ABIresearch
THE TECH INTELLIGENCE EXPERTS℠

60 TECHNOLOGY TRENDS THAT WILL—AND WILL NOT—SHAPE 2027

A WORD FROM OUR CHIEF RESEARCH OFFICER

Our 2027 trends update builds on a clear lesson from 2026: technological progress creates opportunities, but realizing them requires reliable infrastructure, sound economics, and the ability to put innovation into practice. Each year, drawing on discussions with industry leaders across the value chain, our analysts spanning nearly 30 technology areas assess what will happen in the year ahead—and, just as importantly, what will not. They examine these technologies not in isolation, but as they converge into practical solutions that address real industry challenges and investment priorities.

2026: Progress Meets Its Limits

In 2026, Artificial Intelligence (AI) moved beyond conversational tools into agents, industrial applications, and connected devices. Record investment in AI infrastructure opened new opportunities across computing, connectivity, and software, while exposing their dependence on energy, components, trusted data, and effective integration. Memory shortages increased device costs and weighed on smartphone and Personal Computer (PC) volumes, and the rising cost of debt among Graphics Processing Unit (GPU) cloud providers showed that capital also has limits. Geopolitical tensions and the pursuit of technological sovereignty reshaped supply chains and investment priorities. Together, these developments set the conditions for what will, and will not, be commercially achievable in 2027.

Power Decides Who Scales

ABI Research forecasts that global data center electricity consumption will reach 940 Terawatt-Hours (TWh) by 2030—approximately 2.5X its 2025 level of 394 TWh. Access to power will separate the AI cloud providers that endure from those that do not, and we expect the neocloud market to consolidate around operators with secured energy and long-term contracts. Grid operators will respond with software that extracts more capacity from existing networks, with spending on Grid-Enhancing Technologies (GETs) expected to exceed US$1 billion for the first time in 2027, while telco operators must prove they can deliver distributed AI services rather than simply carry more traffic.

AI Gets Physical

The next stage of this transition is Physical AI: intelligence that moves beyond the screen to perceive, reason, and act in the physical world, where AI meets robotics and machine autonomy. ABI Research expects more than 1.5 million industrial and commercial robots to be installed in 2026, lifting the global installed base to almost 7 million units. In 2027, progress will be most visible in defined applications across factories, warehouses, and logistics, where performance can be validated and returns measured. General-purpose humanoids face a longer path to scale, as battery life, reliability, dexterity, safety, and cost remain significant barriers, and home robots will not yet reach households. Machines will earn autonomy step by step, with human oversight remaining essential.

End Markets Set the Pace

The real test of these technologies lies in the end markets that adopt them. Manufacturers will prioritize brownfield optimization, retrofitting legacy equipment with sensors, edge computing, and targeted digital twins rather than modeling entire factories. In supply chains and warehousing, AI-driven orchestration will loosen dependence on single automation vendors. In transportation, video telematics will become one of the richest sources of fleet data and Next-Generation eCall (NG eCall) will scale across Europe, but Software-Defined Vehicles (SDVs) will not generate a broad subscription boom. Utilities will invest in software that unlocks capacity from aging grids without handing fault resolution to AI agents; building owners will demand measurable energy savings; and retailers will move toward continuous Radio Frequency Identification (RFID)-based store visibility. Across these markets, value will shift toward software that coordinates models, machines, and data across vendors and sites.

Trust Becomes a Condition of Purchase

With the European Union's (EU) Cyber Resilience Act (CRA) reporting obligations in effect since September 2026 and its main requirements applying from December 2027[1], buyers will demand verified device identity, built-in hardware security, and evidence of compliance, down to low-cost Internet of Things (IoT) devices. Consumer adoption will follow a similar discipline: useful software and dependable performance will determine whether foldables, smart glasses, and AI PCs justify their price. Meanwhile, payment cards, removable Subscriber Identity Modules (rSIMs), physical identity documents, and Global Navigation Satellite Systems (GNSSs) will prove more resilient than expected, as digital alternatives expand alongside them rather than taking their place.

The Window Is Closing

The analysis that follows brings together our analysts' perspectives on these developments and their commercial implications. Its message is direct: the era of experimentation is closing. Capital is repricing, components are scarce, and regulatory deadlines will not move. Bets placed on hype in 2026 will be tested in 2027, and suppliers that cannot prove value will be consolidated, divested, or displaced. Those who act now will shape their markets in 2027. Those who wait for certainty will be shaped by them.

— Malik Saadi, Chief Research Officer

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[1] *Regulation (EU) 2024/2847 (Cyber Resilience Act): reporting obligations apply from 11 September 2026; main obligations from 11 December 2027.* https://eur-lex.europa.eu/eli/reg/2024/2847/oj

5G Devices, Smartphones & Wearables

1 WILL HAPPEN — SOFTWARE WILL DECIDE FOLDABLES' STAYING POWER AS THE FORM FACTOR MOVES INTO MAINSTREAM CONSUMER ATTENTION IN 2027

Apple's launch of the iPhone Duo, along with a plethora of other flagship debuts in 2026, such as the Samsung Galaxy Z Fold 8, Samsung Galaxy Tri-Fold, HONOR Magic V6, and Huawei Mate XTS, proved one thing as we approach 2027: foldables are on the precipice of entering the mainstream consumer spotlight. In the past few months, vendors have converged on a shorter, wider book-style foldable design that resembles a small tablet when unfolded. Successive launches in this form factor from Samsung, Huawei, Xiaomi, and now Apple show that the hardware has reached early maturity, no longer an experimental product but a reliable smartphone form factor. The year 2027 will also mark the first full year in which the world's two largest smartphone vendors compete directly in the same foldable sub-segment, pushing the foldable beyond its early adopters' stage. However, mainstream attention does not equate to mainstream volumes. High prices, paired with ongoing memory supply chain issues, mean foldable shipments will remain a niche premium sub-vertical through 2027. This shift will shape how vendors and developers allocate resources.

As foldable hardware enters its next generation of innovation, 2027 will bring significantly more focus on intentional software designed for the form factor. Apple's playbook for the Duo centers on purpose-built, user-experience-driven software. Instead of a wholesale port of its slab-styled iPhone and iPad OS systems, Apple rebuilt features such as side-docked controls, two-app multitasking, dual-display camera functions, and smooth screen switching between folded and unfolded screens. Android Original Equipment Manufacturers (OEMs) will increasingly be benchmarked against the iPhone Duo's User Experience (UX), but they are also gaining more autonomy as Google's move to make adaptive app behavior mandatory in Android 17 removes much of the developer friction that held back earlier foldables. With the combined iOS, Android, and HarmonyOS installed base now large enough to justify investments, app developers will begin treating foldables as a priority rather than an afterthought. Ultimately, UX software will define the foldable form factor's longevity, as early adopters in the foldables space will stay in the category only if the software UX justifies the premium price tag and added worries about durability over conventional slab phones.

2 WILL NOT HAPPEN — GOOGLEBOOK WILL NOT BECOME A CREDIBLE THIRD CONTENDER IN THE AI PC OS RACE IN 2027 UNLESS GOOGLE RESOLVES ITS SOFTWARE WOES

Google's October 2026 launch of Googlebook was the vendor's most direct attempt yet to rebrand its laptop lineup and capitalize on the Artificial Intelligence (AI) Personal Computer (PC) market. Googlebook's laptop platform runs Android 17 with Gemini integrated at the OS level, repositioning it in the premium end of the market rather than in the Chromebook's traditional stronghold of education and value segments. While the launch of Googlebook is promising as a new entrant in the AI-enabled PC market, ABI Research does not expect it to become a credible third contender to Windows and macOS in 2027. Since the launch, the platform has been weighed down by a handful of software problems. Most of its apps were designed as smartphone applications adapting to larger screens, not software built to use Personal Computer (PC)-grade hardware. Desktop-class software such as the Adobe suite is noticeably absent, and Linux support that was present in ChromeOS has been removed. Beyond the issues faced by Arm chips, x86-based Googlebooks also face Android app compatibility issues, among others. While some of these issues have been addressed, third-party developers will still face a mountain of work adapting current software to a new desktop platform, much like when they adapted legacy x86 software to newer Snapdragon Arm chips.

This gap is more pronounced when benchmarked against competing platforms. Apple has positioned its M5 MacBook lineup around on-device inference, starting from the US$1,099 MacBook Air. Meanwhile, NVIDIA's RTX Spark entry with Microsoft will bring up a petaflop of FP4 AI compute, native CUDA support, and agent-sandboxing features in Windows 11 to thin-and-light form factors. The AI PC race has firmly shifted to local agentic and developer workloads. Googlebook's Neural Processing Unit (NPU)-led, cloud-reliant Gemini access, along with missing developer workloads, could leave it poorly positioned in the segment where AI PC differentiation is now being decided. Googlebook and its Gemini models will remain a great asset, as the vendor is uniquely positioned in both AI hardware and model training and inference, but its ambition to take the AI PC race by storm will not materialize in 2027—not until the software experience catches up with the hardware that its partners and competitors are shipping.

5G, 6G & Open RAN

3 WILL HAPPEN — 5G-ADVANCED AND SA WILL CREATE NEW PREMIUM SERVICE OPPORTUNITIES

The year 2027 will be when 5G-Advanced (5G-A) networks and 5G Standalone (SA) start creating new premium service opportunities and execute the vision 5G promised. According to ABI Research, there are nearly 400 networks with 5G in 2026, more than 90 having launched SA. Moreover, 35 operators are investing in 5G-A and 11 have already launched commercial 5G-A service. Device support is also there with 43 chipsets supporting SA, and thousands of devices in the market supporting the new features.

Mobile operators are now taking advantage of this solid foundation and starting to sell premium services in the form of boost packages, premium experiences, and, in some cases, outcome-based services. For example, Singtel's 5G+ Priority Pass puts users on a dedicated slice with "4X speed" for S$5 per 48 hours or S$19.90 a month. Airtel has launched India's first consumer slicing service for postpaid customers, and Reliance Jio runs 10 nationwide slices, including one for gaming. The creator economy and AI are also shifting traffic patterns, meaning that uplink is becoming more important and a service differentiator. New premium uses such as live creator streaming, Extended Reality (XR) and Artificial Intelligence (AI) assistants, will depend on the guaranteed, low-latency performance that 5G-A provides. ABI Research now sees that the network capabilities, the devices, and the early pricing models all exist. In 2027, operators will start combining them into premium and luxury tiers that charge for guaranteed experience rather than gigabytes. Some operators will also start packaging advanced network features and sell outcome-based services, allowing them to access ultra-premium tiers for ultra-high net worth individuals.

4 WILL NOT HAPPEN — AI-RAN WILL NOT REACH MAINSTREAM SCALE

The SoftBank and Ericsson trial of an AI-native link adaptation scheduler, run on a live 5G network in August 2026, shows that AI-RAN can work on a commercial network. However, the headline figures of up to 25% better spectral efficiency and up to 50% higher downlink user throughput need careful reading, because the average across all evaluated locations was closer to 10%. What an operator actually gains depends on network density, radio conditions, traffic patterns, and how well tuned the existing Radio Access Network (RAN) already is. Against that, AI functions bring extra cost and operational complexity, along with the risk of becoming dependent on a single vendor's models and software; where gains are modest, those costs can cancel out much of the value. The external AI workload model looks shakier still, because it relies on third-party demand that operators have yet to find. With operators holding different spectrum and vendor relationships, 2027 will bring selective deployment rather than network-wide rollout.

Deployment will instead move site by site, starting with urban hotspots, transport hubs, and busy enterprise locations. At these locations, a small efficiency gain where spectrum is congested can delay a spectrum purchase or a new build. Modular software upgrades that run on existing infrastructure will appeal most to operators, especially if there are clear performance thresholds that tell operators when to widen deployment. This expansion will then be dependent on data such as traffic carried per Megahertz (MHz), capacity upgrades delayed, and spending avoided. While features such as autonomous optimization, energy management, and external AI workloads could make a compelling case in the future, they will not drive AI-RAN's mainstream adoption in 2027.

Data Centers

5 WILL HAPPEN — THE NEOCLOUD MARKET WILL CONSOLIDATE AND ONLY THE POWER-BACKED SPECIALISTS WILL REMAIN

For data centers, the neocloud shakeout is the story of 2027. Neoclouds became the fastest-growing tenants and builders of AI data centers, signing for halls, power, and Graphics Processing Units (GPUs) at a pace the available capital can no longer support. Dozens of them, many funded by Venture Capital (VC) money or run by former crypto miners, are selling broadly the same thing. As the field consolidates, data center capacity, leases, and grid connections will change hands, and only the players backed by secured power will keep building.

The triggers are already in place. CoreWeave's debt-driven sell-off has raised the cost of capital for the entire sector, Firmus pulled its Initial Public Offering (IPO), and a wall of GPU-backed loans will come due by 2028. Consolidation has also begun moving up the stack, with Nebius buying inference software companies and Nscale acquiring Anyscale. Next we will see deals for each other's contracts, GPUs, and powered sites.

What will the survivors look like? Not the biggest borrowers, but the operators with the most balanced models: a broad customer base rather than two anchor tenants, secured power, and a full cloud platform on top of the GPUs. Vultr shows where the market is heading: an independent cloud with more than 30 regions worldwide, a two-vendor GPU strategy across NVIDIA and AMD that includes a US$1.2 billion order for AMD Helios racks, and an enterprise inference stack. That breadth makes it a platform enterprises can build on, not just a source of GPU hours.

The winners share four strengths: speed-to-power, long-term contracts with creditworthy customers, secured energy, and a clear role in inference, sovereign, or enterprise AI. For data centers, that means fewer but stronger tenants, backed by real demand and real financing, who fill halls and stay in them. For enterprises, it means a smaller but far more reliable set of GPU partners by the end of 2027.

6 WILL NOT HAPPEN — COLOS WILL NOT LOSE THEIR RELEVANCE IN THE AI WORLD, AS NEOCLOUD SELF BUILDS WILL FACE TOUGH REALITIES

A popular story says colocation is being left behind. Hyperscalers, Artificial Intelligence (AI) labs, and neoclouds announce Gigawatt (GW) campuses of their own, and Colocation Data Centers (colos) shrink to a legacy niche for enterprise racks. That will not happen in 2027. The events of this autumn point firmly the other way.

Self-building at scale depends on cheap equity, and that is drying up. CoreWeave's debt-driven sell-off, the sector-wide slide in neocloud stocks and Firmus pulling its IPO all landed in the same week of October 2026, while a wall of GPU-backed loans comes due for refinancing. Equity-funded projects without anchor tenants will be paused or sold, and capital will flow to contracted, energized capacity, which is exactly what established colos offer.

Self-builders also have a delivery problem. Nscale relies heavily on capacity leased from other operators while its own flagship runs late, and Firmus' Australian partnership delivered 43 MW of a planned 1.6 GW. With delay penalties now written into AI contracts, colos with a proven delivery record become the safe choice, and they can charge for it.

Neocloud consolidation does not change this. Powered, AI-ready capacity is so scarce that a hall vacated by a failing tenant is quickly re-let, often to the competitor that bought its contracts. Colos will protect themselves with guarantees and a broader tenant mix. The building outlives the tenant, and the colo outlives the cycle.

Enterprise Connectivity

7 WILL HAPPEN — EDGE AI MAKES THE NETWORK MISSION-CRITICAL

In 2027, enterprise Artificial Intelligence (AI) leaves the lab and lands on factory floors, in ports, mines, hospitals, and warehouses. Inference will run where the data are created, because latency, sovereignty rules, and the cost of hauling video and sensor data to the cloud leave no other sensible choice. The moment a model decides whether a production line stops, a dropped link stops the business.

Edge AI does not cut the cord to the cloud; it tightens it. Models are trained centrally, pushed to thousands of sites, monitored, and retrained, while AI agents call services across locations in real time. That loop turns connectivity from a utility into part of the AI system itself, and the traffic is already building, with Equinix reporting record interconnection growth driven by AI.

The vendor moves during October 2026 do not contradict this; they sharpen it. Nokia selling its Enterprise Campus Edge business while keeping private cellular for mission-critical sectors, and Ericsson folding its enterprise wireless business into its core, show that the generic campus network, sold site by site, does not pay on its own. Private connectivity is concentrating where failure is not an option, and that is exactly where edge AI is heading.

So in 2027, edge connectivity will be bought as part of an AI outcome, not as a network project. Enterprises will expect guaranteed latency, redundancy across fiber, 5G, and satellite, and security at every edge node, delivered as repeatable packages through operators, integrators, and edge platforms. The providers that win will sell assured performance for AI workloads; those still selling radios or megabits per site will be left quoting prices.

8 WILL NOT HAPPEN — CONNECTIVITY WILL NOT RECOVER AS A BUSINESS ON ITS OWN

Do not expect AI traffic to rescue the pipe. Every data wave of the last 20 years, from mobile video and streaming to cloud migration, grew volumes while unit prices fell, and edge AI will follow the same script. More traffic is not more revenue when the product underneath it is interchangeable. Edge AI may even accelerate the slide, because much of its data are processed locally and never touch the Wide Area Network (WAN).

The largest operators already show the pattern, with AT&T's business wireline revenue and BT's international business both shrinking. New technology replaces old revenue, but not dollar for dollar. Fiber, 5G, fixed wireless, and satellite keep adding supply, a Software-Defined Wide Area Network (SD-WAN) keeps switching easy, and procurement tenders connectivity like electricity. Every renewal resets the price downward.

The industry's answer is consolidation, not recovery. When BT and Verizon merge their international businesses into a Joint Venture (JV), they are protecting scale in a mature market, not chasing growth. Expect more of the same in 2027: carve-outs, network sharing, and wholesale deals designed to cut the cost per bit rather than raise the price of it.

Where growth does appear, it sits above the pipe in software, security, and managed services. Operators betting on a pricing recovery in 2027 are making a planning error. The connection becomes the entry ticket to the shortlist; managed edge, security, observability, and performance guarantees are what win the deal and carry the margin. Enterprises will use AI-driven demand as leverage for better terms, not as a reason to pay more.

Space Technologies & Innovation

9 WILL HAPPEN — SPACEX'S FALCON 9 SUNSET AND RIDESHARE CAPS WILL DRIVE A 2027 BOOM FOR ALTERNATIVE LAUNCH SERVICES

Launch supply shortage has always been a persistent concern for satellite operators in the Direct-to-Device (D2D), Internet of Things (IoT), broadband, and Earth Observation (EO) space, especially if these companies want to scale their constellations. In August 2026, SpaceX announced that it planned to retire Falcon 9 in the coming years once Starship—its next-gen launcher—begins operational flights. Many satellite operators, such as AST SpaceMobile, Spire Global, ICEYE, Satellogic, and Capella Space, have relied heavily on Falcon 9's rideshare missions to launch their space assets into orbit due to its high consistency, reliability, and cost-effective access to space. In September 2026, SpaceX's Starship demonstrated a successful launch of the rocket, bringing 26 V3 Starlink satellites into Low Earth Orbit (LEO), adding to its mega-constellation. This success signals that SpaceX's Falcon 9 may retire sooner than we think, sending satellite operators and governments scrambling for alternative launch providers.

Many commercial satellite operators and governments are looking to secure backup launch options. In July, the U.S. Space Force (USSF) expands its National Security Space Launch (NSSL) vendor pool and awarded two contracts to Impulse Space and Relativity Federal (a subsidiary of Relativity Space) to strengthen and diversify the nation's access to space. The USSF also awarded a contract worth US$266 million to RocketLab for 12 suborbital launches. In September, RocketLab secured its largest ever Electron deal to launch 21 Synthetic Aperture Radar (SAR) satellites for Synspective over the next few years. NASA has also added Blue Origin's New Glenn launch service for its future missions.

These contracts underline a growing shift toward diversifying launch vendors to ensure secure, resilient access to orbit. As operators start to scale their constellation and services, the launch bottleneck will exacerbate if launch providers do not innovate quickly enough.

10 WILL NOT HAPPEN — ORBITAL DATA CENTERS UNLIKELY TO SEE COMMERCIAL SERVICE LAUNCH IN 2027

Orbital Data Centers (ODCs), systems designed to host and sell Compute-as-a-Service, have captured headlines as industry tech giants SpaceX, Amazon, and Google have announced mega constellations with a satellite count in the millions. On-orbit compute per satellite has increased roughly three orders of magnitude in 6 years on the same unqualified-Commercial-off-the-Shelf (COTS) model, and each step-up has unlocked a new workload class and business model. However, satellites reaching 1,000 Tera Operations per Second (TOPS)+ per payload (required for Large Language Model (LLM) training and ODC applications) have only started to reach orbit in Proof of Concept (POC) and demonstrator missions to date. Starcloud-1, launched in November 2025, was the first 1,000 TOPS+ satellite to reach orbit followed by Google's Suncatcher-1 Tensor Processing Unit (TPU) satellite in October 2026. None of the operators planning to launch ODCs have disclosed a commercial customer for these future constellations.

Given the momentum of the industry today, 2027 is slated as the entry year for data center-class orbital compute: Starmind's maiden launch, Starcloud's follow-on mission, and Suncatcher's two laser-link satellites. The launch of a commercial services provided by these systems is not expected until 2028 at the earliest, although trials and demonstrations of commercial services are expected in 2027.

Telco AI

11 WILL HAPPEN — TELCOS START BUILDING AI GRIDS AND MOVE UP THE AI STACK TO BECOME AI LANDLORDS AND INFRASTRUCTURE PROVIDERS

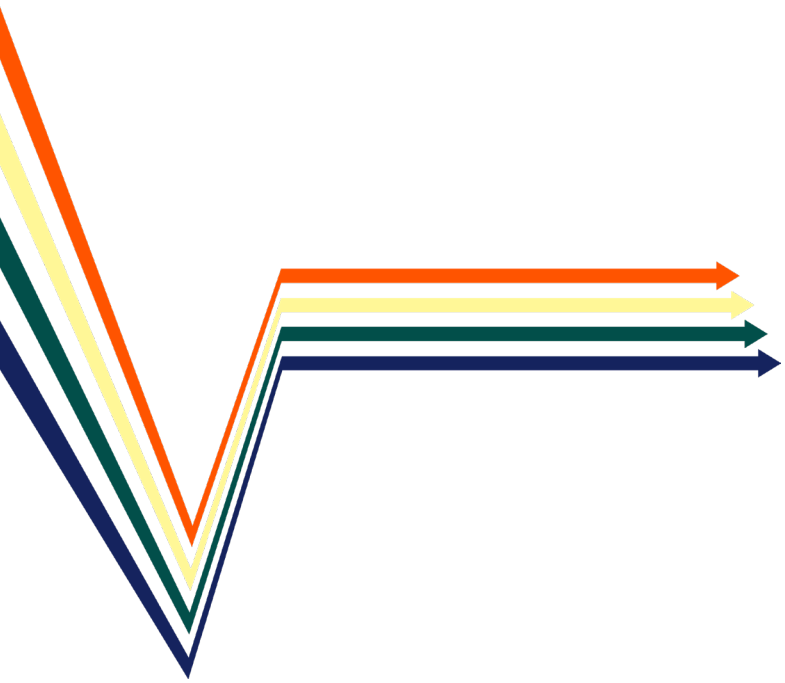
In 2027, telcos will begin turning Artificial Intelligence (AI) grid strategies into distributed infrastructure deployments and commercial partnerships. An AI grid is a distributed infrastructure model that connects accelerated compute, networking, and AI workloads across multiple locations, including core data centers, central offices, edge, and eventually Radio Access Network (RAN) sites. Telcos will target and monetize workloads that benefit from low latency, data locality, and sovereignty, including Physical AI, video analytics, and Agentic AI. Their existing network infrastructure and distributed facilities will provide an advantage for offering GPU-as-a-Service (GPUaaS), sovereign AI cloud, and inference platforms to enterprises and AI developers.

Telcos will not compete with hyperscalers and neoclouds on large-scale AI training capacity. High capital and uncertain demand will keep telco AI grid deployments selective, with early uses cases where enterprise and sovereign AI demand is strongest. The opportunity will push telcos further into the AI value chain, creating new revenue streams beyond connectivity.

12 WILL NOT HAPPEN — NETWORKS WILL NOT REACH LEVEL 4 AUTONOMY BY 2027

Operators and vendors are investing in autonomous networks and Agentic Artificial Intelligence (AI); however, telco networks will not reach Level 4 autonomy across multiple network domains in 2027. Under the TM Forum framework, Level 4 is defined as a "highly autonomous" network capable of making decisions in complex, cross-domain environments through predictive analysis or active closed-loop management. Operators have already deployed Machine Learning (ML), closed-loop automation, and domain-specific controllers, but these capabilities remain fragmented across network domains and vendor systems. Agentic AI will help coordinate existing automation tools, but interoperability, data integration, legacy infrastructure, and operational assurance will continue to limit progress. Operators running multi-vendor networks will face additional challenges because autonomous workflows must coordinate systems with different models and management platforms.

End-to-end vendors such as Ericsson and Huawei are best positioned to integrate automation within their own ecosystems, although this will not guarantee Level 4 autonomy across an entire network. Improvements will continue through domain-specific deployments and select use cases, and widespread Level 4 autonomy will require further development of the interoperability, orchestration, and governance capabilities needed to coordinate network operations with minimal human intervention.



AI & Machine Learning

13 WILL HAPPEN — OPENAI AND ANTHROPIC WILL INTRODUCE DYNAMIC MODEL ROUTING WITHIN THEIR AGENT APPLICATIONS

Over the next 12 to 18 months, both Anthropic and OpenAI will build dynamic model routing directly into their agent products, so that each step/task of an agentic workflow is automatically sent to the cheapest model that can complete it reliably. The commercial logic is hard to ignore. Long-running agents use far more tokens than chat-based Artificial Intelligence (AI) systems, and open-weight models are now good enough to set pricing pressure on the closed-weight model providers.

At the same time, third parties are capturing the orchestration layer. Perplexity Computer coordinates 19 different AI models to run complex, long-running workflows, leveraging frontier models for core reasoning and orchestration, while sending subtasks to other models. As enterprise tasks evolve, owning the model orchestration layer helps strengthen customer relationships.

Building routing in-house lets the model providers achieve two things. First, it strengthens customer retention: enterprises get optimized spending without building the in-house expertise to migrate workloads to the open-weight ecosystem, which weakens the cost case for leaving. Second, it makes more efficient use of a provider's compute capacity, reserving frontier models for the steps that need them as providers continue to ramp up compute for both training and inference over the coming years.

14 WILL NOT HAPPEN — MANAGED INFERENCE WILL NOT BECOME A MATERIAL REVENUE DRIVER FOR NEOCLOUDS

Over the next 12 to 18 months, managed inference will remain a niche for neoclouds rather than a core revenue line. Only a small subset will seriously enter the market: full-stack AI clouds such as Nebius and Crusoe, which have the software, model-optimization, and developer-platform capabilities to run a credible per-token service. The majority of neoclouds will stay focused on Graphics Processing Unit (GPU) capacity, and with good reason. Managed inference is one of the most competitive segments in AI infrastructure. Providers compete on throughput, latency, and time-to-first-token for each model, while the price per token of leading open-weight models keeps falling as new releases, better serving engines, and wider hardware supply push costs down. Winning requires deep expertise in inference engineering (kernel optimization, Key Value (KV)-cache management, speculative decoding, autoscaling), which specialist inference platforms such as Together AI, Fireworks AI and Baseten have spent years building. These specialists, and the frontier labs' own Application Programming Interfaces (APIs), will capture most managed inference revenue. Much of it will run over the top of neocloud compute, so neoclouds will mostly book the value as wholesale capacity rather than as higher-margin token revenue. For the full-stack players, managed inference will serve as an entry point into higher-value services rather than a growth engine in its own right. Whether they can turn it into meaningful revenue will depend on how well they scale enterprise-grade capabilities above all security (data residency, zero-retention guarantees, private networking, and compliance certifications), which enterprises currently get by default from the hyperscalers.

This does not mean managed inference revenue will stagnate. As enterprises shift more workloads to open-weight models to control costs, the full-stack AI clouds that offer managed inference will see strong revenue growth from these services. That growth starts from a small base, however, and long-term compute contracts with model developers and hyperscalers will remain the dominant and fastest-growing source of neocloud revenue throughout this period.

Industrial, Collaborative & Commercial Robotics

15 WILL HAPPEN — CLOUD ROBOTICS ORCHESTRATION WILL EXPAND CONSIDERABLY IN 2027

Cloud robotics will gain considerable commercial momentum in 2027 as Physical AI expands the role of cloud infrastructure across the robotics value chain. Historically, cloud robotics has centered on product design, simulation, software development, and limited orchestration functionality, exemplified by AWS IoT RoboRunner before its discontinuation. Transformer architectures create a considerably larger opportunity. Hyperscalers will provide the computing infrastructure required to train and refine Robotics Foundation Models (RFMs), while cloud-deployed agentic systems will increasingly support the real-time coordination of deployed robots. Together, these workloads will generate the broadest robotics-related demand hyperscalers have yet experienced, drawing them deeper into robotics software ecosystems and the operation of physical systems.

Agentic workflows will prove particularly valuable in addressing integration, one of the most persistent barriers to robotics deployment. Many end users operate heterogeneous fleets, forcing them to reconcile different Original Equipment Manufacturer (OEM) platforms, fleet managers, interfaces, and interoperability standards such as VDA 5050 and the MassRobotics AMR Interoperability Standard. Emerging architectures will place a lightweight agent on each robotics asset, enabling the robot to function as an intelligent API regardless of its manufacturer. These agents will interpret instructions, exchange contextual information, and coordinate workflows across robots, Warehouse Management Systems (WMSs), and Manufacturing Execution Systems (MESs). Cloud-based platforms will orchestrate these interactions across the wider fleet, reducing dependence on customized integrations and de-risking deployment by limiting vendor lock-in, preserving flexibility in future procurement, and lowering the cost and complexity of adding new systems. This capability will bring cloud robotics substantially closer to its long-promised role as a unifying operational layer.

16 WILL NOT HAPPEN — UNIFIED VERSUS DISCRETIZED FOUNDATION MODEL DYNAMICS: ROBOTICS WORLD ACTION MODELS WILL NOT REACH COMMERCIAL MATURITY IN 2027

World Action Models (WAMs) will remain confined primarily to research and pilot programs in 2027. Robotics developers are divided between large, unified foundation models spanning perception, reasoning, planning, and action, and smaller models optimized for defined tasks. Unified architectures remain brittle, computationally intensive, and insufficiently validated for dependable operation in dynamic environments. Nevertheless, investment is accelerating: RFM companies attracted US$3.9 billion between January and September 2026, accounting for 12% of all robotics investment tracked by ABI Research. Major technology companies are also positioning world models as foundational to Physical AI, demonstrated by AMD's proposed acquisition of World Labs. However, the architecture required to translate these capabilities into safe, commercially viable robot control is still forming.

The market will remain split between competing development strategies. NVIDIA, Figure, Tesla, Apptronik, and other major vendors are investing in large, general-purpose models intended to unify perception, reasoning, planning, and action across a widening range of tasks. NVIDIA's GR00T and Figure's Helix illustrate this direction, although both use fast-slow internal structures to separate deliberative reasoning from real-time control. In parallel, smaller policies based on architectures such as SmolVLA and Action Chunking Transformers offer a more practical route to automating defined commercial tasks. These models require less compute, can be trained using narrower datasets, and can be deployed as a series of specialized policies managed by an agent. The discretized model approach will gain a foothold in 2027; however, unified models may ultimately provide the generalization required to unlock humanoid robots in greenfield markets, including the home, but their performance, safety, compute requirements, and deployment architecture remain unresolved. Therefore, smaller models will continue capturing near-term deployments, while funding and strategic development remain concentrated around the longer-term promise of unified Physical AI. Primarily, immaturity will prevent WAMs from achieving broad commercial maturity or acceptance during 2027.

17 WILL HAPPEN — NEXT-GENERATION ECALL DEPLOYMENT WILL ACCELERATE RAPIDLY ACROSS EUROPE IN 2027

Next-Generation eCall (NG eCall) will enter its first major year of deployment in 2027 following the European Union's (EU) transition toward packet-switched emergency communications. From January 2026, new M1 and N1 vehicle types seeking EU-type approval must support IP Multimedia Subsystem (IMS)-based NG eCall, replacing the circuit-switched architecture used by legacy systems. ABI Research expects NG eCall-enabled vehicle shipments in Europe to increase from approximately 1 million in 2026 to around 5 million in 2027 as newly approved vehicle platforms reach the market. Western Europe will lead adoption, while uneven Public Safety Answering Point (PSAP) modernization will result in a more gradual transition in parts of Eastern Europe.

The transition creates opportunities beyond regulatory compliance. NG eCall moves emergency communications onto the same Long Term Evolution (LTE) and 5G infrastructure supporting broader connected vehicle services, allowing automakers and suppliers to combine emergency calling with richer vehicle telemetry, occupant information, remote diagnostics, and post-crash assessment. Deployment will require coordination across automakers, Tier One suppliers, Mobile Network Operators (MNOs), PSAPs, and standards organizations, while the retirement of legacy cellular networks makes migration increasingly unavoidable. For technology suppliers, the opportunity will shift from simply enabling an emergency call toward providing the connectivity, sensing, compute, and software required for a more integrated post-crash safety architecture.

18 WILL NOT HAPPEN — SOFTWARE-DEFINED VEHICLES WILL NOT CREATE A BROAD SUBSCRIPTION REVENUE BOOM IN 2027

Software-Defined Vehicles (SDVs) will give automakers greater ability to add features and services after a vehicle is sold, but this capability will not translate into a broad subscription revenue boom in 2027. The additional compute, software development, cloud infrastructure, and lifecycle management required to support SDVs introduce significant new costs without a corresponding killer application that consumers consistently demonstrate a willingness to pay for. ABI Research has found that churn rates of 70% to 90% after free trials are not unusual for infotainment subscriptions, while many automakers still have limited insight into which software features drivers regularly use and value.

This does not mean that paid vehicle software will fail altogether. Instead, successful monetization will remain concentrated in features and services with a clear and sustained customer value proposition. Automakers are already reassessing where proprietary software development creates meaningful differentiation and where shared or externally sourced foundations can reduce duplicated engineering effort. For software, cloud, semiconductor, and toolchain suppliers, SDV opportunity in 2027 should therefore not be measured primarily by consumer subscription revenue. Development speed, lifecycle management, integration, validation, and differentiated vehicle functionality will remain more immediate areas of investment as automakers work to make the underlying economics of SDVs sustainable.



Wi-Fi, Bluetooth & Wireless Connectivity

19 WILL HAPPEN — THE DIVERSITY OF UWB DEPLOYMENTS WILL ACCELERATE WITH THE ARRIVAL OF IEEE 802.15.4AB AND EXPANSION BEYOND RANGING APPLICATIONS

The Ultra-Wideband (UWB) chipset, IP, vehicle, and device ecosystem has grown rapidly in recent years. Several new entrants to the market are developing IEEE 802.15.4ab solutions, while existing vendors are evolving their portfolio to support the technology. Original Equipment Manufacturers (OEMs) are increasingly seeing the value of combining multiple UWB features together to maximize Return on Investment (ROI), create new valuable use cases, and differentiate their offering. This includes secure ranging, digital key, proximity Artificial Intelligence (AI) experiences, sensing and radar, positioning, indoor navigation and Real-Time Location System (RTLS), pure sensing, presence detection, gesture control, and low-latency, low-power, high throughput Personal Area Network (PAN) technology.

IEEE 802.15.4ab standardizes and bridges together all these enhancements to create a powerful, flexible, and multi-functional foundational technology from which solution providers and automotive OEMs can drive future innovation. The significant boost in ranging performance, along with the multiple enhancements to radar and sensing, will drive future innovation and open an increasingly diverse set of use cases across automotive, smart home and smart building, consumer devices, smart healthcare, industrial, smart city, and many other applications. The arrival of standards such as Aliro will drive new opportunities in home and building access control applications.

Many UWB solution providers and automotive OEMs have already combined the benefits of UWB ranging and radar to deliver valuable use cases such as Child Presence Detection (CPD), Living Presence Detection (LPD), seat occupancy, and kick sensing. Instead of investing in multiple UWB hardware anchors solely for smart access and digital key applications, vehicle OEMs can now maximize their ROI by reusing the already deployed hardware to support vital sensing activities and support regulatory requirements such as Euro NCAP for CPD. These multiple UWB use cases help avoid any redundant systems and can help reduce the overall cost of sensing deployments.

Opportunities exist for the technology as a low-power, low-latency communications technology for audio, Extended Reality (XR), gaming devices, and personal AI devices. Companies such as SPARK Microsystems have led the way for these applications, to date, with a series of high-profile products arriving to the market in 2H 2026. Growth is also set to continue as the applications expand and more smartphones adopt the technology. By 2030, the total UWB market is expected to reach nearly 1.18 billion units, growing from 597 million in 2026.

20 WILL NOT HAPPEN — DESPITE GROWING TRACTION, NEARLINK WILL NOT REPLACE OTHER WIRELESS CONNECTIVITY TECHNOLOGIES

NearLink is an emerging and ambitious wireless technology that offers several differentiators when compared with Wi-Fi, Bluetooth® Low Energy (LE), and UWB technologies. The standard includes SparkLink Low Energy (SLE) for low-power applications such as audio, peripherals, wearables, sensors, and digital keys, and SparkLink Basic (SLB) for high-speed, deterministic connectivity. Future versions aim to improve positioning, sensing, Internet of Things (IoT), and passive applications.

NearLink adoption in source devices (smartphones, Personal Computers (PCs), tablets) is accelerating, driven almost entirely by Huawei, to date. Smartphones are the most important source device, and the largest current market opportunity from a volume perspective. A growing installed base will be critical in enabling downstream opportunities in sink devices across wireless audio, peripherals, digital key, and proximity services.

Huawei has already integrated NearLink into tablets, smartwatches, keyboards, mice, styluses, earbuds, and other accessories, with low-latency, high-resolution audio one of the strongest early consumer use cases. Meanwhile, YFORE and Huawei-linked deployments across AITO, Luxeed, Stelato, and other vehicles demonstrate early traction for automotive digital key applications.

The SparkLink ecosystem has expanded significantly, with the SparkLink/NearLink Alliance having grown from 80 founding members to more than 1,200 members. Several chipset vendors are now supporting the technology, including Triductor Semiconductor and Aich Technology. In addition, international outreach is growing through ITU inclusion, SparkLink Japan, and a growing European event presence. However, design wins outside of China and outside of Huawei/HiSilicon remain limited.

NearLink faces multiple barriers to adoption, including ecosystem maturity, geopolitical perception, competitive alternatives, and limited SLB adoption. NearLink also faces strong competition from the continued evolution of Bluetooth®, the emergence of UWB, low-power Wi-Fi, proprietary wireless solutions, and other incumbent standards. It also has limited support beyond HarmonyOS, limited non-China adoption, and a lack of major SLB deployments. Much work will need to be done to build a stronger international presence, and a wider ecosystem of devices and solutions, to enable it to compete with the ever-evolving short-range wireless market in the future.

21 WILL HAPPEN — PRE-CERTIFICATION WI-FI 8 INFRASTRUCTURE WILL HIT THE MARKET

Wi-Fi 8, or IEEE 802.11bn, heralds a major transition for the Wi-Fi industry. In contrast to previous Wi-Fi generations, which have consistently focused on delivering throughput improvements, Wi-Fi 8 is centered on enabling Ultra-High Reliability (UHR). The core of UHR will be a collection of advanced Multi-Access Point Coordination (MAPC) capabilities, which are designed to maximize spectrum efficiency and enhance network resilience by coordinating transmissions across Access Points (APs) in the network. MAPC features include Coordinated Spatial Reuse (Co-SR), Coordinated Beamforming (Co-BF), Coordinated Orthogonal Frequency-Division Multiple Access (Co-OFDMA), Coordinated Time Division Multiple Access (Co-TDMA), Coordinated Uplink Multi-User Multiple Input, Multiple Output (Co-UL-MU-MIMO), and Joint Transmission (JT). Via implementation of these capabilities Wi-Fi 8 promises to achieve a 25% reduction in the worst-case packet loss rate, a 25% reduction in 95th percentile latency reduction compared to Wi-Fi 7, Non-Primary Channel Access (NPCA) efficiency, extended range, and higher energy efficiency. Wi-Fi 8's orientation toward reliability will help both improve Wi-Fi Quality of Experience (QoE) for existing applications and enable the technology to address new use cases, particularly latency-sensitive, mission-critical applications, helping to expand the total market for Wi-Fi.

Wi-Fi 8 standardization is progressing rapidly. Following the approval of 802.11bn Draft 2.0 in August 2026, which saw the IEEE lock in Wi-Fi 8's core feature set, Draft 3.0 is scheduled for early 2027, at which time the standard will move into the sponsor ballot stage for formal review and refinement before final ratification in early 2028. Official Wi-Fi Alliance product certifications will then proceed soon thereafter.

We have also seen product development for Wi-Fi 8 advance swiftly. The first Wi-Fi 8 chipsets were announced by Broadcom in October 2025, followed soon after by MediaTek and Qualcomm. Within a few months, a wide range of Wi-Fi 8 AP prototypes were unveiled, including from TP-Link and Sercomm. September 2026 also saw the Wi-Fi Alliance host its first three-site Plugfest for pre-certification Wi-Fi 8 interoperability, across Beijing, Taipei, and California. While Wi-Fi 8 prototypes were made available to equipment and device vendors in 2026, ABI Research anticipates that the first pre-certification Wi-Fi 8 APs will hit the consumer market in 2027, with estimated shipments for the year reaching 0.3 million globally. Demand for Wi-Fi 8's advanced new capabilities will drive a sharp adoption curve thereafter, with annual shipments increasing to 1.0 million in 2028 and up to 10.9 million in 2030.

22 WILL NOT HAPPEN — ISPS WILL STRUGGLE TO DEPLOY AI ACROSS THEIR COMPLEX, SPRAWLING, AND ALWAYS-ON NETWORKS

The range of possible applications of Artificial Intelligence (AI) within Internet Service Provider (ISP) networks is endless. ISPs can leverage AI for advanced network automation and optimization, increasing operational efficiency and lowering management and maintenance costs. Enabling digital twins can also allow ISPs to simulate new configurations and upgrades before physical implementation, reducing trial and error and streamlining deployments. Harnessing AI for proactive troubleshooting and for automating and streamlining customer support can support improved QoE that will increase competitiveness and customer retention. An expanded application of AI across the broader smart home device landscape can also facilitate personalized smart home experiences and automation, along with innovative AI-powered value-added services for greater revenue generation. Other potential AI applications for ISPs include energy optimization and identifying priority customers for upsell opportunities.

We have already seen many Tier One ISPs worldwide conduct limited AI deployments across their networks for select tasks. In the United States, Comcast uses Large Language Models (LLMs) to track endpoint QoE and predict triggers of service disruption, such as congestion, so they can be proactively resolved. In Canada, TELUS upgraded its SmartHome+ Assistant service to aggregate voice, image, video, and sensor feeds in real time to build personalized smart home control interfaces for subscribers, with over 2,000 smart devices already supported. In the United Kingdom, Virgin Media O2 recently launched an AI voice agent to handle customer calls, and in China, AI-enabled smart home cameras were recently rolled out by China Unicom. Many others around the world are also in the process of implementing innovative features powered by AI, including Deutsche Telekom in Germany, and Reliance Jio in India. However, we are still in the early stages of the AI journey for ISPs, and these represent merely the first steps of larger ISPs cautiously transitioning from testing and trialing AI toward actual real-world implementations.

ISPs have struggled to deploy AI across their networks for several core reasons. First, the majority of ISPs are juggling multiple legacy networks simultaneously, potentially with different backhaul technologies (Digital Subscriber Line (DSL), cable, fiber, Fixed Wireless Access (FWA), etc.), alongside separate network management platforms. Integrating these disparate network elements is necessary for AI efficacy, but doing so is either not feasible due to vendor or technological incompatibility, or carries the significant risk of triggering service disruption for customers. The result is a fragmented landscape unable to provide AI with the end-to-end, real-time, and accurate data it requires. Further driving ISP caution is a general lack of trust in AI. While ISPs do see the possible benefits of AI, they also fear its potential to cause serious service disruption due to hallucinations or incorrect implementations. In many cases, ISPs also lack the necessary skills internally to deploy AI, or the significant capital resources required to make deployments successful. Finally, regulatory frameworks, including those around privacy, cybersecurity, and data sovereignty, are another inhibitor for ISPs. For all the above reasons, while we will continue to see limited AI deployments by ISPs, ABI Research believes that widespread, wholesale adoption of AI across ISP networks will not arrive in 2027.

Citizen Digital Identity

23 WILL HAPPEN — POLYCARBONATE PENETRATION WILL CONTINUE TO GROW

Despite the demands imposed by polycarbonate adoption—namely the requirement to overhaul personalization infrastructure with a switch to laser engraving—the appetite for polycarbonate migration remains strong. The security features enabled are an obvious driver, mitigating the continuing advancement of counterfeiting technologies and alleviating the increased risk of highly connected, highly distributed back-end systems. The significant step forward in tamper resistance, and in particular delamination-based methods, provides a much lower likelihood of document modification and provides much greater trust in veracity.

Durability is another benefit, with longer in-service life spans resulting in fewer replacements due to damage or wear, and providing the option to extend issuance cycles, reducing pressure on frequently highly burdened issuance systems.

If laser-engraving personalization only is used, issuers are also somewhat insulated from the cost and supply chain pressures highlighted in some other ID manufacturing segments during the recent Hormuz crisis, feeding more broadly into a preference for sovereignty and autarky in government markets.

Adoption will remain dependent on the expiration of existing supply contracts, and is influenced by large recent investments in alternative technologies, but the incentives for migration are clear, and this will be a growing trend in 2027 and beyond.

24 WILL NOT HAPPEN — DIGITAL ID WILL NOT SUPPLANT PHYSICAL DOCUMENTS

The near-universal prevalence of digital Identity (ID) strategies in Vision 2030 project statements—especially regarding national IDs, and especially in countries strongly led by World Bank strategy—can foster an impression of physical ID cards as a "legacy" market, awaiting the maturity of its fully digitized successor. However, this mindset is not just over-eager and incognizant of pragmatic pain points and inclusion mandates—it does not capture the nuance in a market with some counter-intuitive levers.

Growing digitalization and integration of systems in the back-end may promote cross-use of documents, but it also exposes a greater attack surface area, mandating higher security requirements resulting in strong upsell opportunities. However, improved digital systems and broad smartphone access in a region can also result in bold reversals of card feature integrations—as seen in the removal of the chip from Pakistani National ID Cards, with the administration opting for QR codes for digital access instead.

All of this technical evolution amounts to a continuation of a fundamental challenge of the ID market—it is highly heterogeneous, and consists of a few large long-term projects. The idea of a unified march of physical documents toward irrelevance does not apply in this market where 200 different administrations will assess the outcomes for 200 different populations and arrive at 200 different conclusions, and a contract lost to a total push toward digital-only, wallet-led ID projects in one region could be countered by the doubling down of another on cutting-edge physical security to provide the single key to an exponentially more valuable dataset. For vendors, success will come from seeing past technological trends to administrative goals, shedding perceptions of "legacy" and "evolution" to produce blended, tailored solutions.

Digital Payment Technologies

25 WILL HAPPEN — ALTERNATIVE MATERIALS WILL BOOST FLAGGING MARGINS

The payment card market has been under significant pricing pressure for some time, with large vendors—especially those able to leverage reduced manufacturing overheads due to an Asia-Pacific skew—operating on extremely fine margins as a strategy to gain market share. This has remained the case despite the gradual impact of rising costs, both from inflationary pressures in raw materials and knock-on impacts in the components market originating with the memory shortage and other supply disruptions.

Average Selling Prices (ASPs) have resisted the level of inflation seen in similar markets as a result of the competitive landscape in place, lagging behind broader trends by over a year, but frequent incremental increases throughout the supply chain will continue to exert pressure. For card vendors looking to maintain above-survival profits, alternative materials are a critical source of revenue. The proposition for end customers is clearer than in previous high-value niches. While dCVV and biometric may improve security, the path to monetizing security improvements is never straightforward, and some benefits were vulnerable to being superseded by mobile features.

Alternative materials, conversely, focus entirely on non-replicable consumer experience, enabling issuers and payment providers to build a physical touchstone into corporate strategy. The issuance of metal cards has been a feature of high net worth finance for some time, particularly in the United States, but increased attention from fintechs and neobanks seeking differentiation in customer experience for finely tiered service levels will breathe new life into the market in 2027, accelerating both overall adoption and diversity of solutions.

As well as graduated metal card offerings, payment card manufacturers are looking to leverage the niche appeal of materials such as wood, although success here will depend on the ability to embrace the inherent characteristics of the material rather than trying to treat the solution as a one-to-one replacement.

26 WILL NOT HAPPEN — PAYMENT CARDS WILL NOT BECOME IRRELEVANT

Steady growth in the use of mobile wallets has always driven ominous warnings around the payment cards market, with the strong suggestion that physical cards would fall out of use precipitously. Indeed, "digital-only" was a key strategy for many early fintechs and neobanks, but almost uniformly, those attempting this have been forced to shift to "digital-first," providing physical payment cards in line with traditional banking standards. Anxiety around availability and redundancy is the fundamental challenge, though a growing Corporate Social Responsibility (CSR) mandate for inclusion and a strategic requirement not to alienate the large portions of the customer base who still prefer physical cards—or at least, insist on the option—also contribute.

In 2027, the digital payments market will continue to grow, with layers of providers increasing the disintermediation between banks and their end customers. Given the use of mobile wallets for direct payments, and a growing push toward financial management services, which is compounded significantly by the use of agentic solutions, the physical card, in fact, has growing importance for banks by serving as the only frequently engaged touchpoint. This shift is reflected in the significant resurgence of hyper personalization, with customized cards providing a tailored, unique hook from bank to customer. For vendors, the key requirement for 2027 will be to effectively shift a product viewed as a redundancy measure back into a position of added value with solutions such as this.

eSIM & SIM Solutions

27 WILL HAPPEN — rSIM WILL REMAIN RESILIENT

The removable Subscriber Identity Module (rSIM) card market is frequently viewed as a base in the process of cannibalization by the embedded Subscriber Identity Module (eSIM) market, and would seem particularly under threat in the context of strong Embedded Universal Integrated Circuit Card (eUICC) integration in both consumer and Internet of Things (IoT) devices. However, there are some key factors contributing to a strong 2027 outlook.

Sustainability, consumer rights recognition, and technological advancements have seen device life spans grow considerably over previous years, with requirements for manufacturer support growing alongside in order to ensure actual, rather than theoretical, likelihood of usage. In the rSIM market, which is strongly based on the replacement of products to a standing installed base, this results in an inevitable protraction of the digital migration. eSIM-capable device availability is growing, and has been for some time, but the fact that devices from prior eSIM-incapable purchases will remain in place for longer—particularly as pressures on consumer spending limit device upgrades and bolster the second-hand market—inevitably extends the requirement for replacement cards.

This is further shored up by the strong reception received by 5G and sustainable material cards. While eSIM is technically more environmentally friendly, operators are under significant pressure to make eco-friendly changes quickly, and sustainable rSIM provides a strong interim measure for operators not yet ready to make an eSIM-first shift, whether due to infrastructure or market readiness.

28 WILL NOT HAPPEN — eSIM SMARTPHONES WILL NOT BE TANKED BY THE MEMORY SHORTAGE

Despite an imperiled wider device market, the eSIM smartphone market enjoys insulation from the worst effects of the memory shortage. The significant domination of Apple and Samsung in the existing market—two players able to absorb or pass on cost increases, and with the clout to remain top of the priority list should supply chains become contested—provides stability, while the available penetration growth remaining elsewhere in the market and most notably in China and with Chinese Original Equipment Manufacturers (OEMs) provides enough growth to ride out the possibility of a supply chain crunch in 2027.

The wider market dynamics are complex, but will also likely provide stability, if not growth. The weakened budget segment, with features lagging behind more than ever as upgrades and their associated Bill of Materials (BOM) increases are put off to the next model launch, will be pushed closer to the cost of the mid-range market with a widening technology gap. At the same time, device life spans are growing steadily as a result of technological and manufacturing improvements, as well as sustainability and consumer rights legislation, enabling the positioning of higher-end devices as an investment that becomes cost effective over time. This, combined with the unintentional asymmetric dominance effect provided by budget offerings, skews consumer perception.

Overall, while penetration of eSIM through the mid and budget ends of the market will be slowed compared to expectations, the position of the higher-end segment that eSIM traditionally aligns with is bolstered, limiting the crash to volumes seen in other sub-segments.

Quantum-Safe Technologies

29 WILL HAPPEN — ATTESTATION CAPABILITIES BECOME A CORE PILLAR WITHIN PURCHASING DECISIONS AND INNOVATION CYCLES IN DIGITAL TRUST

Trust within cybersecurity can no longer afford to hinge on "never trust, always verify" in isolation. That verification must be accompanied with evidence that attests to the integrity, authenticity, and trustability of that verification process or mechanism. This shift toward provability—having already reared its head throughout 2025 and 2026—will come to the fore in 2027, fueled by the continued coalescence of four major change factors within the digital security industry: tightening regulatory requirements, the quantum transition, the accelerating Artificial Intelligence (AI) race, and digital sovereignty considerations.

From a regulatory perspective, monumental legislative instruments including the Cyber Resilience Act (CRA) in Europe take full effect in 2027, most notably the attestation-centered provisions around secure design and development, technical documentation, risk assessment, and Software Bill of Materials (SBOM). Satisfying compliance mandates and addressing auditor demands not only optimal security but also proof of that security. Equally in the United States, mandates around Cryptographic Bills of Materials (CBOM) have sprouted from the June 2026 Quantum Executive Orders and are expected to make a splash in the market throughout 2027. In this way, the capability to attest security and verify the trustworthiness and security of workloads and environments forms part of the broader migration toward quantum resilience that inherently calls upon organizations to ramp up their data protection, governance, silicon security, and overall cryptographic posture.

AI has an increasingly inescapable and pervasive presence within digital trust, representing one of the most significant drivers behind attestation-based security across the market. At a high level, the generative capabilities of AI have radically transformed the meaning of trust in a traditional sense through the erosion of public trust when it comes to deepfakes and manipulated content. But AI has also rocked industry trust from a security perspective as Agentic AI lifts the veil on the old adage of security through obscurity. From an AI model perspective, the strategic and business value of models as a form of company Intellectual Property (IP) is set to intensify security requirements throughout 2027. Attestation-based tooling like confidential computing has gained traction throughout 2025 and 2026 and is bound for a steeper growth trajectory throughout 2027 as hardware protocols mature across the supply chain. Along the same vein, confidential computing and attestation-based security align with the demands of sovereignty in terms of provable control all the way down the stack. As sovereignty becomes further embedded in countries' economic independence strategies, enterprise supply chain protection mandates, and regional economic growth and innovation plans, attestation will take center stage as the mechanism by which to achieve and prove it.

30 WILL NOT HAPPEN — AGENTIC AI AUTHENTICATION AND AUTHORIZATION SECURITY WILL NOT FOLLOW AN INDUSTRY-WIDE FORMAT OR BE CONFINED TO ONE TYPE OF VENDOR

The year 2026 was a blockbuster year for Agentic AI innovation and, with that innovation, agentic-related security incidents. With identity remaining a critical entry point for attackers and abuse of privileges representing a sustained attack vector across incidents throughout 2026, AI authentication and authorization will take center stage in 2027. However, how agentic authorization and authentication solutions look is expected to remain mercurial throughout the year, rather than falling under the purview of one category security vendors. A one-size-fits-all solution for addressing agentic identities will also not come into fruition in 2027.

While various vendors have stepped into the emerging market, there remains much to play for within agentic security, as well as within the broader Non-Human Identity (NHI) segment. The nascency of agentic authentication and authorization mechanisms, as well as the specific properties and characteristics of AI agents, is set to continue to complicate the application of traditional security buckets or protections to the agentic world. Fragmentation is likely to persist throughout 2027 when it comes to Agentic AI, yet that fragmentation engenders continued opportunities for vendors across the board to throw their hats in the agentic ring, particularly those with a background in Identity Access Management (IAM), Privileged Access Management (PAM), AI security analytics and Security Information and Event Management (SIEM) tooling, and Public Key Infrastructure (PKI) and cryptographic services.

Trusted Device Solutions

31 WILL HAPPEN — SECURE EMBEDDED HARDWARE FINALLY EMERGING AS STANDARD ACROSS THE BROADER IOT SPACE

Embedding security into hardware has long been a standard practice in high-end and mission-critical devices, a practice that is finally trickled down and spread outward toward the broader and more cost-sensitive class of low-power, resource-constrained and consumer devices. The year 2027 is when secure hardware starts becoming a standard part of device BOM. Two primary drivers have pushed this democratization deep into the recesses of the IoT space.

The first is the EU Cyber Resilience Act (CRA). The year 2026 marks the first part of enforcement around reporting obligations, and 2027 will be the year of secure design compliance. In short, by the end of 2027, the full product regime will apply: secure-by-design and secure-by-default. Much like the EU General Data Protection Regulation (GDPR), the CRA will set an internationally recognized benchmark, one that will drive global harmonization in terms of hardware security, even if the instrument is only applicable within the EU.

The other driver is standardization; support of industry standards such as Mater, Aliro, and Qi Wireless, for example, is driving vendor differentiation in the market for Authentication Integrated Circuits (Auth ICs) and secure Microcontroller Units (MCUs). Auth ICs are an important bridge between no security or software-only security and full Secure Element (SE)/secure MCU architectures, notably one that can support strong unit growth in high-volume, lower-Average Selling Price (ASP) segments—a prime market for the low-resource end of the IoT scale. Secure MCUs are positioned much more explicitly as root of trust controllers and as the lowest-friction path to crypto-agility for connected products. For those OEMs that are already thinking about Post-Quantum Cryptography (PQC) and the oncoming migration, such capabilities are an active product differentiator for the market.

The year 2027 will mark the start of basic hardware security integration into many edge and IoT devices, and despite a broad scale of security capabilities available, even the least capable device on track for development will likely include a minimum set of security functionalities.

32 WILL NOT HAPPEN — HYPESCALERS' OPEN ROOT OF TRUST EFFORTS ARE UNLIKELY TO DISPLACE ESTABLISHED SILICON IP IN HIGH-PERFORMANCE COMPUTING ENVIRONMENTS

The rise of hyperscaler-backed open-source Roots of Trust (RoTs) such as Caliptra and Open-Titan is reflective of a broader industry shift toward transparent and auditable security architectures in cloud and High-Performance Computing (HPC) environments. Alongside the continued growth of the RISC-V ecosystem, they reflect demand for greater sovereignty requirements and offer a more standardized type of trust anchor across complex supply chains. Hyperscalers are deploying such initiatives to establish a common security baseline across infrastructure components (i.e., Graphics Processing Units (GPUs), Digital Processing Units (DPUs), etc.), thereby ensuring consistency in assurance mechanisms.

There has been increasing concern that this could displace traditional security IP providers, with security IP and subsystem solutions around identity, secure boot, key storage, attestation, etc. from a hardware RoT perspective. There is apprehension that hyperscalers could not only impose their initiative, but also expand into other functions, notably secure enclave and isolation, even post-quantum crypto (all areas where hyperscalers are active in Research and Development (R&D)).

However, this is unlikely to happen in 2027. RoTs are more likely to expand opportunities for commercial vendors rather than eliminate them. Open specifications still require hardened implementations, tamper-resistance, cryptographic acceleration, formal verification, certification, and lifecycle management capabilities that remain the domain of specialized security IP providers. The market is more likely to evolve toward a hybrid model in which architectures based on open RoTs provide an interoperable trust framework, while proprietary IP delivers differentiated value (performance, resilience, etc.). This does not preclude such functions from a future open-source initiative. However, 2027 is not the year when this will happen.

IoT Hardware

33 WILL HAPPEN — BUILT-IN HARDWARE SECURITY WILL BECOME NON-NEGOTIABLE FOR EDGE SILICON

Spurred by Artificial Intelligence (AI) safety concerns, chipmakers will build tamper-proof "digital vaults" directly into edge processors. Enterprise buyers will no longer accept smart devices that rely on software-only protection. Instead, verified device identity and isolated, encrypted memory environments will become standard procurement gatekeepers to ensure AI models and sensitive operational data cannot be extracted or altered in the field.

34 WILL NOT HAPPEN — NO "ONE-SIZE-FITS-ALL" NPU ARCHITECTURE DOMINATING THE EDGE

A single universal Neural Processing Unit (NPU) architecture will not capture the entire market. Over-engineering every connected endpoint with massive compute destroys hardware budgets and battery life, while tiny micro-chips cannot handle complex multi-step reasoning. Instead of a single architecture, the silicon landscape will stay intentionally segmented—ranging from ultra-low-power micro-NPUs for continuous sensing up to higher-power gateway processors for complex edge orchestration.

IoT Markets

35 WILL HAPPEN — DECISION INTELLIGENCE WILL BECOME AN EXPECTED PART OF SUPPLY CHAIN VISIBILITY, BUT TRUSTED PHYSICAL DATA WILL REMAIN THE FOUNDATION

Visibility platforms will increasingly combine IoT, carrier, telematics, and enterprise data with conversational AI, automated analysis, and new ways for customers to consume information. The focus will be on suppliers being able to interpret the next best action that should be taken based on physical world data, which broadens the scope of IoT visibility solutions to broader decision intelligence platforms bringing together a much wider variety of data sources, contextualizing them through a sensor fusion engine, and helping supply chain analysts and practitioners to access the most relevant information.

However, aggregating data from multiple sources will not create differentiation alone. As visibility data supports more consequential recommendations and actions, data quality and control over device behavior—the physical layer—will become more important. Early automation in supply chain visibility will be at the physical layer, focusing on adapting sensing, reporting, and edge processing based on lane or shipment risk profiles; allowing enterprise agents to make important decisions at the enterprise level will be a longer-term trajectory. Managed services will provide the bridge, helping customers operationalize growing data volumes, while governance and agentic capabilities mature.

36 WILL NOT HAPPEN — ENTERPRISE LICENSING WILL NOT BECOME THE DEFAULT COMMERCIAL MODEL

While visibility suppliers are increasingly looking to push enterprise license models, most customers will continue purchasing visibility through familiar per-device, per-trip, platform, or modular pricing. Suppliers still lack the breadth of capabilities and measurable outcomes required to justify a broader enterprise commitment from the buyer. As suppliers refocus their portfolio around validated data, domain-specific analytics, interventions, and outcome-based modules, these capabilities will be sold through modules, add-ons, or transactional charges. But as buyers use a greater number of these capabilities, enterprise licensing models will become more credible and acceptable to bundle multiple capabilities into a single outcome-based license.

IoT Networks & Platforms

37 WILL HAPPEN — IoT CONNECTIVITY & PLATFORMS CAN BE EXPECTED TO RETURN TO SPECIALIST OPERATION

PTC divested its ThingWorx IoT application development platform in March 2026, selling it as part of a bundle to asset management firm TPG, for US$523 million. PTC originally paid US$112 million to acquire ThingWorx from its founders at the end of 2013. The Telenor Group spun out its IoT Mobile Virtual Network Operator (MVNO) subsidiary Telenor IoT (née Connexion) in May 2026, now a Joint Venture (JV) with investment firm Verdane, emulating the Vodafone Group's intentions in creating Vodafone IoT 2 years prior. Then, in July 2026, IoT service provider KORE Wireless returned to being a private business after its acquisition by investment firms Searchlight Capital Partners and Abry Partners for US$726 million. KORE had been public since 2021 after being bought by Cerberus Telecom Acquisition Corp. for US$1.01 billion.

Businesses that were mature IoT specialists and acquired by larger firms to complement portfolios of adjacent lines of business are now being divested and/or returned to private status. The trend is not new and has been happening across the IoT since 2023. It has been seen with connectivity service providers, hardware manufacturers, and connectivity management, device management, and application management platform vendors. But the trend is accelerating. The reason is that in leaner times, large companies need to refocus on their core business only. And any exploratory ventures that have not scaled much beyond their pre-acquisition growth rates are let go, sometimes for little more—or even less—than they were bought for.

PTC is using the proceeds from the sale of ThingWorx for share repurchasing. Telenor's spin-out is to bring external investment, so business units that are only worth a fraction of the parent are not stymied by underinvestment, nor do they need to compete internally for budget. This allows those Business Units (BUs) to be run in a more agile, startup fashion, attract venture capitalists, and be built up for a potential Initial Public Offering (IPO) of their own. The same is likely true of KORE, just as it was for module vendor Telit Cinterion in 2021. The risk is that this activity makes the IoT look like a bad bet—that buying into it will not pay off, just as it did not for the large companies that are now selling. But the answer is focus: the IoT is a market of core competencies, with the onus on doing one thing well—becoming THE trusted partner.

38 WILL NOT HAPPEN — NTN WILL NOT DRIVE IoT CONNECTIVITY, BUT IT WILL BE NECESSARY TO WIN BUSINESS

Satellite is one of the three hot topics across the entire IoT value chain. The other two are SGP.32 and AI. It is not merely the industry that is discussing satellite IoT among itself, but customers everywhere are asking about it, customers of module vendors, gateway vendors, and IoT connectivity service providers. Adding Non-Terrestrial Network (NTN) to The 3rd Generation Partnership Project (3GPP) standards made satellite part of the zeitgeist. All three stated supply-side participants are working NTN into their products and services, but for IoT connectivity providers, it is a longer, tougher exercise, requiring individual partnerships with each satellite constellation operator. Partner prioritization has often been based on ease of Application Programming Interface (API) interoperability, which is why newer, disruptive entrant Skylo captured many of the early cellular-satellite integration headlines.

Of the cellular carriers, DT has been one of the most consistently active and longest committed to integrating satellite into its IoT offering. Starting with a partnership with SES (née Intelsat) in 2023 for standalone satellite connectivity; and partnerships since then with Skylo, Sateliot, OQ Technology, and Iridium specifically for cellular-to-satellite service roaming over NTN. While DT's partnership with Starlink is for broadband enterprise connectivity only, it is conceivable it could evolve to include the IoT. The quality of Starlink's service has been noted by cellular IoT service providers that deliver connectivity for buses and trains, and they are privately concerned about the future of their contracts. And while Starlink might not target IoT custom directly, its strategic partners can.

But many IoT customers don't know if they will need satellite connectivity, now nor ever. What they do know is that if they need it, they want it to be available. This makes satellite a must-have on customers' laundry list of IoT Quality of Service (QoS) and Service-Level Agreement (SLA) requirements. And for cellular service providers to be in the mix to win business, they need to prove their satellite credentials—even if the logistics of that integration work transpire to be a loss leader. Many IoT service providers believe the Total Addressable Market (TAM) for cellular-to-satellite connectivity may be small; one prominent MVNO states that in terms of volume it will be, "almost irrelevant in the grand scheme." But satellite fallback is categorically needed; the IoT use case variability of customer requests is wide, proving demand, even if usage remains in question.

RFID

39 WILL HAPPEN — OVERHEAD RFID WILL GAIN PILOT AND DEPLOYMENT MOMENTUM, COMPLEMENTED BY COMPUTER VISION AND SENSOR FUSION

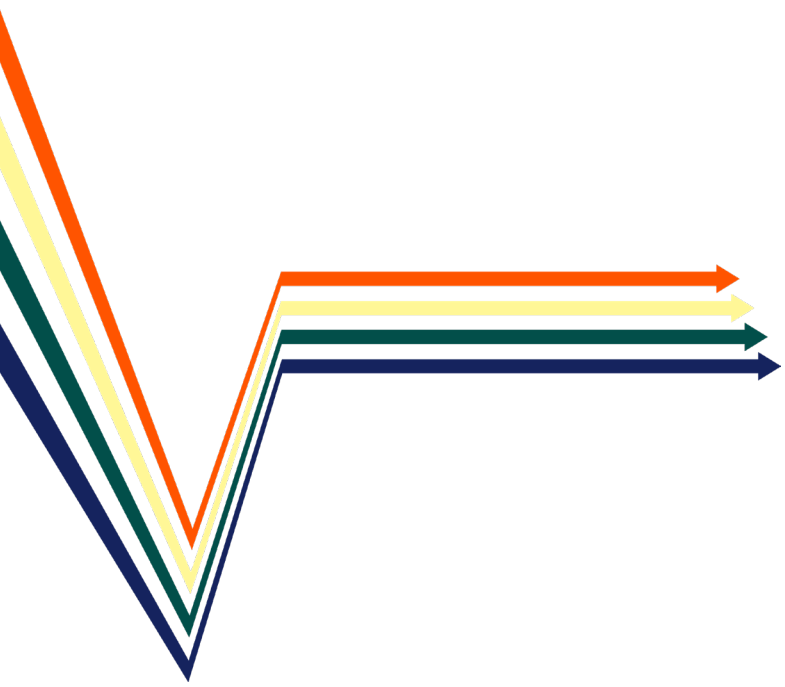
In 2027, always-on overhead Radio Frequency Identification (RFID) readers are likely to gain momentum through Proofs of Concept (PoCs), pilots, and new deployments. The main shift will be from periodic handheld inventory counts toward more continuous visibility into item presence, movement, replenishment, fitting room flows, and high shrink areas of stores. Overhead RFID can be complemented by technologies such as computer vision, Point of Sale (POS) data, and other sensors to create richer store analytics. RFID can identify items at scale, while computer vision and other sensors can add context around customer behavior, queueing, associate activity, planogram compliance, and potential theft events. Together, these technologies can support a broader set of use cases around store performance analytics.

For this to scale beyond isolated pilots, system integrators and retail software vendors will all need to become more familiar with overhead RFID architectures in 2027. Always-on readers bring with them a range of installation, cost, store design, and Information Technology (IT) back-end challenges that suppliers will need to address to help customers scale. For instance, software vendors will need to improve how they ingest and interpret continuous RFID data, especially when combined with computer vision, POS, inventory, and loss prevention systems.

40 WILL NOT HAPPEN — UHF RFID INLAY MARGINS WILL NOT RETURN TO HISTORICAL HIGHS, DRIVING VENDORS TOWARD HIGHER-VALUE SMART LABELS

Ultra-High Frequency (UHF) RFID inlay margins dropped significantly in 2025 and 2026. In 2027, inlay vendors are unlikely to see margins return to the 30%+ levels that many have historically seen from an inlay business. Even with Average Selling Prices (ASPs) stabilizing or increasing after the heavy price competition and destocking of 2025/2026, margin recovery will lag behind. Buyers are pushing back on higher inlay prices, so chip vendors, inlay vendors, converters, and end customers will all have to share in absorbing the increased cost; so price increases will not flow directly into restoring margins. Additionally, the largest growth opportunities—grocery, logistics, general merchandise, and mandate-driven retail programs—remain highly price-sensitive and buyer-driven.

As a result, margin pressure will help push inlay and label vendors to look harder at adjacent smart label opportunities, especially Bluetooth® labels, as more attractive margin expansion areas. These technologies will not replace UHF RFID at scale in 2027; they will remain targeted at use cases where higher ASPs are justified, such as cold chain, healthcare, or high-value logistics. But the margin pressure will create an additional incentive for inlay vendors to accelerate their experimentation and product design around these new technologies.



Freight Transportation

41 WILL HAPPEN — VIDEO TELEMATICS WILL BECOME ONE OF THE LARGEST DATA SOURCES WITHIN FLEET OPERATIONS

Historically, fleets invested in cameras primarily for accident validation, insurance claims, and driver monitoring. However, operators are increasingly prioritizing solutions that generate real-time insights rather than simply collecting footage. ABI Research's supply chain and fleet management survey found that video Artificial Intelligence (AI) is already among the key features influencing telematics investment decisions, alongside predictive maintenance alerts, analytics dashboards, and driver behavior analytics. This reflects a broader shift where visual feeds are increasingly viewed as an operational asset rather than a risk-management tool.

Beyond the vehicle cab, video AI is expanding into trailers, yards, and warehouse environments, where it can detect cargo theft, unauthorized access, incorrect picks, equipment misuse, and other operational exceptions without requiring manual audits. As AI models become more accurate and increasingly integrated into fleet workflows, video streams will become one of the richest sources of contextual fleet data available, not only on the road but also in yards and at sites.

For fleet technology vendors, the strategic opportunity will increasingly move away from camera hardware and toward the intelligence layer built on top of visual data. Providers that can combine video feeds with telematics, Electronic Logging Device (ELD) data, maintenance records, and broader Internet of Things (IoT) sensor inputs will be best positioned to deliver meaningful outcomes such as fewer collisions, improved compliance performance, and reduced downtime. As a result, 2027 will see both further development from telematics players on the video analytics side, and a continued rise in the number of both large and small fleets adopting the technology at scale.

42 WILL NOT HAPPEN — GENERIC AI PROVIDERS WILL NOT DISPLACE ESTABLISHED FLEET TECHNOLOGY PLATFORMS

Despite the rapid advancement of horizontal AI platforms (OpenAI, Anthropic, etc.), these solutions will not emerge as direct replacements for incumbent fleet technology providers in 2027. Effective fleet AI depends entirely on available sensor data, telematics devices, cameras, edge processing capabilities, and fleet-specific context built around safety, compliance, maintenance, and operational workflows. Generic AI models will continue to lack direct access to the high-fidelity operational data and execution layers required to manage real-world fleets.

More importantly, the freight transportation sector is built on decades of accumulated domain expertise, legacy integrations, and regulatory knowledge that cannot be replicated simply by deploying a Large Language Model (LLM). Leading providers such as Powerfleet, Samsara, Geotab, and Motive already own the data layer, the hardware layer, and the workflow layer that fleets leverage. As a result, horizontal AI providers are more likely to serve as complementary intelligence layers that enhance user interaction and decision-making, while incumbent fleet platforms remain the systems of record and execution for physical operations. The market will increasingly favor AI integrated into purpose-built fleet workflows rather than standalone AI platforms attempting to enter the industry from outside.

Industrial & Manufacturing Markets

43 WILL HAPPEN — INCREASED INVESTMENT IN BROWNFIELD OPTIMIZATION

Across every industry, manufacturers are exploring every available option to modernize their workflows, increasing productivity while safeguarding knowledge transfer and minimizing the risks of unplanned downtime. Some industries (heavy equipment, shipbuilding) are earlier in their digitization journey than others but—regardless of phase—they all share the same urgency to move quickly but affordably.

To that end, waiting on greenfield construction sites will not be enough. While reshoring efforts will continue in North America, expect brownfield optimization to gain priority on a global level. This will take many forms, depending on location regulations, industry specifications, and general health of the site. In general, expect manufacturers to target Industrial Internet of Things (IIoT) and legacy system integration through the use of smart sensor attachments to older hardware, allowing the flow of near real-time performance information.

The goal for many industries will be to establish or reinforce digital twin and simulation programs, using the newly connected data to predict equipment failure and allowing the manufacturer to plan repairs before the downtime actually occurs. This will mean continued partnerships and purchases from software providers such as PTC, Siemens, Dassault Systèmes, Hexagon, and others.

Another area of brownfield optimization likely to gain traction is energy management. Whether through the pursuit of newer, cleaner energy sources or simply the installation of smart energy software and equipment, manufacturers will look to offset the rising cost of energy by modernizing (to the extent possible) their onsite systems and equipment.

The key driver here is rapid Return on Investment (ROI), so expect plenty of investments across the board geared toward increasing throughput with as minimal cost and disruption as possible.

44 WILL NOT HAPPEN — THE WIDESPREAD PROLIFERATION OF HUMANOID ROBOTICS ACROSS INDUSTRIES (TO SOLVE THE SKILLED LABOR SHORTAGE)

Much has been said in the past year about the advancement of humanoid robotics. While breakthroughs have come, manufacturers should take a practical view of these innovations. Nothing is ready to scale and many challenges still exist between impressive prototype and mass adoption.

Such barriers include limited battery life (it is not uncommon for these robots' power supplies to only last a maximum of 4 hours, well below what is expected for a reasonable shift), undependable reliability, continuing balance and bipedal inefficiencies, AI failures within specialized environments, and issues surrounding dexterity and tactile feedback.

It is important to remember what has fueled the demand for humanoid robotics: a lack of skilled labor. At this point, decades of digital transformation technologies have moved the needle, but manufacturers should not expect technology alone to be the magic bullet to solving its labor crisis.

Real investments are needed in education and talent appeal to draw desirable workers back to the manufacturing space. Some of this does necessitate continued advancements in modern technology and interfaces, but much more includes improving high school and university presence, expanding internship and mentor opportunities, and changing the image of 21st century manufacturing jobs.

Tech innovations will continue to make massive strides toward reducing this pain point, but it is time manufacturers stopped expecting digital transformation alone to solve the skilled labor shortage.

Industrial & Manufacturing Technologies

45 WILL HAPPEN — SOFTWARE-DEFINED AUTOMATION AND AI WILL BEGIN TO RESHAPE FACTORY FLOORS

Riding on the back of strong growth of Software-Defined Automation (SDA) and Industrial AI, the factory floor will begin to see new designs, particularly in the shift away from the control cabinet. Instead, manufacturers will move strongly toward distributed compute that can execute consolidated tasks. AI will drive the distribution trend initially, as manufacturers seek to do more on-edge analytics and processes, where the data are the most context rich, enhancing the effectiveness of Machine Learning (ML)/AI. Preference for small, open-weight models deployed at the edge is driving higher investments in Industrial Personal Computers (IPCs) than any other control hardware. IPC hardware is also becoming more powerful in deploying this, increasing core counts for Central Processing Units (CPUs) and integrating other silicon architectures such as Field Programmable Gate Arrays (FPGAs), Neural Processing Units (NPUs), and Graphics Processing Units (GPUs), making the machines capable of completing more tasks. Here, the rise of software-defined controllers will be able to exist on the extra capacity of these machines.

From a controller perspective, Industrial AI will change how these controllers are commissioned as well. Agentic AI will drive a shift toward fully commissioned and validated virtual Programmable Logic Controllers (vPLCs), where humans-in-the-loop will be responsible for final verification of the Programmable Logic Controller (PLC), but agentic testing will be powerful—especially when paired with digital twins that enable agents to better understand the physical context of the machine to drive faster PLC deployment. As commissioning times are compressed due to these shifts, control engineering will further resemble software engineering, with the bulk of the process now handled by AI agents. As demand for more personalized products continues to grow, the pressure to compress these commissioning and changeover times will only accelerate.

For the operator, Industrial AI will begin to move beyond just alarm management and assistance. It will begin to take on a more predictive role, taking on the already digested data and the edge, and being able to offer corrections before the alarms are triggered.

46 WILL NOT HAPPEN — DIGITAL TWINS THAT ENCOMPASS ENTIRE FACTORY FLOORS WILL NOT SEE WIDESPREAD ADOPTION

Digital twin deployments are increasing across design, engineering, and production domains as manufacturers progressively eliminate data silos and recognize the importance of continuous, contextualized, and connected data. Digital twins are most robustly deployed in design and engineering workflows: 62% of manufacturers leverage digital twins for mechanical product design and simulation, with 95% expecting to do so within the next 5 years. However, the greatest value from digital twins is derived from optimizing operations within production environments. The leading driver of digital twin adoption, cited by 51% of manufacturers, is reducing downtime and improving production efficiency.

Prioritizing the optimization of factory operations leads prominent vendors such as Autodesk, Dassault Systèmes, Honeywell, NVIDIA, and Siemens to promote digital twin technology that encompasses entire factory floors. It is a natural progression of digital twins that has proven effective in targeted deployments, including design and manufacturing applications. Yet, even as manufacturers acutely focus on improving operations, less than 5% look to factory-level digital twins as the initial solution, instead favoring asset or production line-targeted twins for solving precise issues on the factory floor.

Solutions such as Siemens Digital Twin Composer and Dassault Systèmes DELMIA Virtual Factory, both of which integrate with NVIDIA Omniverse libraries, face practical barriers that will limit the extent to which entire factory floors will be digitally represented. The first concerns data, as manufacturing data remain siloed and non-contextualized. Ingesting data from multiple systems and assets to develop factory-level digital twins adds a layer of complexity that most manufacturers are not yet prepared for. Second, and perhaps most important, are cost concerns. The cost of developing a factory-level twin is opaque, as deployments can quickly evolve to be large-scale data and systems integration projects. Until costs become consistent and transparent, manufacturers will opt to deploy digital twins that target clear, existing problems in the factory rather than jumping into broad factory twin efforts.

Smart Buildings

47 WILL HAPPEN — BUILDING OWNERS WILL REQUIRE PRACTICAL, OUTCOME-DRIVEN SOFTWARE THAT PROVIDES VALUE ACROSS EXISTING ASSETS

In 2027, building owners will be under greater pressure to improve performance with constrained costs as energy, labor, and maintenance costs remain high. Vendors need to provide technology solutions that can demonstrate quantified proof of savings, performance improvements, and payback to build customer confidence and move projects from pilots to scaled deployments.

This foundation becomes critical in 2027 to enable the shift from technically viable solutions to operationally deployable and commercially scalable solutions. While greenfield projects will continue to attract attention and act as industry reference points for autonomous buildings, the larger revenue opportunity for vendors will come from the existing building stock. Owners will invest in technologies to facilitate retrofits such as wireless sensors, gateways, cloud-based controls, analytics, and interoperable platforms that add intelligence without requiring an overhaul of existing assets. In 2027, these technologies will continue to add value to and extract information from existing infrastructure while delivering value quickly and increasingly integrating AI workflows.

As trust in AI continues to grow, the role of AI will become more practical. Rather than replacing facilities teams, AI and natural-language interfaces will help building owners and operators interact with complex building systems directly by asking questions and diagnosing issues without having to navigate complex dashboards. The human stays in the loop, but the interface between humans and buildings will become much more intelligent in 2027.

This shift will push more value toward the orchestration layer that understands how systems, spaces, and equipment respond and relate to one another. Rather than optimizing systems in isolation, owners expect platforms to connect building controls, energy, occupancy, security, and maintenance data to enable better operational outcomes.

Data centers will be one of the clearest examples of this shift. AI workloads and growing capacity call for standardized, repeatable reference designs that rely on orchestration across power, cooling, controls, and workload requirements. In markets facing regulatory, grid, water, or community constraints, well-documented reference designs will become as much a development tool as an engineering tool providing stakeholders with clearer evidence around energy use, cooling strategy, noise, resilience, and environmental impact. As higher density AI workloads put more pressure on conventional air-cooling systems, liquid cooling will become more mainstream, but the emphasis will remain on the designs that are repeatable and easily integrated alongside existing power and mechanical infrastructure.

48 WILL NOT HAPPEN — BUILDING OWNERS AND OPERATORS WILL NOT BE READY TO HAND OVER CONTROL TO AUTONOMOUS BUILDINGS

Autonomous buildings will not become mainstream in 2027. A semantic model that knows which doors, rooms, air handlers, and occupancy systems are connected creates a foundation for an autonomous building. AI will make more recommendations and, in some cases, more operational decisions, but safety, maintenance, capital planning, and liability still require human judgement. Smart building technology is advancing faster than the governance frameworks that are necessary to determine where autonomous decision-making is appropriate and who is responsible when something goes wrong in commercial buildings. In 2027, owners, operators, and vendors will spend more time focusing on where accountability lies for AI-driven building operations in order to continue establishing groundwork for autonomous buildings.

There will not be wholesale replacement of legacy building infrastructure. Construction costs, constrained capital budgets, and the enormous installed base of existing systems make full-scale modernization unrealistic for most building managers and operators. The market will favor integrations and staged upgrades rather than pulling out functioning legacy equipment simply to make a building smart. The balance between standardization and infrastructure constraints will be especially apparent in data centers.

In data centers, highly standardized reference designs will have to accommodate site-specific conditions. Standardization can speed up the design process and reduce risk, but it will not eliminate local constraints around power availability, water use, permitting, noise, land, or community opposition. The most successful reference designs will still need to adapt to the unique variables of each site.

The defining shift in 2027 will not be from conventional buildings to fully autonomous buildings. It will be from fragmented building systems toward a more integrated, software-driven operating model, with the technical, governance, and human frameworks that will allow for greater autonomy to take place.

Smart Energy

49 WILL HAPPEN GRID ENHANCING TECHNOLOGIES WILL HAVE THEIR MOMENT

In some respects, 2027 will be little different to 2025 and 2026. Grid operators will come under pressure from data center operators, industrial firms, property developers, and local authorities to have sufficient capacity available to meet customer needs. The grid infrastructure will be another year older, and the risk of outages will increase.

Budgets are tight, and it takes time for new capacity to become available. However, there are some inconvenient truths whereby not all energy produced by power generation plants reaches customers and is lost in transit. Often during high summer, local grids cannot accommodate the surges in solar energy produced.

This is where Grid Enhancing Technologies (GETs) come in. The technologies provide a decision support layer that performs advanced analytics by leveraging data from grid assets, sensors, and meters. The types of analysis include capacity optimization across transmission and distribution networks such as dynamic line rating, topology optimization, advanced power flow control, and predictive grid analytics. The analysis enables grid operators (Transmission System Operators (TSOs) and Distribution System Operators (DSOs)) to enhance network performance without requiring new physical infrastructure.

ABI Research forecasts that, in 2027, spending on these software applications will increase by 12% Year-over-Year (YoY); surpassing US$1 billion for the first time. Grid operators will be investing in the software to improve resiliency, but also optimize their existing infrastructure.

50 WILL NOT HAPPEN AGENTIC AGENTS WILL NOT BE LEFT TO RESOLVE GRID ISSUES

The electricity grid is changing; no longer a linear operation with power generated from a single source and transmitted to the customer. Today, power enters a grid via an array of utility-scale wind or solar farms, thousands of prosumers, and microgrids. Adding to the complexity are the increased frequency of extreme weather events that can deliver a surge in energy (windstorms or longer summers) and storms that damage grid assets.

Grid operators need to ensure there are no outages. Deploying agentic agents to support Fault Location, Isolation, and Service Restoration (FLISR) workflows makes sense. The agent could identify a fault (e.g., the voltage on the network falling), isolate the affected hardware or substations and takes it out of action, and then reroute the electricity elsewhere in the grid. Repair crews are notified by the agent to go to the affected location and make repairs. There are no disruptions to customers.

The issues that affect the grid will not necessarily follow prescribed patterns that AI models are trained on. The agent could misinterpret the situation and make mistakes in the instructions to resolve the issue, causing power to be transferred to substations across powerlines that cannot handle the surge; resulting in explosions at substations or sparking wildfires. Furthermore, the agent may not fully understand the impact of instructions as maintenance crews may already be working onsite. Another complication is that many grids operate across multiple countries, so mistakes will cause issues for other operators and result in costly disputes.

Authorities will continue to require humans to remain in the loop. In fact, humans will remain on the loop with AI tools performing the analysis in milliseconds, but then surfacing options for teams to assess and approve.



Supply Chain Management Software

51 WILL HAPPEN

THE ROLE OF THIRD-PARTY SYSTEMS INTEGRATORS WILL BE REDEFINED FROM EXECUTIVE TASKS TO STRATEGIC GUIDANCE, SHARPLY REDUCING BILLABLE HOURS AND CHALLENGING VALUE OFFER

While AI in supply chain planning software has largely focused on wrangling data into new, rapidly customizable formats, developments this year have indicated a shift toward execution and Agentic AI applications. One of the most disruptive applications of Agentic AI will be streamlining the onboarding of new clients and the deployment of updates and tools. In 2026, Blue Yonder announced the introduction of "frictionless outcomes," claiming that go-lives for warehouse management clients had been reduced from an average of 11 weeks to just 7 days. This was achieved without the need for third-party consultants.

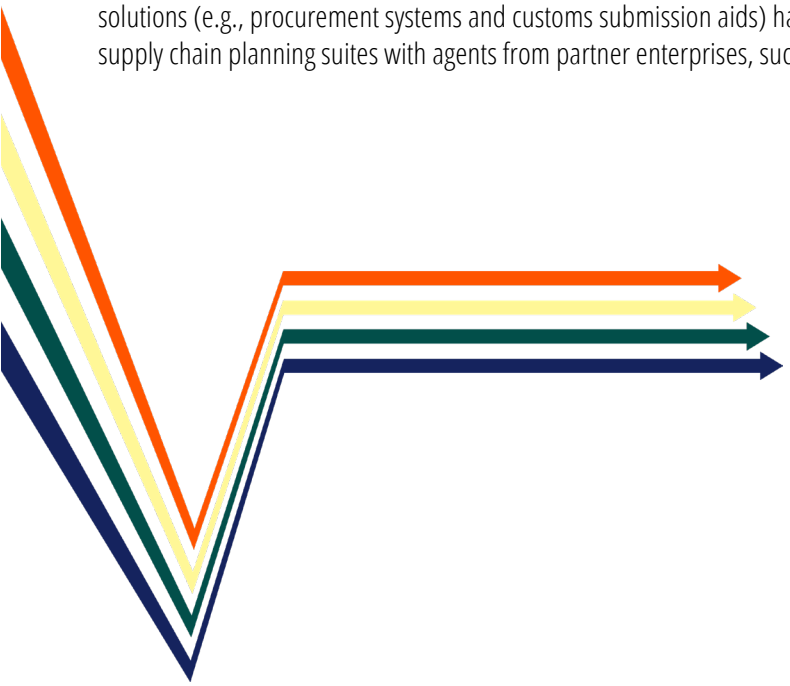
The standard deployment model is likely to change over the next year as competitors likewise release seamless, in-house deployment systems. Even where system integrators remain involved, the reduction in time required for their services will challenge the value proposition that consultants have offered for so long. Despite strong consulting revenue through mid-2026, AI literacy will continue to grow across client organizations, further diminishing demand for manual tasks delegated to third parties. Some consultancies will successfully reposition themselves to focus on AI governance and strategic guidance for clients, helping to offset the near-term decline. In the long run, however, as AI-native generation enters the workforce, there will be increasingly little to justify the traditional partnership-based deployment model.

52 WILL NOT HAPPEN

DIGITAL SUPPLY CHAIN SOLUTIONS WILL NOT REACH FULL END-TO-END GOVERNANCE THROUGH A SINGLE PLATFORM

The Holy Grail of supply chain software, a full end-to-end management system, is often cited as a near possibility. While hyperscaler capabilities and AI developments have opened the possibility for such a platform to be developed and deployed, the user-side adoptions lag behind the pace of innovation. Manufacturers, warehouse operators, distributors, and sellers continue to operate with data silos, utilizing old technology, and lacking the digital literacy among human workers to assist in moving physical processes into cloud systems. End-to-end also requires visibility past Tier One or Tier Two in supply chain layers currently inaccessible in many industries. A truly connected end-to-end solution needs many enterprises along different points of the supply chain to be connected to cloud (or other reachable digital) infrastructure just to support a single user. In this sense, network building, not just technological innovation, is the barrier.

Still, consolidation of Warehouse Management System (WMS) and Transportation Management System (TMS) software, and digital point solutions (e.g., procurement systems and customs submission aids) has already begun. Integrations and network platforms allow AI agents from supply chain planning suites with agents from partner enterprises, such as importers or manufacturers, to share information in real time.



Warehousing & Fulfillment

53 WILL HAPPEN — DIGITAL TWINS WILL MOVE FROM INNOVATION PROJECTS TO OPERATIONAL TOOLS

Digital twins are approaching a level of maturity that will allow warehouse operators to manage increasingly automated environments from centralized locations. The increasing amount of available data from both devices and automated systems, paired with advances in AI that enable larger volumes of real-world data to be ingested into simulation environments, will drive both the availability and effectiveness of the models. As automation density increases, operators will require more accurate methods of monitoring performance, identifying bottlenecks, and testing operational changes before deploying them into live environments.

The combination of AI, warehouse software, and digital twins will create new operating models where engineering teams can oversee multiple facilities from a single location. Rather than relying solely on local decision-making, operators will increasingly use digital representations of warehouse environments to monitor asset utilization, simulate process changes, and identify optimization opportunities across entire networks. This will become particularly valuable as large retailers, third-party logistics providers, and e-commerce operators continue expanding automation investments across multiple locations.

54 WILL NOT HAPPEN — WAREHOUSE OPERATORS WILL NOT BE AS TIED TO SINGLE AUTOMATION PROVIDERS

For much of the warehouse automation industry's history, customers have gained efficiency by standardizing on a single automation provider. However, 2027 will accelerate the breakdown of this model, due in large part to AI-powered integration platforms reducing the barriers associated with connecting technologies from different suppliers, allowing customers to deploy robotics, software, and automation tools from multiple vendors simultaneously. As interoperability improves, customers will increasingly view vendor lock-in as a risk rather than a benefit.

The growing adoption of orchestration platforms, vendor-neutral software ecosystems, and AI-enabled integration frameworks will make it easier for operators to select the best solution for each workflow without committing to a single supplier. Rather than purchasing an entire automation stack from one provider, warehouse operators will increasingly be able to build flexible automation ecosystems capable of incorporating new technologies as requirements evolve.

This pairs with the ongoing trend of system integrators becoming more software focused, realizing that the overarching orchestration matters more than the systems moving the products. Ultimately, operators want to buy outcomes, not the newest shiny robot, and the most successful automation providers are increasingly proving to be those that can tackle the specific challenges of each industry's unique picking processes, not just those that can do single tasks well, without considering how this plays a role in the broader material handling ecosystem.

Extended Reality Markets/Extended Reality Technologies

55 WILL HAPPEN — SMART/AR GLASSES WILL GAIN MOMENTUM AS EVERYDAY WEARABLES IN 2027

The year 2026 has been a mixed one for Extended Reality (XR). Smart glasses, in the form of Artificial Intelligence (AI)-enabled and Augmented Reality (AR) glasses gained traction, while Virtual Reality's (VR) trajectory stalled. This can be underscored by Sony's decision to sell off 43 patents to Meta that covered virtual, augmented and mixed reality headset patents in 3Q 2026. The outlook for VR in the PlayStation ecosystem looks dim. However, smart/AR glasses are going from strength to strength. In 2H 2026 and in 1Q 2027, the following smart/AR glasses product launches are taking place:

- Snap SPECS: Standalone AR glasses with no tether/puck, Snap's AI-native spatial Operating system (OS), shared AR experiences, and an optional cellular charging case.
- XREAL AURA: Optical see-through Android XR glasses with 70° Field of View (FoV), Six Degrees of Freedom (6DoF), hand tracking, electrochromic dimming, and a split-compute puck.
- Acer AR Vision GR0: Lightweight 69-gram tethered display glasses with dual micro-Organic Light-Emitting Diodes (OLEDs), Three-Dimensional (3D) mode, and a virtual 172-inch screen experience.
- RayNeo iO: 33-gram, camera-free smart glasses with 97% transparency, a subtle MicroLED Heads-up Display (HUD), and Artificial Intelligence (AI) features like translation and notes.
- Meta Ray-Ban Display: HUD smart glasses with heads-up navigation, a voice-driven hologram for calls, Explore apps, and Dolby Atmos video capture.
- Samsung "Galaxy" Android XR Glasses: Early 2027 Android XR glasses that are intended to be stylish all-day wear, Gemini AI, phone-linked use, and private in-lens displays for tasks like navigation/translation.

This list demonstrates the level of competition, the expanding list of innovative features, and improved battery life and reduced weight. In 2027, ABI Research anticipates the XR sector to see growth in the Google Android XR-based devices as an industry-standard spatial platform powering hardware from multiple vendors. Furthermore. interfacing/controlling XR will likely shift away from phone touchpads toward micro-gestures, ambient AI gaze-tracking, and multimodal vision. Most crucially of all, the shift to lightweight AR frames (~60–135 grams) that can be used for everyday outdoor use and tethered/puck form factors that support more intense multi-window compute will be welcomed by the market. Indeed, AR/smart glasses may experience so much "success" that there may be calls from consumer groups, agencies, and governments to regulate scenarios of usage and viewed/recorded subject privacy rights. Hopefully, vendors and societal stakeholders can reach practical solutions that leverage the promise of smart glasses for productivity, knowledge workers, and those with disabilities.

56 WILL NOT HAPPEN — PRIVACY CONCERNS OVER SMART/AR GLASSES WILL NOT DISAPPEAR IN 2027

Despite the glowing assessment ABI Research has applied to smart/AR glasses, some hurdles are unlikely to be resolved in 2027, including societal and consumer group privacy concerns over camera-enabled smart/AR glasses.

In several markets, objections to camera-based smart/AR glasses have been building steam:

- In October 2027, a Reform member of the U.K. parliament was speculated to have worn smart glasses to deliver a "statistically rich" speech to fellow parliamentarians.
- Both Norway and Australia are considering or proposing restrictions and temporary bans on camera- and AI-equipped smart glasses (e.g., Meta's Ray-Ban glasses).

Governments or commercial enterprises (operating campuses and buildings) could outright ban or limit the use of smart/AR glasses at certain times of day or in specific locations. The smart/AR glasses vendor community is also striving to put some practical and technical solutions in place:

- Hardware-Gated Light-Emitting Diodes (LEDs): Privacy lights can be physically tied to camera power, making them much harder to disable via software or firmware.
- Brighter, More Visible Indicators: Pulsing or high-visibility LEDs make recording easier to detect.
- Physical Shutters/Covers: Mechanical shutters or caps that can be visibly seen to block the lens when the camera is off.
- On-Device Processing: Local Systems-on-Chip (SoCs) handle vision, eye-tracking, and voice tasks on-device, reducing cloud exposure of raw sensor data of people and/or locations recorded.
- Real-Time Anonymization: Computer vision can automatically blur faces, license plates, or sensitive documents before footage is stored or shared.

AR/smart glasses could well become a victim of their own success. There are likely to be a variety of responses to the growth of smart/AR glasses, some of which would be counterproductive. Stronger laws to protect the rights of smart/AR glasses 'victims" should be established. Educating smart/AR glasses users about suitable "in-public etiquette" may be needed, but ideally, vendors and societal stakeholders can agree on practical solutions that leverage the significant potential of smart glasses for productivity, knowledge workers, and those with disabilities (i.e., assisting vision-impaired individuals).



Location Technologies

57 WILL HAPPEN — PNT DEMAND WILL INCREASE ACROSS BOTH COMMERCIAL, DEFENSE, AND MILITARY CUSTOMER SEGMENTS

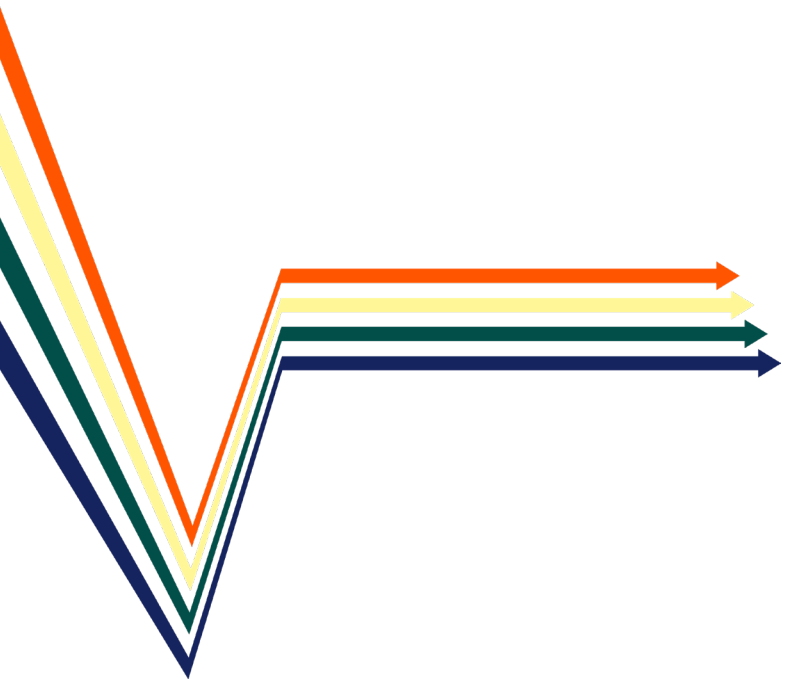
Over the past year, Global Navigation Satellite System (GNSS) jamming and spoofing incidents have increased in prominence across multiple regions, with commercial aviation and maritime operations among the sectors most affected. Since the start of the Iran war, more than 1 million Global Positioning System (GPS) jamming events have reportedly been recorded in the region, while the Baltic, Red, and Black seas remain key maritime interference hotspots.

These developments highlight the growing vulnerability of GNSS-dependent systems and the importance of resilient Positioning, Navigation, and Timing (PNT) solutions that can maintain reliable operations when satellite signals are disrupted or cannot be trusted. It is also key to note that networks will degrade over time, and there will inevitably be jamming and spoofing threats, with these attacks becoming cheaper and easier to deploy.

In 2027, demand for reliable, high-precision PNT is expected to grow across commercial aviation, maritime, defense, and military sectors. This will accelerate investment in complementary positioning and timing technologies, including terrestrial and other non-satellite PNT solutions, as organizations seek to reduce reliance on GNSS alone and strengthen operational continuity in increasingly contested and interference-prone environments.

58 WILL NOT HAPPEN — LEO-PNT WILL NOT BE A UNIVERSAL REPLACEMENT IN 2027, BUT WILL CONTINUE TO EMERGE AS A COMPLEMENTARY CAPABILITY

While Low Earth Orbit (LEO)-PNT continues to gain traction, with companies such as Iridium, Xona Space Systems, and TrustPoint developing complementary solutions, it is unlikely to become a universal replacement for GNSS in 2027. LEO systems offer potential advantages in signal strength, resilience, and positioning accuracy, but widespread adoption will take time due to deployment costs, constellation maturity, receiver compatibility, and the need to integrate with existing PNT infrastructure. Therefore, GNSS will remain the primary source of PNT for most users, while LEO-PNT adoption grows in applications where improved resilience, signal availability, and performance justify the additional investment.



Smart Living & Consumer Technologies

59 WILL HAPPEN — AI INTEGRATION IN THE SMART HOME WILL CENTER AROUND ON-PREMISES COMPUTE CAPABILITIES IN 2027

In previous years, there was a strong focus on expanding and enhancing AI capabilities across smart home ecosystems. This includes: 1) the release of Amazon Alexa+ in early-2025; 2) Google replacing its existing Google Assistant platform with the more powerful AI assistant, Gemini for Home, in August 2025; 3) the launch of Xiaomi's "Super Xiao Ai" smart home assistant in early-2025; 4) the unveiling of the enhanced Bixby 4.0 by Samsung in March 2026; and 5) most recently in September 2026, the introduction of the next generation of Apple Intelligence, Siri AI. From these developments, it becomes clear that intelligence for the home is a key area for competition across the different smart home ecosystems.

In 2027, ABI Research expects that AI integration in the home will continue to evolve, with an increased focus on addressing data privacy and security concerns. To this end, local data storage and processing solutions are already being introduced into the market to address these needs. Some examples include Anker's MindBase, Eufy's EdgeAgent Security Platform, Samsung's EdgeAware AI Home, Switchbot's AI Hub, and ZTE's AIDN, which all seek to address data and privacy concerns by processing data at the home edge to increase data security and improve device responsiveness.

With Apple reportedly set to launch its own AI-enabled smart home hub in late 2026, ABI Research expects strong competition in the smart home AI platform market in the coming year.

60 WILL NOT HAPPEN — FULLY AUTONOMOUS AI HOMES UNLIKELY TO SEE MAINSTREAM ADOPTION IN 2027

Despite rapid progress in AI-powered smart home experiences, fully autonomous AI homes are unlikely to become mainstream in 2027. AI agents are increasingly capable of understanding device states, historical events, and natural-language instructions, with Google already enabling third-party AI agents to interact directly with Google Home devices through its Home Model Context Protocol (MCP) platform.

However, moving from AI-assisted control to genuine home autonomy requires substantially greater reliability, contextual understanding, device interoperability, and consumer trust, particularly when AI is given the ability and autonomy to make decisions and execute actions without explicit user instructions. Current developments remain focused on specific tasks, such as assisted monitoring and detection, user-specified automation and device control, and daily assistance, rather than giving AI unrestricted authority over the home. The industry is likely to see more proactive and agentic-powered smart home experiences in 2027. However, with recent news circulating about the risks of rogue AI agents, mainstream adoption of fully autonomous AI homes will likely not happen until such risks can be better mitigated.

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