

IDC FutureScape: Worldwide Future of Connectedness 2024 Predictions

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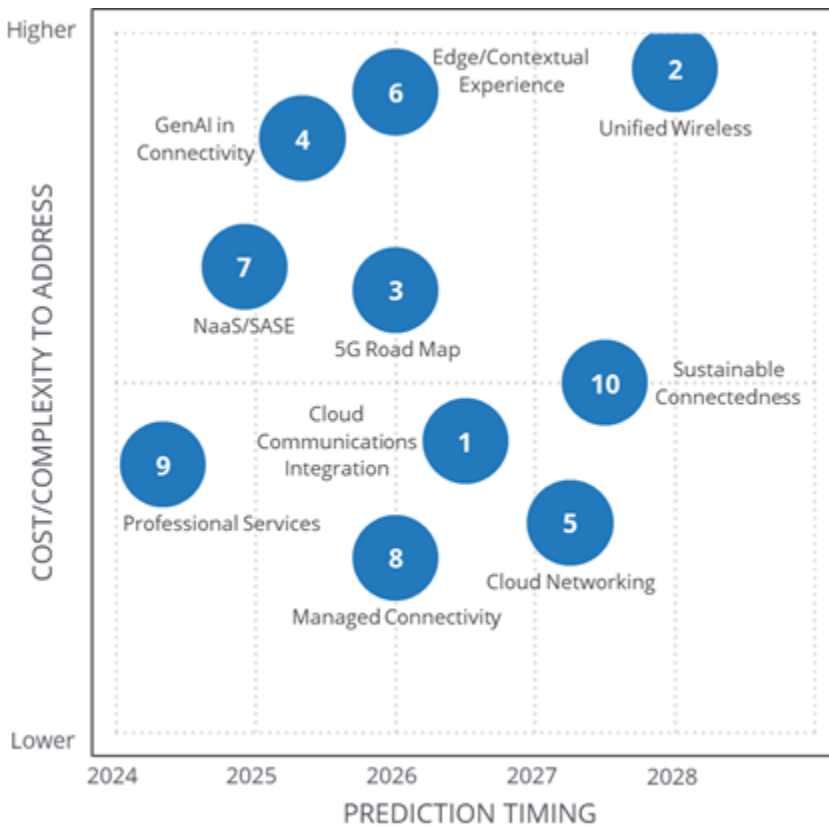
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IDC FUTURESCAPE FIGURE

FIGURE 1

IDC FutureScape: Worldwide Future of Connectedness 2024 Top 10 Predictions



Note: Marker number refers only to the order the prediction appears in the document and does not indicate rank or importance, unless otherwise noted in the Executive Summary.

Source: IDC, 2023

EXECUTIVE SUMMARY

IDC defines the future of connectedness as enabling the timely movement of data across people, things, applications, and processes to create seamless digital experiences. It serves as a road map to help organizations address unevenness in connectivity across different environments and locations. It also helps them become more agile and resilient.

Connectivity transformation within the enterprise is an inevitable piece of digital transformation, driven both by technology advancement and business requirements. Carrier networks continue to advance in terms of speed, efficiency, and resiliency, allowing businesses and consumers access to faster and more resilient networks. Leveraging advancements in 5G, fiber, fixed wireless access, edge, IoT, and consumption-based virtual service offerings remains an enterprise priority. IDC data shows businesses continue to prioritize connectivity-related investments regardless of economic and business uncertainty. IDC's July 2023 *Future Enterprise Resiliency and Spending Survey* shows that 83% of enterprises expect to maintain or increase spending on IT over the next 12 months, with businesses investing in newer advanced connectivity capabilities as a critical piece of that spending. Such investments will improve scalability, enable the end user to stay productive regardless of location, and improve the customer experience. Connectivity improvement will also enable new services as employees, businesses, and consumers increasingly look for easier ways to connect, share information, complete digital transactions from anywhere, and enjoy richer digital experiences.

The ongoing evolution of connectivity shows that there is no actual final state of connectedness. Instead, it is a road map that improves agility, increases business flexibility, and allows organizations to adapt to change as market or business conditions shift. As 5G networks become more pervasive, 6G networks with performance of 100Gbps to upward of 1Tb are already hyped and on the horizon. Low Earth orbit satellite technology is expected to bring high-speed connectivity to remote and rural areas that lack cellular or wireline connectivity options and enhance connectivity resiliency. Add in the growing implications of artificial intelligence (AI), cloud connectivity, cybersecurity, and application visibility and performance management, and the road map to becoming agile and connected becomes more intelligent, automated, and complex. These trends will all become inflection points for organizations in their decision-making process of how to manage the complexity and which service or technology provider will be the strategic partner to help them do just that.

Growth of data and keeping that data in motion has long been a priority for the enterprise ... critical to making the right decisions at the right time to drive revenue, experiences, and outcomes. The enterprise network must scale to support the ever-growing volume of data coming from both inside and outside the organization. Employees and customers have come to expect that any digital interaction with things, applications, processes, or other people is guaranteed no matter where, when, or via what medium they choose. As organizations continue down the path of becoming mobile and cloud first, they have already been forced to adapt to hybrid work and a distributed workforce. Today, employees, customers, and partners expect seamless digital interactions to mission-critical systems and processes from anywhere. The convergence of physical and digital workspaces and storefronts and the evolution of smart spaces are driving business leaders to align technology, policy, and operations together to drive agility and revenue.

As organizations continue down the path to becoming a more agile and connected enterprises, connectivity programs will embrace multicloud networking, cloud connectivity services, unified communications, 5G, software-defined WAN (SD-WAN), NaaS, and cloud infrastructure and services to keep data moving. More importantly, these programs will continue to improve efficiency and enable

data to provide real-time insights to the business. As networks evolve and business needs scale or change course, enterprise network and IT departments must align systems and processes. This will ensure business continuity, enable employees to be productive, and help the organization quickly adapt to business demands – not to mention new market requirements and connect anytime, anywhere, and from any physical location.

IDC's future of connectedness 2024 top 10 predictions are:

- **Prediction 1:** By 2026, customer experience will overtake employee experience as a top priority, with 90% of cloud-based API platforms offering AI-enabled CPaaS/UCaaS capabilities for personalized customer engagement.
- **Prediction 2:** By 2028, 80% of enterprises will integrate low Earth orbit satellite connectivity, creating a unified digital service fabric that ensures resilient ubiquitous access and guarantees data fluidity.
- **Prediction 3:** By 2026, integration complexities, undifferentiated software experiences, and a lagging compatible device landscape will result in only 35% of enterprises realizing material benefits from 5G use cases.
- **Prediction 4:** By 2025, 40% of enterprises will see large-scale project success from generative AI as they evolve various aspects of network strategy, design, performance, and security.
- **Prediction 5:** By 2027, 100% of the Global 5000 will use a cloud networking service with orchestration overlays to connect to, within, or across clouds, driving multicloud adoption and reducing risk of cloud lock-in.
- **Prediction 6:** By 2026, with the accelerated adoption of GenAI, 35% of enterprises will enhance edge computing use cases with contextual experience, further aligning business outcomes with customer expectations.
- **Prediction 7:** By 2025, 55% of enterprises will benefit from optimized operational efficiency, enhanced security, and reduced network costs by leveraging SD-WAN and security for cloud-managed networking and security.
- **Prediction 8:** By 2026, 75% of enterprises will have assigned all deployment responsibility, operational control, and technology innovation for at least one major network domain to a trusted management partner.
- **Prediction 9:** By 2024, 60% of enterprise professional services' emphasis will be on adoption of new and existing network technologies to help drive utilization, optimization, value, and renewals from IT investments.
- **Prediction 10:** Enterprises will rely on partnerships with service providers to integrate ESG use cases for efficiency and regulatory compliance, with 60% automating the management of sustainability metrics by 2027.

This IDC study provides IDC's 2024 top 10 predictions for future of connectedness.

"The enterprise road map to becoming agile and connected will be one that requires a continued shift toward cloud connectivity, where ubiquitous access to applications and services also embraces next-generation AI capabilities to increase agility," commented Paul Hughes, research director, Future of Connectedness Agenda program at IDC. "Whether driven by operational, economic, or sustainability goals, IDC expects businesses to increase adoption of managed services and increasingly lean on connectivity and professional services providers for guidance to help ensure that their multi-network access strategy delivers increased network efficiency and employee productivity and enhances customer engagements."

Summary of External Drivers

- **AI everywhere** – Generative AI takes the spotlight
- **The drive to automate** – Maximizing efficiency and new opportunities
- **Cybersecurity and risk** – Building resilience against multiplying threats
- **The digital business imperative** – Competitiveness and outcomes
- **Everything as a service intensifies** – Transforming models to drive change
- **Shifting tech regulatory landscape** – Navigating risk and opportunity
- **Operationalization of ESG** – Measuring and implementing sustainability

Predictions: Impact on Technology Buyers

Prediction 1: By 2026, Customer Experience Will Overtake Employee Experience as a Top Priority, with 90% of Cloud-Based API Platforms Offering AI-Enabled CPaaS/UCaaS Capabilities for Personalized Customer Engagement

The most forward-thinking companies recognize that the customer experience is directly impacted by the agility, alignment, and anticipation that employees bring to interactions with customers. This requires seamless voice routing and intelligent use of automated bots and human intervention. However, only one-fifth of enterprises consider their digital customer engagement models to be extensively connected today, despite 75% of enterprises indicating that they have digital customer engagement models in place.

Over the past few years, employee experience/productivity has been a top business priority, however, that has been supplanted by customer experience as a key factor that allows enterprise to differentiate, reduce churn, and grow revenue. Companies are leveraging cloud communications platforms to simplify and automate complex omni-channel customer engagement to increase employee productivity and improve the customer experience. Low-code tools and the adoption of generative AI (GenAI) capabilities are also contributing to growing adoption across multiple business units, from enterprise IT and LOB buyers. Knowledge management and marketing applications are promising areas of generative AI benefit for businesses in the future, with IDC research showing that 42% of businesses anticipate generative AI will have the most promise for their organization in its marketing applications and 37% in its conversational applications. Voice integration alone with Microsoft Teams or Webex Calling can allow for transcription of customer discussion that flows back into the employee's workflow with sentiment capture and suggestion for targeted responses.

Associated Drivers

- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- The need for integration between unified communication and collaboration platforms, contact center software, and API tools will require a flexible underlying platform approach. UCaaS platform vendors will respond by extending UCaaS capabilities from their platforms to CPaaS platform providers.
- AI-enabled UCaaS and CCaaS features will require the businesses to have accepted use and policies to manage expectations around the sharing and use of customer data.

- The need for APIs and tools to develop AI-enabled unified communications in apps targeting customer use cases drives IT spending to increase in the next two years.

Business Impact

- Businesses of all sizes see improved engagement from customers.
- Businesses of all sizes solve customer problems more efficiently and effectively because GenAI has enhanced employees' knowledge and perspective on the customer need and appropriate response.
- Businesses see improved and/or accelerated ROI on cloud-based communications investments.

Guidance

- Invest in unified communications solutions that are or will be extending their capabilities via APIs for customer-facing app creation.
- Seek CPaaS solutions that have demonstrated investment in GenAI capabilities that are exposed via API.
- Seek providers that bring both professional services and automated tools together for the right mix of help when your business needs it for omni-channel app strategy and UCaaS integration.

Prediction 2: By 2028, 80% of Enterprises Will Integrate Low Earth Orbit Satellite Connectivity, Creating a Unified Digital Service Fabric That Ensures Resilient Ubiquitous Access and Guarantees Data Fluidity

A wireless-first approach has become embedded in IT planning as organizations look at the best ways to transform their connectivity strategy. The outcome is a scalable and future-proof mix of wireless access technologies together (4G/LTE, 5G [NSA, SA] FWA, MPN, satellite, etc.) to deliver on the promise of the digital business model. Communications service providers (SPs) are now making strategic investments to build out next-generation digital infrastructure and expand the reach of their services. Low Earth orbit (LEO) satellite services are prominently featured in communications SPs' unified wireless plans for delivering satellite connectivity for consumer and business services, where deployment of fixed-line broadband or terrestrial wireless is not economically feasible.

The opportunity to connect the unconnected and bridge the digital divide is potentially vast with evolving business models. According to the International Telecommunication Union (ITU), an estimated 2.9 billion people, representing 35% of the world's population, do not have internet access. Alliances with long-term implications will become more significant through the pairing of satellite operators' constellations in LEO with communications SPs' mobile and fixed networks. LEO satellites offer a cost-effective option to conventional satellite connectivity that face challenges with cost, signal delay, and latency beyond 500ms for many cases. LEO satellite services offer latency in the range of 20-50ms due to their lower orbit (300-2,000km above the Earth), and smaller footprint make them a more viable and cost-effective connectivity option. The technology is also underpinned by significant efforts in the 3GPP standardization body to enable 5G systems' support for non-terrestrial networks (NTNs), helping accelerate the launch of monetizable satellite-based 5G services as well as support forward plans for 6G non-terrestrial networks, with IEEE standards body planning a special issue publication targeted for late 2023/early 2024.

Some of the notable communications service providers and satellite operator partnerships announced are T-Mobile with SpaceX (Starlink); Verizon with Amazon (Kuiper); Orange with OneWeb; AT&T, Rakuten, and Vodafone each with AST SpaceMobile; NTT Ltd. with SES; Qualcomm with Iridium; and

Apple's partnership with Globalstar. These partnerships are in various stages, with some further advanced with joint road map development to evolve their services beyond terrestrial cellular to LEO satellite services that include high-speed internet, 4G/LTE and 5G broadband backhaul, and Internet of Things (IoT) services. In addition, communications SPs are integrating LEO satellite connectivity for critical and emergency communication, such as hurricanes, wildfires, flooding, or earthquakes, which often cause the destruction of or damage to terrestrial mobile network equipment and resulting in service outages.

LEO satellite technology is in the early stages of its transformative journey, which will see constellations expanding and industries exploring new applications. Understandably, there will be challenges as more satellites are launched over the next few years, as congestion and the potential for catastrophic collisions and dangerous space debris becomes a potential concern. However, the positives are too compelling and will accelerate the deployment of LEO satellites as government subsidies have become more available to operators. Coupled with spectrum availability, such as the FCC proposing to add a mobile satellite service allocation on some terrestrial flexible-use bands, LEO satellite operators can apply to access terrestrial spectrum if certain prerequisites are met. The long-term benefits of LEO satellite will help redefine global connectivity for billions of consumers and millions of commercial customers around the world.

Associated Drivers

- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Organizations in specific verticals should explore applications that require lower-latency satellite connectivity option, in the range of 20-50ms, as part of their high-speed access choice for remote locations.
- Long-term alliances are increasing through the pairing of satellite operators' constellations in LEO with communications SPs' mobile networks to extend the reach of their unified digital wireless fabric.
- LEO satellites will offer global capabilities for the deployment of IoT and MPN solutions but will require custom integration capabilities.

Business Impact

- Cost-effective LEO satellite connectivity will help bridge the digital divide and open new economic opportunities for remote areas of the world, including new business markets for communications SPs and commercial applications.
- LEO satellite connectivity will become increasingly prevalent due to the continued standardization effort in the 3GPP ensures 5G systems integrate NTN, such as high-altitude platform systems (e.g., LEO, MEO, and GEO satellites), with terrestrial options.
- Communications SPs will evolve their network beyond terrestrial cellular with LEO satellite services that include direct satellite to cellular, high-speed internet, 4G/LTE and 5G broadband backhaul, and IoT. This technology innovation will drive competitive pricing integrated under one bill for network connectivity services.
- Regulatory approach to LEO satellites across the countries will also be a determining factor for commercial availability and operational relations (interconnection, partnerships, etc.) between terrestrial operators and LEO operators.

Guidance

- Identify optimal applications for low-orbit connectivity, with guidance from either satellite operators or communications SPs. Latency and reliability should be key considerations.
- For communications SPs, move quickly to line up the mobile networks with satellite operator's constellations in LEO. The right partnership will be crucial for time to market of voice, data, and broadband use cases as well as wholesale capacity solutions.
- Explore IoT and MPN applications that don't require always-on mission-critical capability for remote and geographically distributed sites.

Prediction 3: By 2026, Integration Complexities, Undifferentiated Software Experiences, and a Lagging Compatible Device Landscape Will Result in Only 35% of Enterprises Realizing Material Benefits from 5G Use Cases

The transformative potential of 5G for the enterprise remains strong, however, the time frame for business outcome benefits remains longer than most businesses have expected. While mobile operators have invested heavily in their 5G network rollout, most organizations still face the challenge of navigating a broad and diverse mix of vendors, technologies, and services necessary to maximize business outcomes from a fully 5G-enabled deployment. This web of complexity has dampened enterprise expectations for 5G business benefits. According to IDC's *Future of Connectedness Survey* completed in June 2023, 42% of organizations expect to see significant or transformative benefit from 5G, down from 46% in 2022, and substantially lower than the 65% in 2021. The marketing promise of 5G has fallen victim to the complexity of integrating 5G with other technologies, creating a slowdown in the timing and impact, even as 22% of organizations see faster network speeds as the top attribute and a key reason for investment.

While 5G started as a mobile operator story, the devices, applications, and service models that deliver the value on top of the network are still decentralized. This creates a significant integration challenge across the entire 5G ecosystem, where alignment of the technology, business models, use cases, and monetization capabilities are concerned. As business cases become more well defined around goals and expectations, the underlying challenges of mobile device management, 5G service orchestration, delivery and management, revenue management and sharing, and support are best managed holistically. However, endpoint device makers, network equipment and transport providers, system integrators, ISVs, and cloud providers all play some sort of role in delivering the experience and keeping critical data in motion. For example, the vision for a 5G-interactive mobile media and broadcast experiences in sports stadiums may be well understood, but creating a common reference architecture that embraces the network, user devices, stadium cameras, real-time data and resources to add to the user experience, and tiered pricing models for different user experiences demonstrates the number of moving parts that must work seamlessly.

Today, enterprises continue to see an endless supply of tactical solution demos and "marketecture" but have yet to see the actual integrated experience take place. While development of use cases will concurrently flow top down from 5G network providers, better collaboration of the technology supplier ecosystem will be essential for success. To date, dedicated use cases that provide a specific road map have shown the greatest promise, and specific vertical use cases that solve a particular business problem may see more traction than those that put scale and creativity at the forefront.

Associated Drivers

- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Lack of appropriate staffing or staffing expertise will require dedicated resources from outside partners, including network operators, managed SPs, and systems integrators that can provide domain expertise, strategy, guidance, implementation, and KPIs around 5G and related business use cases.
- Integrating 5G connectivity and use cases with advanced analytics, AI, and machine learning will facilitate increased real-time automation with the organization.
- It refers to engaging with a specific set of technology suppliers that themselves are already collaborative around 5G services and solutions.

Business Impact

- There is an opportunity for mobile operators and technology suppliers to engage C-suite leaders around the operational or financial benefits of a dedicated set of 5G solutions and services that can improve efficiency, productivity, health and safety, or time to revenue.
- There is greater co-development partnerships between enterprise and 5G vendors to align specific outcomes from vertical-specific use cases.
- Once businesses use cases are deployed and demonstrate effectiveness, measuring and realizing a positive ROI will be a catalyst driver for further solution development and business use case investment.

Guidance

- Focus first on the inputs of where data will be generated and where 5G transport becomes the accelerant for service or use case development and aspirations. From here, engage vendor partners on designing an end-to-end process that ensures the data and its movement drives a positive outcome.
- Consider a managed services approach to 5G at this stage, as it gives the business the ability to remain focused on its employees and customers and puts the onus on the managed service provider to deliver on the current and future promises of 5G use cases and business benefits.

Prediction 4: By 2025, 40% of Enterprises Will See Large-Scale Project Success from Generative AI as They Evolve Various Aspects of Network Strategy, Design, Performance, and Security

Artificial intelligence has become a tool to automate tasks, accelerate faster decision making, and help the business achieve its goals faster and more effectively. Generative AI is now making headlines as the transformative capabilities will increase efficiency even further. IDC's *Future Enterprise Resiliency and Spending Survey* conducted in July 2023 showed that 29% of enterprises are already investing in generative AI and 49% are doing exploration around relevant use cases. It is important to note however that the top areas where enterprises feel generative AI could make the most impact over the next 18 months are not network or connectivity focused but are in software development, product development, and customer engagement.

To date, enterprise exploration and eventual expenditure on generative AI for connectivity programs is at a very early stage. IDC predicts that the starting point for the technology at the network levels will be focused on expanding capabilities of existing network data-intensive AI/ML-related functions. For large enterprises, the ability to leverage autonomous network-type functions, where AI or ML models are already being used for network management and optimization, will help increase agility. We also expect it to be used by network managers and IT leaders to gain greater insights into network traffic and aid in long-term network security, capacity planning, and performance.

GenAI will offer significant opportunity to revolutionize and optimize the communications industry landscape by evolving various aspects of network management, optimization, personalization, and improved customer experience. Successful outcomes with generative AI in areas like customer experience and product development will be the catalyst for further expansion of generative AI across the enterprise. We expect the road map and timelines for connectivity-related projects to be long, complex, and likely tactical in nature for the foreseeable future.

Associated Drivers

- **AI everywhere** – Generative AI takes the spotlight
- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Analyze network data to optimize the network performance including predicting network congestion, addressing security and fraud, and offering guidance to improve performance and future network capacity planning.
- Automate core network management functions to help ensure connectivity resiliency and address network outages or service degradation quickly by using data intelligence to find, recommend, and even solve network operations problems.
- Reduce manual steps to address network outages or service degradation by using data intelligence to find, recommend, and even solve network operations problems.
- Improve customer experiences with AI-powered chatbots and virtual assistants for handling customer queries and predictive analytics to analyzing user behaviors and preferences to create personalized service offerings.

Business Impact

- Through the automation of complex and time-consuming network management processes, NetOps staff can work more efficiently.
- Automating network operations and management may have required dedicated staffing, allowing complex processes to be handled digitally.
- It provides a foundation for innovation, where network performance can be tested and improved over time and any investments made can be made so based on user needs, expectation for scale, and long-term business objectives.

Guidance

- Generation AI applicability today is still more aligned with text, data, knowledge, and customer-centric processes. Application of the technology today should be positioned to solve a specific connectivity-related business problem or accelerate a business process.
- There is a need to ensure the C-suite has a full vision of benefits, timing, and scale of their investment and the impact on human resources, as their roles will likely evolve.
- It should determine how the roles and responsibilities of key network and IT staff may change, based on changes in tasks that may move from human intensive to automated.
- The successful integration of GenAI will require careful consideration of security and privacy, as well as ongoing monitoring to ensure the technology delivers its intended benefits while minimizing risks.

Prediction 5: By 2027, 100% of the Global 5000 Will Use a Cloud Networking Service with Orchestration Overlays to Connect to, Within, or Across Clouds, Driving Multicloud Adoption and Reducing Risk of Cloud Lock-In

The major technology transitions that enterprises are going through – the move to cloud and multicloud, dispersal of users and applications, automation, and growth of data – have outgrown the capabilities of legacy networks and call for a shift to flexible, software-defined, cloud-centric network architectures. However, mainstream options for connecting to and between clouds have been limited until relatively recently and despite impressive growth since its inception still only around 40% of companies use SD-WAN, according to IDC research.

As a result, there is latent demand for cloud-centric networking solutions that is becoming increasingly evident. IDC's 2023 *Worldwide Future of Connectedness Survey* put several questions to respondents regarding networking investment plans and strategic priorities. In nearly all of them, cloud or multicloud networking took a clear lead over other areas, even security. For example, 67% of enterprises will increase their investment in site-to-cloud connectivity services over the next year, 58% plan to start using or increase their use of multicloud networking, and adopting a cloud networking strategy that simplifies connectivity to, within, and across clouds was the top strategic connectivity initiative that companies will take to improve business outcomes over the next year.

With such momentum behind cloud networking, we believe that all Global 5000 enterprises will use at least one cloud connectivity service within their overall network environments, and that a very high proportion of midsize to large enterprises below that tier will follow suit. The specific type or types of services that companies will use will vary depending on individual circumstances, background, and needs, but most companies will incorporate cloud or multicloud connectivity into existing network architecture strategies, resulting in a patchwork comprising combinations of:

- SD-WAN for traditional WAN as well as cloud connectivity into and between clouds via SD-WAN vendor integrations
- Dedicated cloud-connected services such as Microsoft ExpressRoute and AWS Direct Connect
- Hyperscaler single-cloud WAN services, including Microsoft Virtual WAN and AWS Cloud WAN
- Multicloud network and orchestration overlays, such as Alkira, Proximo, and Aviatrix
- NaaS providers such as PacketFabric and Aryaka
- Legacy WANs that will persist for several more years, typically MPLS and Ethernet

Associated Drivers

- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes
- **Everything as a service intensifies** – Transforming models to drive change

IT Impact

- Organizations that have built and run their own cloud-connected networks using SD-WAN and hyperscaler constructs know how complex it can be, particularly between clouds, and that the necessary skills to manage these configurations are rare.
- Cloud-based infrastructure and applications have increased the number of technology partners that enterprises engage with, and cloud networking will similarly increase the number

of network partners. This creates some overhead and complexity, and some organizations will opt for a managed service provider, often their existing WAN provider, to manage the various components.

- The first generation of cloud connectivity services aimed at connecting an organization's MPLS WAN to a cloud provider via a dedicated connection didn't address the associated performance and cost issues. Modern internet- and SD-WAN-based cloud and multicloud networking solutions bypass those problems and deliver superior end-user experience at lower cost.

Business Impact

- Business innovation is increasingly driven from the cloud, including industry clouds within specific verticals. By simplifying the connectivity aspect, cloud and multicloud networking services will open more opportunity for digital business innovation as well as help companies further behind in their cloud journey to catch up with their peers.
- Operational agility benefits come from greater accessibility to data and workloads across different cloud environments, allowing employees to be more productive, regardless of physical location and cloud usage patterns.

Guidance

- Organizations should assess their current and anticipated patterns of cloud use to identify an appropriate network solution; for example, whether a company prioritizes a single cloud provider or is moving to multicloud, the geographic dispersal of their workloads, and their mix of application types and use cases.
- Companies should be clear on where they want to be on the spectrum between implementing and managing infrastructure themselves and using a managed service provider.

Prediction 6: By 2026, with the Accelerated Adoption of GenAI, 35% of Enterprises Will Enhance Edge Computing Use Cases with Contextual Experience, Further Aligning Business Outcomes with Customer Expectations

The increased adoption of AI and IoT within the enterprise has been driven by the evolution of how employees work, what they use to make their work more productive, and what tools can help improve the way they interact with customers. As data volumes to and from the cloud continue to increase, certain business functions will be better served operating using edge computing to help reduce latency and lower the risk of network traffic bottlenecks or related issues during peak usage times.

The impact of generative AI on business outcomes tied to edge computing is expected to grow significantly as organizations look to automate and revolutionize key operative functions that require both robust compute power and low latency. IDC research shows that 29% of enterprises are already investing in generative AI technologies today. While software development and design ranks as the top use case that will have the most impact, product development/design and customer engagement rank second and third, respectively.

While these latter two functional areas will leverage generative AI benefits of automation and intelligence to accelerate development, deliver more contextual experiences, and improve business outcomes, the technology curve is still in the early stage of adoption. Dedicated applications that benefit from generative AI must be aligned with an enterprise's edge computing strategy, thus requiring significant business case development, technology alignment, and outcome expectations. Today, most generative AI use cases today center more around sales and marketing automation, whereas connectivity edge computing use cases extend across network traffic monitoring and

management, predictive maintenance, virtual radio network management, and connected devices. IDC expects the impact of generative AI in these areas to be gradual, but uptake and usage of these capabilities by the enterprise to follow at a similar pace as the employee and customer benefits become more tangible.

Associated Drivers

- **AI everywhere** – Generative AI takes the spotlight
- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Adding contextual experience to edge use cases will require IT to integrate GenAI into the use case workflow. GenAI will provide a deeper analysis of customer experience and relate it to their personal motivations and outcomes and whether it was delivered according to their expectations.
- Augmenting customer analytics with natural language processing (NLP) simplifies the overall experience; however, edge computing infrastructure will require the integration of high-performance graphic cards to ensure fast and real-time analysis of the customer data and provide natural language processing on requests. The edge infrastructure will perform inferences while the training of large data sets can take place in the cloud.

Business Impact

- Deliver on the promise of incorporating contextual experience in edge use cases to better identify customer motivations, preferences, and expectations. It will make the outcome of the use case more relevant to each customer.
- Note that it improves loyalty and maximizes opportunities to monetize edge computing investments. Natural language processing will allow for a more seamless experience and should engender a more delighted customer.

Guidance

- Consider integration of generative AI as part of the workflow of edge computing use cases.
- Develop a deeper understanding of customer expectations through analysis of customer data to drive better customer outcomes.
- Be cognizant of security and privacy risks associated with customer data and should establish strict guidelines on what data to access, who can access it, and who can use it.

Prediction 7: By 2025, 55% of Enterprises Will Benefit from Optimized Operational Efficiency, Enhanced Security, and Reduced Network Costs by Leveraging SD-WAN and Security for Cloud-Managed Networking and Security

A key challenge for enterprises in today's complex, distributed IT infrastructure landscape is to ensure secure and predictable network performance while controlling costs and enhancing operational efficiencies. The continued rapid adoption of SD-WAN architectures is driven by the networking economics and improved business agility this technology enables.

SD-WAN fundamentally brings the principles of abstracted software-defined networking to the WAN, enabling hybrid WAN management, application prioritization, secure networking, and optimized networking economics. In turn, SD-WAN deployments improve last-mile performance, assure high-quality access to software-as-a-service (SaaS) and infrastructure-as-a-service (IaaS) applications, and

enhance support for custom user applications. In 2022, the SD-WAN infrastructure market grew 25.0%; IDC estimates that through 2027, the market will grow at a compound annual growth rate of 10.1% to reach \$7.5 billion.

Meanwhile, one of the most significant trends as it relates to enterprise-edge networking is the integration of security functionality tied into networking. Native security functions enabled within SD-WAN are becoming increasingly common, such as enabling end-to-end-encrypted traffic, data loss prevention (DLP), and intrusion detection system/intrusion prevention system (IDS/IPS). Managing SD-WAN and security from the cloud through integrations with tools like cloud access security brokers (CASB) or secure web gateways (SWG) brings myriad benefits, from centralized management to common policy enforcement across on-premises and cloud-based applications. Combined, more integrated management of networking and security for distributed users and applications will help enterprises address challenges related to increasing traffic capacity, unpredictable traffic peaks, and cloud adoption.

Associated Drivers

- **Cybersecurity and risk** – Building resilience against multiplying threats
- **The drive to automate** – Maximizing efficiency and new opportunities
- **Everything as a service intensifies** – Transforming models to drive change

IT Impact

- Ensuring network connectivity meets the needs of a hybrid workforce and growing IoT device deployments
- Guaranteeing reliability and resiliency as the data demands of the organization grow over time
- Ability to support multicloud and hybrid cloud deployments (including SaaS, IaaS, and platform as a service [PaaS]) and provide efficient and secure access to these cloud resources independent of access methods: onsite, remote, or at home

Business Impact

- Enterprises will enjoy better network economics due to optimized consumption of network resources, improved response to adverse conditions, and better management of unpredictable bandwidth requirements.
- A key tenet of SD-WAN architectures is providing direct access to multicloud resources including IaaS, PaaS, and SaaS. With direct connectivity, users will enjoy improved performance and lower latency, all contributing to better cloud experience.
- Integration of security with SD-WAN will mitigate risks related to security threats such as distributed denial of service (DDoS) attacks, illegal access to IT resources, and other security risks.

Guidance

- Optimize employee and device connectivity to ensure experiences are consistent regardless of location or access method.
- Ensure network architecture can accommodate for unpredictable traffic demands and remain resilient when adverse network conditions occur (e.g., network outage, traffic spikes, intrusion by bad actor).
- Make secure direct access to the cloud is a requirement in any or all network transformation initiatives.

Prediction 8: By 2026, 75% of Enterprises Will Have Assigned All Deployment Responsibility, Operational Control, and Technology Innovation for at Least One Major Network Domain to a Trusted Management Partner

IT organizations are under tremendous pressure to deliver on the promise of the digital business model. And at the center of the digital infrastructure serving the hyper-connected digital business model is the network. Connectedness is a core tenet of all things digital – applications, data, security, cloud, collaboration, customer interactions, employee workflows, IoT solutions, and GenAI initiatives. Fast, failsafe, and forward-looking connectivity is a prime determinant of digital success across all world regions, vertical industries, horizontal business functions, and organizations of all sizes.

Unfortunately, the challenges in networking are daunting. Rising complexity undermines service integrity and capabilities. Expansive accessibility undermines resource security and sanctity. Constrained manageability undermines operational efficiency and effectiveness. And all these challenges – and more – are compounded by the vast array of technologies, private systems, public services, solution/service providers, and management tools/data involved in properly deploying, operating, optimizing, repairing, and evolving the network infrastructure.

Given the criticality of connectedness and the many major challenges in delivering on its full promise, the reliance on outside managed connectivity services is accelerating. According to IDC research, IT organizations are increasingly looking outside their organization for help delivering the services and service levels required by the fast-moving digital business model. Specific results from IDC's November 2022 *Future Enterprise Resiliency and Spending Survey, Wave 10*, indicate that 61% of organizations always purchase beyond basic support services, 62% view a managed service partner ecosystem as one of the most important selection criteria for infrastructure vendors, and 65% want their strategic vendors to take administrative and operational responsibility for infrastructure. And all of these results run significantly higher for those respondents from organizations IDC classifies as digital first!

Focusing on the network more closely, managed connectivity serves up both tactical and strategic gains for organizations looking for a more resilient and responsive network infrastructure and one that promotes resource efficiency and risk reduction. Again, IDC survey results indicate that expectations of solution and service providers are rising across multiple fronts, including such key areas as observability, automation, customization, technology migration, and threat protection. IT organizations and managed connectivity providers will be well served by high-value external services, whether those services come in the form of network-as-a-service (NaaS) offerings, advanced professional services, or managed services focused on end-to-end or domain-specific connectivity.

Associated Drivers

- **Everything as a service intensifies** – Transforming models to drive change
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Improve reliability and responsiveness of network infrastructure, connectivity services, and connected resources.
- Leverage technology partner-based managed services to elevate practices, enhance talent, embolden change, and eliminate risk.
- Ease staff tactical duties (e.g., deployment, operations) and heighten strategic responsibilities (e.g., innovation).

Business Impact

- Improve access to critical resources and workflows to improve productivity and enable connected experiences for workers and customers and improve productivity.
- Increase agility with a reliable, service-rich, and ever-ready connected infrastructure.
- Eliminate business and service bottlenecks associated with limited connectivity, digital rollout delays, security vulnerabilities, and talent gaps.

Guidance

- Evaluate all feasible options for external managed connectivity services – managed SPs, SIs, value-added resellers (VARs), network solution suppliers, and cloud/communications service providers. Consider this a strategic partnership – not simply a stopgap.
- Prioritize network technologies (e.g., 5G, SD-WAN) and domains (e.g., datacenter, remote work) for managed service opportunity and outcomes (e.g., mission criticality, technology complexity, staff capabilities, service costs).
- Heighten the influence and impact of outside experience and expertise, proven engineering and operational best practices, industry baselines and benchmarks, and potential cost savings across systems, services, and staffing.
- Apply management service offerings to network deployment, operations, and evolution while promoting more proactive management, IT teamwork, business innovation, and advancement opportunities for internal staff.

Prediction 9: By 2024, 60% of Enterprise Professional Services' Emphasis Will Be on Adoption of New and Existing Network Technologies to Help Drive Utilization, Optimization, Value, and Renewals from IT Investments

Network equipment manufacturers will continue to introduce new technologies to help solve complex connectivity and business challenges. They will be feature rich, highly automated, and have embedded intelligence that offers increased performance, richer insights, faster speed, as well as improved business, technology, and operational outcomes. Yet, for many enterprise networking teams with limited resources and skills adopting, these network technologies will become a competitive limiter for them.

The pace of introduction of network technologies is beginning to outpace an IT team's ability to train and upskill, thereby leaving unrealized potential and innovation on the table. According to IDC research, 60% of enterprises state they require assistance in aligning infrastructure initiatives with business priorities and 50% stated they needed help acquiring best practices (source: IDC's *Worldwide Hybrid IT Study, 2023*).

Enterprise networking and IT teams will leverage the technology expertise, best practices, and skills resources delivered by a third party – services arm of an equipment manufacturer, global systems integrator, or telecom provider – to more quickly utilize new networking technologies. As such, IDC believes that services firms that historically have delivered simple project-based services such as moves, adds, and changes will modernize their portfolio of offers to emphasize adoption and optimization services. These services can include formalized onboarding, training, education, and augmentation offerings to help networking teams accelerate successful adoption and utilization of new technologies and operational processes so that the enterprise can quickly realize value and drive competitive advantage.

Associated Drivers

- **The drive to automate** – Maximizing efficiency and new opportunities
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Working with professional services partners to eliminate issues that can hobble operations, potentially expose the business to unforeseen risks, and limit innovation and competitive advantage
- Leveraging all resources available for technology adoption (either human delivered or digitally enabled) to eliminate the risk of becoming a digital laggard while others that utilize these resources provided by a partner have the ability to integrate more quickly and adopt and accelerate connectivity initiatives.

Business Impact

- Successful adoption of new network technologies will act as an accelerant to the business and can drive increased productivity, efficiency, collaboration, and improved security.
- Successful adoption also improves the long-term cost benefit of connectivity investments designed to accelerate the ability to reach business, technology, and operational outcomes.

Guidance

- Look for a partner that offers formalized processes for onboarding, education, and adoption services. Understand what can be delivered digitally and what is offered in person or virtually. This can ensure that team members can learn at their own pace.
- Ensure that adoption services are part of the scope of work for any new networking initiative. Ensuring that teams understand the technology, new operating procedures, and can successfully use the technology.
- Understand the time to adopt, time to proficiency, and expected ROI. Some new networking technologies offer the promise of improved efficiency yet have so many feature sets that it may be impossible to fully utilize them. Thereby the promise of the technology never delivers, leaving buyers unsatisfied and unlikely to renew or buy again.

Prediction 10: Enterprises Will Rely on Partnerships with Service Providers to Integrate ESG Use Cases for Efficiency and Regulatory Compliance, with 60% Automating the Management of Sustainability Metrics by 2027

Sustainability is an increasingly important priority for businesses as they invest for the future. Data from IDC's 2023 *Future of Connectedness Survey* shows that sustainability is most important business outcome benefit from connectivity transformation for Asia/Pacific (APAC) organizations and ranks higher than improving time to market or business resilience for all regions. Today, greater use of mobile applications, faster networks, cloud-first approaches that drive data and applications off premise, and new agile business and operational processes can transform and advance businesses forward as part of a greener, environmentally friendly strategy.

To help drive ESG programs at scale, agile network connectivity will play a critical role in helping enterprises achieve their environmental goals. The use of SD-WAN and secure access service edge (SASE) to securely connect and manage the flow of data between multiple locations, suppliers, and partners over multiple access types, including fiber, broadband, cellular (4G/5G), and satellite, will allow enterprises to monitor and analyze data in real time, identify potential ESG issues, and respond quickly. Another example is the use of low-power wide area networks (LPWANs) to connect IoT

devices and remotely monitor and control energy usage in buildings and factories, leading to energy savings and reduced greenhouse gas emissions.

IDC expects enterprises to partner closely with their service providers as most already have robust ESG programs in place for their own business and have more tools at their disposal to mitigate environmental impact, identify opportunities, and track progress for their customers. Evolving rules and standards are also pushing to fast-track ESG; hence, business leaders will need the domain expertise of their service provider partners to help optimize secure digital cloud environments, agile network connectivity, advanced data analytics, and use artificial intelligence/machine learning to help track and monitor the environmental and social impacts of business operations.

Associated Drivers

- **Operationalization of ESG** – Measuring and implementing sustainability
- **Shifting tech regulatory landscape** – Navigating risk and opportunity
- **The digital business imperative** – Competitiveness and outcomes

IT Impact

- Morphing relationships with service provider partners to reduce physical network hardware to eliminate power consumption, reduce network complexity, and provide an easier path to optimize network resources based on needs with services like SD-WAN and NaaS
- Ability to leverage service providers' tools offering a single pane of glass that provide visibility into network operations and efficiency, automated core management functions, and the ability to use intelligence from AI/ML to make greener decisions
- Shifting IT/connectivity spending to greener cloud-based services and applications, with IDC data showing 50% of enterprise IT spending will be cloud related as part of continuous modernization

Business Impact

- Reducing carbon footprint by identifying best practices and shifting investments to greener services and processes that do not impact business performance
- Allowing service provider partners to take the lead and help guide and accelerate the velocity of the enterprise to a more agile, connected, and greener state of operations

Guidance

- Build a long-term connectivity infrastructure road map that embraces a holistic goal of reducing emissions and encouraging recycling to reduce hardware, shipping materials, and transportation waste.
- Ensure that the larger value chain for connectivity hardware, software, cloud, network, and professional services center on the core strategy where all parties encourage reuse, promote sustainable consumption, and protect natural resources.
- Work with service providers to ensure that future initiatives align sustainable development strategies with business continuity and connectivity resiliency while adhering to and attempting to better local regulatory requirements.

ADVICE FOR TECHNOLOGY BUYERS

Looking forward to 2024 and beyond, the enterprise road map to becoming a digital native and fully connected business is a path that will require organizations to adapt much more quickly to meet the

needs of the employee, customer, and partner. The impact of data growth, cloud migration, and AI on connectivity and networking cannot be understated. Generative AI, which currently is more relevant for customer-facing activities, will slowly become more relevant for network-facing functions. With these changes coming, enterprises must be ready to adapt network and IT strategies to ensure connectivity priorities remain at the forefront of all critical investment decisions.

Organizations must continuously evaluate both short- and longer-term business goals and map technology investment planning to internal resource capabilities. With staffing issues as a constant challenge and scarce domain expertise around newer technology trends and solutions, the pursuit of connectedness will require the right partners. The end outcome, set by both internal stakeholders and external ecosystem partners, should be measurable improvements in agility, network and IT efficiency, and happier employees, customers, and partners.

IDC offers the following advice for organizations as they continue down the path to becoming more agile and connected:

- **Look strategically and long term, well past your immediate business needs.** Examine connectivity solutions for their use in meeting challenges and requirements that are to develop in your environment (i.e., the network infrastructure, the IT organization, the technology partners, and the business itself).
- **Build a multinet access strategy that is core to business success.** Decision makers should invest in resilient access and backhaul that embraces multiple next-generation connectivity technologies such as 5G, SD-WAN, and NaaS to ensure the changing business demands are met in real time.
- **Think smart and scalable but act sustainable.** Organizations should formalize processes and methodologies that can embrace smart connectivity with an environmentally sustainable approach. Cloud-based and virtualized connectivity solutions can provide speed, agility, and security of the network but also bring a lower energy footprint without sacrificing any innovation gains.
- **Consider managed connectivity services to alleviate business stress points.** Choose a trusted service provider that offers managed services bundles that increase business performance, accelerate the road map to the cloud, and allow in-house staff and skills to be realigned around business outcomes.

EXTERNAL DRIVERS: DETAIL

AI Everywhere – Generative AI Takes the Spotlight

- **Description:** With intelligence becoming the primary source of value creation, we are on the verge of the "Intelligence Revolution," in which artificial intelligence (AI) and automation-oriented technology will be the main accelerators of business change. In the realm of "AI everywhere," generative AI (GenAI) emerges as a transformative force, potentially revolutionizing the future. This branch of artificial intelligence enables a machine-driven autonomous creation of new content, from images to music to even written text, with remarkable accuracy. Early applications of GenAI have highlighted its potential in fields such as creative arts, content and code generation, and personalized recommendations. However, it also raises concerns regarding bias and privacy: AI algorithms can inadvertently perpetuate biases and pose threats to personal data. As a result, regulation becomes crucial to ensure responsible and ethical use of GenAI. Despite these challenges, the possibilities are vast,

ranging from improved customer experiences (CXs) to innovative problem solving. Harnessing the power of GenAI and navigating its associated complexities has the potential to shape the future of industries and drive advancements in the AI-driven world.

- **Context:** Businesses are already jumping to get a piece of the AI pie, afraid to miss out on the opportunities it presents. Although we are in the early days, monetization and scale of AI solutions are expected to evolve rapidly. However, this comes during a time of relative economic uncertainty and increasingly constrained IT budgets. Furthermore, AI is not without risks, especially when it comes to ethical AI and data privacy, and companies need to carefully consider the best use cases in order to implement AI effectively.

The Drive to Automate – Maximizing Efficiency and New Opportunities

- **Description:** Broader automation use cases – beyond just generative AI – are now ubiquitous. Now that data is embedded in the core of strategic capability for every organization, automation is critical to scaling a digital business and is evident in three domains: IT automation, process automation, and value stream automation – leading to autonomous operations, digital value engineering, and innovation velocity. Industrial organizations have spent the past few years evolving toward the Fourth Industrial Revolution (Industry 4.0) through the use of industrial automation and intelligence. Thoughtful implementation is more important than ever as data becomes embedded in the strategic core of every organization. Automation technologies such as robots and drones are being used increasingly in the military and healthcare sectors. Given this boost in automation, data is increasingly precious, and privacy must be prioritized and security enhanced. In some cases, automation has also led to concerns over the future of work – whether it will enhance or take away.
- **Context:** Businesses are rethinking how to employ automation to maximize operational efficiency – from automating assembly in manufacturing to identifying opportunities for food waste reduction in hospitality to improving customer experience in digital banking. IT will need to continue to assess new technologies and approach automation investments strategically, both within the walls of the organization and in the field. Among industrial organizations, IT/OT convergence will necessitate shared responsibility across teams for automation priorities and implementations.

Cybersecurity and Risk – Building Resilience Against Multiplying Threats

- **Description:** The era of digital business has resulted in a significant increase in the interconnectedness of devices, people, applications, data, and networks alongside movement of workloads to the cloud. However, this progress has led to a broader vulnerability to cyberattacks. Ransomware attacks have multiplied exponentially, the dark web is teeming with low-cost, high-quality hacking services, and generative AI is threatening with more believable, humanlike phishing and pretexting attempts. A shortage of skilled cybersecurity professionals presents a continuous challenge for organizations to respond effectively. Cyberattacks have impacted all types of organizations, from governments to universities to businesses, and are oftentimes entangled in geopolitical motives. The increase in high-profile data breaches is furthermore leading to increased policy interventions regarding privacy and sovereignty.
- **Context:** An organization that is unprepared for cyberattacks may suffer various consequences, including data loss, financial implications, harm to the organization's brand reputation, decreased employee morale, and loss of customers. Cyber-resilience – the ability of an organization to anticipate, withstand, recover from, and adapt to any threats to its resources – is key for an organization to not only defend against cyberattacks but also prepare for swift response and recovery to attacks.

The Digital Business Imperative – Competitiveness and Outcomes

- **Description:** A digital business sees value creation based on the use of digital technologies for both internal and external processes, including customer engagement, employee experience, and product and services development. Building and leading a digital business is imperative for organizations to be competitive. While certain operational aspects may always have a nondigital component, digital businesses prioritize a digital-first strategy that aligns all parts of the business and IT landscape with digital workflows to drive value and growth. The development strategies for both digital and nondigital assets now require leveraging multiple channels for the digital business to obtain support or funding. This places a strong emphasis on providing digital experiences for customers and citizens, employees, and partners and necessitates a shift toward fully digital operating models and resilient supply structures enabled by digital technology. The focus of a digital business is increasingly on delivering measurable outcomes. Businesses that have recognized the value of digital anticipate maintaining or even increasing their investment in technology, even in times of economic uncertainty.
- **Context:** As more and more enterprises embrace digital strategies and technology, they prioritize technology investments that drive innovation or allow for competitive differentiation. Technology is no longer viewed as a tool to keep the business running, but it is the foundation for building new revenue-generating experiences and products. Laggards will need to adapt quickly and develop their digital road maps and embrace a digital business platform. Identifying top digital revenue opportunities that deliver value will be crucial for overall business success and implementation of organizational digital-first strategies.

Everything as a Service Intensifies – Transforming Models to Drive Change

- **Description:** The concept of "everything as a service" ("XaaS") is driving change across all sectors and ecosystems, affecting both the supply side and the demand side of businesses. Organizations are adopting as-a-service models at different speeds out of necessity, but the complex delivery strategies make requirements more complicated and the impacts less predictable. The shorter decision cycles enabled by on-demand services allow industry leaders to approach things differently, but the commitment models are fundamentally changing. On the supply side, there is a rising demand and higher customer expectations. As a result, suppliers are compelled to convert and enable their offerings more quickly using a secure service-based model. Buyers are now making decisions based on commitments to measured outcomes in terms of optimization, reliance, and financial models. Architecture and solution strategies are now critical to the service provider, where proprietary systems that are being maintained or migrated can materially impact the efficacy of the as-a-service solution. Leaders face the challenge of finding new financial, operational, and governance models that support a successful transition to an as-a-service approach. Critical factors for organizations to thrive through the as-a-service change landscape include solution control, contractual clarity on roles and responsibility, and accountability alignment including geoeconomic assurance and data.
- **Context:** To deliver optimally, companies are looking to better manage their as-a-service offerings. They're changing product design, delivery, and pricing alongside adjusting management and operations to best optimize as-a-service technology. This is the new model for the tech industry, and suppliers and buyers will need to adapt accordingly. This includes developing cloud-based control to manage provisioning, continuous usage tracking, and architectural efficiency.

Shifting Tech Regulatory Landscape – Navigating Risk and Opportunity

- **Description:** With frontier technologies like generative AI, geopolitical concerns, and cyber-risks, the tech legal landscape is rapidly changing. While the General Data Protection Regulation (GDPR) in the European Union (EU) is perhaps the most well-known of privacy laws, other countries have enacted legislation to ensure that personal information is protected and ethically used, such as China's Personal Information Protection Law (PIPL) and Japan's Protection of Personal Information Act (APPI). Nations all over the world are considering frameworks to regulate AI, including the EU's AI Act and the United States' AI Bill of Rights. Cybersecurity is top of mind with the United States' CIRCIA Act, Japan's Basic Act on Cybersecurity, and the EU's Cybersecurity Act. And with ongoing chip wars, countries around the world have mandated domestic production for certain parts of semiconductor manufacturing and banned foreign-created semiconductors in some cases – often along geopolitical lines. Tech regulation, however, is not just a blockade but presents an equal amount of opportunity as well. The aforementioned chip laws also incentivize domestic production and innovative chip manufacturing through tax subsidies. Other strategies such as electric vehicle subsidies are accelerating the green transition across many nations. And larger industry verticals are receiving big boosts, such as Saudi Arabia's investments in healthcare technologies.
- **Context:** Businesses must navigate an increasing number of regulatory rules. Even if it's not always the primary focus, tech is often a crucial part of these regulations. Most of these rules are intended to hedge against risks, but some are entrenched in geopolitical divides, so those firms that stay ahead of the game and build upon resiliency will be best equipped to comply with these regulations. Moreover, regulations and policies are not just restraints – they are also often springboards for investment with many regulations proposing tax subsidies and other kinds of incentives.

Operationalization of ESG – Measuring and Implementing Sustainability

- **Description:** Environmental, social, and governance (ESG), a globally adopted framework supporting actions to achieve sustainability and a better future for all, is gaining more traction than ever. ESG laws are increasing: the EU launched the Corporate Sustainability Reporting Directive (CSRD) requiring companies to disclose and assure ESG metrics, the SEC's climate disclosure requirement is forthcoming, and Japan's GX Basic Policy implements an emissions trading scheme and carbon tax. There are also new International Financial Reporting Standards. Given this, many companies are actively operationalizing ESG with AI-informed carbon accounting software, carbon budgets, and sustainability requirements into requests for proposals (RFPs) they send to tech suppliers. Many companies now have positions such as chief sustainability officer or are integrating sustainability into the responsibilities of the C-suite. And many enterprises are replacing redundant faulty and energy-heavy tech with newer, more efficient energy-saving counterparts. Businesses recognize that diversity, equity, and inclusion are positively affecting profits and are therefore implementing diversity, equity, and inclusion (DEI) initiatives to include more women and minorities. In addition, ESG compliance is a form of long-term strategic business risk reduction. Given climate change and instable energy prices, among other risks, ESG helps curb costs and hedge against risks caused by natural disasters and other shocks.
- **Context:** ESG is more than just a measure; it is foundational to business purpose and value. Businesses are increasingly beholden to ESG. More and more customers care about whether the companies they deal with behave sustainably and deliver sustainable products and services. ESG can also be a cost-saving measure and hedge against risks. Yet, despite much progress, there is still work to be done, especially in complying with carbon footprint measuring

and achieving high-quality data. As laws and regulations – as well as investment opportunities – amp up around ESG, the IT industry will increasingly require green talent and skills and better data modeling of ESG metrics to achieve maximum benefit.

LEARN MORE

Related Research

- *Critical External Drivers Shaping Global IT and Business Planning, 2024* (IDC #US51057623, September 2023)
- *IDC Future of Connectedness Scorecard, 2023* (IDC #US51128023, August 2023)
- *Strategic Worldwide Enterprise Connectivity Priorities and Challenges: 2023 Future of Connectedness Survey Analysis* (IDC #US51059823, August 2023)
- *IDC's Worldwide Digital Transformation Use Case Taxonomy, 2023: Telecommunications* (IDC #US50988523, July 2023)
- *Accelerating Business Sustainability Initiatives with 5G as Part of a Future of Connectedness Strategy* (IDC #US50829223, June 2023)
- *The Future of Connectedness: Enterprise Cloud Connect/Networking Investment Outlook by Vertical Market* (IDC #US50852023, June 2023)
- *Can Connectedness Be a Driver of Sustainability? Part 2: Supplier Best Practices and Impact on the Connectedness Ecosystem* (IDC #US50575023, May 2023)
- *Can Connectedness Be a Driver of Sustainability? Part 1: Technology Road Map and Best Practices for the Future Enterprise* (IDC #US50507123, April 2023)
- *Future of Connectedness Checklist: Top Actions to Consider for 2023* (IDC #US50061323, January 2023)

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