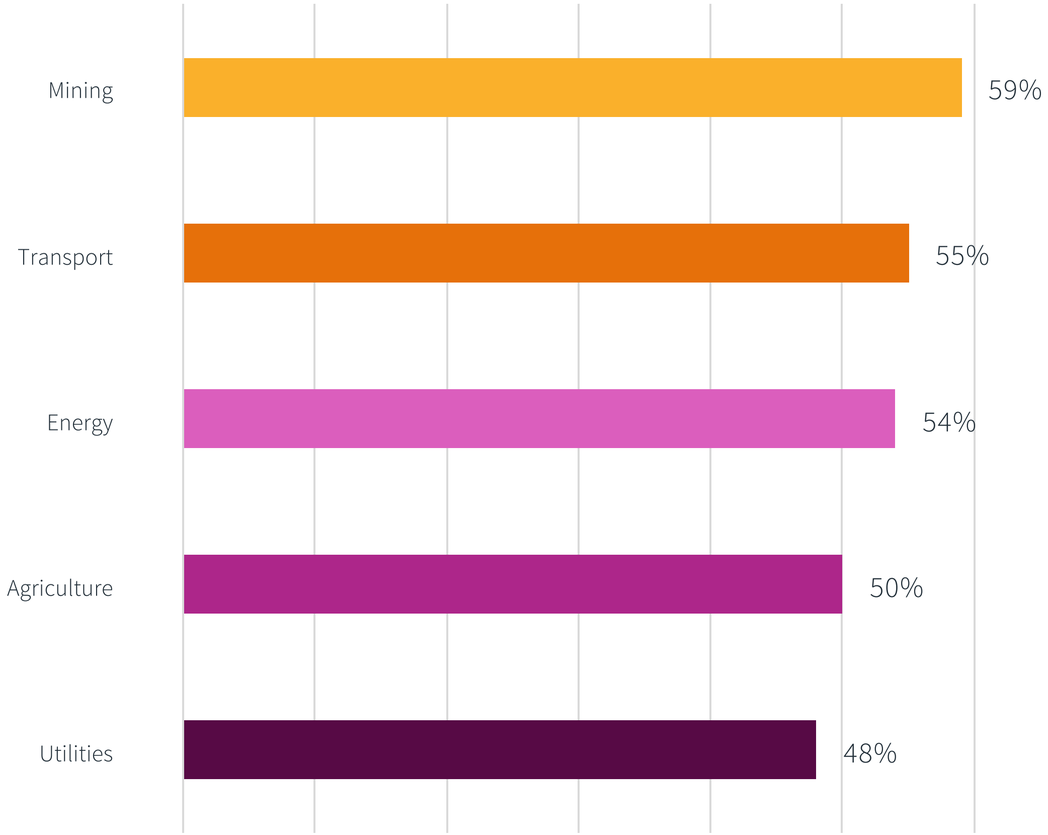
When looked at by sector, concerns about the "high cost of D2D devices" are greatest in mining (44% compared with the 33% total) and lowest in energy (25%). This is notable given that both industries rely heavily on ruggedized hardware, and may be a consequence of how deployment scale and cost sensitivity affect them differently.

Mining companies typically operate larger fleets of connected assets across remote terrain, meaning even modest device costs can compound quickly. Energy organizations, by contrast, deploy fewer, higher-value assets and therefore have a greater tolerance for ruggedized hardware expenses.

Limited availability of D2D-compatible IoT devices is another constraint that 38% of respondents point to. This scarcity likely contributes to cost concerns, since limited supply keeps prices higher and slows the development of a broader hardware ecosystem. This is most pronounced in the Middle East and Africa (48%) and less so in North America (31%), again likely due to their different stages of ecosystem maturity.

Integration also remains a sticking point, with 37% of respondents citing challenges connecting D2D into existing infrastructure and platforms. Add to that a "proof gap" — 34% say there's a lack of proven use cases or benchmarks — and the picture is clear: **while interest in D2D is strong, buyers are still waiting for more tangible evidence of its effectiveness before scaling.**

Respondents facing high-cost barriers by sector



Internal barriers: culture, skills and risk

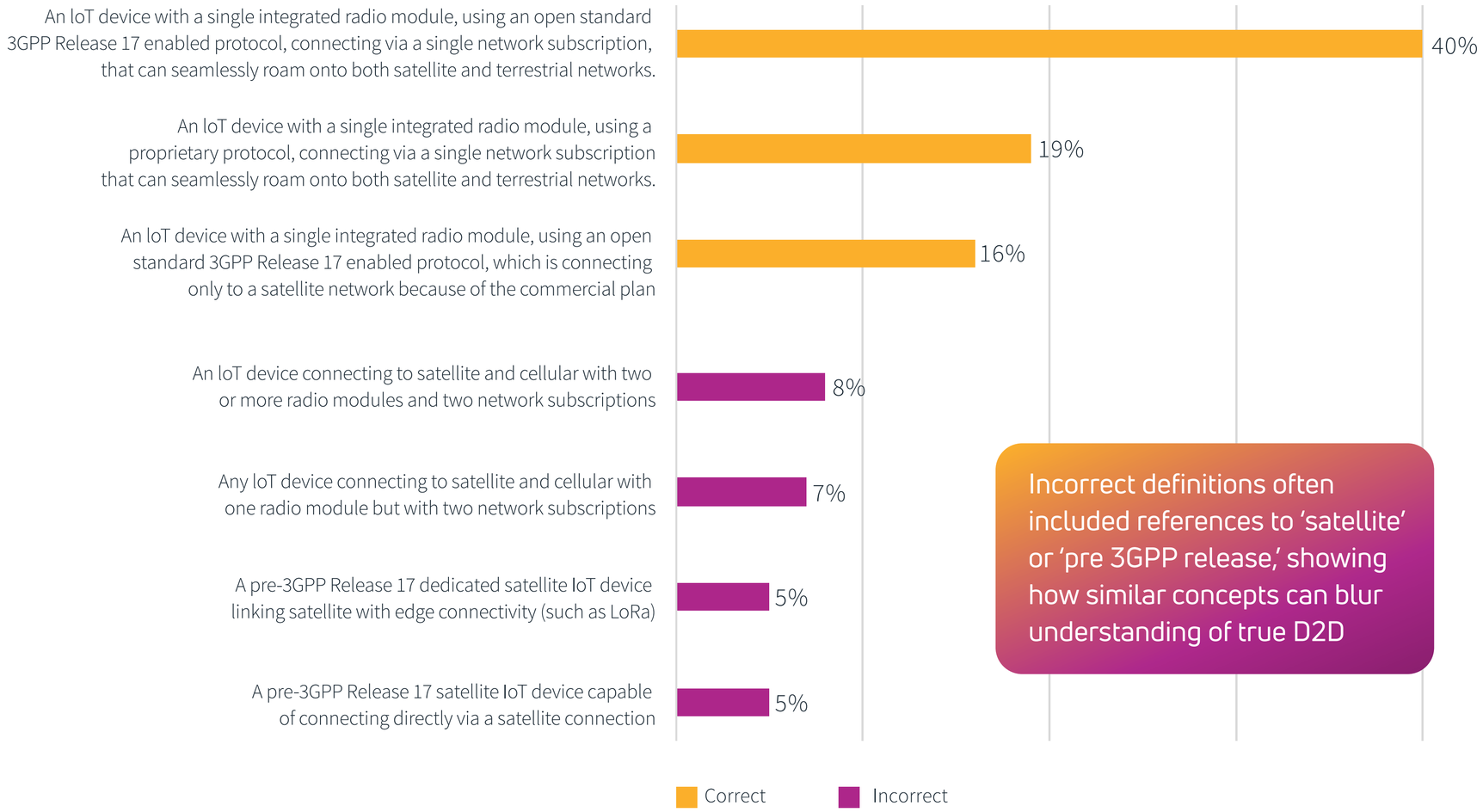
Inside many organizations, there's a clear streak of risk aversion — one tied to both limited knowledge about the technology and uncertainty around its compliance implications.

That mix often pushes teams to stick with what they know, reflected in the fact that a preference for existing connectivity (e.g., cellular or Wi-Fi) is the single biggest internal factor slowing adoption, identified by 39% of respondents. Close behind are concerns around skills and knowledge, with 37% citing a lack of expertise or education on D2D's benefits, and 34% flagging regulatory or compliance issues.

In total, 85% of respondents identified at least one external market barrier and 76% an internal one. These challenges can interact with each other, and are in some cases likely rooted in a nascent and incomplete understanding of how D2D actually works.

A quarter (25%) of respondents could not accurately identify D2D's definition when presented with options — highlighting a persistent knowledge gap around the specifics of the technology. This knowledge gap makes it harder to make decisions around the technology, likely contributing to the 90% of respondents who say they need more information before taking further action.

Respondents were asked to identify what best describes D2D



Ultimately, these internal barriers all combine to produce one decisive outcome: lack of senior stakeholder buy-in. 88% of respondents believe their leadership requires more extensive convincing for D2D adoption.

It's a familiar pattern in almost any emerging market: proven use cases are scarce, perceptions that hardware is costly or hard to source take hold quickly. In the short to medium term, this makes it harder to educate IoT decision-makers, win over compliance, and push past the status quo.

So, while the adoption clock is ticking, leadership confidence still hinges on three things:

- **Lowering total cost of ownership** — making D2D deployments more financially viable at scale.
- **Broadening device choice** — expanding the range of compatible, off-the-shelf hardware available to enterprises.
- **Demonstrating real-world results at scale** — proving D2D's reliability and value in real-world, high-volume deployments.

As these gaps close, the intent–feasibility divide will likely narrow too — particularly for hybrid-connectivity users already feeling the complexity burden and viewing D2D as their route to simplification.

Box out: buying D2D

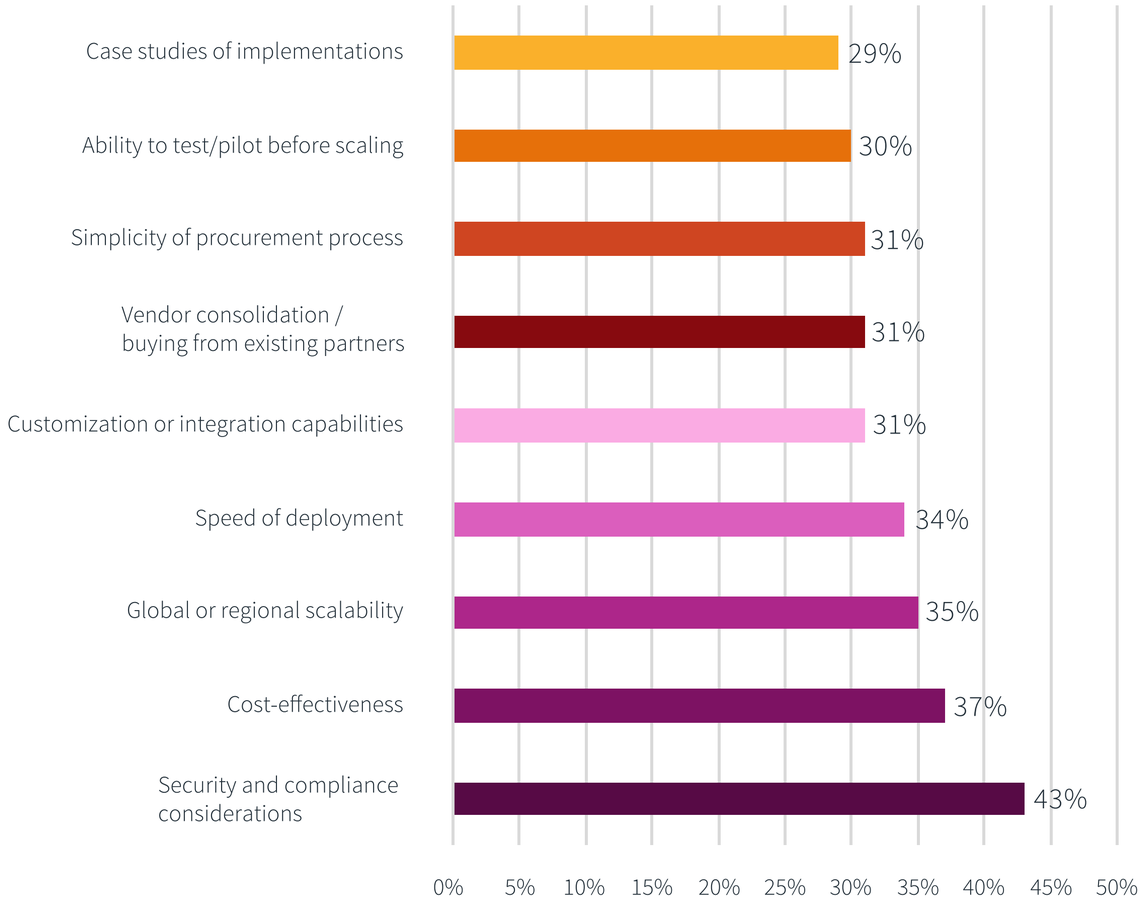
When deciding how to procure D2D and what type of solution to deploy, organizations weigh up a broad mix of factors, with no single one dominating. Security and compliance (43%), cost-effectiveness (37%), global or regional scalability (35%), and speed of deployment (34%) top the list.

Because industrial IoT deployments vary so widely, these priorities are strongly shaped by sector. Among transportation respondents, global or regional scalability ranks highest (46%) — reflecting the industry's need for broad, often cross-border coverage. By contrast, utilities respondents place the least emphasis on scalability (26%), given the site-specific nature of many of their deployments, where connectivity is concentrated in one area.

There's also no clear consensus on where organizations will go to buy D2D solutions. Respondents are split across systems integrators, solution or managed service providers (25%), cloud platforms such as Amazon Web Services (AWS) or Microsoft Azure (22%), and satellite operators (21%).

What are the most important factors influencing how your organization will buy Direct-to-Device solutions?

Combination of responses ranked first, second, and third



It's a picture of a market still taking shape, where procurement norms have yet to settle. While these dynamics will inevitably shift as the ecosystem matures, right now they are creating opportunity.

Every player in the D2D value chain — from OEMs to system integrators to solution providers — thereofre has space to carve out a role based on use case, connectivity needs, and existing customer relationships. The ones that move first will define how D2D gets bought, and by whom.

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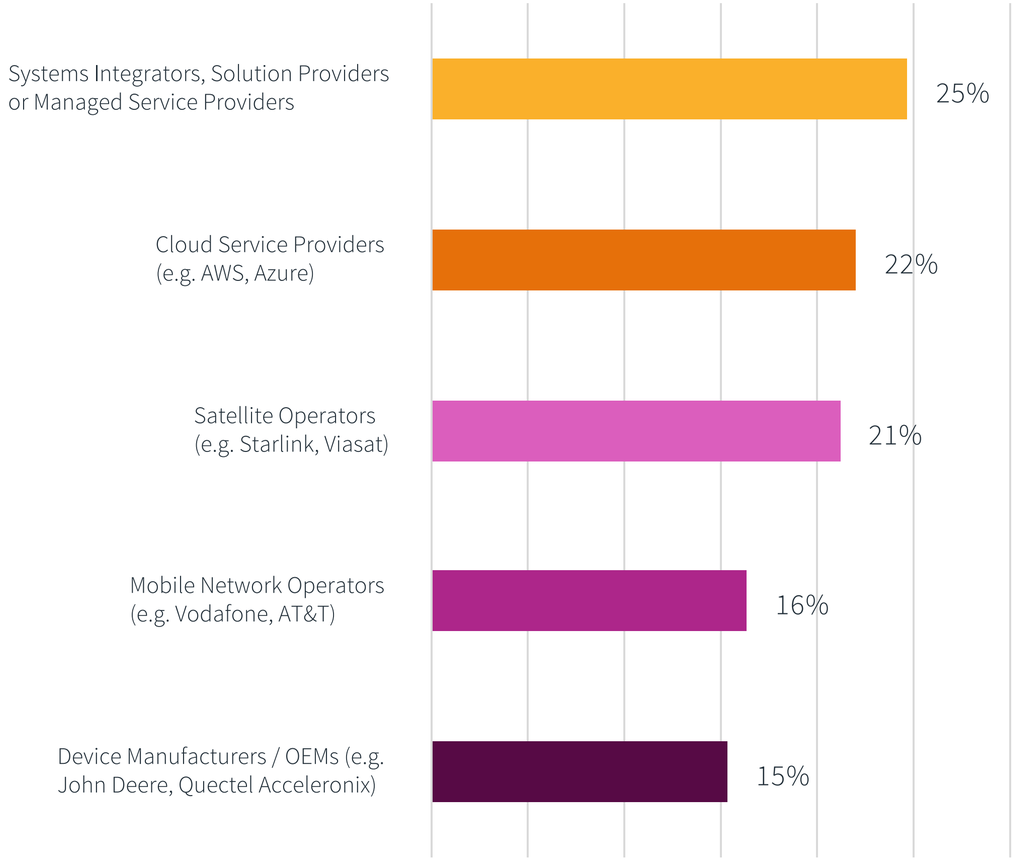
Organizations expect to procure D2D IoT solutions from these:



CHAPTER SIX

Viasat's approach to D2D for industrial IoT

Throughout this report, we have highlighted both the growing excitement around D2D and the very real obstacles still standing in its way. While intent to buy and awareness of D2D's groundbreaking potential remain high, concerns around cost, scalability, and complexity — along with integration challenges and broader hurdles of understanding and organizational buy-in — continue to slow progress.

Viasat has been helping organizations across industries harness the power of IoT for decades — improving operational efficiency, enhancing visibility, and keeping people and assets safe. Now, we are extending that expertise to pave the way for D2D adoption in industrial IoT.

By embracing open, 3GPP-aligned frameworks and pursuing an approach built on interoperability and shared standards, we are helping create a common platform where networks, devices, and components can work together seamlessly.

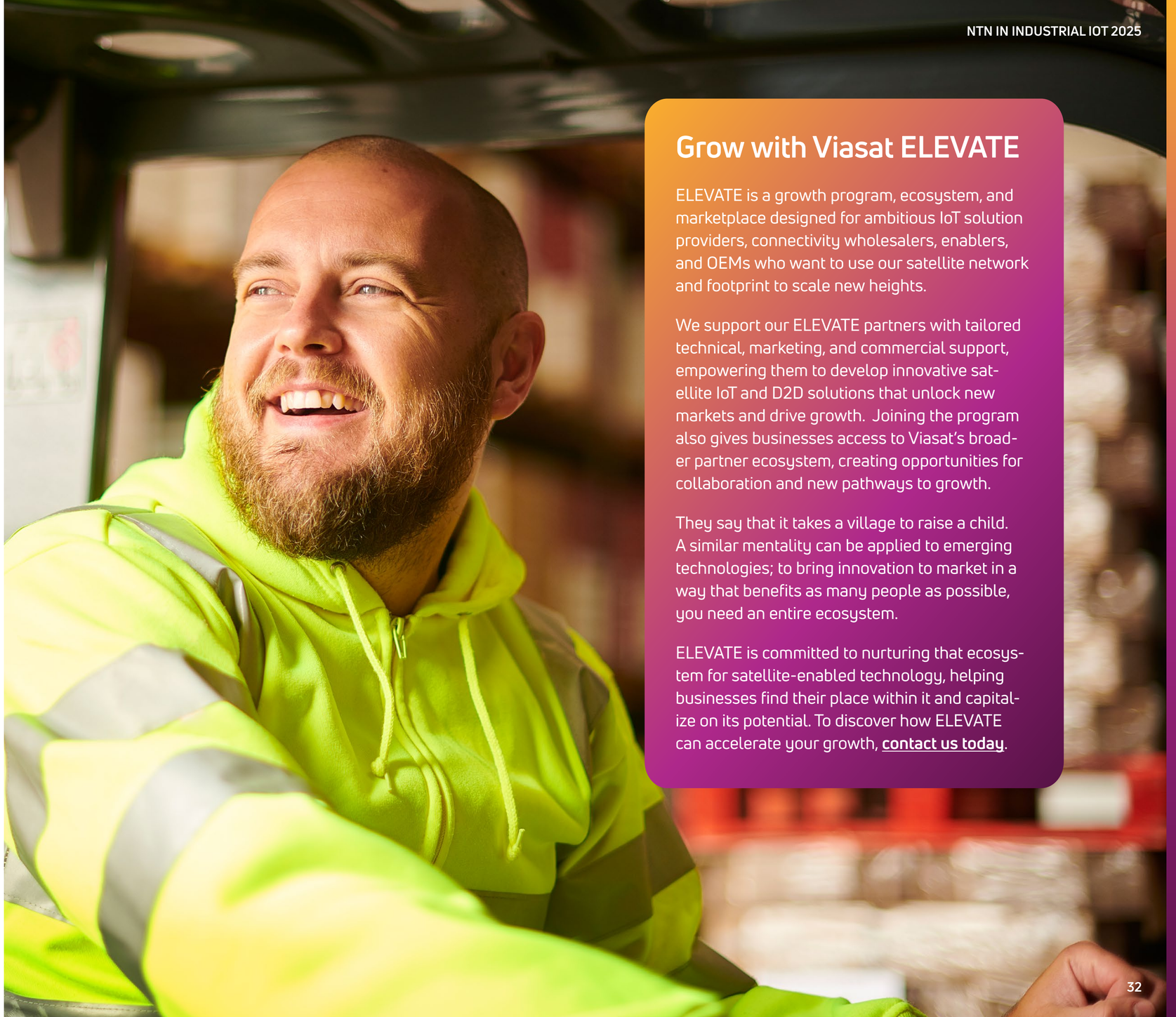
This kind of convergence accelerates innovation, drives scale, and lowers costs — while also reducing barriers to entry, expanding access to new market opportunities, and enabling faster routes to revenue. Most importantly, it fosters a more collaborative ecosystem where every participant can contribute, participate, and benefit. We have tapped into our trusted relationships across government, regulators, and industry bodies – developed across four decades of connecting the world from space and keeping people safe at sea, in the air, and on land – to help drive D2D forward. With our global satellite network, our existing infrastructure, and our established relationships, we can help businesses navigate the world of D2D – and have already:

- Shaped the Release 17 standard in collaboration with 3GPP.
- Co-founded the Mobile Satellite Services Association (MSSA), a non-profit industry association that seeks to advance the D2D, and IoT ecosystems, and advanced MSS services as a founding member.
- Demonstrated D2D in Brazil, Hawaii (US), India, Mexico, Saudi Arabia, and the United Arab Emirates (UAE)

How we can help you tap into D2D

Our NB-NTN service enables IoT solution providers, original equipment manufacturers (OEMs), and application service providers (ASPs) to economically integrate direct-to-device (D2D) connectivity into their solutions and services.

The service provides a strong foundation from which to build powerful and reliable D2D-powered hardware and solutions. It is powered by Viasat's reliable, global L-band satellite network and is fully compliant with 3GPP release 17. Leveraging Non-IP Data Delivery (NIDD) to reduce message overhead and lower the size of each individual message, it delivers more efficient data transfer and superior value for money.



Grow with Viasat ELEVATE

ELEVATE is a growth program, ecosystem, and marketplace designed for ambitious IoT solution providers, connectivity wholesalers, enablers, and OEMs who want to use our satellite network and footprint to scale new heights.

We support our ELEVATE partners with tailored technical, marketing, and commercial support, empowering them to develop innovative satellite IoT and D2D solutions that unlock new markets and drive growth. Joining the program also gives businesses access to Viasat's broader partner ecosystem, creating opportunities for collaboration and new pathways to growth.

They say that it takes a village to raise a child. A similar mentality can be applied to emerging technologies; to bring innovation to market in a way that benefits as many people as possible, you need an entire ecosystem.

ELEVATE is committed to nurturing that ecosystem for satellite-enabled technology, helping businesses find their place within it and capitalize on its potential. To discover how ELEVATE can accelerate your growth, **contact us today**.