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THE LEADERS OF INDIA'S CONNECTIVITY FUTURE

As connectivity becomes strategic infrastructure, four leaders show how policy, innovation and manufacturing are shaping India's digital future.

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LEADERSHIP
AWARDS

**SPECIAL JURY AWARD
FOR MAKE IN INDIA
INITIATIVE (2025)**

Ankit Agarwal
Managing Director,
STL

**TELECOM PERSON
OF THE YEAR
(2025)**

Jyotiraditya M Scindia
Union Minister for
Communications & the Minister
of DoNER, Government of India

**PATHBREAKER
OF THE YEAR
(2025)**

Pawan Kumar Chandana
Co-Founder & CEO,
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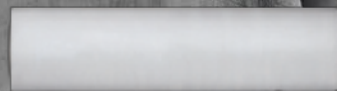
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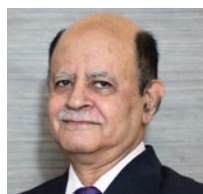
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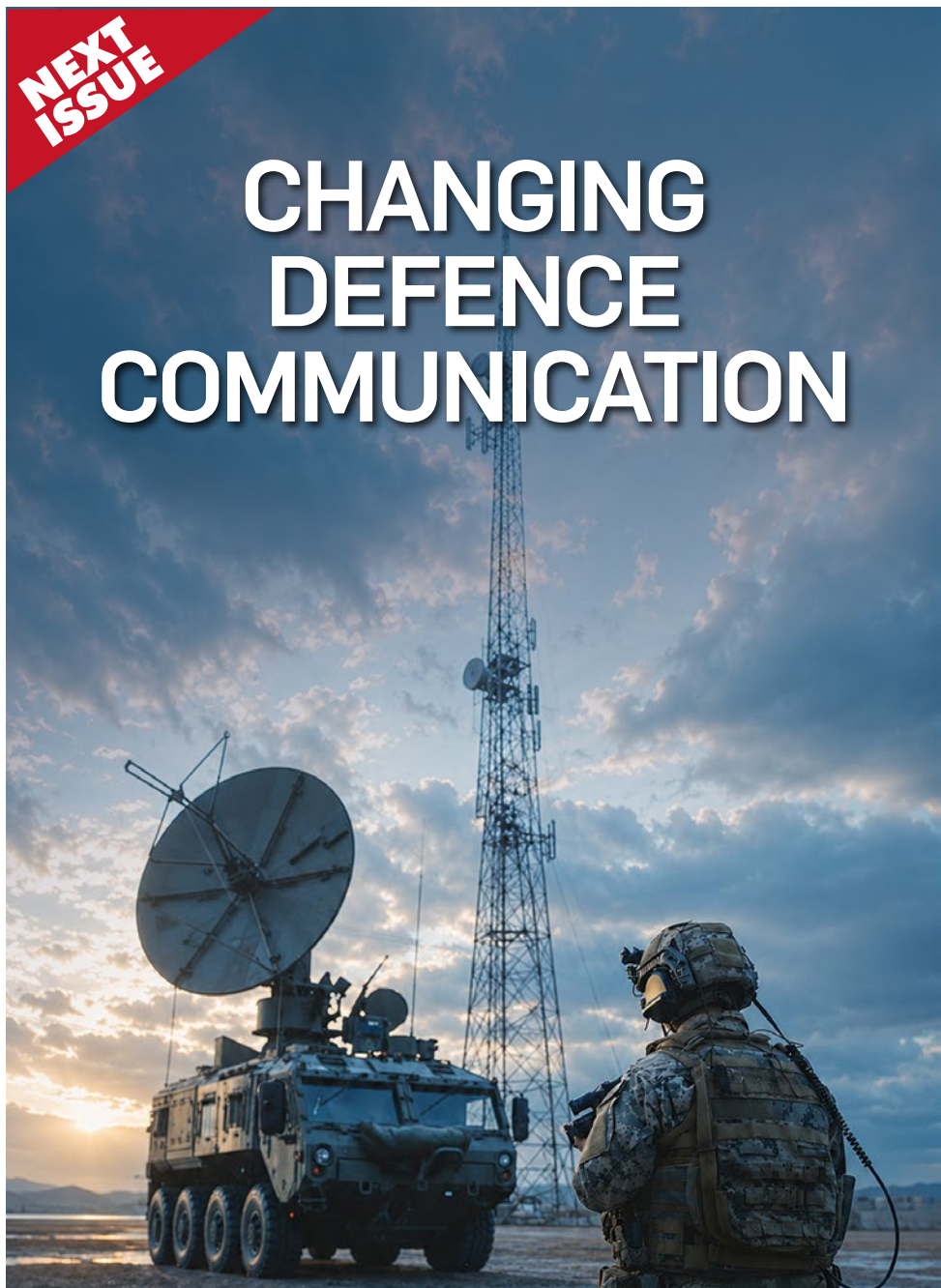
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SHUBHENDU
PARTH

[OPENING NOTE]

The rise of the Infrastructure Economy

Over the past year, Artificial Intelligence (AI) has dominated the technology conversation. Every conference promises faster models. Every vendor unveils new AI agents. Every enterprise is searching for its AI strategy.

Yet the real story is unfolding elsewhere.

Governments are investing billions in semiconductor manufacturing. NVIDIA has become one of the world's most valuable companies by supplying the compute that powers AI. Microsoft, Amazon, Google and Meta are committing unprecedented capital to AI data centres and cloud infrastructure. Oracle is building AI superclusters. HPE now speaks of AI factories rather than data centres. Telecom operators are repositioning themselves around sovereign AI infrastructure.

These developments are often reported as separate stories. They are not. They are manifestations of a larger structural shift.

Perhaps we need a new framework to understand this convergence. It may be called the Infrastructure Economy.

The Infrastructure Economy describes the emerging phase of technological development in which competitive advantage and economic value increasingly derive from the physical and digital infrastructure underpinning modern technologies—compute, connectivity, energy, data, cloud, semiconductors and intelligent networks.

For more than two decades, the digital economy has been shaped by applications, platforms and online services. Competitive advantage came from software, user experience and digital business models. Infrastructure mattered, but largely as an enabler.

Today, the locus of value creation is beginning to shift.

AI has made this shift clearer than any previous technology. Training frontier models demands GPU clusters, resilient power, advanced cooling, high-capacity fibre and sophisticated networking. Deploying AI at enterprise scale requires sovereign cloud, trusted data platforms and intelligent networks. Tomorrow, quantum computing, autonomous systems, and 6G will further extend these demands.

In this new landscape, infrastructure is no longer a background utility. It is becoming the principal source of competitive advantage.

The investment numbers reinforce the argument. Goldman Sachs estimates that the world's largest hyperscalers could invest more than USD 5 trillion through 2030 to build AI infrastructure, including computing hardware, physical data centres, and power grid capacity. Capital is flowing steadily down the technology stack, towards the physical foundations upon which digital intelligence depends.

This has profound implications for India.

The country has rightly celebrated the success of Digital Public Infrastructure, nationwide connectivity and digital inclusion. Those achievements remain foundational. The next phase of national competitiveness, however, will depend on the ability to build trusted compute, AI-ready data centres, resilient networks, sovereign cloud, intelligent power systems, and semiconductor capability.

This is no longer merely an agenda for hyperscalers or technology vendors. It is equally a strategic imperative for telecom operators, cloud providers, infrastructure companies, energy utilities, semiconductor manufacturers and policymakers.

Most importantly, the digital economy is not disappearing. It is evolving. Applications will continue to shape user experiences, but infrastructure will increasingly determine who innovates fastest, scales furthest and competes most effectively. In many ways, the Infrastructure Economy will become the substrate upon which the next generation of the digital economy is built.

Perhaps the defining technology story of the coming decade will not be AI itself; it will be the rise of the Infrastructure Economy.

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Digital infrastructure needs an outside-in perspective

Operational metrics alone cannot reveal infrastructure quality; field benchmarking exposes how networks, cloud and devices perform where people actually connect.



BY CHANDRASEKAR RAMAMOORTHY

Digital infrastructure is conventionally measured through internal dashboards, network availability, server uptime, link utilisation, latency metrics, cloud health indicators and capacity reports. These remain indispensable for daily operations and investment planning. Yet they rarely answer the question that matters most: how does the infrastructure perform from the perspective of the person actually using it?

As digital ecosystems grow more distributed and interconnected, that gap becomes harder to ignore. A network can appear healthy, servers can be fully operational, and cloud resources can sit comfortably within their thresholds while users in a particular city, on a particular access network, or using a particular device

still face delays, inconsistent connectivity, packet loss or sluggish responsiveness. Every component can be working exactly as designed, even as the experience it adds up to falls short.

WHY OUTSIDE-IN BENCHMARKING MATTERS

This is the gap that real-world performance benchmarking is built to close. Where traditional monitoring offers an inside-out view of infrastructure health, field-based benchmarking takes an outside-in perspective—measuring performance in the actual conditions under which digital services are consumed, across geographies, access technologies, network routes and device types. Instead of relying solely on what infrastructure reports about itself, it tests how that infrastructure behaves when real users on real networks are at the other end.

A network can report perfect health while users struggle with delays, packet loss or poor responsiveness, making experience the metric that truly matters.

What makes field-based benchmarking indispensable is the complexity of a single digital interaction today. One transaction might pass through mobile or fixed broadband, DNS resolution, internet routing and peering, a cloud region, a CDN node, Wi-Fi, and finally a device—each layer potentially fine on its own, with trouble surfacing only in how they interact. However, conventional monitoring tools, built largely to watch individual layers, often miss exactly these cross-layer effects, so an organisation can be hitting every target on its dashboard while still missing the issues its users feel.

MEASURING EXPERIENCE ACROSS NETWORKS

A sound framework considers several dimensions simultaneously. Geography is one of the biggest variables; performance routinely differs between metro centres, smaller cities, rural regions, enterprise campuses and high-density urban pockets.

Access technology matters just as much, since users may be connecting over 4G, 5G, fibre, fixed wireless, enterprise networks or public Wi-Fi. Device diversity adds a layer, particularly in markets where the installed base spans a wide range of smartphones, operating systems and networking hardware.

The objective is not merely to confirm that the infrastructure is “up” but to establish whether it delivers a consistent, reliable, responsive experience across all of these conditions—not only the ones it happened to be tested under.

MAKING INFRASTRUCTURE INVESTMENT COUNT

This lens is increasingly relevant to telecom operators, internet service providers, cloud and CDN providers, enterprises, regulators and policymakers alike, since infrastructure quality has a direct bearing on business productivity, consumer trust and digital competitiveness. Payments, healthcare, education, logistics and government platforms all depend on it.

It also sharpens investment decisions: upgrades involve significant capital and long planning cycles, so knowing where bottlenecks occur helps organisations prioritise capacity expansion, optimise routing and

peering, and verify whether past investments are yielding real improvements for users. That value is clearest at a granular level; a national average can look healthy while specific regions see persistent degradation, or broadband can deliver its advertised speed while still suffering from latency, jitter, or DNS issues that aggregated metrics never reveal.

There is a related benefit in accountability. A single user experience is typically shaped by multiple stakeholders, each responsible for only one link in the chain. When something goes wrong, every party can look at their own dashboard and see green, which is exactly what makes root-cause analysis so difficult.

A shared, evidence-based reference point makes it easier to isolate where a problem originates and to collaborate on resolving it. The same logic extends to policy: as governments invest in broadband expansion, 5G rollout and digital public services, success can no longer be measured purely in coverage statistics or installed capacity.

The more useful question is whether that investment delivers a consistent, accessible experience across regions, which matters acutely for India and other fast-digitising economies with unusually wide variation in geography, connectivity and devices.

The future of digital infrastructure will be defined less by scale alone and more by consistency. Coverage, capacity and uptime will remain important, but on their own, they are no longer sufficient.

What organisations also need to know is how their infrastructure behaves in the real world and whether it reliably delivers what users expect. That is the value this approach provides: a way to move past operational assumptions and ground decisions in actual user experience, so that infrastructure investment translates into outcomes people can genuinely feel. 🙌

*The author is the Chief Product Officer
of Mozark.*

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Cloud economics enters the age of AI uncertainty

As AI workloads become harder to predict, organisations must connect engineering, finance and governance to turn cloud spending into a strategic advantage.



BY AMAN AGGARWAL

For years, organisations have worked hard to bring discipline to cloud spending. They invested in governance frameworks, improved visibility, established tagging standards, and adopted FinOps practices to better understand where money was being spent. The results were encouraging. Yet despite these improvements, many organisations are finding that cloud costs are becoming harder to predict again. The timing is not a coincidence.

With AI adoption, many of the assumptions that shaped traditional cloud cost management are beginning to break down. The challenge is that AI workloads behave

differently from the workloads that organisations have spent years learning how to manage.

Most governance models, budgeting processes, and optimisation practices rely on the belief that consumption patterns can be understood well enough to forecast and control. AI is testing that belief.

Recent industry research continues to show that cloud waste remains stubbornly high, with nearly a third of cloud spending still providing limited business value. At the same time, AI adoption has moved rapidly from experimentation to implementation.

Cloud cost management is no longer just about eliminating waste. AI demands faster financial decisions that keep pace with engineering and innovation.

Monthly cloud reviews cannot keep pace with AI experimentation. Cost intelligence must become continuous if organisations want predictable business outcomes.

Organisations are now balancing growing investments in AI with increasing pressure to improve operational efficiency. As a result, cloud economics is becoming a much more strategic conversation than it was even a few years ago.

WHY AI MAKES CLOUD COSTS UNCERTAIN

When organisations discuss cloud spending, the conversation often focuses on cost reduction. In reality, uncertainty is frequently the bigger challenge.

Most businesses can plan for higher spending if they understand where the spending is going and what value it creates. What becomes difficult is managing investments when consumption patterns become increasingly difficult to predict.

Traditional cloud workloads were never perfectly stable, but they generally followed recognisable patterns. Traffic volumes fluctuated within expected ranges. Infrastructure requirements could be estimated based on historical trends. Capacity planning was far from flawless, but it was possible.

AI introduces a different way of resource usage. A model training initiative can consume significant compute resources over a short period. Inference workloads can remain relatively stable and then grow rapidly as adoption increases. Data processing requirements often expand as model complexity increases, creating additional infrastructure demands that may not be obvious during initial planning.

Experience indicates that this is where many organisations encounter friction.

They struggle when they try to apply forecasting and governance models designed for predictable systems to workloads that are inherently less predictable. The result is that cloud costs become harder to estimate before decisions are made and easier to understand only after spending has already occurred.

WHY TRADITIONAL FINOPS FALLS SHORT

One of the biggest misconceptions in the market today is that AI is exposing weaknesses in cloud platforms. In



IN BRIEF

- AI workloads break traditional forecasting models, making cloud spending significantly harder to predict, govern and optimise effectively.
- Traditional FinOps improves visibility but often identifies AI cost overruns only after expensive infrastructure has already been consumed.
- Engineering and Finance must jointly own AI investments, linking workload decisions directly to measurable business outcomes and budgets.
- GPU-intensive training, inference and experimentation introduce unpredictable consumption patterns that challenge conventional cloud governance.
- Cost visibility should move closer to engineering decisions so AI projects balance innovation, performance and financial accountability.
- Organisations that understand AI cloud economics better will make faster investment decisions and gain a lasting competitive advantage.

reality, it is exposing weaknesses in how organisations manage cloud consumption.

FinOps has delivered significant value over the past several years. It helped create a culture of cost awareness,

AI does not expose weaknesses in cloud platforms. It exposes governance models that cannot connect engineering choices with financial consequences fast enough.

encouraged shared ownership, and gave organisations better visibility into spending patterns. Teams could analyse usage trends, optimise idle resources, right-size infrastructure, and improve overall efficiency.

However, many of these practices were built around workloads that behaved in relatively predictable ways.

A web application, for example, may experience seasonal spikes or daily traffic fluctuations, but those patterns are generally understood. Infrastructure can be provisioned accordingly, and costs can be forecast with reasonable accuracy.

AI workloads behave differently.

A team training a large language model may provision high-performance GPU instances for several days or weeks. During experimentation, multiple model versions may run simultaneously while engineers compare accuracy, latency, and performance. Some of those experiments will never move to production, but the infrastructure costs are incurred regardless.

Inference introduces another layer of complexity. A customer-facing AI assistant may operate at a manageable cost initially. Still, a sudden increase in usage can drive significant growth in GPU consumption, model serving costs, and supporting infrastructure.

Traditional FinOps processes often identify these cost increases after they occur. Teams review monthly reports, identify anomalies, and implement corrective actions. That approach works when workloads evolve gradually.

AI environments move faster. By the time a monthly review identifies an unexpected increase in GPU spend, the training cycle may already be complete. However, the problem is rarely technical. Most organisations can already track cloud costs. The bigger issue is that cost accountability often remains disconnected from day-to-day engineering decisions.

BUILDING A TECHNOLOGY-FINANCE MODEL

To effectively tackle this problem, organisations need to improve the connection between technology decisions

and financial outcomes. That begins with bringing cost visibility closer to decision-making.

Engineering teams need to understand the financial implications of AI workloads while they are being designed and deployed, not weeks later when reports are reviewed. AI initiatives should have clear ownership, measurable objectives, and defined spending expectations from the beginning.

Equally important is Finance recognising that AI workloads should not always be managed using the same frameworks applied to traditional applications. Their consumption patterns, performance requirements, and business objectives are often fundamentally different. Both teams should understand where spending creates value and where it does not.

FROM COST CONTROL TO VALUE CREATION

The conversation around cloud spending is often framed as a challenge to solve. There is another way to look at it through the lens of innovation's pace.

Organisations that understand their cloud and AI economics clearly can move faster than those that do not. They spend less time reacting to unexpected consumption patterns and more time making informed investment decisions. They can pursue new opportunities with greater confidence because they understand both the costs and the potential returns.

Over time, that creates an advantage that extends well beyond cost optimisation. Cloud adoption will continue to grow. Most organisations can access the same cloud platforms, models, and infrastructure. The differentiator will be how effectively they manage them.

The organisations that succeed in the coming years will be the ones that can connect cloud consumption, AI investments, and business outcomes with greater clarity. That clarity may be one of the most valuable capabilities an organisation can build. 🧩

The author is the COO of CloudKeeper.

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Integration becomes the next business strategy

Integrated digital ecosystems connect applications, data, AI and workflows into a unified operating environment, strengthening agility, security and decision-making.



BY SUMIT SENGAR

For a long time, digital transformation was viewed primarily as a technology initiative. Companies invested in websites, mobile applications, cloud infrastructure, enterprise software and automation tools to improve efficiency and enhance customer experience. Although these investments generated value, many organisations treated technology deployments as isolated projects rather than interconnected systems. Today, that mindset is no longer sufficient.

The modern business environment is becoming increasingly connected. Customers engage with brands

across multiple channels, employees depend on digital tools to collaborate and perform their work, while organisations generate vast amounts of data from every interaction. Behind these experiences lies an increasingly complex digital infrastructure comprising cloud platforms, enterprise applications, communication networks, APIs and data platforms.

In this environment, competitive advantage no longer depends on the number of technologies a company has implemented. Instead, it depends on how effectively those technologies work together. This is why integrated

Businesses no longer compete through isolated technologies. They compete through connected digital environments, enabling faster execution and smarter decisions.

AI delivers business value only when integrated data, connected applications and enterprise workflows operate as one intelligent digital environment.



IN BRIEF

- Digital transformation now depends on connected systems, not isolated technology deployments across the enterprise.
- Integrated digital ecosystems deliver seamless customer experiences by connecting every interaction and business process.
- Breaking technology and data silos improves collaboration, operational visibility and faster enterprise decision-making.
- AI delivers greater business value when applications, data and workflows operate as one connected environment.
- Integrated ecosystems strengthen cybersecurity, governance and compliance through unified visibility and security controls.
- Scalable digital ecosystems help organisations adapt faster to new technologies, changing markets and future business needs.

digital ecosystems are rapidly becoming a core business strategy.

CONNECTED INFRASTRUCTURE ENABLES EXPERIENCE

One of the main drivers behind this shift is the evolution of customer expectations. Customers now expect a seamless experience regardless of the device or channel they use. A customer may discover a brand on social

media, research products on its website, compare options through a mobile application, contact customer service for assistance and finally complete the purchase through another channel. They expect every interaction to be connected, consistent and personalised.

Delivering such experiences requires much more than attractive digital interfaces. It depends on an integrated infrastructure capable of securely sharing information in real time across applications, communication channels, and business processes. Every customer interaction must be supported by systems that can exchange data reliably without introducing delays or inconsistencies.

Businesses operating on isolated systems often struggle to meet these expectations. Customers may be forced to repeat information, encounter inconsistent data or experience fragmented service journeys. Integrated digital ecosystems eliminate these inconsistencies by creating a continuous flow of information across every touchpoint, ensuring that each interaction contributes to a coherent customer experience.

However, the benefits of integration extend well beyond customer experience.

Many organisations continue to operate with fragmented technology environments in which departments use different platforms, maintain separate datasets and follow disconnected workflows. As a result, they often duplicate work, experience communication gaps and make slower decisions.

Integrated digital ecosystems help dismantle these silos by connecting business functions and establishing a single source of truth. This shared foundation improves collaboration, enhances visibility and accelerates execution.

When employees have access to consistent information, they can coordinate their efforts more effectively and make informed decisions based on current data rather than relying on disconnected reports. Increasingly, organisations are integrating cloud services, edge applications, and operational technologies into a

As digital operations expand, integration becomes essential for balancing customer experience, cyber resilience, governance and long-term business agility.

single digital environment, enabling information to move seamlessly across the enterprise.

DATA INTEGRATION STRENGTHENS AI READINESS

Data sits at the centre of this transformation. Organisations now collect enormous volumes of information from customers, operations, supply chains, marketing campaigns and digital platforms. Yet data alone has limited value. Its true potential is realised only when information from multiple sources is connected, analysed and transformed into actionable insights.

Integrated business ecosystems enable organisations to combine data from across the enterprise and build a comprehensive, 360-degree view of their operations. This allows them not only to identify trends but also to anticipate customer behaviour, optimise processes and respond more quickly to changing market conditions. More importantly, integrated data enables organisations to make decisions based on a common operational picture rather than fragmented departmental views.

The growing adoption of artificial intelligence has made integration even more important. AI systems are only as effective as the quality and completeness of the data they receive. When data remains trapped in silos, organisations limit AI's ability to generate meaningful insights and support intelligent automation. Integrated digital ecosystems provide the connected data environment that AI needs to deliver predictive analytics, personalisation, operational efficiency and better decision-making at scale.

They also create the infrastructure foundation on which AI agents, automation platforms and future intelligent applications can operate across the enterprise rather than within isolated business functions. Increasingly, integration is becoming the foundation upon which new AI capabilities are built.

SECURE AND SCALABLE DIGITAL FOUNDATIONS

Security is another area where integrated digital ecosystems deliver strategic value. As organisations expand their digital footprint, managing security across multiple disconnected systems becomes increasingly difficult. Every isolated platform represents not only a

potential point of vulnerability but also a challenge for governance and regulatory compliance.

An integrated digital ecosystem provides a more comprehensive view of data flows across the organisation, enables centralised security controls and supports consistent governance policies. Unified identity management, common security policies and shared visibility across applications and infrastructure help organisations reduce operational complexity while strengthening cyber resilience.

The need for this approach is becoming more urgent as organisations face increasingly demanding regulations and a rapidly evolving cyber threat landscape. Security can no longer be treated as an afterthought. It must be designed into the digital ecosystem from the outset so that governance, compliance and resilience become inherent characteristics of the infrastructure rather than separate functions.

Scalability is equally important. Businesses now operate in an environment of continuous change. New technologies emerge rapidly, customer expectations continue to evolve, and markets shift unpredictably. Organisations therefore require systems that can adapt without requiring a complete technology overhaul.

Integrated digital ecosystems provide the flexibility to introduce new capabilities, connect emerging technologies and support future business requirements while maintaining operational continuity. Rather than continually replacing fragmented systems, organisations can build on a connected digital foundation that evolves alongside the business.

As enterprises accelerate investments in AI, automation, and intelligent digital services, integrated digital infrastructure will increasingly determine how quickly they can innovate, scale and compete. In that sense, digital ecosystems are no longer simply an IT strategy; they are becoming the operational foundation of the modern digital enterprise. 🌟

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Enterprise communications beyond the conversation

As intelligence becomes native to enterprise communications, conversations evolve into searchable knowledge, automated actions and lasting business value.



BY SHUBHENDU PARTH

A sales review ends, and before participants leave the virtual meeting, the discussion has already been summarised, action items assigned, follow-up emails drafted, and the CRM updated. In a customer service centre, an agent speaking to a caller receives real-time prompts, while the conversation is transcribed, analysed for sentiment and automatically logged into the ticketing system.

These are no longer isolated AI demonstrations. They illustrate a broader shift in which enterprise communications is evolving from a system that connects people into one that understands conversations, captures organisational knowledge and triggers business processes.

As AI becomes embedded into meetings, voice, contact centres and collaboration platforms, enterprise

communications is evolving from a system that simply connects people into one that understands conversations, captures organisational knowledge and triggers business processes.

According to ADP's People at Work 2026 report, 80% of employees in India now use AI multiple times a week, and 41% use it daily, making the country one of the world's most AI-active workplace markets. For enterprises, the question is no longer whether employees will use AI, but how organisations embed it into everyday communication and collaboration.

COMMUNICATION WORKFLOWS TAKE SHAPE

Rather than pursuing organisation-wide AI rollouts, enterprises are increasingly targeting communication-intensive workflows where automation can deliver measurable business outcomes.

"The more mature organisations are no longer asking where they can use AI," said Garvit Gupta, Partner – Digital, Grant Thornton Bharat. "They are selecting high-volume, high-friction workflows and embedding AI directly into collaboration suites, contact centres, CRM platforms, service desks and enterprise knowledge systems."

According to Gupta, AI is moving beyond generating content to understanding context, recommending the next action and executing routine tasks within defined controls. The bigger challenge for enterprises is no longer model capability but trusted data, integration, security, accountability and user adoption.

Communication-heavy workflows are proving to be an early test case. Meetings, customer interactions and employee conversations generate a large volume of repetitive work, from summaries and follow-up emails to CRM updates and case documentation.

"The fastest adoption is in workflows where communication generates a large amount of repetitive downstream work," Gupta said. Organisations are seeing measurable improvements by reducing administrative effort and ensuring actions discussed during conversations automatically flow into enterprise systems.

"The best results are not coming from replacing human interaction. They come from removing the administrative effort around it, allowing employees to spend more time on judgement, problem-solving and the quality of the customer or colleague experience," she explained.

BUILDING KNOWLEDGE FROM CONVERSATIONS

That operational shift is changing the role of enterprise communication platforms. Conversations are no longer ending when meetings conclude. They are becoming searchable, actionable and reusable organisational assets.

Vimal Nair, Chief Growth Officer at Krisp, said AI's biggest impact is no longer coming from standalone applications but from technologies that integrate naturally into everyday work. Krisp's AI processes more than one billion minutes of voice conversations every month, supporting capabilities such as background noise removal, automated meeting notes and real-time accent conversion for globally distributed teams.

The implications extend beyond automation into organisational knowledge.

Dheeraj Sharma, Co-Founder and CEO of PlayAblo.ai, believes the next phase of enterprise collaboration depends on making organisational knowledge accessible rather than leaving it trapped in individual experience. "Institutional knowledge stops depending on who happens to remember what. It starts getting surfaced to whoever needs it, when they need it," Sharma said.

He said this changes the nature of collaboration itself. "Collaboration stops being a function of memory and starts being a function of access."

SECURING THE COMMUNICATIONS STACK

That shift also raises an important strategic question.

"Once your organisation's knowledge is flowing through AI, where does it actually live, and who else might have a claim on it?" Sharma asked. As enterprise conversations become valuable business assets, protecting them is becoming just as important as capturing them.

According to Netskope Threat Labs, AI adoption among employees in India has increased to 83% over the past year, while the number of AI applications in use has grown fivefold to more than 1,800. Organisations in India now experience more than 3,000 AI-related data policy violations each month—more than ten times the global average.

The findings suggest that conversations, meeting records and enterprise knowledge generated through AI are rapidly becoming sensitive corporate data. Enterprises are therefore encouraging employees to use organisation-managed AI accounts instead of personal services to improve visibility and reduce the risk of data exposure.

For enterprise communications vendors, the opportunity extends well beyond adding AI features to collaboration platforms. As organisations redesign workflows around intelligent communications, every meeting, customer interaction and voice conversation has the potential to trigger business processes, preserve institutional knowledge and improve operational decisions.

Enterprise communications has traditionally been measured by how effectively it connects people. Increasingly, it will also be judged by how effectively organisations learn, retain and act on every conversation. 🧠

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India's space economy finds its missing links

Jio and Skyroot are advancing complementary capabilities that bring launch, satellite connectivity, and infrastructure into a single commercial ecosystem.

BY SHUBHENDU PARTH

Two developments unfolding across India's space sector—Jio Platforms' satellite broadband strategy and Skyroot Aerospace's planned orbital launch—reveal India's emerging space-sector ambition. The two initiatives also suggest that India is no longer focused merely on participating in the global space economy. It is beginning to build the strategic capabilities required to shape it.

Jio Platforms' decision to lease capacity from global low Earth orbit (LEO) satellite constellations while simultaneously pursuing its own sovereign satellite network reflects a pragmatic but long-term strategy. Rather than waiting years to deploy an indigenous constellation, the company intends to begin serving remote communities through international partners before transitioning to an Indian-owned system.

That approach mirrors Jio's terrestrial telecom playbook. Build demand, create the ecosystem and then invest in long-term infrastructure ownership. If reports of a 1,600-plus satellite constellation materialise, India could eventually gain a domestically controlled broadband network capable of serving enterprises, consumers, defence and critical infrastructure.

Jio's strategy also extends beyond satellites. The company plans to develop ground stations and terrestrial infrastructure in India, creating a bridge between orbital networks and national communications systems. That emphasis on end-to-end infrastructure aligns with India's broader push for sovereign digital capability rather than dependence on overseas platforms.

FROM STARTUP TO LAUNCH PAD

At the other end of the ecosystem, Skyroot Aerospace is preparing for what could become a defining moment for India's private space industry. Mission Aagaman, carrying the Vikram-1 rocket into orbit, represents far more than another launch attempt. A successful mission

would make Skyroot the first private Indian company to place satellites into orbit, demonstrating that India's commercial launch ecosystem has progressed beyond experimental suborbital flights.

The timing is significant. As global demand for small satellites continues to grow, responsive launch capability has become a strategic asset. Countries seeking sovereign space capabilities increasingly require not only satellites but also independent access to space. Launch services, satellite manufacturing and downstream applications are becoming inseparable parts of the overall value chain.

The contrast is striking. One initiative is being led by India's largest corporate house through Jio, while the other comes from Skyroot, a startup founded only in June 2018. Yet both are pursuing complementary missions. Jio is building the communications infrastructure that will operate in orbit, while Skyroot is building India's commercial capability to reach it. Together, they demonstrate how India's space ambitions are now being driven simultaneously by industrial scale and entrepreneurial innovation.

For the communications industry, the implications extend beyond space. Satellite broadband is becoming another layer of digital infrastructure alongside fibre, mobile networks and data centres. As terrestrial and non-terrestrial networks converge, operators will increasingly compete on their ability to integrate connectivity across land, sea, air and space.

India's next chapter in connectivity may therefore be defined not simply by launching more satellites, but by owning the infrastructure, launch capability and ecosystem needed to connect the country from Earth to orbit. 🚀

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IF
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NOTHING IS.

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TV RAMACHANDRAN

WHY PUBLIC WI-FI MATTERS TO INDIA'S DIGITAL ECONOMY

PM-WANI was built as an open public Wi-Fi architecture. Treating it as critical infrastructure could finally deliver broadband to the last metre.



India is no stranger to ambitious infrastructure declarations. Highways and expressways, power grids, and optical fibre backbones have all been recognised as strategic national infrastructure. Each time, the formal designation has done more than change a label. It has unlocked funding, triggered regulatory prioritisation, and compelled inter-agency coordination, transforming policy intent into practical reality.

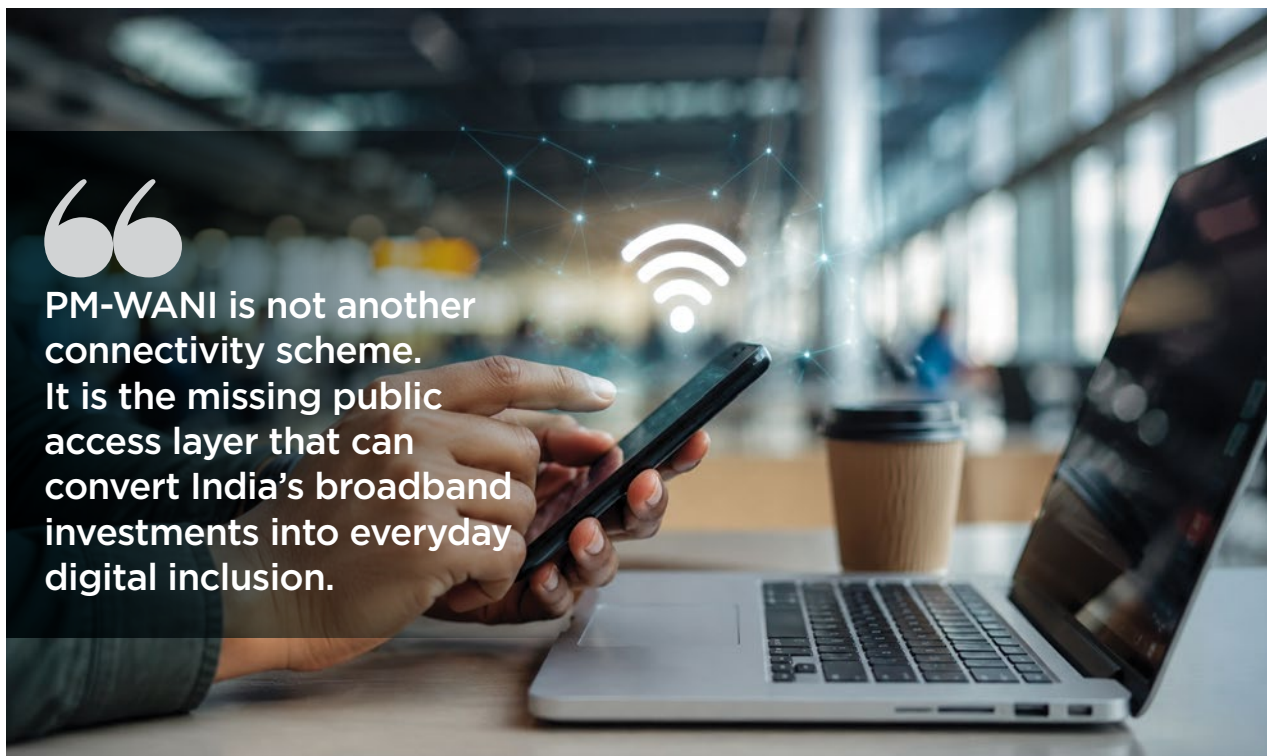
The Prime Minister's Wi-Fi Access Network Interface (PM-WANI), recommended by TRAI and launched by the Department of Telecommunications in December

2020, was conceived as India's answer to connecting the estimated half a billion people still unconnected to the internet. It proposed a licence-free, registration-free, distributed public Wi-Fi architecture capable of turning every grocery store, Common Service Centre and panchayat building into a broadband access point.

The vision was bold, the architecture elegant, and the targets unambiguous: 10 million hotspots by 2022 and 50 million by 2030. As of early 2026, however, India has approximately 0.4 million active PM-WANI hotspots, only around 4% of the intended target.



PM-WANI is not another connectivity scheme. It is the missing public access layer that can convert India's broadband investments into everyday digital inclusion.



India's digital public infrastructure is only as inclusive as the connectivity beneath it, making public Wi-Fi a strategic national asset and not merely a service.

The challenge is not merely one of deployment. It is a governance issue. The conclusion is equally clear: until PM-WANI is treated with the same urgency and institutional seriousness as roads, railways and power, that is, until it is formally designated as critical communication infrastructure, it will continue to function as an aspirational scheme rather than the foundational connectivity layer India urgently needs for socio-economic inclusion.

PM-WANI NEEDS INFRASTRUCTURE STATUS

This Wi-Fi access network interface is, in reality, a government-developed, distributed, layered and interoperable broadband delivery architecture. It unbundles connectivity provision across Public Data Offices (PDOs), akin to the earlier PCOs, Public Data Office Aggregators (PDOAs), App Providers, and a Central Registry maintained by C-DoT. This is precisely the kind of disaggregated, open-access design that telecom needs to ensure no citizen is left behind.

The framework was conceived with this architecture at its core. Under the PDO model, any shop, cafe, or household can become a public Wi-Fi provider without a licence, fee, or bureaucratic approvals. It is perhaps the most democratised infrastructure model India has developed. It transforms citizens from passive consumers of connectivity into active micro-entrepreneurs participating in a national network. This is not merely another government scheme. It is essential infrastructure.

TRAI's actions have already implicitly recognised this. The 71st Tariff Amendment Order of June 2025 mandated that ISPs and TSPs cannot charge PDOs more than twice the retail FTTH tariff for plans up to 200 Mbps. Price controls, access mandates and supply obligations are instruments of infrastructure regulation rather than consumer market management. If TRAI is consistently signalling that PM-WANI constitutes critical infrastructure, policy recognition should now follow.

The argument that inexpensive mobile data has rendered PM-WANI redundant does not withstand



IN BRIEF

- PM-WANI is designed as an open, distributed public Wi-Fi architecture that complements mobile broadband rather than competing with it.
- Public Wi-Fi extends BharatNet's fibre beyond the panchayat, transforming broadband infrastructure into meaningful citizen connectivity.
- Declaring PM-WANI critical infrastructure can unlock funding, stronger governance and faster nationwide deployment of public Wi-Fi.
- The PDO model enables local entrepreneurs to deliver affordable broadband without licences, spectrum costs or complex approvals.
- Affordable mobile data does not replace public Wi-Fi; both serve different connectivity needs and together improve digital inclusion.
- Strong but proportionate security standards can protect public Wi-Fi while supporting India's digital infrastructure and last-mile access.

BharatNet has carried fibre deep into rural India, but PM-WANI can bridge the final gap by bringing broadband from public buildings directly to people nationwide.

scrutiny. Some incumbent sections of the telecom industry have argued that widespread availability of affordable 4G and 5G services removes the need for public Wi-Fi. If mobile data costs only Rs 7-8 per gigabyte, they ask, why would anyone use public Wi-Fi?

This reasoning confuses coverage with inclusion. Mobile connectivity inevitably depends on radio frequency characteristics. Signal quality and consistency are influenced by distance from towers, foliage, and other environmental factors, regardless of the generation of mobile technology. Many of these limitations are significantly reduced in Wi-Fi environments.

Public Wi-Fi and mobile broadband are not substitutes. They are complementary technologies. Mobile services provide personal, subscriber-centric connectivity, whereas public Wi-Fi offers situational, location-based, SIM-free access that serves people when and where they need it, regardless of their telecom subscription or financial circumstances.

Every mature digital economy, from South Korea and Singapore to the United Kingdom, maintains extensive public Wi-Fi infrastructure alongside highly developed mobile networks because they address different connectivity requirements. Critical infrastructure must serve the last citizen, not merely the average subscriber.

BHARATNET NEEDS A LAST-METRE LAYER

India has invested more than Rs 40,000 crore in BharatNet, the world's largest rural broadband programme. By 2025, optical fibre connectivity had reached more than 2.18 lakh gram panchayats, while over 6.93 lakh route kilometres of optical fibre cable had been deployed nationwide. This represents an extraordinary engineering and policy achievement.

Yet without PM-WANI, BharatNet remains, in many places, a road that ends at the panchayat building.

BharatNet provides the backhaul. PM-WANI can deliver the last mile, or perhaps more accurately, the last metre. Fibre infrastructure has little practical

value if villagers cannot access it via an affordable, convenient Wi-Fi connection. PM-WANI is the delivery mechanism that converts national fibre investment into meaningful citizen-level connectivity. Allowing it to underperform effectively accepts that India's largest broadband investment will not fully reach the people it was intended to serve.

Infrastructure designed to deliver national outcomes cannot be treated as an optional add-on. It must be designated, funded and governed as what it truly represents: the capillary layer of India's digital circulatory system.

Once infrastructure is formally designated as critical, its implementation cannot be postponed indefinitely because governments or local authorities have competing priorities. It enters a mandatory delivery framework with accountability, timelines and measurable outcomes. The experience of Smart Cities demonstrates that without such a framework, public Wi-Fi is likely to remain a desirable but non-essential feature, even in environments specifically created to support digital infrastructure.

STRENGTHENING THE PDO ECOSYSTEM

One of PM-WANI's most overlooked strengths is its ability to create entrepreneurship opportunities. The PDO model effectively functions as a micro-franchise system for broadband delivery. It requires no licence, no expensive spectrum acquisition and no regulatory approval. A grocery store owner in Varanasi can become a public internet provider much as a Fair Price Shop owner distributes subsidised food grains, serving as an authorised last-mile operator delivering an essential national service.

The comparison, however, also exposes an important gap. Fair Price Shop operators receive official recognition, regulated margins and legal protections because they are part of an essential distribution network. PDOs enjoy none of these benefits. They operate within a regulatory grey area: recognised by policy, enabled by architecture, yet commercially exposed and institutionally unsupported.

The PDO model enables neighbourhood shops and community institutions to become broadband providers, creating a scalable last-metre network through enterprise.

Designating PM-WANI as critical infrastructure could fundamentally alter this position. PDOs could become eligible for Digital Bharat Nidhi funding for rural deployments, receive Right of Way protections for installing access points on public infrastructure, benefit from subsidised electricity tariffs, and participate in state-sponsored aggregation models in which panchayats, Common Service Centres, health sub-centres, and municipal bodies function as anchor PDOAs.

TRAI's 2026 consultation recommended that state government institutions assume the PDOA role by aggregating PDOs across panchayats, CSCs, municipalities, and healthcare facilities. In effect, this proposes the creation of a state-supported last-mile Wi-Fi distribution network. Such a recommendation can only be implemented effectively if PM-WANI carries the authority and institutional backing of critical infrastructure.

SECURITY REQUIRES STRONGER GOVERNANCE

Security concerns reinforce rather than weaken the case for recognising PM-WANI as critical communication infrastructure. Because public Wi-Fi increasingly supports essential services while relying on evolving IEEE 802.11 security standards, it should be treated as critical information infrastructure rather than a peripheral vulnerability.

Such a designation would require minimum security standards at the access point level while bringing PM-WANI within India's Critical Information Infrastructure Protection framework. The International Telecommunication Union defines critical information infrastructure as systems and services whose disruption or destruction would have a debilitating impact on public health and safety, commerce and national security.

Since PM-WANI seeks to ensure that no citizen remains disconnected, its security governance should be appropriate and proportionate. At the same time, it must avoid discouraging PDO micro-entrepreneurs through unnecessarily burdensome compliance requirements.

The policy question, therefore, is not whether PM-WANI can be made sufficiently secure to justify critical infrastructure status. Rather, it is whether India can afford to leave its expanding public connectivity infrastructure, and the millions of citizens who increasingly depend upon it, outside the governance frameworks designed specifically to protect critical infrastructure.

Security is not a reason for delaying this designation. It is one of the strongest reasons for proceeding with it.

DIGITAL INDIA NEEDS A STRONGER FOUNDATION

India has declared itself a Digital Public Infrastructure nation. Platforms such as Aadhaar, UPI, DigiLocker, ONDC and the Ayushman Bharat Digital Mission are increasingly presented as global examples of scalable, inclusive and sovereign digital infrastructure. Artificial intelligence, too, is now being approached as infrastructure rather than simply another technology platform.

All these initiatives ultimately depend upon connectivity. For more than half a billion Indians who still lack reliable personal mobile broadband, meaningful connectivity depends upon accessible public Wi-Fi built on India's home-grown PM-WANI architecture.

PM-WANI is the underlying connectivity layer supporting India's digital ambitions, and it should be treated accordingly. The era of pilot projects and consultation papers has passed. India should designate PM-WANI-based public Wi-Fi as critical communication infrastructure and establish the funding, governance and regulatory framework necessary to support that decision. 🌐

Digital infrastructure can only be considered complete when every citizen can walk into a public space and connect.

The author is Hon. FIET (London) and the President of Broadband India Forum.

(Views are personal.)

Research inputs by Atul Jain.

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The leaders of India's connectivity future

As connectivity becomes strategic infrastructure, four leaders show how policy, innovation and manufacturing are shaping India's digital future.

VOICE&DATA BUREAU

For more than three decades, Voice&Data has documented, analysed and chronicled the transformation of India's telecommunications sector. From the early years of sector liberalisation and the arrival of mobile communications to the expansion of broadband, digital infrastructure and indigenous technology development, the publication has served as an independent voice for the industry.

Along the way, it has highlighted achievements, examined challenges, debated policy issues and tracked the technological shifts that continue to redefine the communications landscape.

The Voice&Data Telecom Leadership Awards were instituted to recognise the individuals and organisations whose contributions have helped shape this journey. Over the years, the awards have celebrated policymakers, entrepreneurs, technologists, corporate leaders and institutions that have played a defining role in advancing connectivity, innovation and digital transformation.

Beyond recognising excellence, the awards seek to encourage industry leadership, foster innovation and highlight initiatives that create meaningful impact on the organisation, the sector and the country.

The significance of such recognition is particularly evident today. India's telecommunications ecosystem is undergoing another period of profound change. The rapid expansion of 5G networks, growing investments in digital infrastructure, the emergence of satellite communications, increasing focus on indigenous technologies and the rise of AI-driven networks are collectively reshaping the sector. At the same time, the industry is expected to support broader national priorities, including digital inclusion, manufacturing growth, technological self-reliance and global competitiveness.



Award Jury Process

Phase 1: Nominations: Voice&Data sought nominations from the industry through an open online process. The online form was available for anyone to submit their nomination or that of others.

Phase 2: Research: The V&D editorial team reviewed the nominations, conducted additional research on each individual, organisation, and project, filtered them against predefined criteria, and created dossiers for each nominee. The nomination dossiers were shared with the jury members for their review before the actual Jury meeting.

Phase 3: Jury Meeting: The in-person Jury meeting was held in Delhi, where Jury Members, led by Sunil Vachani, reviewed each nomination threadbare, discussed the impact of individual nominees and projects at the company, industry, and national levels, and deliberated on the long-term implications of initiatives, decisions, and actions to unanimously decide on the winners.

TELECOM LEADERSHIP AWARDS JURY MEMBERS 2025



Sunil Vachani
Founder & Chairman,
Dixon Technologies [Chair]



Dr Rajkumar Upadhyay
Chief Executive Officer,
C-DOT [Co-Chair]



Pradeep Gupta
Chairman,
CyberMedia Group [Co-Chair]



Ashish Jha
Country Sales Manager - CME
& Acquisition, HPE



Ambika Khurana
Chief Regulatory & Corporate
Affairs Officer, Vodafone Idea



Vibha Mehra
Country Manager,
Nokia India



Dr Jaijit Bhattacharya
President, Centre for Digital
Economy Policy Research



Prof NK Goyal
President, CMAI &
Chairman Emeritus, TEMA

Against this backdrop, this award recognises four distinct dimensions of leadership that are helping define the next phase of India's connectivity journey. Together, this year's winners reflect the breadth of transformation taking place across the communications ecosystem.

Overall, their contributions span public policy, industry leadership, breakthrough innovation, manufacturing excellence and the creation of next-generation digital infrastructure. They represent the diverse forces shaping India's digital future, from decisions made in government and corporate boardrooms to technologies being developed in factories, laboratories, and launch facilities.

A RIGOROUS EVALUATION PROCESS

The recipients of the awards were selected through a rigorous jury process involving telecom industry veterans, subject-matter experts, and senior leaders from across the communications ecosystem. The evaluation considered not only achievements during the past year

but also their broader impact on industry development, technological advancement and national priorities.

The Telecom Person of the Year Award recognises exceptional leadership, vision and measurable impact on the telecommunications sector. The Pathbreaker Award honours pioneering innovations, technologies and initiatives that have the potential to redefine industry direction. The Lifetime Achievement Award acknowledges an individual's enduring contribution to the sector over several decades, while the Special Jury Award recognises exceptional achievements in areas of strategic importance to the country's communications ecosystem.

Collectively, these awards celebrate the individuals whose work is helping build stronger networks, advance innovation, expand digital access and create new opportunities for growth. They also recognise that the future of telecommunications will be shaped not by technology alone, but by the quality of leadership guiding its development. 🌟

TELECOM PERSON OF THE YEAR (2025)



JYOTIRADITYA M SCINDIA

Union Minister for Communications & the Minister of DoNER,
Government of India

Driving India's telecom leap from policy to execution

From indigenous 5G and satcom reforms to digital trust and manufacturing growth, Scindia has been focusing on execution rather than announcements.

VOICE&DATA BUREAU

For decades, India's telecommunications sector has been shaped by ambitious policies, regulatory interventions and technology transitions. What has distinguished Jyotiraditya M Scindia's tenure as Union Minister for Communications is a determined focus on execution. At a time when connectivity has become central to economic growth, digital inclusion and national competitiveness, he has sought to transform telecom governance from a policy-making exercise into a delivery-oriented mission.

That approach became particularly visible in 2025. Under his stewardship, the nationwide deployment of the indigenous BSNL 4G and 5G stack gathered significant momentum, with rollout activities progressing across 100,000 sites. Beyond expanding coverage, the programme represented a broader strategic objective: proving that India could design, develop and deploy critical telecommunications technologies at scale. The initiative became one of the most visible manifestations of the country's push towards technological self-reliance.

At the same time, the sector continued its rapid 5G expansion, with adoption spreading across urban and rural markets. However, Scindia's focus extended beyond subscriber numbers. His ministry actively supported efforts to strengthen domestic manufacturing through the Telecom Production Linked Incentive scheme, which has generated cumulative production worth more than Rs 91,000 crore. The emphasis was clear: India should not merely consume telecommunications technologies but increasingly participate in their development, production and export.

Infrastructure deployment also received renewed attention. Through initiatives such as the Gati Shakti Sanchar portal, the ministry reduced approval timelines for towers and fibre deployments, addressing one of the industry's longstanding operational challenges. Faster

clearances translated into quicker network expansion and improved investment efficiency for service providers. The ministry also continued to prioritise connectivity in rural, border and underserved regions, recognising telecommunications as an essential enabler of economic participation and public services.

Another significant area was satellite communications. As the industry prepared for the next phase of connectivity expansion, Scindia's ministry advanced the regulatory framework required to support commercial satcom services. This was complemented by continued support for future technologies through the Bharat 6G Alliance and initiatives to increase India's participation in international standards bodies and technology development forums.

By linking infrastructure expansion, indigenous innovation, manufacturing growth and policy reform, he has strengthened India's digital foundations.

Consumer protection and digital trust also emerged as important priorities. Programmes such as Sanchar Saathi demonstrated how data analytics and technology could be used to combat fraud and strengthen

confidence in the digital ecosystem. The progress made by BSNL towards operational recovery, coupled with India's growing engagement in global discussions on telecom standards, reflected a broader ambition to position the country as both a major digital market and an influential contributor to the future of telecommunications.

The defining feature of Scindia's stewardship has been the shift from announcing policy to measuring outcomes. Whether through indigenous network deployment, manufacturing expansion, faster infrastructure approvals or future-facing initiatives in satellite communications and 6G, the emphasis has consistently been on delivery. In doing so, he has helped position telecommunications not merely as a public utility but as strategic national infrastructure supporting economic growth, digital inclusion and India's emergence as a more influential participant in the global telecommunications ecosystem. 🌐

LIFETIME ACHIEVEMENT AWARD (2025)



SANJEEV AGA

Former Managing Director, Idea Cellular

Shaping telecom's defining years in India

Aga's influence extends beyond boardrooms and balance sheets, helping shape policy debates, market evolution, and the growth of the telecom industry.

VOICE&DATA BUREAU

Few leaders have influenced India's telecommunications sector as consistently and thoughtfully as Sanjeev Aga. While many executives are remembered for the organisations they led, Aga's impact extends far beyond any single company. Over several decades, he has helped shape industry thinking, contributed to critical policy discussions and brought strategic discipline to some of India's most respected enterprises.

His most visible telecom contribution came during his tenure as Managing Director of Idea Cellular between 2006 and 2011, a period that coincided with one of the most dynamic phases in the history of Indian mobile communications. Competition was intensifying, subscriber growth was surging, and operators were racing to expand coverage and scale. Under his leadership, Idea strengthened its position as a national telecom player.

Yet reducing his contribution to operational success alone would overlook his broader role in the sector's development. Aga consistently engaged with policy and regulatory issues, often advocating for balanced frameworks that encouraged investment while preserving competition and consumer interests. At a time when telecom operators were navigating spectrum pricing debates, market disruptions and regulatory uncertainty, he was among the industry's most articulate voices arguing for long-term sustainability over short-term gains.

This ability to connect commercial realities with broader industry priorities became a defining characteristic of his leadership. He viewed telecommunications not simply as a business but as critical national infrastructure requiring stable policy environments and sustained investment. Many of the positions he championed reflected a belief that healthy competition and long-term capital formation

were essential to the sector's future.

Beyond telecom, Aga built a distinguished corporate career spanning multiple industries. His leadership roles at organisations such as Blow Plast and Aditya Birla Nuvo, and later his contributions as an independent director and advisor, exposed him to a wide range of business challenges and governance responsibilities. These experiences enriched his perspective and reinforced his reputation as a trusted strategist and corporate steward.

Equally important has been his contribution to corporate governance. Across boardrooms and advisory roles, he has consistently championed responsible leadership, institutional strength and long-term value creation. His ability to build consensus, navigate complexity and balance diverse stakeholder interests has earned him respect across both the telecommunications sector and the wider business community.

Even today, Aga remains a respected voice in discussions around governance, leadership and sustainable industry growth. His perspective continues to resonate because it is rooted in experience across both telecom and mainstream industry. Few leaders have successfully bridged those worlds with the same credibility and consistency.

Aga's legacy extends beyond subscriber numbers, revenues or market share. His lasting contribution lies in helping shape the institutions, governance frameworks and policy conversations that enabled India's telecom industry to mature. Equally important has been his role in bringing the discipline of strategic thinking and responsible leadership to some of India's most respected enterprises. That combination of industry influence and corporate stewardship explains why his impact continues to be felt long after his tenure as an executive ended. 🌟

His legacy lies in strengthening institutions, shaping policy discourse and promoting long-term thinking across India's telecom ecosystem.

PATHBREAKER OF THE YEAR (2025)



PAWAN KUMAR CHANDANA

Co-Founder & CEO, Skyroot Aerospace

Building India's gateway to the connected space economy

By advancing private launch capabilities, Chandana is helping build the infrastructure for satellite communications, broadband, and IoT networks.

VOICE&DATA BUREAU

For decades, access to space remained the preserve of national agencies and a small number of global launch providers. As satellite networks become increasingly important to communications, broadband and IoT services, the ability to place payloads into orbit is emerging as a strategic capability. It is within this context that Pawan Kumar Chandana has helped redefine India's role in the commercial space ecosystem.

As Co-Founder and CEO of Skyroot Aerospace, Chandana has been at the forefront of India's private space movement. His vision has centred on creating an agile, commercially viable launch infrastructure capable of serving the rapidly growing demand for small satellite deployments. Rather than competing directly with traditional heavy-lift launch programmes, Skyroot focused on a different challenge: providing faster, more flexible and cost-effective access to orbit.

That vision reached a major milestone in 2025 with the flight-model finalisation of Vikram-1, Skyroot's orbital launch vehicle. The achievement demonstrated the company's ability to integrate advanced technologies, including 3D-printed liquid engines and lightweight carbon-composite structures, into a flight-ready system. More importantly, it validated the capability of a private Indian enterprise to develop an orbital-class launch platform from the ground up.

The achievement was significant because it moved Skyroot beyond technology demonstrations and into operational readiness. Flight-model finalisation is one of the most demanding phases in launch vehicle development, requiring propulsion, structures, avionics and mission systems to function as an integrated platform capable of supporting orbital missions. Reaching this stage placed Skyroot among a select group of organisations globally that have progressed from concept to a flight-ready orbital vehicle.

The significance of Vikram-1 extends well beyond aerospace engineering. Communications networks are increasingly dependent on satellite infrastructure to complement terrestrial systems, particularly in remote regions where conventional connectivity remains difficult or uneconomical. Satellite constellations are expected to play a growing role in broadband expansion, IoT deployments and next-generation digital services.

By creating a more responsive launch platform, Skyroot is helping reduce one of the key bottlenecks faced by satellite operators: access to launch opportunities. Faster turnaround times and greater launch flexibility can significantly accelerate deployment schedules, enabling operators to bring new services to market more quickly.

The flight-ready Vikram-1 represents more than a launch vehicle, creating new possibilities for satellite-enabled connectivity and digital services.

For India's telecommunications and digital infrastructure sectors, the implications are considerable. As satellite broadband services, direct-to-device connectivity and IoT constellations gain

momentum, demand for reliable launch services is expected to rise sharply. Indigenous launch capability provides strategic flexibility while reducing dependence on overseas launch schedules and capacity constraints.

The emergence of private launch providers also reflects the growing maturity of India's innovation ecosystem. Chandana's efforts have helped attract greater attention to the commercial potential of the country's space sector while creating opportunities for collaboration across telecommunications, satellite services and emerging digital industries. In that sense, Vikram-1 represents more than a technological achievement. It is part of the infrastructure foundation upon which future satellite-enabled connectivity services will increasingly depend, helping strengthen India's position in both the space economy and the broader digital communications landscape. 🌟

SPECIAL JURY AWARD FOR MAKE IN INDIA INITIATIVE (2025)



ANKIT AGARWAL
Managing Director, STL

Taking Made-in-India fibre to the world's networks

From BharatNet to AI-ready fibre, Agarwal has helped position Indian telecom manufacturing as a global contributor to next-generation digital infrastructure.

VOICE&DATA BUREAU

Every digital economy ultimately rests on physical infrastructure. Behind every broadband connection, data centre and mobile network lies an extensive fibre backbone that carries the world's growing data traffic. Under Ankit Agarwal's leadership, STL has sought to ensure that an increasing share of that infrastructure is designed, manufactured and exported from India.

As Managing Director of STL, Agarwal has been a strong advocate of building globally competitive telecommunications products while strengthening India's position within the international communications value chain. His approach has combined indigenous innovation, advanced manufacturing and long-term investment in optical technologies that form the foundation of modern digital infrastructure.

A key part of that journey has been fibre. While mobile networks and digital services often attract public attention, fibre remains the invisible infrastructure that powers connectivity. Whether

supporting broadband networks, data centres, enterprise connectivity or future wireless deployments, fibre has become an essential component of the digital economy. Recognising its strategic importance, STL has focused on developing products that meet both India's connectivity requirements and the demands of international markets.

That focus became particularly visible through the company's contribution to BharatNet Phase III. By supplying specialised optical fibre for some of India's most challenging deployment environments, STL has played an important role in expanding broadband infrastructure into underserved and remote regions. The project highlights how indigenous manufacturing capabilities can contribute directly to national digital inclusion objectives while reducing dependence on imported technologies.

At the same time, Agarwal has positioned STL to address future network requirements. In 2025, the company introduced AI-ready fibre designed to support the massive data flows associated with AI workloads, edge computing environments and future communications architectures. As networks become increasingly data-intensive, optical infrastructure is expected to play a critical role in enabling scale, performance and reliability.

Beyond the domestic market, STL has continued to expand its global footprint. The scaling of its South Carolina manufacturing facility, expansion into advanced optical interconnects and growing international presence reflect a broader ambition to establish Indian telecommunications products within global markets. These efforts demonstrate how domestic innovation can evolve into globally competitive technology capabilities.

The evolution of STL reflects a broader shift as Indian telecom manufacturing moves from supplying components to shaping the future of networks worldwide.

Innovation has remained central to this strategy. Continued investment in research and development has strengthened STL's patent portfolio, while programmes such as STL Academy have helped

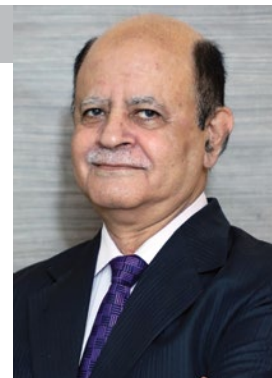
develop the technical skills required for future network deployment and maintenance. Equally noteworthy has been the company's emphasis on sustainable manufacturing, including achieving Zero Waste to Landfill across its global operations.

The significance of STL's growth under Agarwal extends beyond corporate success. It reflects the growing ability of Indian telecommunications manufacturers to compete in technology-intensive global markets while advancing national digital priorities. As broadband networks expand, AI workloads grow, and future communications architectures take shape, fibre infrastructure will remain a foundational requirement. By combining indigenous innovation with global ambition, he has helped demonstrate that Indian companies can play a meaningful role in building that future. 🌱

LT. GEN. DR. SP KOCHHAR

WHEN CONNECTIVITY BECOMES AN INTELLIGENCE INFRASTRUCTURE

AI, smart cities and Industry 4.0 will deliver value only when intelligent connectivity combines networks, computing and data into resilient digital infrastructure.



The real competition in this era of artificial intelligence (AI) is no longer between applications. It is between the infrastructures that enable them. While AI, smart cities, Industry 4.0, autonomous logistics and digital public services may appear to be distinct technology trends, they all depend on one foundational capability: connectivity.

Yet connectivity itself is undergoing a profound transformation. It is no longer merely a medium for transmitting voice and data. Increasingly, it is becoming the platform that enables intelligence, automation and real-time decision-making across entire digital ecosystems.

India's digital infrastructure journey reflects this evolution. India today accounts for nearly one-fifth of the world's mobile subscribers. At the same time, the Ericsson Mobility Report 2025 estimates that India's 5G rollout is among the fastest globally, with network coverage reaching nearly 90% of the population within a remarkably

short period. As cities become increasingly connected and enterprises become data-driven, the focus is shifting from connectivity as access infrastructure to connectivity as intelligence infrastructure. This emerging paradigm, often referred to as intelligent connectivity, will play a defining role in shaping India's next phase of digital and economic growth.

UNDERSTANDING INTELLIGENT CONNECTIVITY

Intelligent connectivity is far more than faster broadband or higher network speeds. It represents the convergence of 5G, fibre infrastructure, cloud computing, edge computing, Internet of Things (IoT) technologies and AI into a unified digital ecosystem capable of sensing, analysing and responding in real time.

In this environment, networks are no longer passive conduits for data transport. Instead, they become active participants in enabling digital services, supporting automation, optimising performance and facilitating



Connectivity is evolving from carrying data to enabling intelligence, making telecom infrastructure the platform on which AI-powered digital ecosystems will run.



The success of smart cities will depend less on connected devices than on telecom networks capable of moving, processing and analysing data in real time.

intelligent decision-making. The scale of this transformation is already evident. According to IoT Analytics, the number of active connected IoT devices grew by 14% to reach exactly 21.1 billion by the end of 2025. These figures underscore a fundamental reality: connectivity has evolved from being a utility service into a strategic economic asset.

SMART CITIES NEED INTELLIGENT NETWORKS

The first generation of smart city initiatives focused primarily on digitising services and deploying technology solutions. The next generation is about orchestrating entire urban systems in real time. Traffic signals, public transport systems, utility networks, surveillance platforms, environmental sensors and citizen services are increasingly expected to function as interconnected components of a single digital ecosystem. Achieving this level of integration requires far more than standalone technologies. It demands robust, resilient and intelligent connectivity.

India's Smart Cities Mission recently completed a decade of implementation across 100 cities. According to the Ministry of Housing and Urban Affairs, more than 94% of approved projects have been completed, with Integrated Command and Control Centres now operational across all mission cities. These centres aggregate and analyse data from thousands of connected devices to support governance, public safety and urban service delivery.

Several examples illustrate this evolution. Varanasi is developing a 3D Digital Twin covering approximately 160 square kilometres, enabling authorities to model urban systems, improve disaster preparedness and optimise planning decisions. Bengaluru's AI-enabled Adaptive Traffic Control System dynamically adjusts signal timings based on traffic conditions. At the same time, Chandigarh has deployed more than 2,000 AI-enabled CCTV cameras to strengthen traffic monitoring and law enforcement.

However, the effectiveness of these systems ultimately depends on the strength of the underlying telecom infrastructure. Smart city applications generate massive volumes of data that must be transmitted, processed and analysed in real time. This requires extensive fibreisation, dense mobile networks, low-latency connectivity and support for massive machine-type communications.



IN BRIEF

- Intelligent connectivity combines 5G, fibre, cloud, edge, IoT and AI into a digital infrastructure that enables real-time services and automation.
- Smart cities depend on resilient telecom networks to connect sensors, platforms and services into integrated urban operating systems.
- Enterprise networks are evolving into a business infrastructure that supports Industry 4.0, automation, AI workflows and operational resilience.
- AI is accelerating investment in edge computing, telecom networks and data centres that together support low-latency digital applications.
- Fibre expansion, enterprise 5G adoption, cybersecurity, and a future-ready spectrum policy will determine India's next phase of digital growth.
- Intelligent connectivity is shifting telecom from providing access to enabling productivity, innovation and economic competitiveness.

Without this foundation, smart city platforms risk becoming isolated technology deployments rather than integrated urban operating systems capable of delivering measurable outcomes.

NETWORKS ARE RESHAPING ENTERPRISES

The same shift is transforming enterprises across sectors. Manufacturing, logistics, healthcare, retail and financial services are increasingly operating as real-time digital environments where machines, assets, applications and people are continuously connected. Data has become a

As AI workloads expand, telecom, edge computing and data centres are converging into a common infrastructure layer built for intelligent applications.

core operational resource, while networks have become critical business infrastructure.

This is where advanced connectivity capabilities become particularly important. The ultra-low latency, high reliability, and massive device connectivity enabled by 5G create new possibilities for industrial automation, predictive maintenance, remote operations and AI-driven workflows.

Industry 4.0 deployments are already demonstrating tangible business outcomes. According to McKinsey research, smart manufacturing initiatives can reduce machine downtime by 30% to 50%, improve throughput by 10% to 30% and increase labour productivity by up to 30%.

India is also witnessing the emergence of enterprise-focused connectivity solutions. Coal India, for example, has deployed a dedicated private 5G network to support vehicle tracking, environmental monitoring, video surveillance and drone-based operations across mining sites. Similar use cases are emerging across ports, manufacturing facilities and logistics hubs.

Beyond industry, intelligent connectivity is enabling connected healthcare, digital finance and intelligent supply chains. As enterprises continue their digital transformation journeys, telecom operators are increasingly evolving from connectivity providers into strategic partners that enable innovation, efficiency and business resilience.

AI, EDGE AND DATA CENTRES CONVERGE

Even though AI may dominate technology discussions today, its effectiveness depends heavily on the infrastructure that supports it. AI applications increasingly require real-time access to data and low-latency processing capabilities. As a result, computing resources are moving closer to users, devices and applications through edge computing architectures. This trend is driving significant investment in digital infrastructure. Market projections suggest that India's data centre sector could exceed USD 22 billion by 2030, fuelled by AI adoption, cloud services and growing digital consumption.

Telecom networks are central to this transformation. Operators are increasingly integrating edge computing

capabilities into network infrastructure to support latency-sensitive applications such as autonomous systems, industrial automation, immersive experiences and AI-powered analytics. The convergence of AI, telecom networks, and data centres is creating a new digital architecture in which connectivity and computing function as an integrated platform.

BUILDING THE NEXT CONNECTIVITY LAYER

India has established a strong foundation for intelligent connectivity. Accelerating fibreisation remains critical, particularly as data consumption continues to rise and advanced digital services demand greater network capacity. Expanding enterprise adoption of 5G use cases will also be essential to unlocking productivity gains across industries.

Future-ready spectrum policies and continued investment in telecom infrastructure will help sustain India's digital transformation momentum. Equally important will be strengthening cybersecurity frameworks and digital trust to ensure the resilience of increasingly interconnected systems. At the same time, India must prepare for emerging technologies such as 5G-Advanced and 6G, which will further integrate communications, computing and AI.

According to GSMA, the economic contribution of mobile technologies is expected to grow significantly through 2030 as advanced connectivity becomes increasingly embedded across sectors. As AI, cloud and automation reshape economies, intelligent connectivity will serve as the foundation that brings these technologies together at scale.

For India, robust, future-ready telecom networks will be critical to enabling smarter cities, more competitive enterprises and sustained digital growth. The next phase of transformation will be defined not just by technological innovation, but by the strength of the connectivity infrastructure that powers it. 🧩

The author is a decorated military veteran who retired as the Signal Officer-in-Chief, the head of the Indian Army's ICT division. He was also the first CEO of the Telecom Sector Skill Council and presently the Director General of the Cellular Operators Association of India (COAI).

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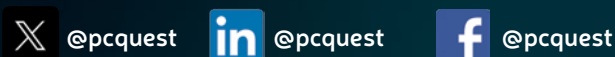


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“Quantum-classical systems must solve real enterprise problems”

Quantum computing has long promised to solve problems beyond the reach of classical computers, yet enterprise adoption has remained elusive. While recent advances have fuelled optimism, the real challenge is no longer just building better qubits. It is integrating quantum systems with classical computing, artificial intelligence, networking and high-performance computing to solve meaningful business and scientific problems.

Kirk Bresniker, HPE Fellow, Vice President, and Chief Architect of HP Labs, believes the industry is entering a new phase in which quantum computing is becoming an engineering challenge rather than a purely physics experiment. In this conversation with **Shubhendu Parth** at HPE Discover 2026 in Las Vegas, he explains why enterprises should rethink how they measure progress, why post-quantum cryptography demands immediate attention, how AI will accelerate quantum innovation, and what tomorrow's quantum-classical data centre may look like. Excerpts:

Quantum computing has been discussed for decades, yet many enterprise leaders still view it as

a distant technology. From your conversations with customers, what has changed over the past five years that makes quantum more relevant today?

Richard Feynman famously observed more than 40 years ago that if you want to simulate nature, the computer itself should be quantum mechanical. He also recognised that it would be an extraordinarily difficult engineering challenge, and he was right.

At HPE Labs, we were developing qubit technologies as early as 2010. We even demonstrated nitrogen-vacancy diamond lattice qubits, but what we could not identify then was a practical path to enterprise value. That ultimately led us to redirect much of our effort towards integrated photonics, where we saw more immediate commercial impact.

The turning point came about five years ago, after we delivered one of the world's first exascale supercomputing systems to the US Department of Energy. That opened conversations with a completely new class of customers, many of whom asked us the same question: “The next generation of supercomputers is coming. Where do we plug in the qubits?”

“Start with the problem, not with the qubit. Build the system around the enterprise challenge first, then determine the quantum and classical resources needed.”



KIRK BRESNIKER

HPE Fellow, Vice President, and
Chief Architect – Hewlett Packard Labs

“If quantum mechanics is material to your business, you should already be planning today how you will understand the technology now and utilise it tomorrow.”

That changed our perspective. Rather than asking how to build a better qubit, we began asking how quantum and classical computing could work together to solve real problems in chemistry, materials science and physics.

Today, our focus is on holistic co-design. We partner across quantum hardware developers, error-correction specialists, electronic design automation experts and simulation teams to understand how an entire quantum-classical system should be engineered.

Our contribution is not necessarily the invention of another qubit architecture. It is bringing expertise in industrial-scale computing, networking, integration and system engineering to help assemble practical quantum-classical platforms.

For enterprises where quantum mechanics is fundamental to their business, such as drug discovery, materials science or molecular simulation, we believe useful hybrid quantum-classical systems could begin delivering value within the next five years. Initially, they will solve very specific problems rather than becoming general-purpose computers, much as the earliest generations of classical computing did.

Post-quantum cryptography is rapidly moving from theory to deployment. How urgent is the transition, and are enterprises moving quickly enough?

Every enterprise should already have a post-quantum cryptography strategy.

Software updates are difficult enough. Updating hardware is considerably harder, particularly when cryptographic functions are embedded inside silicon deployed across thousands of edge devices. Those systems cannot simply be replaced overnight.

At HPE, we began preparing several years ago, even before formal standards were finalised. Our objective was to ensure future platforms could support both conventional cryptographic signatures and post-

quantum alternatives for critical processes such as firmware authentication.

History teaches us that cryptographic breakthroughs are rarely announced when they happen. If someone develops a cryptographically relevant quantum computer capable of breaking widely used encryption, they are unlikely to publicise that achievement immediately.

That uncertainty makes preparation essential.

The comparison I often make is with Y2K. We knew exactly when that event would occur, so the industry worked towards a fixed deadline. Post-quantum security is different because we do not know exactly when the threat will become real.

That is why governments are beginning to establish target dates. In the United States, organisations are working towards 2029 for critical systems. Whether that date ultimately proves early or late is less important than giving organisations a clear objective to begin planning.

Initially, sectors such as defence, healthcare, and financial services will lead the transition because their risk profiles are much higher. Others will follow as post-quantum security becomes standard practice.

The industry often celebrates qubit counts, but many researchers argue that practical utility matters far more. Are we still measuring progress using the wrong metrics?

I believe we should start with the problem rather than the qubit. In fact, the question is not whether one processor contains more qubits than another. The real question is whether a complete quantum-classical system can solve a meaningful enterprise problem more effectively than existing approaches.

Our work, therefore, begins with resource estimation. We build digital twins of prospective quantum-classical systems designed around specific scientific challenges.

“Every enterprise needs a post-quantum cryptography conversation now. Software is hard to patch, but replacing cryptography embedded in silicon is far harder.”



Once we understand what resources are required, we can engage with hardware vendors, calibration experts and error-correction researchers to identify which improvements actually move the needle.

Sometimes it may be higher fidelity. Sometimes it may be better connectivity, longer coherence times or entirely different system characteristics.

What matters is understanding how improvements contribute to solving the problem rather than optimising an isolated metric.

The semiconductor industry eventually developed a shared understanding of progress through concepts such as Moore's Law. Quantum computing has not yet reached that level of maturity. We still need better ways to relate engineering advances directly to useful outcomes.

Many researchers believe quantum networking and quantum sensing may reach commercial relevance before large-scale fault-tolerant quantum computers. How do you see these technologies evolving?

Quantum networking actually encompasses several different ideas. One application is quantum key distribution, where any attempt to intercept communication disturbs the quantum state, making eavesdropping immediately detectable.

Another is distributing quantum information itself, extending entanglement across physically separated

quantum processors so that multiple systems can operate together.

At the same time, quantum sensing represents another tremendously exciting opportunity. Because quantum states are extraordinarily sensitive to external disturbances, they can become remarkably precise sensors capable of detecting extremely subtle changes in magnetic fields or gravitational effects.

Rather than viewing quantum computing, quantum networking and quantum sensing as competing technologies, I see them evolving together.

Networking will ultimately enhance distributed quantum computing. Advances made for sensing may also contribute to computing. It is certainly possible that networking or sensing achieves commercial success first, but all three disciplines reinforce one another as they mature.

At this stage, there is no clear answer as to which technology reaches large-scale commercial impact first.

Artificial intelligence is advancing rapidly across engineering and scientific research. How do you expect AI and quantum computing to influence each other over the coming decade?

I see AI becoming fundamental throughout the entire quantum engineering process. It will help design quantum devices, optimise manufacturing, improve calibration,

“AI will help design quantum devices, optimise manufacturing, improve calibration and generate scientific hypotheses that researchers can validate much faster.”

control increasingly complex systems and accelerate electronic design automation.

Many of these processes must operate within micro-seconds, making intelligent real-time control essential.

Perhaps even more importantly, AI can become an active scientific collaborator.

Imagine an AI system continuously reading every newly published research paper, integrating that knowledge with simulation tools, proposing new hypotheses, automatically generating experiments, executing simulations and presenting the results back to scientists.

Instead of replacing researchers, AI becomes what I like to call a digital muse, sitting beside the scientist and constantly suggesting new directions worth exploring.

It can transform decades of accumulated scientific literature into actionable insights while dramatically accelerating experimentation across both classical and quantum research.

Assuming practical fault-tolerant systems emerge, what will a quantum-enabled data centre actually look like?

It will certainly introduce technologies that data centres have not traditionally needed. The first time a liquid helium delivery arrives alongside conventional infrastructure will be an interesting milestone.

That said, AI has already begun pushing data centres into unfamiliar territory. Higher power densities, advanced cooling, and new energy distribution architectures are becoming necessary today due to AI workloads.

Quantum systems will likely follow a similar pattern.

Initially, quantum processors will need to operate alongside high-performance computing systems because they will remain tightly coupled to classical simulation, AI and scientific workflows.

Where those systems ultimately reside will depend largely on data movement. If large volumes of information must flow continuously between quantum and classical processors, collocating them will make the most sense.

Another important consideration is sovereignty.

As organisations invest in sovereign AI infrastructure, many will ask similar questions about quantum computing. Should they rely on external cloud services, or should they operate sovereign quantum-classical systems to guarantee long-term access, security and control?

Ultimately, future computing environments will increasingly integrate HPC, AI and quantum resources within a common architecture, balancing performance, security, economics and regulatory requirements.

Finally, what are HPE's priorities as quantum computing moves from research towards practical deployment?

Our priorities are straightforward.

First, we are continuing to solve the engineering challenges associated with scaling and industrialising quantum-classical systems.

Second, we are identifying practical problems where these systems can deliver meaningful value and working closely with customers willing to explore those opportunities.

Finally, partnership remains fundamental.

There is no clear winner among quantum technologies today, and we believe progress will come through an open ecosystem that brings together expertise in quantum hardware, classical computing, networking, software and system integration. That holistic approach gives us the best opportunity to turn quantum computing from an exciting scientific achievement into a practical enterprise infrastructure. 🍷

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Can telcos become India's AI infrastructure companies?

AI is driving unprecedented demand for trusted compute, data centres and low-latency networks, creating new growth opportunities for telecom operators.



BY JAIDEEP GHOSH

For nearly three decades, India's telecom operators have invested hundreds of billions of rupees in building the country's digital highways. Fibre networks span the country, mobile broadband reaches hundreds of millions of users, and operators have poured unprecedented levels of capital into spectrum, towers, transport networks and

data centres. The infrastructure is robust; the business model remains fragile.

The uncomfortable reality is that despite investing billions of dollars in spectrum, fibre and networks, the industry continues to grapple with a persistent question: where will the next wave of sustainable growth come from?

The next telecom battle will not be fought only over subscribers. It will be decided by those who host, secure and power India's AI infrastructure economy.

Rather than competing head-on with hyperscalers, telecom operators can occupy the strategic layer where enterprise AI demands secure, local infrastructure.

The answers have changed over the years. Value-added services, cloud, IoT, enterprise solutions, edge computing and, more recently, 5G slicing and private networks have all promised to reduce the industry's overdependence on connectivity revenues. Some created meaningful businesses, but none fundamentally altered the industry's economic model.

Artificial intelligence (AI) may change that equation. Not because AI will make telecom operator businesses more efficient; that is already happening. AI-assisted customer service, network automation and predictive maintenance are important operational improvements, but they do not fundamentally alter the economics of the business.

Instead, AI is creating an entirely new layer of digital infrastructure. Telecom operators already own much of their physical foundation. The question is whether they can commercialise those assets before others capture the larger share of the value.

As AI reshapes the economics of digital infrastructure globally, it poses a boardroom question for India's telecom operators that goes well beyond technology: can AI redefine what a telecom operator actually is? Can they become providers of AI infrastructure rather than remaining merely connectivity providers?

THE NEW RACE FOR AI INFRASTRUCTURE

The economics of AI is becoming increasingly infrastructure-intensive. Globally, AI infrastructure has emerged as a strategic asset of the first order.

Governments and corporations are committing capital at a scale that would have seemed implausible only a few years ago. Technology companies are investing billions of dollars in GPU clusters and AI-ready data centres. Cloud providers are racing to expand computing capacity, while enterprises are increasingly looking for infrastructure capable of supporting AI training and inference closer to where data is generated.

The scale of commitment is extraordinary. Goldman Sachs expects a combined USD 5.3 trillion in capital



IN BRIEF

- AI is creating a new infrastructure layer where compute, connectivity, and data centres become strategic enterprise assets.
- Telecom operators already own fibre, towers, edge sites and enterprise relationships that can support AI infrastructure at scale.
- AI hosting, GPU services, sovereign compute and managed inference offer higher-value enterprise opportunities than connectivity alone.
- India's Digital Public Infrastructure, IndiaAI Mission, and localisation needs strengthen the business case for domestic AI infrastructure.
- Success depends on moving beyond network ownership to becoming trusted AI infrastructure providers before competitors do.
- The next telecom transformation will be shaped as much by strategic leadership as by technology and capital investment.

The AI race will not be won by bigger GPU clusters alone. It will favour those combining trusted infrastructure, enterprise reach and nationwide execution.

expenditure by the four largest hyperscalers—Meta, Microsoft, Amazon and Alphabet—between 2025 and 2030 across compute, data centres and power infrastructure. The Stargate Project, meanwhile, plans to invest USD 500 billion over the next four years, building AI infrastructure for OpenAI in the United States, backed initially by SoftBank, OpenAI, Oracle and MGX.

The conversation is no longer limited to algorithms or applications. Increasingly, competitive advantage is being shaped by the availability of computing power, resilient energy, water, secure data infrastructure and low-latency connectivity.

This is the inflexion point. And it is unfolding at exactly the moment when India's digital ambitions are becoming more concentrated.

TELECOM'S HIDDEN INFRASTRUCTURE EDGE

Unlike most industries entering the AI race, telecom operators are not starting from scratch.

India's major operators possess scarce assets that would take decades to replicate. Nationwide fibre networks and thousands of tower sites with power infrastructure are already in place. Data centres—however modest by hyperscalers' standards—are distributed across the country. Deep enterprise customer relationships have been built over the years, particularly in sectors such as banking, manufacturing and government.

Operators also possess regulatory experience and, critically, the ability to deliver guaranteed low-latency connectivity for AI workloads in a way that a data centre company or cloud provider operating over shared internet infrastructure simply cannot.

Hyperscalers are formidable, but they are not omnipresent like telecom networks. They concentrate compute in a relatively small number of mega-facilities and depend on someone else's last-mile infrastructure. They also face genuine constraints around data

localisation, sovereign compute requirements and the economics of serving smaller enterprise customers across Tier 2 and Tier 3 cities.

These are not gaps that hyperscalers are unaware of. They are, however, gaps that telecom operators, with their distributed physical footprint and nationwide presence, are structurally positioned to address.

INDIA'S UNIQUE AI INFRASTRUCTURE EDGE

India's position in this conversation is distinctive. Unlike many countries, it combines one of the world's largest digital connectivity networks with rapidly expanding Digital Public Infrastructure, a vibrant technology services industry and an increasingly ambitious national AI agenda led by the IndiaAI Mission.

Enterprise AI adoption is steadily accelerating across financial services, healthcare, logistics and manufacturing. The government's appetite for AI-enabled services—from agricultural advisory systems to public health platforms—is both real and growing. At the same time, data localisation requirements, whether regulatory or reputational, are influencing enterprise procurement decisions in ways that favour trusted domestic infrastructure providers.

This creates an environment where being domestic, distributed and trusted becomes a genuine commercial advantage. Operators such as Reliance Jio and Bharti Airtel possess the scale, customer relationships and regulatory standing to participate in this market in a way that even a well-capitalised new entrant would struggle to replicate.

This does not imply that telecom operators will compete directly with hyperscale cloud providers. Nor should they attempt to replicate global cloud platforms. That battle has largely been fought.

The question is not whether the opportunity exists. It is whether telecom operator management teams have the strategic clarity and organisational capability to seize it.

Telcos have spent decades building India's digital backbone. AI now offers the opportunity to turn those assets into trusted infrastructure for enterprise growth.

BUILDING NEW REVENUE BEYOND CONNECTIVITY

Telecom operators have spent years searching for meaningful revenue streams beyond connectivity. Many diversification efforts delivered only modest results because they remained adjacent to traditional telecom services rather than creating genuinely new infrastructure businesses.

AI may prove different.

The revenue logic is more compelling than it might initially appear. AI infrastructure is fundamentally an enterprise business. GPU-as-a-Service, AI-ready colocation, managed inference infrastructure, sovereign AI hosting, and secure private connectivity for AI workloads all operate under structurally different economics from mobile subscriptions.

Enterprise customers in regulated sectors—including banks, insurers, hospitals and defence contractors—are likely to pay a premium for infrastructure that is domestically hosted, contractually committed and operationally accountable. Telecom operators are well-positioned to participate because they already provide mission-critical infrastructure to many of these organisations.

THE STRATEGIC RISKS BEHIND THE OPPORTUNITY

Optimism should not obscure the challenges.

Telecom operators have historically found it difficult to move beyond connectivity into higher-margin businesses. Attempts to build media platforms, financial services businesses and enterprise IT practices have produced mixed results at best. The organisational DNA of a network operator is not naturally aligned with the speed, experimentation and product-led culture that AI markets currently demand.

The capital requirements are substantial, while the technology itself is evolving rapidly. An operator committing to a particular GPU architecture or data centre design today faces a genuine risk of obsolescence within three or four years. At the same time, global hyperscalers such as Google and Microsoft are

aggressively expanding their presence in India, aided in part by favourable tax policies.

The window for operators to establish a defensible position may therefore be shorter than it appears. And the possibility of an AI bubble bursting continues to linger in the background.

The critical strategic question for telecom operator Boards is therefore not whether telecom companies should invest in AI infrastructure. It is whether they can position themselves high enough in the value chain to avoid becoming yet another commoditised infrastructure provider. Owning assets alone has rarely guaranteed sustainable competitive advantage.

REDEFINING THE TELECOM BUSINESS MODEL

AI presents India's telecom operators with perhaps the most significant strategic opportunity since the mobile revolution—not because it will improve operational efficiency, but because it could fundamentally redefine what a telecom company is.

The winners in this transition will not necessarily be those deploying the most computing power. They will be those that successfully reposition themselves—in the minds of regulators, enterprise customers and capital markets—as providers of trusted digital infrastructure for the AI economy.

That repositioning is as much a leadership challenge as a capital-allocation decision. It requires operators to make deliberate choices about where they compete, what they build and what they are willing to leave to others.

In the AI economy, the greatest opportunity may no longer lie in carrying data, but in hosting intelligence. 🧠

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Sustainable data centre: Backbone of AI-ready infrastructure

India's AI ambitions depend on data centres designed from inception for energy efficiency, advanced cooling, and resilient power, rather than retrofitting.



BY CR SRINIVASAN

One of the world's largest infrastructure build-outs in modern history is underway in the global data centre industry. With spending expected to reach nearly \$7 trillion by 2030, according to McKinsey, production-scale Artificial Intelligence (AI) has already increased the volume of compute required as AI becomes embedded across enterprise operations.

By 2030, AI deployments are expected to account for nearly 50% of total data centre capacity, according to JLL's 2026 Global Data Center Outlook. This scale of high-intensity AI workloads will demand equally significant quantities of natural resources. Consequently, sustainability is becoming central to data centre scalability, performance, reliability and efficiency.

SUSTAINABLE DESIGN DRIVES AI INFRASTRUCTURE

Unlike traditional data centres, which were designed for relatively predictable enterprise workloads, AI workloads introduce far greater intensity and variability.

A recent Deloitte report projects AI data centre power demand to increase 30-fold by 2035, with AI training facilities requiring up to ten times the power density of conventional data centres. Infrastructure that cannot manage these thermal loads efficiently consumes disproportionate amounts of overhead energy simply to keep compute resources operational.

As a result, infrastructure design is increasingly focused on energy efficiency and system-level performance.

Every decision on cooling, power and thermal management made today will shape the economics, resilience and longevity of tomorrow's AI facilities.

Embedding sustainability at the design stage is significantly more effective than retrofitting it later. The ability to power, cool and sustain compute efficiently is emerging as a defining factor in enabling AI at scale. Every kilowatt saved through more efficient cooling directly improves overall system performance. Operators that treat sustainable design as a retrofit exercise rather than a foundational principle will find it progressively more difficult to compete on both performance and cost.

This shift is particularly relevant for India. Data centre power demand is projected to rise from around 1.5 GW today to between 8 GW and 13.5 GW by 2030. Data centres could account for between 2% and 8% of national electricity consumption, compared with approximately 0.5% today. At the same time, rack densities are increasing from around 8 kW to more than 150 kW to support AI workloads, well beyond the practical limits of conventional air cooling. Advanced thermal management is therefore essential from the outset.

Although today's electricity demand from data centres remains relatively modest, India's power infrastructure continues to evolve to support future growth. Water availability, another critical requirement for cooling at scale, is also becoming an increasingly important consideration. These geographic, energy and resource challenges are most effectively addressed during the initial design phase rather than after deployment.

INDIA'S GREENFIELD WINDOW FOR AI INFRASTRUCTURE

For India, the transition to AI-ready infrastructure presents a significant structural opportunity rooted in a sustainable design-first approach. As India's digital infrastructure continues to expand, the country is well-positioned to build data centres specifically for AI workloads from the ground up. Demand for data centre capacity continues to grow rapidly. Much of the infrastructure that will support India's AI economy in 2030 has yet to be built; it is currently being planned, financed and constructed.

India's advantage lies in the fact that much of its future capacity is greenfield. Rather than being constrained by extensive legacy infrastructure, new facilities can be designed around the actual requirements of AI. These

include high-density rack configurations, modular infrastructure, advanced cooling systems and integrated power architecture as core design principles. This design-first approach enables more efficient scaling, improves operational performance and supports long-term sustainability.

Government initiatives, including the proposed National Data Centre Policy, are further strengthening this momentum by encouraging investment and supporting the expansion of digital infrastructure.

The World Economic Forum has consistently emphasised that sustainability should be embedded in data centre design from inception rather than introduced after deployment. Many mature global markets that expanded rapidly before sustainability became a priority are now facing the structural costs of retrofitting older facilities.

India has the opportunity to avoid those constraints. The combination of policy support, infrastructure expansion, and accelerating AI adoption creates an opportunity not only to add capacity but also to shape digital infrastructure that is AI-ready, energy-efficient, and designed for long-term scalability from the very beginning.

India is already among the world's fastest-growing data centre markets. However, the infrastructure decisions made over the next few years will shape the country's data centre architecture for decades. The greenfield advantage is genuine, but the opportunity is time-bound.

AI will ultimately be only as capable as the infrastructure that supports it. Data centres that embed sustainability, efficiency and performance into their foundational design will enjoy structural advantages that strengthen over time through lower lifecycle costs, greater reliability and the ability to scale without repeated rebuilding. The industry has moved beyond debating whether sustainable design matters. The question now is which organisations will act first, and how comprehensively they will integrate sustainability into the next generation of AI infrastructure. 🌱

The author is the CEO of Digital Connexion.

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Networks turn SME finance into real-time AI-powered data

Telecom networks are becoming the financial backbone of SMEs, enabling a continuous flow of business data across geographies, devices, and users.



BY BRIJESH AGARWAL

There is a quiet but important shift happening in how small and mid-sized businesses in India manage their finances. For years, accounting was largely a back-office activity. Bills were entered after sales happened, stock was checked after the day closed, and reports were reviewed at the end of the week or month.

That model is changing. SMEs increasingly want real-time visibility into sales, stock, GST compliance, receivables and branch performance.

The shift is not simply the result of advances in software. It is also being enabled by the evolution of digital infrastructure. Businesses that once needed little more than bookkeeping capabilities increasingly expect dashboards, mobile access, automated voucher entries and reconciliation, and timely compliance alerts.

Such capabilities depend on an underlying infrastructure that allows data to move reliably and continuously across locations, users and devices.

With stronger networks reaching more markets, smaller firms can now use cloud and AI tools to access live financial data and make faster business decisions.

TELECOM NETWORKS ENABLE LIVE FINANCE

India's telecom infrastructure has expanded significantly over the past decade. According to TRAI, India had over 1.28 billion wireless subscribers as of April 2026. With greater 4G availability, expanding broadband access, and the rollout of 5G, always-on business systems are becoming more practical across metros and Tier 2 and Tier 3 markets.

For an SME owner, this means accounts are no longer necessarily locked to a single desktop or office. A bill created at a counter, a stock update from a warehouse or a payment entry from a branch can be reflected centrally in real time. This matters because Indian SME operations are typically spread across people, locations and devices.

A distributor may work through multiple warehouses. A retailer may manage billing, inventory and supplier payments simultaneously. A manufacturer may need visibility into purchases, production, dispatch and outstanding receivables at the same time. Delayed information can lead directly to delayed decisions, and reliable connectivity helps close that gap.

CLOUD AND AI BUILD ON THE NETWORK

Cloud-based accounting builds on this infrastructure by making business data accessible, up to date, and connected regardless of location. It can support multi-user access, remote work, real-time reporting, and collaboration among owners, accountants, and operational teams.

A significant section of the MSME sector still relies on manual or semi-digital processes. Better connectivity is gradually making cloud-based financial systems more accessible, particularly for businesses operating across multiple locations or with distributed teams.

The next layer is intelligence. AI in accounting is often discussed as a future capability, but its value for SMEs can be immediate and practical. It can flag an unusual transaction before it moves further into the books, surface a receivable that has been outstanding for too long, alert a distributor to a product line moving more slowly than usual or identify a mismatch between dispatch records and billing.

These may not appear to be dramatic applications of AI. Still, they address precisely the kinds of signals that can be missed when a small business owner manages sales, operations, finance, and compliance simultaneously.

The combination of telecom infrastructure, cloud platforms, and intelligent applications enables real-time accounting to be scalable. Better connectivity enables continuous data flow. Cloud infrastructure makes it accessible across locations. AI can analyse that data to generate timely alerts and support faster decisions.

STRONGER NETWORKS EXPAND SME ACCESS

Businesses in Tier 2 and Tier 3 cities could be among the major beneficiaries of this shift. In many smaller enterprises, a single person often performs the work of an entire finance team, while disconnected systems, manual spreadsheets and delayed reporting remain common.

Improving telecom infrastructure is gradually reducing the connectivity barrier that has limited access to cloud-based accounting and other digital business systems. AI could further reduce the complexity barrier by enabling non-accounting owners and administrators to engage more directly with financial data without requiring a dedicated team to interpret every transaction or report.

As broadband quality improves and 5G penetration deepens, these capabilities can become accessible to businesses well beyond the largest cities. The broader shift is from systems that merely record transactions to digital platforms that provide visibility, identify potential problems early and support more informed business decisions.

India's SME digitisation story will not be driven by software alone. It will depend on the convergence of telecom infrastructure, cloud adoption, compliance digitisation and intelligent business applications designed around real-world SME requirements. This convergence could make real-time financial management not merely possible, but practical for millions of businesses. 🌟

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Autonomous networks rewrite telecom operations

Agentic AI is enabling operators to build self-managing networks that lower costs, improve resilience, and accelerate the launch of new digital services at scale.



BY KULJESH PURI

Telecom operators are managing some of the most complex systems ever built. Somewhere in an operator's Radio Access Network (RAN) environment, a billion data points are generated every single day. No team, however skilled, can manually correlate network

alarms across domains, predict capacity bottlenecks or optimise energy consumption in real time at that volume.

Operators are reducing costs by embedding AI into labour-intensive workflows. At the same time, AI-enabled

Telecom's next competitive advantage will come less from network expansion than from how intelligently infrastructure can predict, adapt and optimise itself.

The biggest transformation is commercial, not technical, as programmable networks create faster service innovation, lower costs and entirely new revenue models.

service monetisation and Network-as-a-Service models are helping them launch new offerings faster and unlock additional revenue streams.

The convergence of 5G, Open RAN, cloud-native architectures and edge computing has fundamentally changed what a network can be. These are no longer passive pipes; they are programmable, distributed and increasingly self-governing systems. What Agentic AI adds to this equation is decision-making at machine speed. This means autonomous agents that continuously monitor network conditions, reroute traffic, self-heal faults and optimise performance.

A McKinsey report indicates that operators deploying AI at scale across network operations have achieved 55–80% reductions in network operations centre costs, alongside 30–40% faster mean time to repair. These are not incremental improvements. They represent structural shifts in the telecom business.

FROM PILOTS TO PRODUCTION AT SCALE

The path to autonomous operations is rarely constrained by technology alone. More often, progress is slowed by legacy systems, integration complexity and organisational silos. Operators must still navigate fragmented telemetry, disconnected teams, and decades-old Operations Support Systems and Business Support Systems (OSS/BSS) environments, making end-to-end automation difficult to achieve.

Enabling closed-loop automation requires far more than deploying AI. It demands standardised data, seamless integration across optical, IP, RAN and core networks, and unified service management across regions. For instance, when a global network equipment provider encountered this challenge while supporting more than 60 telecom operators worldwide, the solution was not simply another AI layer.

It required building a logical transformation layer that standardised data across its IoT platform and scaled to support millions of connected devices. The lesson was clear: AI cannot compensate for fragmented foundations. Organisations must first redesign the



IN BRIEF

- Agentic AI enables networks to monitor, decide and act autonomously, reducing manual intervention across telecom operations.
- Autonomous networks cut costs, improve resilience and accelerate fault resolution through AI-driven decision-making.
- Legacy OSS/BSS, fragmented data and silos remain the biggest barriers to closed-loop network automation.
- Digital twins validate AI actions before deployment, reducing risk while building trust in autonomous operations.
- Autonomous operations rely on governed data, contextual intelligence and coordinated execution across AI and people.
- AI-powered autonomy helps operators launch services faster and create new revenue through intelligent networks.

Digital twins provide the confidence needed for autonomous operations by testing AI decisions before deployment, reducing operational risk at scale.

underlying architecture before automation can deliver its full potential.

Overcoming it required building a logical transformation layer that standardised data across their IoT platform, ultimately scaling it to millions of devices. The lesson was clear: you cannot overlay AI on fragmented foundations. You have to redesign the architecture beneath it.

Equally important is the human dimension. Engineers accustomed to deterministic systems are now being asked to trust AI-driven decisions in live environments. Building that trust requires a phased approach, starting with human-in-the-loop models, progressing to supervised autonomy and expanding autonomy only where outcomes are proven and predictable.

Achieving autonomous operations at scale requires more than advanced AI models. It depends on three capabilities: secure, governed data at the core; contextual intelligence that translates network signals into actionable insights; and coordinated execution across people, systems, and AI agents. Together, they enable operators to move from isolated AI deployments to truly intelligent, self-improving network operations.

WHEN NETWORKS START MAKING DECISIONS

The real shift occurs when operators stop prescribing every step and instead define the outcome. Whether the objective is maintaining service quality, optimising energy consumption or improving customer experience, agentic AI determines the most effective path to achieve it by coordinating actions across multiple network domains in real time.

The result: Fault management evolves from detecting issues to preventing them, and operations move from reactive troubleshooting to continuous, intelligent assurance.

The economics extend far beyond operational efficiency. Agentic AI offers a dual advantage of lower costs and faster growth. Operators have achieved cost savings by embedding AI into labour-intensive workflows, while AI-enabled service monetisation and

Network-as-a-Service models have reduced time-to-market. These are no longer future possibilities; they are outcomes delivered today by operators redesigning their businesses around autonomy.

BUILDING TRUST THROUGH DIGITAL TWINS

Digital twins are becoming the trust architecture that enables scaled autonomy. Before any agent changes a configuration, reroutes traffic or shifts capacity, it can simulate that action in the twin, assessing the likely outcome, checking for policy violations and flagging cascade risks before they touch production. Without this simulation layer, operators will rightly keep autonomy narrow and cautious. With it, Agentic AI can scale safely across domains, backed by continuous governance, regression testing and immutable audit trails.

Operators running AI-driven autonomous operations are saving costs by intelligently reassigning people away from routine fault handling. Others have cut the total cost of ownership by consolidating fragmented management environments into unified, AI-assured platforms. Time-to-market for new services has compressed not because teams worked harder, but because the network became programmable enough to deliver faster.

That is the real promise.

Agentic autonomy does not just make networks cheaper to run, it makes them more resilient, more responsive and more commercially productive. Operators who treat this as a cost-cutting exercise will capture a fraction of the value.

Those who redesign their service models, operations and monetisation strategy around intelligent networks will find themselves running a fundamentally different kind of business, one where the network is not just infrastructure, but a competitive asset that works around the clock on their behalf. 🧠

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Manufacturing evolves into one connected system

Industrial connectivity is unifying production, enterprise systems and data, enabling manufacturers to improve quality, responsiveness, and operational resilience.



BY YOGESH BANSAL

At the core of modern manufacturing lies a simple expectation: products must consistently deliver quality, reliability, superior experience, and uninterrupted availability. What began as a product-level benchmark has evolved into a system-wide imperative, requiring manufacturing operations to embed consistency, traceability, and agility at every stage of production.

This evolution has been shaped by the industry's early investments in enterprise systems such as SAP, which established the foundation for structured, data-driven operations. Building on this digital backbone,

manufacturers are now accelerating their transition to Industry 4.0, integrating connected technologies, automation, and real-time intelligence across the production ecosystem.

Instead of representing technology adoption in isolation, Industry 4.0 reflects a fundamental transformation in how manufacturing systems are designed and managed. By seamlessly connecting processes, data, and decision-making across operations, manufacturers can enhance product quality, improve operational agility, strengthen traceability, and scale production more efficiently.

Manufacturing excellence increasingly depends on connected operations that synchronise production, quality and enterprise systems across every stage.



IN BRIEF

- Connected operations unify production, enterprise systems and data to improve quality, traceability and operational agility.
- Real-time visibility helps manufacturers detect production issues early and make faster, data-driven decisions.
- Robotics, automation and digital twins improve consistency while enabling efficient production at an industrial scale.
- AI, IoT and MES convert live production data into operational insights that improve throughput and responsiveness.
- Digital manufacturing succeeds when technology, processes and workforce capability evolve together.
- Industry 4.0 creates connected operations that are more resilient, scalable and prepared for future manufacturing demands.

Across sectors including appliances, electricals, and industrial components, this integrated digital architecture is redefining manufacturing as a connected, intelligent, and future-ready ecosystem.

BUILDING QUALITY INTO OPERATIONS

A defining shift in modern manufacturing is the move from inspection-led quality control to design-led quality assurance. Rather than identifying defects at the end

of the production cycle, manufacturers are embedding quality directly into every stage of production through standardised processes, integrated quality management systems, and tighter operational controls.

This systemic approach enables consistency by design, ensuring products meet stringent quality standards from the outset while reducing variability, improving traceability, and enhancing production efficiency. As a result, quality becomes an inherent outcome of the manufacturing process rather than a post-production checkpoint.

Across high-precision and safety-critical sectors, this evolution has strengthened operational discipline, product reliability, and manufacturing resilience. Increasingly, manufacturers are aligning their investments with globally benchmarked quality frameworks, reinforcing their ability to scale efficiently while maintaining consistent standards across complex production environments.

REAL-TIME VISIBILITY ACROSS PLANTS

Traditional manufacturing systems relied heavily on periodic reporting, where operational data moved through multiple layers before reaching decision-makers. This created delays in identifying and responding to production deviations.

Connected manufacturing systems have significantly changed this model. Real-time visibility enabled through integrated analytics layers across the shop floor and enterprise systems has made operations more transparent, responsive, and data-driven.

This enables closed-loop decision-making, paperless workflows, and end-to-end traceability by linking process parameters, product specifications, and supplier inputs within a unified system.

As manufacturing complexity increases, such visibility is becoming essential for maintaining stability and efficiency across large-scale operations.

AUTOMATION FOR SCALE AND CONSISTENCY

Automation has evolved from a productivity enhancement tool to a core requirement for achieving scale, repeatability, and precision in manufacturing.

The competitive advantage of Industry 4.0 comes from integrating automation, IoT and enterprise data into one coordinated operational framework.

Modern production environments increasingly rely on robotics, autonomous material-handling systems, and integrated material-management infrastructure. These systems are designed to ensure process stability and consistency rather than serve as standalone technological upgrades.

When combined with digital simulation tools such as virtual factory modelling and design-for-assembly frameworks, automation enables process optimisation even before physical production begins. This reduces iteration cycles and improves planning accuracy during product development and scale-up phases.

FROM FACTORY DATA TO REAL-TIME ACTION

A defining characteristic of Industry 4.0 is the convergence of Artificial Intelligence (AI), the Internet of Things (IoT), and Manufacturing Execution Systems (MES) into a connected manufacturing ecosystem. Together, these technologies enable real-time operational intelligence by transforming live production data into actionable insights, enabling manufacturers to continuously monitor performance and respond proactively to deviations in quality, output, or efficiency.

This shift moves manufacturing beyond retrospective reporting to predictive, data-driven decision-making. As production environments become increasingly dynamic, digitally integrated planning and execution systems play a critical role in balancing demand fluctuations while maintaining operational consistency, quality, and throughput at scale.

The business impact of this transformation is becoming increasingly evident. According to Deloitte's Smart Manufacturing and Operations Survey, smart manufacturing initiatives have enabled organisations to achieve up to a 20% improvement in production output, a 20% increase in employee productivity, and a 15% gain in unlocked production capacity.

These outcomes reflect a broader industry shift: manufacturers are no longer adopting digital technologies solely to optimise efficiency, but to build resilient, intelligent, and future-ready operations capable of sustaining long-term growth.

PEOPLE DRIVING MANUFACTURING CHANGE

While technology is central to Industry 4.0, workforce capability remains a critical enabler of successful transformation. As manufacturing systems become more connected and data-driven, structured workforce development programs are increasingly being adopted across the industry. These typically include behavioural, technical, and leadership development to support adaptation to digital environments.

Safety has also become more integrated into manufacturing systems, with digital monitoring and reporting tools improving visibility and response mechanisms across operations. In parallel, productivity improvement methodologies such as the Maynard Operation Sequence Technique (MOST) are being widely applied to enhance workflow efficiency and standardisation.

Across the manufacturing sector, operations typically span large facility networks and workforce bases, with increasing emphasis on broader community-focused initiatives such as education, nutrition, and skill development. These reflect a growing alignment between industrial growth and social impact.

PREPARING FACTORIES FOR THE FUTURE

The convergence of technology, processes, and people drives the transformation of manufacturing through Industry 4.0. Automation, IoT, AI, and digital platforms are enabling higher efficiency, visibility, and responsiveness. Still, their true impact depends on how effectively they are embedded into day-to-day manufacturing operations.

Beyond technology adoption, the shift is structural—the emergence of manufacturing systems that are more connected, resilient, and adaptive.

Manufacturing systems that successfully integrate digital infrastructure with process discipline and workforce capability are better positioned to navigate complexity and sustain long-term competitiveness in an evolving industrial landscape. 🌱

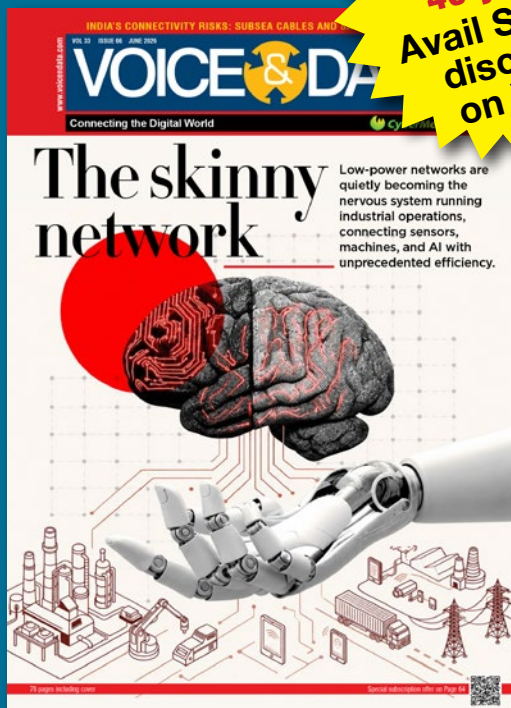
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India's digital future demands more than access: Karandikar

India's next digital phase will be defined by infrastructure that improves productivity and economic value while building trusted and resilient systems.



VOICE&DATA BUREAU

India must move beyond measuring digital progress by the number of people connected and focus instead on whether its infrastructure improves productivity, contributes to economic growth and supports trusted, intelligent and resilient systems, said Prof Abhay Karandikar, Member, NITI Aayog.

Delivering the keynote address at the CyberMedia Leadership & Awards in New Delhi on 3 July 2026, Karandikar said the parameters defining digital progress are changing after India's rapid expansion of telecom connectivity and digital public infrastructure.

"For many years, we have measured digital progress by how many people we could connect," he said, pointing to the country's rapid telecom growth. "But today, the true measure of digital infrastructure lies not in terms of how many people we can connect, but in what way it enables the productivity of all of us to increase and in what way it contributes to the entire economy."

He added that nations would increasingly be distinguished not merely by the size of their digital economies, but by the quality of the "trusted, intelligent and resilient systems" they can build.

Digital infrastructure must now be judged by how it raises productivity, contributes to the economy and enables trusted, intelligent and resilient systems.

The argument places India's digital infrastructure transition in a wider context. The country has moved through successive phases of IT expansion, telecom growth and digital public infrastructure. The next phase is being shaped by artificial intelligence (AI), quantum technologies, cyber-physical systems, biotechnology, and other frontier technologies, which will require stronger research capabilities, advanced computing infrastructure, and deeper collaboration between government, industry, and academia.

FROM CONNECTIVITY EXPANSION TO INTELLIGENT SYSTEMS

India's telecom revolution created the connectivity foundation for a large digital economy, while digital public infrastructure enabled services to scale across a vast population. Karandikar argued that the next challenge is qualitatively different.

The focus must now move towards what the infrastructure enables. AI, cloud and other emerging technologies will increasingly depend on systems that are not only scalable but also intelligent, secure and resilient.

This transition also raises a larger strategic question for India. While the country has demonstrated its ability to deploy technology at scale, its next phase will depend on its ability to develop original technologies and build the research ecosystem required to sustain them.

Karandikar traced the progression from the IT and telecom revolutions to digital public infrastructure and the emerging wave of AI, quantum technologies, biomanufacturing and biotechnology. Each new wave, he suggested, increases the importance of investment in frontier science, engineering and technology.

R&D INVESTMENT REMAINS A STRUCTURAL GAP

A major constraint, however, is India's relatively low investment in research and development.

Karandikar said the country's gross expenditure on R&D as a percentage of GDP continues to remain much lower than that of most developed economies. Equally significant is the structure of that investment.

Only about 35% of India's total R&D expenditure comes from the private sector, while 65–70% is contributed by the government and public sector, he said. In developed economies, the pattern is broadly reversed, with the private sector accounting for 70–80% of R&D spending.

Barring a few areas such as pharmaceuticals and life sciences, private investment in cutting-edge research remains limited.

The imbalance is particularly significant as digital infrastructure expands beyond traditional networks into AI compute, advanced semiconductors, quantum systems and other technology-intensive areas where sustained research investment and long development cycles are critical.

Karandikar said the government has sought to strengthen the research ecosystem through the Anusandhan National Research Foundation and several mission-mode initiatives, including the Rs 6,000-crore National Quantum Mission, the National Mission on Interdisciplinary Cyber-Physical Systems, and the IndiaAI Mission.

He had been associated with operationalising the Anusandhan National Research Foundation, the National Quantum Mission and the Rs 1 lakh crore Research, Development and Innovation (RDI) Fund during his tenure as Secretary to the Government of India in the Ministry of Science and Technology.

RDI FUND TO DRIVE PRIVATE-SECTOR INNOVATION

The Rs 1 lakh crore RDI Fund is intended to address another major gap in India's technology ecosystem: the shortage of patient capital for deep-tech and technology-led ventures.

India now has close to two lakh startups registered with the Department for Promotion of Industry and Internal Trade, but Karandikar noted that deep-tech ventures continue to attract less investment than required.

The focus must shift from connectivity scale to what infrastructure enables, as AI, cloud, and emerging technologies place new demands on digital systems.

Investors often remain reluctant to back technologies with long gestation periods, higher risks and uncertain timelines for returns. This leaves a funding gap between early research and the development of commercially competitive technologies. The RDI Fund is intended to provide the initial catalyst for significantly larger private-sector investment.

Karandikar outlined an ambitious long-term benchmark for the initiative. If the government's Rs 1 lakh crore investment can catalyse Rs 10 lakh crore from the private sector over the next decade and help create five to ten globally competitive companies in cutting-edge R&D sectors, the fund would have achieved its objective, he said.

The larger goal is not for the government to replace private investment, but to use public capital to reduce early-stage risk and draw significantly greater industry funding into frontier technologies.

DEEP TECH NEEDS PATIENT CAPITAL AND YOUNG TALENT

Karandikar linked the investment challenge to India's demographic opportunity.

The country has a large pool of young talent across science, technology, engineering and mathematics. But that advantage cannot be taken for granted, he cautioned.

Government, industry and academia must collectively create the conditions in which young researchers and entrepreneurs can pursue difficult technology problems. Without sustained support, the demographic dividend could be missed.

This is particularly relevant for deep-tech innovation, where companies often require years of research before technologies can reach commercial scale.

The combination of patient capital, enabling policies and a large technical talent base could give India an opportunity to build globally competitive companies in emerging sectors, he said.

INDIA MUST CREATE DISRUPTION, NOT CHASE IT

Turning to AI, Karandikar cautioned against viewing technological leadership only through the scale of investments already made by other countries.

The rapid evolution of AI since the emergence of ChatGPT has raised concerns that India has fallen behind countries investing billions of dollars in large-scale AI infrastructure. Karandikar argued that technological disruption cannot be predicted and that trying to replicate what existing leaders have already built will inevitably leave followers behind.

"As an innovation ecosystem, as a technology ecosystem, we should be focusing on creating disruption based on innovations in science and engineering and not really chasing what has been achieved by other disruptors," he said.

The next breakthrough in AI may not necessarily follow the current trajectory. India's opportunity, therefore, lies in creating the conditions for original innovation rather than limiting its strategy to catching up with existing technology models.

He acknowledged that India has not invested billions of dollars at the scale of some countries in large AI hardware infrastructure. But innovation, he argued, could still shift the technology curve and create opportunities that cannot be anticipated solely from current investment patterns.

The challenge for industry is to create an enabling environment for young talent and to work with the government to ensure that the next major disruption emerges from India.

Karandikar was delivering the keynote at the CyberMedia Leadership & Awards, which brought together two of CyberMedia's flagship editorial award platforms, the 23rd Voice&Data Telecom Leadership Awards and the 33rd Dataquest ICT Awards. 🍷

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Prabhu Ram, Vice President, Industry Research Group, CMR, presents key technology and market trends shaping India's next phase of digital transformation.



Pradeep Gupta, Chairman and Managing Director, CyberMedia Group, welcomes industry leaders, setting the tone for an evening celebrating digital leadership.

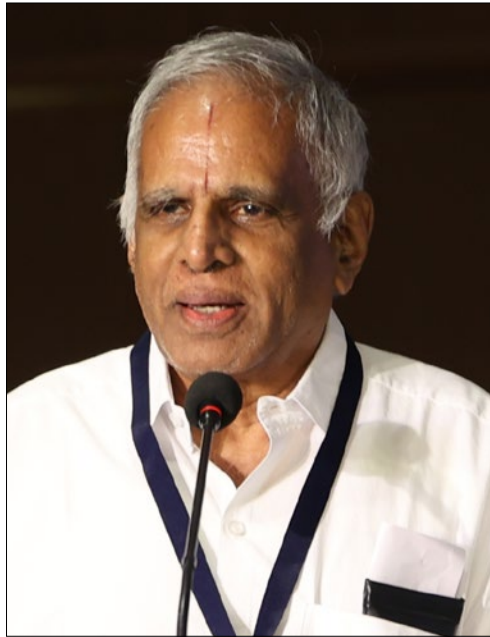
Leadership Panel Discussion – Building India's Digital Future (L to R): Lakshmi Narayanan, Co-Founder, Cognizant and Chancellor, Krea University; Pramod Bhasin, Chairman, ICRIER and Founder, Genpact; Sajeev Aga, Former Managing Director, Idea Cellular; Dr Vivek Raghavan, Co-Founder, Sarvam AI; and Pradeep Gupta.





Industry Address

Hemant Tiwari of Hitachi Vantara discusses the role of resilient digital infrastructure in enabling India's AI-driven future.



Jury Chair Special Address

Prof. S. Sadagopan reflects on innovation, leadership and the importance of recognising excellence across India's technology ecosystem.



Chief Guest Keynote

Prof. Abhay Karandikar, Member, NITI Aayog, outlines why India's digital future must be built on trusted, resilient and productive digital infrastructure.



Winners, jury members, speakers and industry leaders come together to celebrate excellence at the CyberMedia Awards Night 2026.



Shubhendu Parth, Editor, Voice&Data, thanks the speakers, partners, jury members and participants for making the evening a success.

Beyond AI models, HPE bets on digital infrastructure

The strategy places digital infrastructure at the centre of enterprise AI, making architecture, not AI models, the foundation of long-term competitive advantage.



BY SHUBHENDU PARTH

The first wave of enterprise artificial intelligence (AI) was defined by models. Organisations debated which large language model to deploy, how many GPUs they needed, and whether generative AI would deliver meaningful business value. At HPE Discover 2026 in Las Vegas, however, it became clear that the conversation has entered a new phase. The competitive advantage is no longer determined solely by AI models, but increasingly by the digital infrastructure required to deploy, govern and scale them.

Across three days of keynotes, technical briefings and executive interviews, HPE presented a consistent view of enterprise AI's next phase. Whether the discussion

focused on AI factories, networking, hybrid cloud, autonomous operations, security or quantum computing, every announcement reinforced the same message: AI can no longer be treated as another enterprise application. It demands a new digital infrastructure.

Antonio Neri, President and Chief Executive Officer, HPE, framed this transformation by describing AI as “one of the largest technology platform shifts in history”. He argued that enterprises are rapidly moving beyond experimentation towards embedding AI into everyday business operations. Success, he stressed, will depend not simply on deploying AI models but on designing the digital infrastructure that enables them.



“AI is only as strong as the data foundation beneath it. If that foundation is weak, no model, application or business outcome can deliver lasting value.”

ANTONIO NERI

President & CEO, HPE

“AI is only as strong as the data foundation beneath it. If the foundation is not robust, nothing else holds.”

Throughout the keynote, Neri returned to a consistent message. Unlike previous technology transitions, AI cannot simply be added to existing enterprise environments. Networking, compute, storage, cloud and security must operate as a unified architecture capable of supporting AI workloads across hybrid environments.

The philosophy underpinned virtually every major announcement that HPE made, positioning infrastructure, rather than models, as the defining battleground for enterprise AI.

FROM AI MODELS TO AI INFRASTRUCTURE

One of the strongest themes emerging from the mega event was that enterprise AI is becoming less of an algorithm challenge and more of an infrastructure challenge.

Across industries, organisations have spent the past two years experimenting with generative AI. Many have demonstrated promising proof-of-concept applications. The harder task is operationalising those systems across hybrid environments while maintaining governance, resilience, predictable costs and regulatory compliance.

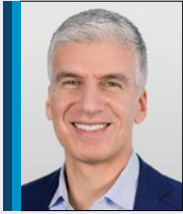
That changing reality explains why HPE devoted relatively little attention to foundation models themselves. Instead, discussions focused on AI factories, hybrid cloud, orchestration, networking and lifecycle management.

Dale Brown, Global Head of Growth, AI Solution Sales, HPE, said enterprises increasingly recognise that AI requires a fundamentally different operating model from traditional high-performance computing. “An AI factory is optimised not just for performance but also for agility. Traditional HPC environments were designed primarily for scientific workloads. Enterprise AI introduces very different operational requirements, particularly around distributed inference, governance and rapid deployment.”



IN BRIEF

- At Discover 2026, HPE repositioned digital infrastructure, rather than AI models, as the defining enabler of enterprise AI at scale.
- AI factories emerged as HPE's blueprint for moving enterprises from AI experimentation to governed, production-ready deployments.
- HPE's AI-native networking strategy combines automation with high-performance fabrics built for distributed AI workloads and inference.
- GreenLake Intelligence, Morpheus and OpsRamp illustrate HPE's push towards autonomous infrastructure operations across hybrid environments.
- HPE is extending Zero Trust to AI by securing autonomous agents, workloads and machine identities alongside users and devices.
- HPE's hybrid quantum strategy reinforces its vision of integrating AI, HPC, networking, and quantum into a single digital infrastructure architecture.



“The future of networking is not simply supporting AI workloads. Networks themselves will become intelligent platforms that operate and optimise with AI.”

RAMI RAHIM

EVP, President & General Manager, Networking, HPE

Brown believes organisations are also rethinking where AI should run. While public cloud accelerated early experimentation, concerns around sovereignty, regulation and operational control are driving many enterprises towards hybrid AI architectures.

“We are already seeing infrastructure move closer to where the data resides. Some workloads will remain in the cloud, but increasingly organisations want AI infrastructure under their own control because of sovereignty, regulation and security requirements.”

That customer behaviour aligns closely with Neri’s broader message. Architecting for AI is no longer about selecting the right model or GPU platform. It is about designing an integrated infrastructure where data, networking, cloud, and compute work together seamlessly, irrespective of where workloads ultimately reside.

NETWORKS BECOME AI’S FOUNDATION

If Neri established the strategic direction of HPE’s AI vision, Rami Rahim, Executive Vice President, President and General Manager, Networking, HPE, explained where that transformation begins.

“Architecting for AI starts with your network,” Neri had remarked earlier in the keynote. Rahim’s presentation demonstrated why.

He opened with the story of San Francisco’s Millennium Tower. The skyscraper itself was an engineering achievement, but its foundations were never designed to withstand the stresses eventually imposed upon them. Over time, the building began to sink and tilt.

The analogy neatly captured the challenge confronting enterprise infrastructure today. Networks originally designed for conventional business applications must now support AI workloads characterised by continuous inference, massive east-west traffic flows and increasingly autonomous operations.

“The network is no longer infrastructure sitting quietly in the background. It has become a strategic platform for how organisations operate, innovate and scale.”

Rahim summarised HPE’s networking strategy through two complementary ideas: AI for networks and networks for AI. The first applies AI to automate network operations through prediction, assurance and self-healing. The second recognises that AI workloads require a fundamentally different class of network designed for high-bandwidth, ultra-low-latency communication across distributed AI environments.

That philosophy was reflected in HPE’s networking announcements. The company expanded its self-driving networking capabilities across edge, campus, data centre and AI factory environments while accelerating the integration of Juniper Networks into its broader AI-native networking strategy. Rather than treating campus, branch, WAN, data centre and AI infrastructure as separate domains, HPE is increasingly positioning them as a unified networking fabric designed for enterprise AI.

AI is fundamentally changing how data moves across enterprise infrastructure. Traditional business applications generated predominantly north-south traffic between users and servers. AI environments behave very differently. Thousands of GPUs exchange data continuously during model training and inference, creating intensive east-west traffic that places unprecedented demands on bandwidth, latency and resilience.

“The AI data centre is really its own category,” David Hughes, Senior Vice President, SASE and Security, HPE Networking, said during an interaction on the sidelines of the event. “The bandwidth, latency and uptime requirements are extremely high. AI environments have a back-end fabric that interconnects GPUs, and a front-end fabric that connects the cluster to the outside world. It is fundamentally different from a traditional enterprise data centre.”



“Enterprise AI is no longer about isolated models. Success depends on AI factories that combine governance, agility and production-scale operations.”

DALE BROWN

Global Head – Growth, AI Solution Sales, HPE

Hughes’ observations reinforced Rahim’s broader point. AI is not simply increasing network traffic; it is redefining the role of the network itself.

That shift also explains why traditional approaches to network operations are becoming unsustainable. During a media interaction, Rahim revealed that more than 80% of network incidents are now either automatically remediated or diagnosed with sufficient accuracy for operators to act immediately.

“The old model of networking—static, manual and reactive—simply cannot keep up with the speed and complexity AI introduces. The future of networking will not just support AI. It will run on AI.”

For telecom operators, cloud providers and enterprise CIOs, the network is evolving beyond a transport layer into the intelligent foundation that connects, optimises and increasingly operates enterprise AI. That evolution sets the stage for the next challenge: managing AI infrastructure that is becoming too complex for traditional operational models.

AI OPERATIONS BECOME AUTONOMOUS

If networking forms the foundation of HPE’s AI strategy, autonomous operations represent its logical next step.

As AI workloads expand across public cloud, private cloud, edge locations and AI factories, enterprise infrastructure is becoming too complex to manage using traditional operational models. Modern environments now span virtual machines, containers, GPUs, AI models and conventional enterprise applications, each generating enormous volumes of operational telemetry. Manual monitoring and troubleshooting are no longer sufficient.

That challenge explains HPE’s focus on GreenLake Intelligence, Morpheus Software and OpsRamp. Rather than introducing another management platform, HPE

is building an AI-driven operational layer capable of observing, orchestrating and automating infrastructure across hybrid environments.

The objective also reflects Neri’s broader vision of architecting infrastructure around AI rather than simply adding AI capabilities to existing systems. As AI evolves from generating content to executing business tasks, the infrastructure supporting it must also become increasingly intelligent and autonomous.

Instead of reacting to failures after they occur, future infrastructure will be expected to predict capacity constraints, optimise workload placement, identify anomalies and automate routine operational tasks before they affect business services. No wonder the message from Discover 2026 was clear: in the AI era, operational intelligence will become as important as processing power.

SECURITY MOVES ONTO THE AI FABRIC

AI is also reshaping cybersecurity. Traditional Zero Trust frameworks were designed to authenticate users and devices before granting access to enterprise resources. AI introduces an entirely new category of digital identities—autonomous software agents capable of interacting with applications, databases and even other AI agents without direct human intervention.

“One of the biggest new attack surfaces being created this year is agentic AI,” Hughes observed. “People are giving these machines human identities. When you combine that with prompt injection and other techniques that can manipulate AI agents, it opens up a whole new set of security challenges.”

For Hughes, the principles of Zero Trust remain unchanged, but the scope must expand. Identity-aware networking and policy enforcement can no longer stop with users and devices. They must increasingly extend to workloads, machine identities and AI agents operating across enterprise environments.



“Agentic AI creates an entirely new attack surface, requiring organisations to extend trust, identity and security beyond people to intelligent software.”

DAVID HUGHES

SVP, SASE & Security, HPE Networking

This reinforces HPE's broader strategy of integrating networking and security more tightly. As AI systems become more autonomous, networks will increasingly authenticate, authorise and enforce trust across every interaction within AI environments rather than simply transporting data.

QUANTUM JOINS THE AI INFRASTRUCTURE

The same architectural thinking also shaped HPE's quantum strategy.

Rather than positioning quantum computing as a standalone technology or competing on qubit counts alone, HPE announced expanded collaborations with eight quantum technology companies to integrate quantum processors with high-performance computing, AI and networking. The objective is to create hybrid computing environments capable of addressing scientific and industrial workloads that neither classical nor quantum systems can solve efficiently on their own.

The announcement reflected a broader architectural principle running throughout the event. Just as enterprise AI depends on integrating networking, cloud, compute and data into a unified operating environment, practical quantum computing will depend on close integration with existing digital infrastructure rather than functioning as an isolated platform.

Kirk Bresniker, HPE Fellow, Vice President and Chief Architect of Hewlett Packard Labs, stressed that this systems-first approach is essential if quantum computing is to deliver meaningful enterprise value. “Start with the problem, not with the qubit. Build the system around the enterprise challenge first, then determine the quantum and classical resources needed.” (Read his interview on page xx)

Bresniker believes practical quantum computing will emerge through the integration of quantum processors, HPC, AI, networking and software, enabling specialised applications such as molecular simulation, materials

science and optimisation. Like HPE's AI strategy, the focus is on systems integration rather than individual technologies.

BUILDING THE ARCHITECTURE FOR ENTERPRISE AI

Viewed individually, HPE's announcements covered networking, hybrid cloud, autonomous operations, security and quantum computing. Collectively, however, they revealed a broader strategic shift.

The company is no longer presenting networking, compute, storage, cloud and security as independent technology portfolios. Instead, it is bringing them together into an integrated AI infrastructure architecture designed to support enterprise workloads from model development to inference, and ultimately to hybrid quantum computing.

For enterprises, telecom operators and cloud providers, the implications extend well beyond HPE's own portfolio. As AI moves from experimentation to production, competitive advantage will depend less on access to models than on the quality of the infrastructure supporting them. Networks will need to become AI-native. Operations will become increasingly autonomous. Security will extend beyond users to intelligent machines. And hybrid architectures will become the default operating model.

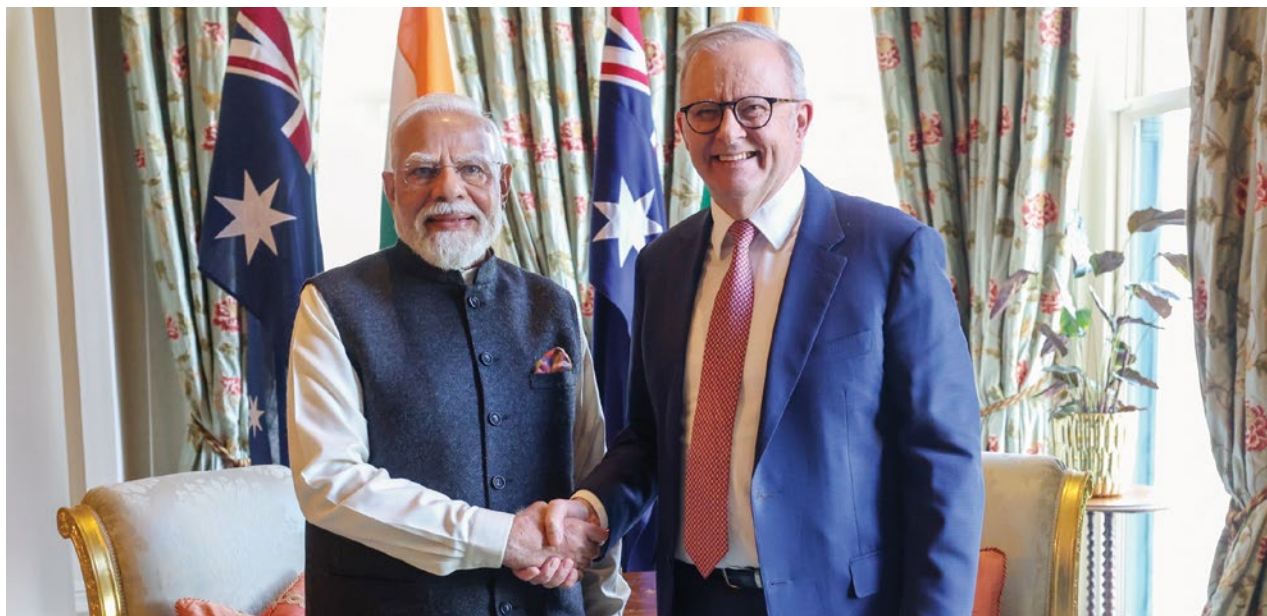
Interestingly, Neri articulated the overall message most succinctly in his closing remarks: “Architect deliberately.” The choices enterprises make today around networking, cloud, data and AI infrastructure, he argued, will determine how successfully they deploy AI tomorrow.

Walking away from HPE Discover 2026, the biggest takeaway was not a new server, a faster switch or another AI announcement. It was the growing recognition that the next phase of enterprise AI will be defined not just by advances in models, but by how intelligently organisations architect the digital infrastructure that connects, secures and orchestrates them. 🌟

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Australia-India PACTS targets resilient digital infrastructure

Trusted vendors, subsea cables, telecom research, and AI infrastructure move into a unified framework for deeper, safer Indo-Pacific technology cooperation.



BY SHUBHENDU PARTH

India and Australia have launched a new strategic framework to strengthen cooperation on trusted digital infrastructure, resilient technology supply chains, subsea cable security and telecommunications as the two countries seek to reduce emerging risks across the Indo-Pacific.

The Australia-India Partnership on Cyber, Critical Technologies and Supply Chains (PACTS) will bring digital infrastructure, critical technologies, cybersecurity and supply chain resilience under a unified bilateral framework. It replaces the 2020 Framework Arrangement on Cyber and Cyber-Enabled Critical Technology Cooperation.

The partnership was announced during Prime Minister Narendra Modi's visit to Australia for the Third Australia-India Annual Summit. The two countries said PACTS would raise the ambition of their relationship across critical technologies, supply chain diversification, cybersecurity, digital resilience and defence research.

For the digital infrastructure sector, the most significant elements include plans to develop a bilateral mechanism for trusted vendor frameworks, strengthen undersea cable resilience, deepen telecommunications research, improve cybersecurity cooperation and expand access to trusted digital infrastructure across the Indo-Pacific.

TRUSTED NETWORKS, CABLES MOVE TO THE CENTRE

Under the first of five cooperation pillars, India and Australia will work towards secure, resilient and trustworthy supply chains for their growing technology sectors. A proposed bilateral mechanism on trusted vendor frameworks could create a new channel for cooperation on the security and integrity of equipment and suppliers supporting critical networks.

The two countries will also strengthen cooperation on subsea cable infrastructure through the Quad Partnership for Cable Connectivity and Resilience. The initiative will

The partnership links network security with the supply chains that support it, spanning trusted vendors, semiconductors, critical minerals, and joint research efforts.



IN BRIEF

- PACTS unifies trusted digital infrastructure, critical technologies, cybersecurity and resilient supply chains in one bilateral framework.
- A trusted vendor mechanism could deepen cooperation on the security and integrity of equipment and suppliers supporting critical networks.
- India and Australia will strengthen subsea cable resilience through information sharing, coordination and exchanges of best practices.
- Telecom research and AI infrastructure gain strategic focus, including secure access to compute, models, systems and related resources.
- Cyber cooperation will extend from critical national infrastructure to telecom security, skills, regional capacity-building and investment.
- India and Australia plan to scale trusted digital solutions and affordable DPI across connectivity and other sectors in the Indo-Pacific.

focus on secure, trusted, reliable and resilient undersea connectivity across the Indo-Pacific, including greater information sharing, coordination and the exchange of best practices.

Significantly, the framework explicitly identifies threats and sabotage as risks to undersea cable infrastructure.

This gives physical network resilience a prominent place in the bilateral technology relationship at a time when subsea systems carry the bulk of international data traffic and have become critical to cloud services, digital platforms and economic activity.

The emphasis also extends beyond network infrastructure to the supply chains that underpin it. India and Australia plan research collaboration to protect semiconductor supply chains and facilitate co-development, while also pursuing more secure critical mineral supply chains through coordinated investment, regulatory alignment, recycling and recovery.

The wider summit framework similarly identified transparent, secure and resilient supply chains as central to economic security. It highlighted the need for closer collaboration across government agencies, companies and research institutions.

TELECOM, AI INFRASTRUCTURE GAIN FOCUS

Telecommunications has been identified as one of the priority critical technology areas under PACTS, alongside artificial intelligence, space technologies, biotechnology and advanced materials.

India and Australia plan to refocus and accelerate bilateral research, innovation and investment partnerships towards areas including telecommunications. Existing programmes could be realigned to fund projects expected to deliver tangible benefits to both countries and the broader Indo-Pacific.

The framework also brings the infrastructure underpinning AI into the bilateral agenda. The two countries intend to share approaches on securing access to compute, large language models, AI systems and related infrastructure, while supporting international standards and benchmarks for trustworthy and secure AI.

This broadens the partnership beyond AI applications to the infrastructure required to develop and deploy them. Access to compute capacity, secure data environments, and resilient connectivity is increasingly becoming a strategic concern as governments seek greater control over critical digital resources.

India's DPI experience and Australia's regional partnerships could combine to expand trusted, scalable digital ecosystems across the wider Indo-Pacific.

The two sides will also seek stronger links among governments, private companies, universities and research institutions. The aim is to increase two-way investment in emerging technologies and improve the translation of intellectual property and research into commercial products.

CYBER RESILIENCE EXTENDS ACROSS THE REGION

Cybersecurity forms another core component of the partnership, with both countries planning closer cooperation to protect critical national infrastructure and the wider digital domain.

India and Australia will work towards a consolidated bilateral mechanism across the cyber and ICT fields to streamline capacity-building and regional cooperation. They will also deepen dialogue on data governance and international cooperation on cybersecurity in telecommunications.

The framework provides for practical joint workshops involving government agencies and other stakeholders, increased trade and investment opportunities for cybersecurity and technology businesses, and a cyber technology skill incubator to strengthen critical capabilities.

Digital resilience will also become an area of joint engagement with other Indo-Pacific countries. India and Australia plan to promote trusted, scalable digital solutions and support exchanges aligned with India's Digital Public Infrastructure principles.

The two countries will seek to scale affordable DPI solutions across areas including connectivity, resilient critical infrastructure, digital transformation, healthcare, education, energy, skills and social protection. Joint capacity-building initiatives and pilot projects are expected to support locally adaptable digital ecosystems in partner countries.

The initiative could extend India's growing role in digital public infrastructure while combining it with Australia's regional partnerships and technology capabilities.

SPACE AND DEFENCE WIDEN TECH AGENDA

Beyond core digital infrastructure, PACTS opens additional areas for technology collaboration. India and Australia will explore joint commercial and government-led space initiatives as both countries expand their space sectors.

At the annual summit, the two leaders also called for stronger industry-to-industry space partnerships. Australia is supporting India's Gaganyaan human spaceflight programme, including through a temporary space-tracking terminal on the Cocos (Keeling) Islands, while the two sides are seeking deeper collaboration between the Indian Space Research Organisation (ISRO) and the Australian Space Agency.

Defence research forms the fifth pillar of PACTS. The framework seeks stronger institutional connections between Australia's Defence Science and Technology Group and India's Defence Research and Development Organisation (DRDO), as well as deeper links between defence innovation and start-up ecosystems.

Initial collaboration is expected to include maritime surveillance and advanced materials. The broader summit agenda also envisages a bilateral innovation framework that connects government, industry, academia, and research institutions to accelerate the development of advanced capabilities.

PACTS will be jointly overseen by India's Deputy National Security Advisor and the Australian Deputy Secretary of the International and Security Group in the Department of the Prime Minister and Cabinet.

An annual Senior Officials' Meeting will review progress, assess emerging cyber and critical technology risks and identify specific projects under each pillar.

By bringing together trusted vendors, subsea cables, telecommunications, AI infrastructure, cybersecurity, and digital public infrastructure under a single strategic framework, PACTS places the resilience of the digital ecosystem at the centre of the expanding India-Australia technology partnership. 🌐

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Nokia unveils commercial AI-native RAN

The platform embeds AI into radio networks to improve spectrum efficiency and support the transition towards 6G.

Nokia has introduced what it describes as the telecom industry's first commercial AI-native Radio Access Network (AI-RAN) platform, designed to integrate artificial intelligence directly into radio networks as operators prepare for AI-driven services and the transition towards 6G.

The platform combines Nokia's AI-native anyRAN software with NVIDIA's Aerial AI-RAN platform, shifting radio networks from hardware-centric architectures to software-defined, AI-enabled infrastructure.

Nokia said the platform has demonstrated more than 20% gains in spectral efficiency through AI-powered radio optimisation. It expects these gains to reach 50% by 2027

and exceed 100% by 2028, enabling operators to carry more traffic using existing spectrum assets rather than relying solely on additional hardware deployments.

The AI-RAN platform is available in three deployment models: a GPU-powered capacity plug-in for existing AirScale deployments, a standalone AI-RAN node, and cloud-native AI-RAN running on commercial off-the-shelf servers through ecosystem partners. It supports 4G, 5G and future 6G workloads while remaining compliant with Open RAN standards.

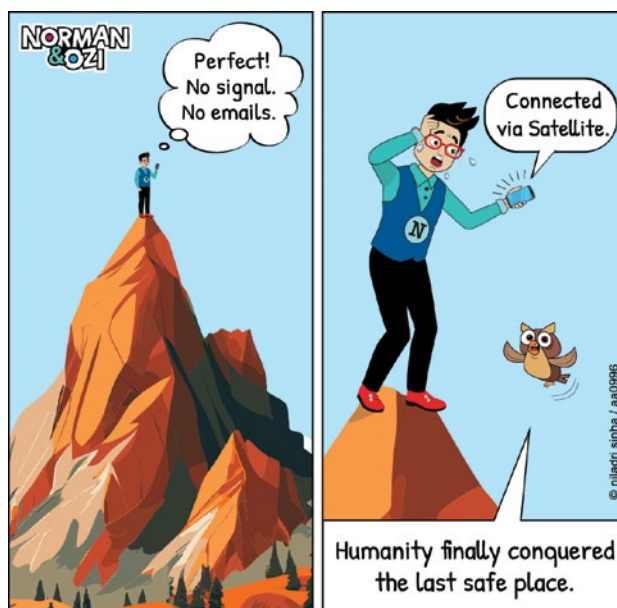
The platform integrates AI directly into the radio access network, enabling AI inference and radio workloads to run on a common accelerated computing infrastructure. It also supports software-based optimisation through AI models, subscription-based feature upgrades and programmable accelerated computing platforms.

Pilot deployments are scheduled to begin later this year, with commercial availability planned for 2027. The roadmap includes support for NVIDIA's accelerated computing platforms and AI-accelerated merchant silicon from Marvell. Nokia said the common software architecture enables operators to deploy AI-RAN across existing, standalone and cloud-native environments while supporting the evolution of current radio infrastructure.



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