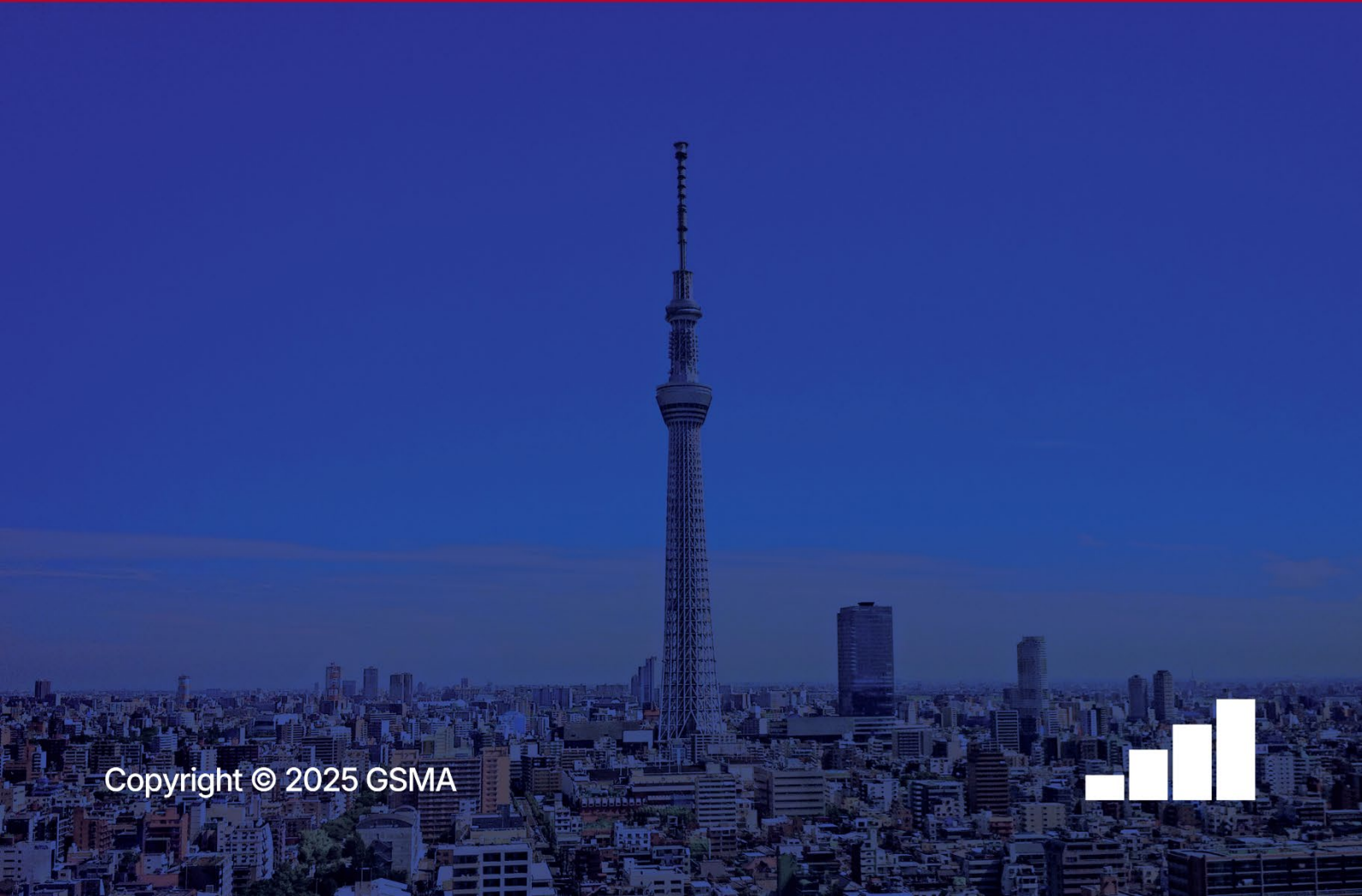


GSMA™

Japan's Digital Nation: Pathways for Transformation

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The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry, and society thrive.

Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

We invite you to find out more at www.gsma.com

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Japan's Digital Nation: Pathways for Transformation

1. Japan's Digital Transformation Strategy

As Japan advances the digitalisation of its public administration and corporate sectors, digital transformation (DX) has become a cornerstone of the nation's policy agenda. The urgency is underscored by the looming "digital cliff" in 2025, where companies risk losing up to ¥12 trillion (USD 80 billion) annually due to stalled or ineffective DX efforts¹. This is further exemplified by a ¥6.8 trillion (USD 45 billion) digital services deficit for 2024 as reported by the Ministry of Internal Affairs and Communications (MIC).² This "digital deficit" has catalysed a nationwide push for digital reform.

Recognising that the ICT sector contributes 10% to Japan's GDP³, the government has positioned DX as vital to sustaining global competitiveness and addressing demographic pressures, including an aging population and a shrinking workforce. Japan's DX strategy is deeply intertwined with the Society 5.0 vision—a human-centric model where digital technologies are harnessed to solve societal challenges. Within this framework, mobile telecommunications networks are viewed as critical infrastructure, enabling AI integration, IoT deployment, and the development of cyber-physical systems that seamlessly blend digital and physical environments.

To realise these ambitions, Japan has set bold targets under the Digital Infrastructure Development Plan for 2030, with the mobile industry serving as the backbone of DX. The plan prioritises the expansion of essential infrastructure—optical fibre, 5G, data centres, and submarine cables—to support emerging technologies such as Generative AI. With mobile data traffic expected to grow 4.8 times by 2030⁴, and Japan leading Asia Pacific in IoT connections, robust mobile networks are indispensable for comprehensive digitalisation.

The mobile industry's role is pivotal—not only in providing infrastructure and investment but also in enabling market access for digital innovation. Operators are evolving beyond connectivity providers to become DX enablers across industries, supporting initiatives like Society 5.0 and Beyond 5G.

¹ Tochibayashi, Naoko, and Naoko Kutty. "How Can Japan Navigate Digital Transformation Ahead of a '2025 Digital Cliff'?" World Economic Forum, April 25, 2024. <https://www.weforum.org/stories/2024/04/how-can-japan-navigate-digital-transformation-ahead-of-a-2025-digital-cliff/>.

² Ministry of Internal Affairs and Communications. 令和 7 年版 情報通信白書 (2025 ICT White Paper), July 2025. <https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r07/pdf/00zentai.pdf>. p. 27

³ Ibid, p. 52

⁴ GSMA. The Mobile Economy Asia Pacific 2024, 2024. <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/wp-content/uploads/2025/07/240724-Mobile-Economy-Asia-Pacific-2024-FINAL.pdf>. p.14

2. Digital Nation Index

Based on the concept of a digital nation—a scenario where digitalisation is central to nation-building through a coordinated effort to integrate digital technologies across all sectors of the economy—GSMA Intelligence has identified five key components essential for building a digital nation.

These components (Figure 1) are interconnected and must be developed in tandem to avoid costly gaps and delays in the implementation of digitalisation initiatives.

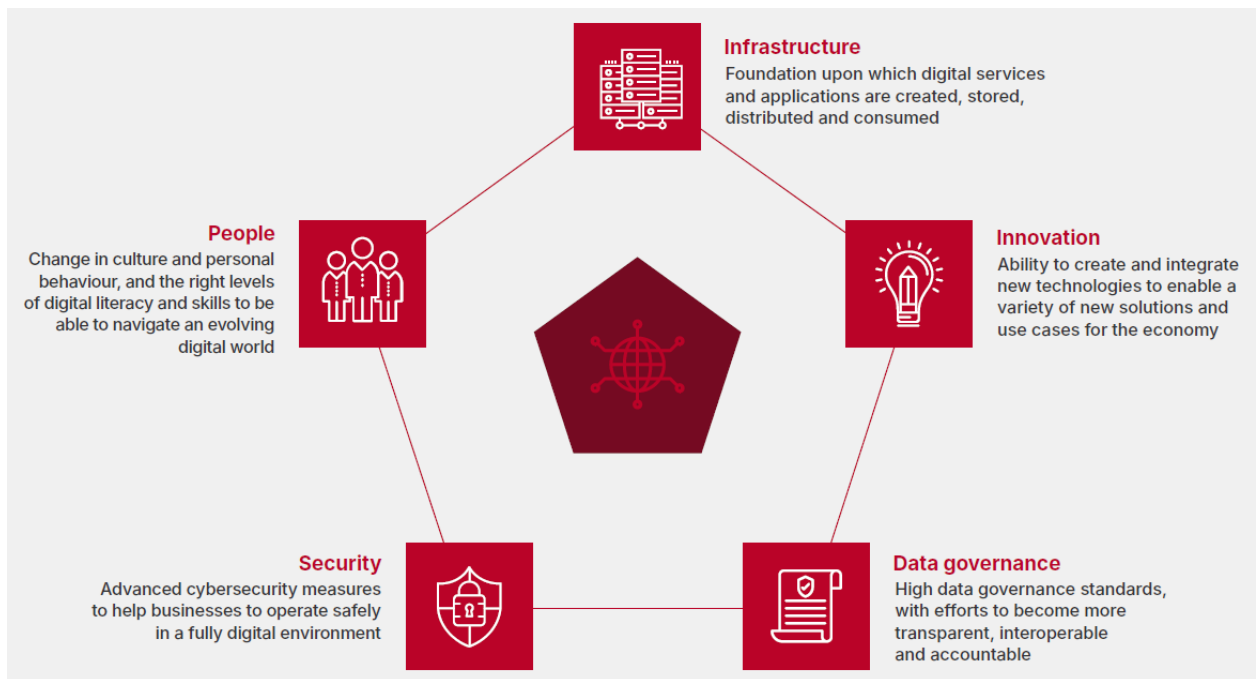


Figure 1. The five pillars of a digital nation

Source: GSMA Intelligence

Realising the aspirations of a digital nation depends on the development of five foundational pillars: infrastructure, innovation, data governance, security, and people. These pillars form the backbone of a digitally empowered society, ensuring that individuals and organisations can adopt and benefit from digital technologies effectively, securely, and sustainably.

To support this vision, GSMA Intelligence has created a Digital Nations Index to track the progress of 20 countries across Asia Pacific. The index evaluates each pillar using a combination of quantitative metrics and qualitative assessments, enabling stakeholders to understand where each country stands on its digital nation journey and identify areas for improvement.

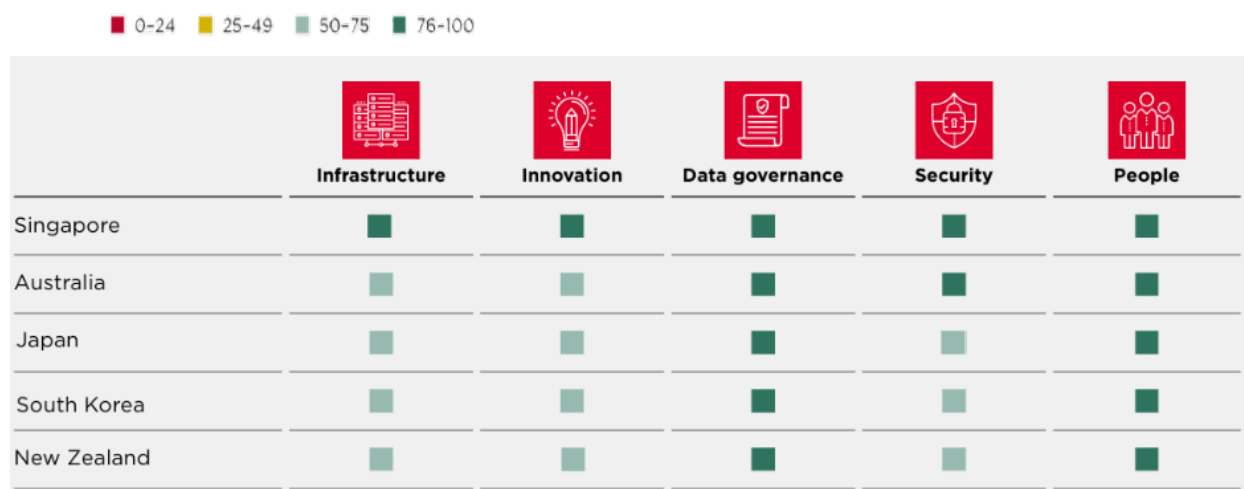
3. Digital Nations Score: 2025

The Digital Nations in Asia Pacific 2025 report will be released on 13 November. Ahead of its publication, we present the index results for Japan:

Japan achieved an Overall Score of 76, placing it third in the Leading Digital Nation group within the APAC region.

Figure 2

Digital Nations Index: component scores, 2025



4. Policy Considerations

The following assessment of Japan's IT capabilities outlines key strengths, areas for development, and pathways for advancement across five dimensions: infrastructure, innovation, data governance, security, and people.

Infrastructure

Japan's infrastructure score reflects a solid foundation built on continuous investment, but a gap remains with the top performer, Singapore.

- **Innovative Optical and Wireless Network (IOWN) Leadership:** Japan is leading core infrastructure development for the 6G era via initiatives such as the IOWN concept, which promises ultra-high capacity, ultra-low latency, and reduced power consumption.
- **AI and Edge Preparedness:** Carriers in the country are accelerating large-scale investments in AI data centres, essential for meeting the increasing data intensity and processing demands of AI applications.

To strengthen its global competitiveness, Japan should continue to provide regulatory and financial support for the commercialisation and international expansion of advanced technologies like IOWN. The government's Digital Infrastructure Development Plan 2030 exemplifies this commitment, with targeted investments in next-generation data centre infrastructure to ensure resilient and future-ready network capabilities.

Innovation

Innovation remains Japan's most significant structural challenge, underscoring difficulties in cultivating a dynamic startup ecosystem and translating world-class research into rapid, digitally native commercial outcomes.

- **Open RAN and Ecosystem Development:** Japan is helping shape global standards for Open RAN through initiatives such as fully virtualized networks and active participation in the O-RAN Alliance. These efforts are driving hardware-independent innovation and fostering a more open, competitive telecom ecosystem.
- **GSMA Open Gateway Engagement:** Major Japanese carriers are actively involved in the GSMA Open Gateway initiative, which exposes network capabilities as standardised APIs. This represents a strategic move to unlock new monetisation opportunities and stimulate innovation across industries.

To strengthen innovation outcomes, Japan should focus on streamlining digital R&D investment toward market-driven applications while encouraging technical collaboration through platforms like Open Gateway. Equally important is fostering a culture of digital risk-taking and supporting a vibrant startup ecosystem that bridges the gap between research excellence and commercial innovation.

Data Governance

Data governance is Japan's core strength, affirming its leadership in the Asia Pacific region for establishing robust legal and institutional frameworks that uphold data protection, accountability, and transparency.

- **Global Data Flow Leadership:** Japan plays a pivotal role in shaping international data norms, most notably through its advocacy of Data Free Flow with Trust (DFFT). This leadership is instrumental in building global confidence in Japan's data-driven enterprises and digital economy.

- **Balancing Utilisation and Protection:** The key challenge lies in adapting Japan's strong governance framework to keep pace with emerging technologies such as Generative AI. Policies that strike a clear balance—ensuring data protection while offering flexible, innovation-friendly guidelines—will be essential to unlocking Japan's full potential in the global AI economy.

Building on the momentum of the Hiroshima AI Process, the Japanese government has positioned itself to shape global standards for AI-related data governance. To maintain this leadership, Japan should proactively strengthen existing data protection systems against emerging threats, such as quantum computing, while continuing to provide clear, adaptable regulatory guidance for AI-based data utilisation. This will ensure a resilient and forward-looking Data Governance environment that supports innovation and trust.

Security

Japan's performance in the security pillar reflects the effectiveness of targeted government and carrier interventions aimed at strengthening defences against sophisticated cyber threats and the growing menace of scams.

- **Asia Pacific Cross-Sector Anti-Scam Taskforce (ACAST) Participation:** Japanese carriers are active participants in GSMA's ACAST, enhancing cross-border cooperation and intelligence sharing to combat mobile fraud and scams. This collaboration is critical as scams increasingly exploit digital channels, targeting consumers through phishing, spoofed calls, and fraudulent SMS—often with cross-jurisdictional complexity.
- **Cyber Resilience Mandate:** Recent network outages and cyber-attacks have underscored the importance of cyber resilience. In response, carriers are now subject to enhanced regulatory requirements to safeguard critical communications infrastructure and ensure service continuity during crises.

Japan's newly established Active Cyber Defence Law provides a strong foundation for a resilient cybersecurity ecosystem. Continued carrier engagement in ACAST, coupled with principled cyber resilience standards, will be key to mitigating threats. Additionally, policies that support inter-carrier roaming during disasters, invest in cybersecurity talent, and promote real-time threat intelligence sharing will further strengthen Japan's defences.

To address the menace of scams, Japan should maintain a proactive stance—combining consumer education, regulatory enforcement, and technological innovation to disrupt scam

operations. This includes leveraging AI for fraud detection, tightening identity verification protocols, and fostering regional cooperation to tackle cross-border scam networks.

People

Japan's high score in the people component of the digital nation framework reflects strong digital literacy and overall technical capability across the population. However, securing a digitally skilled workforce and bridging the digital divide, particularly in the context of an aging demographic, remain ongoing challenges.

- **Digital Inclusion Programs:** Government initiatives such as the Digital Opportunity Creation Support Program, alongside carrier-led efforts, are helping to close the digital gap. These programs provide on-site education and support, especially for elderly populations, ensuring broader access to digital services and tools.
- **Specialised Skills Gap:** Despite strong baseline capabilities, Japan faces a persistent shortage of advanced digital talent in areas such as AI, cloud computing, and data science, where demand far exceeds supply. This gap threatens to constrain innovation and competitiveness in emerging tech sectors.

Aligned with GSMA's Digital Inclusion principles, Japan should continue to support carrier-led education programs and invest strategically in developing high-level IT professionals. This includes expanding training pipelines, incentivising digital upskilling, and fostering cross-sector collaboration to meet the demands of AI development and next-generation networks. Strengthening the people pillar will be essential to unlocking Japan's full potential as a digitally empowered society.

5. Conclusion

Japan demonstrates unwavering leadership in data governance and continues to make meaningful progress in strengthening its cybersecurity posture. However, persistent stagnation in the innovation pillar remains the most significant structural impediment to Japan's ambition of advancing from its current position as a 'Leading Digital Nation'—ranked in the top three in Asia Pacific—to setting new standards for digital excellence across the region.

Key Policy Imperatives:

1. **Focused Innovation Strategy:** While network infrastructure innovation (i.e. IOWN, Open RAN) is strong, translating this into a commercial platform and service

innovation will prove to be a valuable opportunity. This could be supported by engaging venture capital and leveraging the secure environment provided by the data governance score to enable safe, flexible data utilisation.

2. **Completing Security Leadership:** Despite the score surge, investment is still encouraged. Supporting resilience standards for critical infrastructure and nurturing advanced cybersecurity talent development would allow Japan to become a world-class leader in cybersecurity.
3. **Strategic Human Capital:** In an aging society, strengthening and expanding carrier-led digital inclusion programs while concurrently strategically investing in the upskilling and training of specialised professionals in AI and cloud technology would assist in building a more inclusive and capable workforce.

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