Top 10 Emerging Tech Trends 2026

JUNIPER® RESEARCH

Why Read 'Top 10 Emerging Tech Trends to Watch for in 2026'

Juniper Research's in-house experts have handpicked 10 emerging trends that we expect to have the most substantial impact on enterprises and consumers next year. These predictions are not speculative; they are grounded in robust market research which leverages our extensive in-house expertise and deep understanding of technology markets.

Our trends this year cover areas such as the development of post-quantum cryptography (PQC), the potential of physical AI, and how to increase resilience for enterprise cloud services.

In this whitepaper, we go further than simply outlining these trends; we explain exactly what we expect to happen for each one, why we believe these changes will occur, and the potential implications for stakeholders across the value chain.

Whether you are a technology leader, strategist, or innovator, this whitepaper provides critical insights to help you navigate the opportunities and challenges of the coming year.

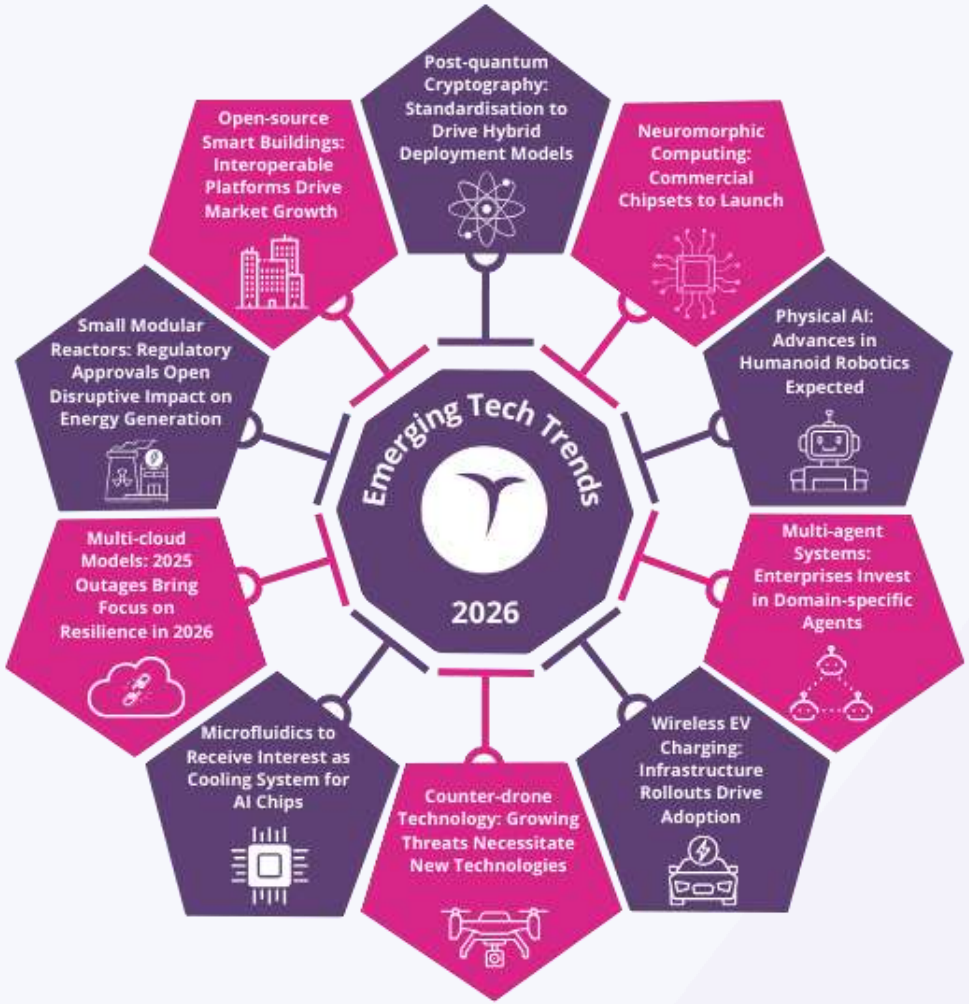
About the Technologies

The following trends are presented in descending order of influence, with number 1 representing the most impactful and number 10 the least. These trends reflect Juniper Research's in-depth analysis of technologies and services across the wider technology sector. We have identified what we believe to be the most disruptive developments to watch in 2026. This report covers key areas including quantum computing, cloud services, and AI.

If you would like more information about the markets being discussed, where relevant we have provided direct links to our supplementary research reports.

You can also contact us via email at info@juniperresearch.com, where we can provide additional information and answer any questions you may have.

In this whitepaper, we will go through trends from 1 to 10. Our first trend for 2026 is on the following page.



1. Post-quantum Cryptography: Standardisation to Drive Hybrid Deployment Models

PQC is a cryptographic algorithm designed to withstand attacks from quantum technologies that could break traditional encryption.

PQC differs substantially from traditional encryption methods and is designed to resist attacks from quantum computing. Traditional methods rely on mathematics, such as discrete algorithms, making it difficult for traditional computers to solve. Conversely, PQC uses techniques such as lattice-based cryptography, hash-based signatures, code-based cryptography, and multivariate polynomial problems to increase security against quantum attacks.

Next year, the National Institute of Standards and Technology (NIST) will finalise standards for PQC algorithms. Juniper Research anticipates this will provide a substantial boost to enterprise confidence in deploying PQC technologies, in preparation for Q-Day; the day on which malevolent players use quantum computing to break traditional encryption methods.

The impact of this standardisation cannot be understated; it will foster confidence through reducing uncertainty around vendor interoperability and future regulatory compliance. This is key, as quantum computing becomes ever more pervasive in networks and computing solutions.

As standardisation takes shape, Juniper Research expects enterprises looking to implement PQC technology to do so alongside existing encryption solutions. This will involve encrypting the information twice - once with traditional encryption and once with quantum-based encryption.

Juniper Research believes that not all countries will look to follow NIST's standards; countries such as China and South Korea have developed their own standards, independently.

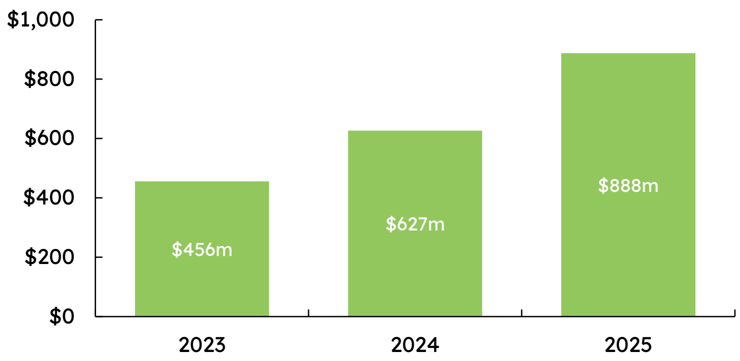
These standards will be necessary as enterprises seek internal buy-in for investment into PQC.

However, it must be noted that whilst traditional encryption methods will soon become obsolete, issues surrounding infrastructure and compatibility will lead to long roll-out timelines.

However, a hybrid model has three key benefits:

1. Risk Mitigation: Hybrid models ensure that even if a single algorithm fails, the other continues to protect sensitive information. This will be key in encouraging enterprises to adopt PQC technologies.
2. Backward Compatibility: Enterprises have often relied on legacy systems, as these are often interoperable and familiar. Hybrid approaches allow secure communication with systems that do not yet support PQC, while retaining the familiarity of legacy solutions.
3. Operational Stability: Implementing PQC-only solutions prematurely is likely to disrupt security and introduce new vulnerabilities. Hybrid models will offer enterprises a phased, low-risk migration path.

Figure 1: Total PQC Financial Investment ($m), Government Funding and Business Investment, 2023-2025



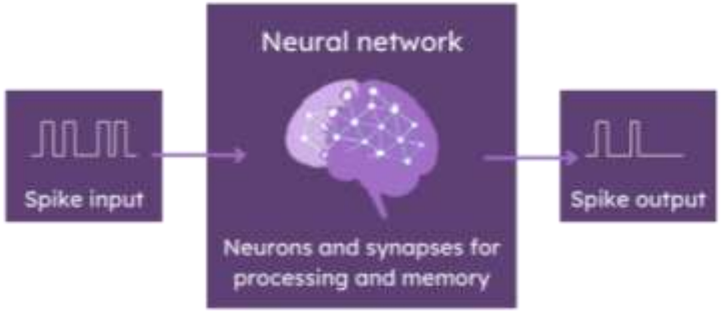
Source: Juniper Research

2. Neuromorphic Computing: Commercial Chipsets That Address AI Bottlenecks to Launch in 2026

The growing applications of AI are placing increased strain on resources, due to the high energy consumption of these applications. For AI applications to be scaled over the next few years, efficiency and energy demands must be addressed to reduce latency and cost of these systems. This will be essential to ensuring that AI systems meet performance requirements, while demonstrating increased value by lowering the cost of deployment.

As such, Juniper Research expects the high energy demands of AI to be of focus in 2026, and neuromorphic chips will emerge as a key solution for reducing the demand from AI-driven applications. Neuromorphic computers are designed to mimic the function of neurons and synapses in the human brain by performing memory and processing tasks on one chip. As a result, neuromorphic chips speed up processing time by removing the need to transfer data between memory and processing units; in turn, reducing energy consumption.

Figure 2: Neuromorphic Computing Architecture



Source: Juniper Research

Neuromorphic chips use spiking neural networks (SNNs) and event-driven processing, mimicking biological neurons and using discrete spikes to transmit information over time. This differs from traditional chips such as Central Processing Units (CPUs) or Graphics Processing Units (GPUs) in the processing of information; where neuromorphic chips are event-driven, whereas CPUs and GPUs process data in a synchronous manner.

With event-driven processing meaning neuromorphic chips only activate when needed, this significantly reduces energy consumption, which will make them ideal for large-scale AI systems. They help to solve the challenge of latency, in processing large datasets and running inference in real time. Moreover, the parallel architecture and asynchronous communication enable ultra-fast processing, which will be critical for certain robotics, autonomous vehicles, and Internet of Things (IoT) applications.

Several companies have launched neuromorphic chips, including Intel Corporation, IBM, Qualcomm, Innatera, and SynSense. Other companies are also active in neuromorphic chip development, particularly for AI and IoT applications.

With demand for AI-powered applications expected only to accelerate in 2026, Juniper Research anticipates mass commercial deployments of neuromorphic chips in 2026. Neuromorphic chip technology is starting to mature, and manufacturing is scaling. Specific applications presenting an opportunity for neuromorphic chips in 2026 will be for medical wearable devices and IoT sensor networks.

3. Physical AI: Substantial Advances in Humanoid Robotics Expected in Next 3 Years

Juniper Research expects substantial advancements in humanoid robotics over the next three years, driven by the development of AI models that are specific to robotics and include multimodal reasoning, such as Isaac GR00T N1. These models enable reinforcement learning and train in realistic environments; a scenario that is well-suited to the wide ranging use cases for physical AI.

Physical AI is artificial intelligence that is designed to perceive and interact with physical environments, most notably robots. Physical AI incorporates AI models for vision, language, and motor control.

These foundational models are providing the ideal platform for future growth. However, these models are only the first step in the market for robotics, notably humanoid robotics, growing over the next three years.

Juniper Research believes that manufacturing which can scale production will also be needed. Companies such as Tesla and Figure AI are already building humanoid robotic models; both targeting the production of over 10,000 units next year.

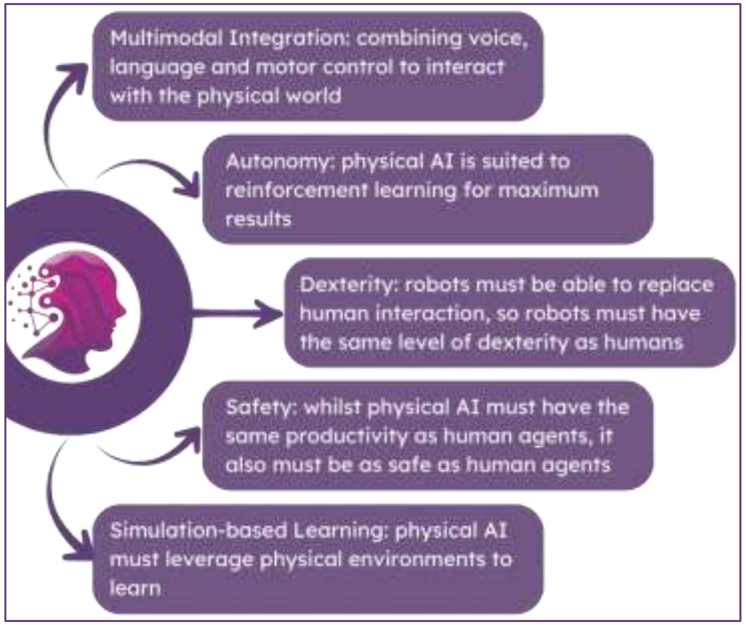
However, it is not just enterprise use cases in which the units are likely to be used, but also within homes. This is where the reinforcement learning becomes valuable, as it allows AI models to adapt and improve across different tasks through iterative training. If hardware supports the task, reinforcement learning will lead to improved performance.

In 2026, we expect these AI models to focus on improving accuracy in specific tasks within manufacturing. However, the focus for developers of AI models and hardware manufacturers must shift to solving more general tasks for the consumer sector.

Additionally, Juniper Research expects governments and national bodies to implement regulations that provide guidance on the ethical implementation and use of AI.

Historically, the growth of AI has outpaced the rate at which AI has developed, with AI deployment often going unregulated. We expect this regulation to be formulated and implemented over the next two years to protect industries, such as healthcare and public services.

Figure 3: Benefits of Physical AI



Source: Juniper Research

4. Multi-agent Systems: Enterprises Invest in Domain-specific Agents

Juniper Research expects enterprises adopting agentic AI to invest in domain-specific agents in 2026. These are specialised agents which are focused on delivering a specific business function. This differs greatly from generic AI which, whilst better at a broader spectrum of tasks, does not provide the same level of precision as specialised agents. However, as enterprise operations become increasingly digitalised, there is an increased need for accuracy, as these processes are increasingly automated.

Enterprises will deploy AI agents to transform both communications and business functions. In communications, AI agents will underpin chatbots, virtual assistants, and real-time language translation. In business operations, they will optimise supply chain operations and manage compliance by assessing large datasets and executing tasks autonomously. These agents will also integrate with Customer Relationship Management (CRM) systems to automate decision-making and reduce operational expenditure.

Whilst there is a higher degree of versatility within general AI models, it is the complex, use case-specific functions which require agentic AI; for example, functions that need to adhere to strict financial regulations will require agentic AI to ensure compliance when being automated. Without this, the amount of business functions that can be automated successfully will be low.

Early adopters of domain-specific agents will be those which benefit the most from the technology, as an AI agent will implement continuous learning based on the feedback it gains from its own environment, thus improving its accuracy. For example, a healthcare AI agent specialising in a certain field of medicine can improve its outcomes by learning from misdiagnoses or other errors.

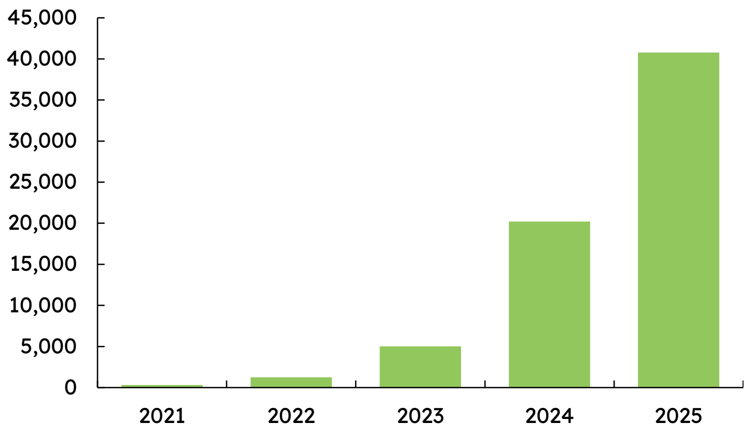
However, for many AI agents, initial training will be critical in 2026. To enable a greater level of autonomy, these AI agents must be trained in as much real-world data as possible.

Without this, AI agents will not have the same level of impact or accuracy when it comes to autonomy; so it is essential that the AI models are trained with data relevant to the use case the agent is deployed for.

Juniper Research also believes that early adopters will not just be limited to large companies; given the scalability that can be achieved and a potential low initial investment cost, we expect enterprises of different sizes to begin investing in domain-specific AI agents.

This owes to the monetisation model of many vendors today; whilst there is a subscription model to develop and train an AI agent, the bulk of costs incurred will be from using tokens for both input and outputs to the AI model. This will prove to be appealing for smaller companies that can explore the potential for AI agents while scaling costs as the use of their own AI agent grows.

Figure 4: Number of Companies Deploying AI Agents Globally, 2021-2025



Source: Juniper Research

5. Wireless EV Charging: Accelerated Infrastructure Rollouts Drive Mass Adoption

Although the first electric vehicle (EV) was introduced in 1984, high costs and limited practicality meant they were not a realistic option for most consumers until recently. EV adoption has come a long way in a short time; by next year, there will be an estimated 29.8 million plug-in hybrid cars and 100.9 million battery electric cars in service worldwide. Even so, EV uptake falls short of the ambitious targets set by many governments worldwide.

Currently, a significant hinderance to EV adoption is the difficulty of charging. Charging points lack standardisation, as different cables and connector types are required for different EV models, requiring consumers to carry multiple adaptors and charging cables to ensure compatibility.

Home charging also poses a challenge for those living in terraced houses or apartment buildings, as having parking directly next to the property is necessary to install the most common form of EV charging: a home wallbox. For those relying on street parking, consistent and convenient charging is far less reliable; limiting their ability to purchase an EV.

Concerns surrounding charging time further deter potential buyers. Drivers taking long trips are wary of running out of charge mid-journey and facing long waits at service stations while their battery replenishes.

Wireless charging eliminates many of these challenges; increasing the viability of buying an EV in the eyes of the public. There are two types of wireless charging: static and dynamic. Static charging occurs when an EV is parked over a group-mounted pad, typically in garages, parking spots, or depots. There are also more innovative use cases being trialled: the Wireless Charging of Electric Taxis (WiCET) project in the UK has installed static wireless pads for electric taxis at the main taxi rank in Nottingham, allowing them to charge automatically while waiting for customers.

Dynamic wireless charging involves vehicles recharging when they are on the go. This can be achieved using inductive charging, which uses electricity flows via electromagnetic fields to charge the car when it is in motion or temporarily stopped, such as at a red light. This is already in use for a series of electric trucks in Sweden, and companies such as Volkswagen are investing in broad domestic rollouts of public fast charging.

Over the last 12 months, there has been an acceleration of investment. One of the more ambitious investments involves charging on motorways. A 2km stretch of motorway in Jinan, China, has been fitted with solar panels built into the road surface, allowing vehicles to charge wirelessly while driving. Similarly, a motorway near Paris was also fitted with this technology, in October 2025; signalling the forward momentum behind large-scale testing and deployment of this technology.

Several large pilots are expected to launch in the coming year. Porsche plans to introduce its 11kW inductive wireless charging system in Europe, in 2026, using floor-mounted pads designed for garages and driveways. In the UK, the V2Geasy project, developed by Electric Green and Royal Mail, is retrofitting delivery vehicles with bi-directional wireless charging, and testing inductive pads for charging and Vehicle-to-Grid (V2G) exports.

By addressing consumer concerns surrounding EV charging convenience, speed, and infrastructure reliability, these pilots have the potential to significantly accelerate mass EV adoption by reducing perceived barriers and making electric vehicles more practical for a wider range of drivers.

6. Counter-drone Technology: Growing Threats Necessitate New Technologies

Recent years have seen significant changes in the way warfare is conducted, with multiple conflicts around the globe seeing an increased use of drones. Unmanned assets are becoming increasingly commonplace, driven in part by drone technology maturing and its costs dropping significantly.

Warfare is not the only area where drones are causing concerns; – with drones causing flight disruptions, being used to smuggle drugs, and having many other use cases, not all legal, law enforcement is understandably having to grapple with drones and the implications of their use.

This has created a major problem – defences against drones are struggling to keep pace with the drone market. In a military environment, drones can frequently be targeted by existing anti-air systems, such as guns or missiles, but these are highly costly and not optimised for engaging such small targets. Indeed, the British and French navies used Aster 15 missiles to shoot down drones in the Red Sea, with each missile costing around $1 million. With many first-person drones costing only in the mid hundreds of dollars range, this is an extremely inefficient way to counter the use of drones.

As such, governments are looking for new ways to counter drones, which represent far better value for money than conventional anti-air systems. Consequently, we predict that 2026 will see an explosion of investment in and development of technologies to counter drones.

The challenges are multiple – systems must keep costs down, accurately detect drones, and neutralise them if necessary. Drones are cheap and plentiful, so systems need to be able to counter not just single drones, but also drone swarms which can overwhelm conventional defences.

Therefore, we will see major investment in both detection and countermeasure systems in 2026.

Figure 5: Counter-drone Technologies – Detection versus Countermeasures

Source: Juniper Research

We expect two specific areas to receive the most investment in 2026:

- Radar systems: Current radar coverage, where installed, focuses on tracking private, commercial, and military aircraft, rather than small drones. New radar systems will need to be developed that can detect smaller drones, without giving a large amount of clutter.
- Lasers: Lasers can make many shots without requiring expensive ammunition, reducing the cost of countering drones dramatically compared to conventional systems. The DragonFire system, developed by a UK consortium, has proven the concept for lasers in this use case.

Overall, counter-drone technology spend will accelerate drastically, creating a major market for vendors to target.

7. Microfluidics to Receive Growing Interest as a Next-generation Cooling System for AI Chips

Currently, AI chip manufacturers face a growing challenge of cooling chips to ensure they continue to run optimally. As AI chips become more powerful they will generate more heat, and traditional cooling technologies, such as cold plates, will not be sufficient for cooling chips. If not addressed quickly, this will put a limit on developing more powerful AI applications in the future.

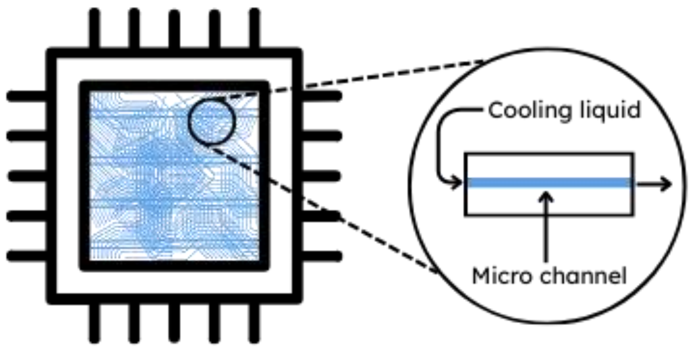
Microfluidics has emerged as a promising technology for cooling AI chips more effectively than existing systems. Microfluidics refers to the process of manipulating small volumes of fluids within microscale channels, ranging from tens to hundreds of micrometres wide. This is promising for developing cooling systems, since the manipulation of fluids through microchannels enables cooling liquids to flow directly onto a chip, bringing the liquid closer to the systems generating heat.

In September 2025, Microsoft, in collaboration with Corintis, announced it had developed an in-chip microfluidics cooling system to remove heat from AI chips. It demonstrated that microfluidics performed up to three times better than cold plates at removing heat, and reduced the maximum temperature rise of the silicon inside a GPU by 65%.

Microsoft's microfluidics cooling system comprises tiny channels etched directly on the back on a silicon chip, which allow cooling liquid to flow directly onto a chip and more efficiently remove heat. It also uses AI to identify the unique heat signatures on a chip and direct the coolant with greater precision.

Cooling chips more effectively with microfluidics will help to lower energy consumption, improve efficiency of chips by allowing them to run at optimal speeds for longer periods, and help to support advanced AI models with high-power computation. It also reduces the volume of water required to cool a chip, making it a more sustainable solution. Consequently, these benefits reduce operational costs and the cost of AI inference, which will support innovation in data centres and the growing adoption of AI for enterprise applications.

Figure 6: In-chip Microfluidics Cooling System



Source: Juniper Research

Juniper Research anticipates other AI chip manufacturers will invest in microfluidics as a cooling technique in 2026. Microfluidics will increasingly become an integral part of future chip design, as AI innovations continue to demand higher processing power.

With chips working as part of more complex systems of boards, racks, and servers within a data centre, we also expect that Microfluidics cooling systems will be designed across the data centre to make cooling much more efficient. As rack densities continue to rise, to support AI workloads, traditional cooling techniques become insufficient; microfluidics cooling systems will support higher rack densities, with the systems able to run optimally for longer periods.

Additionally, Juniper Research expects microfluidics cooling systems to be integrated with smart monitoring systems and predictive analytics to further optimise cooling.

8. Multi-cloud Models: 2025 Outages Bring Focus on More Resilience in 2026

Over the past decade, rising levels of digitalisation have driven an increasing demand for cloud-hosted services. This has come from all industries, including financial services, content streaming, and enterprise applications. However, as the use of cloud services, such as Amazon Web Services (AWS), has increased, so too have the risks involved.

This growth in cloud services has contributed substantially to digital transformation among small to medium-sized enterprises (SMEs), as cloud services were previously unaffordable without the economies of scale offered by hosted cloud providers. However, Juniper Research believes that this has led to a degree of dependence that raises questions about the reliability of cloud service providers and the impact of downtime on end-user services.

Issues caused by cloud service downtime include:

- Lost productivity for users of services such as Zoom or Slack. Many other enterprises rely on this for internal and external communication. This causes delays to AWS clients.
- Disrupted operations caused by the outage can also cause indirect costs through lost time. Key examples of this are enterprises in the healthcare or aviation industries, which must be considered time-sensitive industries, where efficiency is key to maintaining profit; notably as profit margins can be small.
- Loss to brand reputation if services are down for substantial periods, leading to high levels of customer dissatisfaction. Essentially, this loss is unquantifiable, given the subjectivity and changes to opinion over time.
- Customer compensation, particularly in sectors such as finance, travel, and telecoms, can add further costs through required refunds and service credits, in addition to the unexpected time and resources needed to complete them.

This impact was felt in October 2025, when AWS experienced a 15-hour outage of its cloud services, leaving companies such as Snap, Robinhood, and Amazon itself unable to provide their own digital services.

As a result, Juniper Research expects digital service providers that rely on cloud services to explore strategies which increase resilience and reduce downtime.

We expect digital service providers to explore multi-cloud solutions, in which they use multiple cloud vendors, to increase redundancy in their services. However, various challenges need to be addressed, such as residency requirements, consistent policies across different cloud platforms, and interoperability, to provide a consistent service.

These concerns also grow as cloud service use increases, meaning the costs to address them rise. Increased complexity is then added for companies that provide digital services internationally; these companies must also consider variances in sovereignty regulations across countries.

However, the most significant barrier to implementing a multi-cloud strategy will be the higher cost involved. As digital service providers scale their operations across multiple cloud providers, ensuring Return on Investment (ROI) will be essential.

Juniper Research envisages that cloud providers will invest in services which enable cloud enterprise users to be more interoperable in 2026, including cloud-specific application programming interfaces (APIs), for storage and data transfers, and AI-driven optimisation.

9. Small Modular Reactors: Regulatory Approvals Open Potential Disruptive Impact on Energy Generation

With the rise of AI accelerating, this is creating massive demands for data centre compute, leading to a significant challenge within the energy market. Data centres cannot get power quickly enough, and existing generation is not sufficient to meet exploding AI power consumption.

Small Modular Reactors (SMRs) present a potential answer to this. While SMRs have been theorised for a while, 2026 will be the year in which widespread regulatory support will unlock major progress and investment.

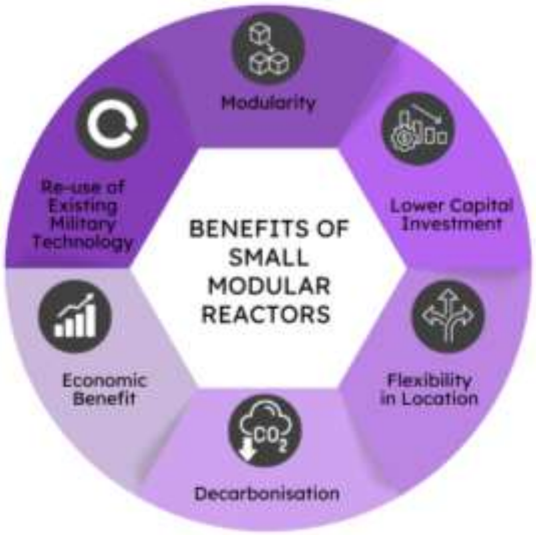
Nuclear reactors are typically subject to intense scrutiny, with traditional nuclear generation facing significant delays. In the UK, the ability of the energy industry to add nuclear power to the grid in a cost-efficient and timely way has been limited, which has been mirrored in many other markets.

SMRs have the potential to mitigate these issues, for several reasons:

- SMRs are smaller and do not require the same vast area as traditional reactors.
- SMRs are modular in nature and can be built in a factory from standardised components; reducing cost and time to market.
- Standardisation of design reduces regulatory issues, with most elements being able to be approved once, rather than individually.

Another important factor is that nuclear power can provide baseload into an energy system. Reactors are unaffected by weather conditions, unlike most renewables, so can provide a reliable minimum level of power. As such, nuclear, and by extension SMRs, can provide the backbone for decarbonisation; allowing fossil fuel intensive generation methods to be replaced by nuclear.

Figure 7: Benefits of Small Modular Reactors



Source: Juniper Research

There are already signs that SMRs are bearing fruit – with US and UK authorities throwing significant support behind SMR rollouts. Indeed, the UK government has already selected a site in Wales for the first SMRs to deployed in country, manufactured by Rolls Royce. In the US, several SMR projects are underway, including an Amazon-backed project in Washington state.

We predict that 2026 will be a tipping point for SMRs, with regulator backing and the pressure from data centre expansion being key to unlocking progress. We anticipate major investment and actual deployments, fundamentally shifting the way energy is generated.

10. Open-source Smart Buildings: Interoperable Platforms Drive Market Growth Amidst Growing Energy Demand

Smart buildings are infrastructures that use automation and IoT connectivity to optimise living conditions, energy efficiency, and other operational processes. An open-source building automation system is a network of building control systems, such as heating and lighting, which uses software that anyone is free to inspect and modify. This prevents vendor lock-in, as vendors are not tied to a single vendor's code, so they can integrate different systems.

The smart building market is forecast to grow rapidly from its current low baseline.

Over the next five years, the number of smart building deployments is expected to nearly triple; growing 194% from 165 million in 2025 to 486 million in 2030.

This growth will be driven in large part by China and the Middle East. These regions tend to adopt new infrastructural technologies more quickly, due to considerable investment in infrastructure megaprojects.

The energy demand of smart buildings remains a significant barrier to adoption, exacerbated by the integration of generative and agentic AI. AI systems can manage operations, analyse learned behaviour through sensor data, and automate processes to improve overall efficiency. However, while these capabilities can optimise energy consumption of the building, the substantial upfront energy requirements and computational load of advanced AI systems pose scalability challenges. These issues are especially pronounced in regions with strict government-set sustainability targets.

The tension between a growing demand for energy and the push for smarter buildings is driving interest in interoperable smart building platforms. By adopting standards-based open communication protocols, such as BACnet, buildings and IoT devices can connect regardless of their manufacturer. Because the source code is openly accessible, developers and building operators can tailor solutions to the needs of specific environments; reducing unnecessary computation.

Interoperability also allows buildings to integrate renewable energy sources and dynamic grid pricing more effectively; for example, AI-driven systems can automatically reduce load during peak pricing periods or increase storage when renewable energy is abundant. By leveraging open-source platforms, operators can implement these strategies without being constrained by proprietary ecosystems that limit data exchange.

Companies such as ABB and Bosch have developed innovative technologies to reduce the energy consumption of smart buildings; for example, building a 'digital twin' to monitor heating, ventilation, and air conditioning (HVAC) systems and optimise performance by testing scenarios and gaining data insights. The success of digital twins relies heavily on interoperable data, as they make it easier to aggregate data from multiple systems into a unified model.

In 2026, open-source ecosystems will be at the forefront of the next generation of smart infrastructure. Vendors should aim to adopt or contribute to open-source frameworks, particularly those aligned with widely used protocols such as BACnet, in order to optimise their energy efficiency and drive demand.

The Process & Methodology

The identification and scoring process for Telecoms & Connectivity Top 10s begins with Juniper Research's team of in-house analysts and thought leaders conducting extensive research and analysis on emerging technologies, industry developments, and market disruptions in the telecoms space. Our team reviews a wide range of sources - including our own research portfolio, forecast suites, industry reports, market research, and expert opinions - to develop an initial long list of potential trends.

Once this list is compiled, the team engages in a structured debate to critically assess the significance, feasibility, and relevance of each trend for the year 2026. Experts evaluate the potential market adoption, technological breakthroughs, and socioeconomic factors influencing these trends. Through multiple rounds of discussion, the list is gradually narrowed down based on criteria such as potential growth, disruptive potential, and alignment with key industry shifts. After extensive deliberation, the team votes to finalise the top 10 trends.

Following selection, each of the top trends is expanded by answering three key essential questions:

- What will happen? A detailed explanation of the trend, including its technological, economic, or social drivers.
- What is the impact? This section outlines the specific effects of the trend on businesses, consumers, and industries; highlighting potential opportunities and challenges.
- Why 2026? The rationale for why this trend is expected to materialise or gain significant traction in 2026; backed by key data and market indicators.

About Juniper Research