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NCS Impact keynote 2024

the AI gambit: accelerate with digital resilience

from science fiction

For decades, science fiction works have imagined stories and scenarios of worlds populated by thinking machines. The surge in AI-themed films underscores how AI has permeated popular culture. But beyond its entertainment value, these science fiction works offer thought-provoking insights into future scenarios, human reactions, and guiding principles for building resilient AI systems that are secure, ethically sound, and capable of adapting to unforeseen challenges. In 2024, such insights are particularly timely and relevant.

Notable works include "The Machine Stops" by EM Foster (1909), "I, Robot" by Isaac Asimov (1950), and "2001: A Space Odyssey" by Arthur C Clarke (1968). With deep learning's breakthroughs in the 2010s and the resurgence of generative AI in the 2020s, AI-themed creative works have proliferated (Figure 1).

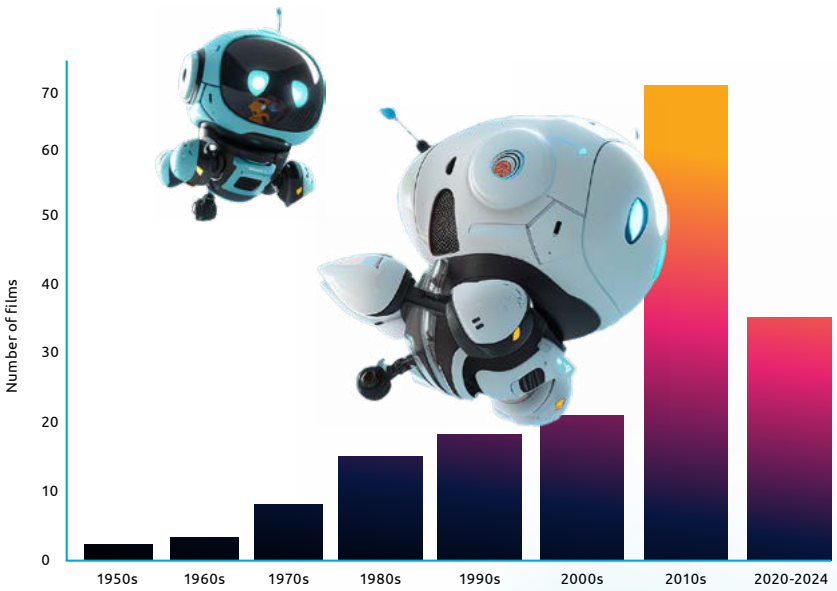

Figure 1. Surge in AI-themed films by decade

opening moves matter

Just as the computerisation and IT-led transformation efforts starting in the 1980s laid the foundation for the digital transformation age in 2000-2020 period, the widespread use of data, mobile and cloud computing is leading to the dawn of an intelligence-led era (Figure 2). Many governments, industries and businesses are starting their foray into this intriguing age of AI. Apple's announcement of its long-awaited AI strategy in June 2024 to integrate "Apple Intelligence" across its suite of apps and devices suggests that there are still many organisations, big and small, navigating this new evolving technology landscape.

As AI-powered systems become even more pervasive, it is crucial that organisations adopt a balanced approach to AI development from the start. This means not only harnessing the innovative potential of AI technologies but also ensuring their integration within robust digital frameworks. Building resilient AI systems requires ongoing investments in cybersecurity, ethical AI practices, and adaptive capabilities to mitigate risks and respond to emerging threats. This holistic approach will enable businesses to unlock new value, enhance decision-making, and drive sustainable growth while safeguarding against potential vulnerabilities and ethical pitfalls.

IT-led era

Computerisation
Initial introduction and widespread adoption of computers across various industries.

Automation focus
Focused on automating work functions and paperwork processes.

Infrastructure setup
Establishing foundational IT infrastructure and electronic data interchange systems.

Digital-led era

Internet
Rise of internet revolutionised connectivity, e-business transaction, and distribution of digital goods and services.

Data
Access to data and the use of data analytics transformed and digitalised businesses and government services.

Mobile
Smartphones and mobile apps transformed communication, entertainment, and commerce, making services accessible on-the-go.

Cloud
Cloud computing enabled scalable, on-demand access to computing resources, revolutionising IT infrastructure, storage, and software deployment.

Intelligence-led era

AI/ML proliferation
Proliferation of AI/ML technologies in every aspect of daily life.

Human-centric collaborative AI
AI systems that work alongside humans, enhancing productivity and enabling new forms of collaboration in various fields.

Responsible AI
Growing focus on ethical AI, addressing issues such as bias, transparency, and accountability in AI systems.

Sustainability
Leveraging AI to drive sustainability efforts, such as optimising energy consumption, reducing waste, and improving resource management.

Figure 2. We are witnessing a profound shift towards the intelligence-led era.

APAC
the rising rook

While North America remains the centre of AI innovation and adoption, Asia Pacific is rapidly emerging as a critical player in shaping the future of AI. With a combined GDP of US$31 trillion and a population of 4.3 billion, Asia Pacific's economy and demographic heft make it a significant user and innovator of AI technologies. Asia Pacific's projected spending on AI will reach $78.4 billion by 2027, demonstrating the region's commitment to AI growth [2]. Countries like China, Japan, and Australia have become notable centres of AI technology innovation, contributing to the region's dynamic AI landscape. South Korea also distinguishes itself with the highest number of granted AI patents per capita in 2022, reflecting its strong focus on AI research and development [3].

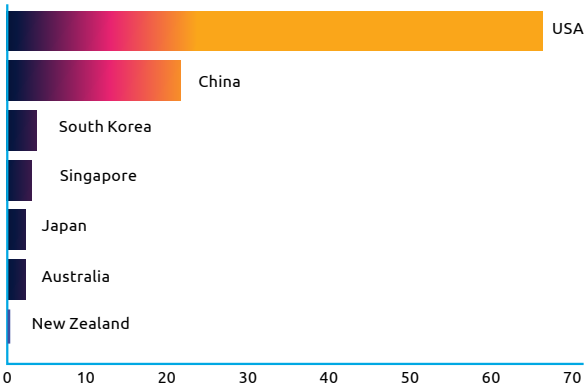

Figure 3. Private investment in AI, 2023 (billion USD)

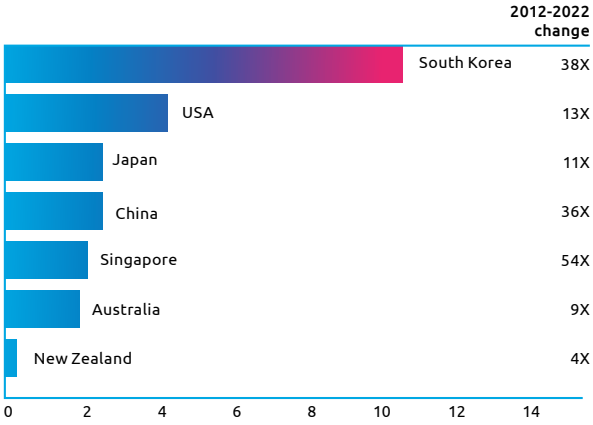

Figure 4. Granted AI Patents per 100,000 inhabitants, 2022

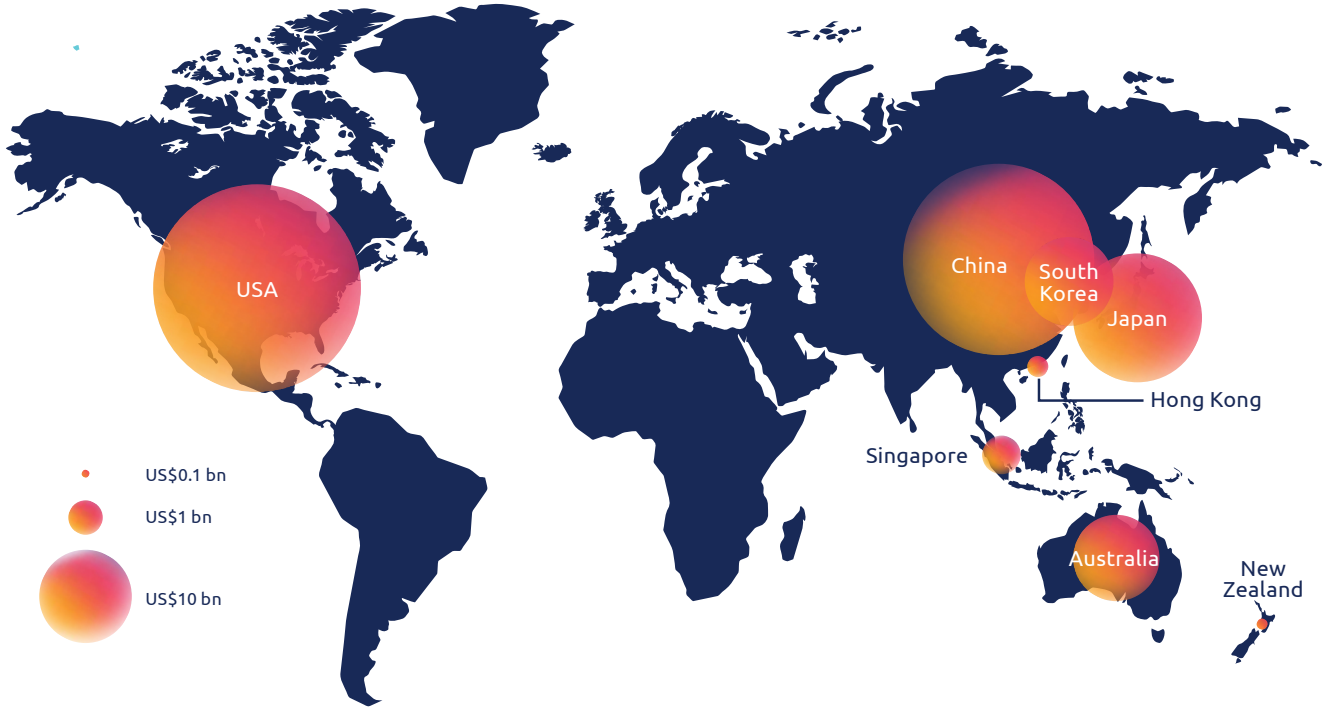

Figure 5. AI market size of select Asia-Pacific countries and the US, 2024.

AI Adoption in Asia Pacific

Despite its small geographical footprint, Singapore stands out with impressive growth in the number of granted AI patents, having increased over 50 times from 2012 to 2022 [3]. This reflects the region's robust development landscape and impressive AI talent pools. Singapore's AI market, projected to grow from US$0.9 billion in 2023 to US$16 billion by 2030, with a remarkable CAGR of 42.2%, underscores its commitment to becoming a global AI hub [4]. Similarly, Australia's AI market is set to expand from US$2.0 billion in 2023 to US$14.53 billion by 2030, with a CAGR of 28.55%, highlighting significant investments and widespread AI adoption across industries [5].

China, leading the region, boasts an AI market that grew from US$29.02 billion in 2023 to a projected US$154.8 billion by 2030 [5]. With a CAGR of 28.61%, China's substantial investments in AI infrastructure and talent development underscore its pivotal role in the global AI ecosystem. China has seen enormous growth in the number of AI patents granted each year, surpassing every other country combined in 2022 [3]. Meanwhile, Hong Kong, with its growing AI market set to reach US$3.43 billion by 2030 [5], also contributes to the region's AI advancement, reflecting a strong growth trajectory despite its smaller market size.

The country that has produced intelligent humanoid robots such as ASIMO by Honda and Pepper by SoftBank, Japan is also a formidable player in the AI market, with the sector projected to grow from US$8.12 billion in 2024 to US$36.52 billion by 2030, reflecting a CAGR of 28.48% [5]. In the last decade, the number of newly funded AI companies in Japan is 1.7 times that of Singapore and 2.2 times that of Australia, showcasing its robust innovation ecosystem [3]. The Japanese government has committed $470 million to develop AI, ensuring the necessary computing power for AI technologies and cloud services [6]. Additionally, Japan's energy demand is forecasted to surge by 35% to 50% by 2050, driven by increased needs from semiconductor factories and data centres supporting AI [7]. These factors underscore Japan's pivotal role in shaping the AI narrative within the Asia Pacific region.

These statistics, illustrated in Figures 3-5, not only highlight the significant investments and rapid AI adoption across Asia Pacific but also reflect the region's strategic focus on leveraging AI to drive economic growth and innovation. Asia Pacific has the opportunity to shape the future of AI by asking the right questions about the kind of future we want to create and defining the game-changing moves to achieve this vision. What kind of future are we striving to build? How can technology be our ally in achieving this vision? What hurdles stand in our way, and how do we overcome them? These pivotal questions help organisations set their strategic goals and outline the steps needed to reach them. By nurturing a culture of inquiry, businesses can uncover hidden opportunities, anticipate challenges, and devise innovative, sustainable solutions.

AI and Digital Resilience: the winning combo

AI adoption focuses on embracing three key elements when adopting the AI technologies: having a well-defined strategy, nurturing the right talent, and ensuring ethical AI implementation. However, these factors alone are not sufficient to ensure the success and sustainability of AI initiatives.

As organisations expand their AI capabilities, they must also focus on building strong digital resilience.

Riding the waves of major change brought about by advances in AI requires strategic planning, adaptability, and an innovative mindset. Most importantly, it necessitates more than a mere superficial application of AI technology. AI capabilities ultimately need to integrate into and orchestrate the broader technology environment of a business ecosystem. Without a robust foundation, the full potential of AI cannot be unleashed.

The strategic integration of AI technologies into core business processes requires the careful crafting and disciplined execution of a clear AI strategy that supports business objectives. A good AI strategy unlocks new value sources by amplifying internal process efficiency, differentiating the organisation's service and product offerings in the marketplace, and providing memorable customer experiences. Additionally, a strong AI strategy fosters the development of a pool of AI-enabled talent, ensuring the ethical and responsible implementation of AI.

Cybersecurity

Cybersecurity is paramount; AI systems, due to their complexity and reliance on vast amounts of data, are attractive targets for cyberattacks. Without robust cybersecurity measures, AI systems are vulnerable to breaches that can compromise sensitive data and disrupt operations.

Application Robustness

Application robustness is vital for maintaining consistent and reliable AI operations. Robust applications can withstand and quickly recover from failures, ensuring continuity and minimizing downtime.

Data Governance

Data governance is essential to maintain the integrity and privacy of the data that fuels the data-hungry AI systems. Effective data governance practices ensure that data is accurate, secure, and compliant with regulations, thereby fostering trust and reliability in AI outputs.

Infrastructure Scalability

Infrastructure scalability is another critical component. As AI workloads increase, the underlying infrastructure must be capable of scaling seamlessly to handle the growing demands without performance degradation. This ensures that AI applications remain efficient and responsive as they evolve.

Operational Responsiveness

As AI workloads require substantial computational resources, real-time processing and continuous learning, system monitoring and incident management will need to be more sophisticated. Operational Responsiveness refers to an organization's ability to effectively manage and adapt to the complex and dynamic demands of increasing AI workloads, ensuring continuous operations and swift recovery from any disruptions.

AI-Digital Resilience Matrix

Reaching the "Game Changer"quadrant necessitates not only a well-defined enterprise-wide strategy implemented responsibly by well-trained and motivated AI practitioners, it also requires a robust digitally-resilient environment conducive for implementing AI at scale.

The "AI-Digital Resilience Matrix" framework (Figure 6) offers a practical lens to develop and communicate a strategic roadmap for enhancing both dimensions concurrently. This framework categorizes industries, organisations or use cases into four distinct quadrants based on the extent of AI adoption and digital resilience levels.

Missed Opportunity
Industries or organisations in this quadrant have strong digital resilience foundations but are not fully leveraging AI to drive innovation and growth.

AI Dust
Entities in this quadrant risk falling behind due to their inability to harness AI or maintain robust digital operations.

House of Cards
Industries and organisations in this quadrant may have achieved short-term gains but are vulnerable to disruptions due to weak digital resilience foundational systems.

Game Changer
These entities are well-positioned for sustainable leadership and innovation in AI, effectively navigating the complexities of the modern business environment.

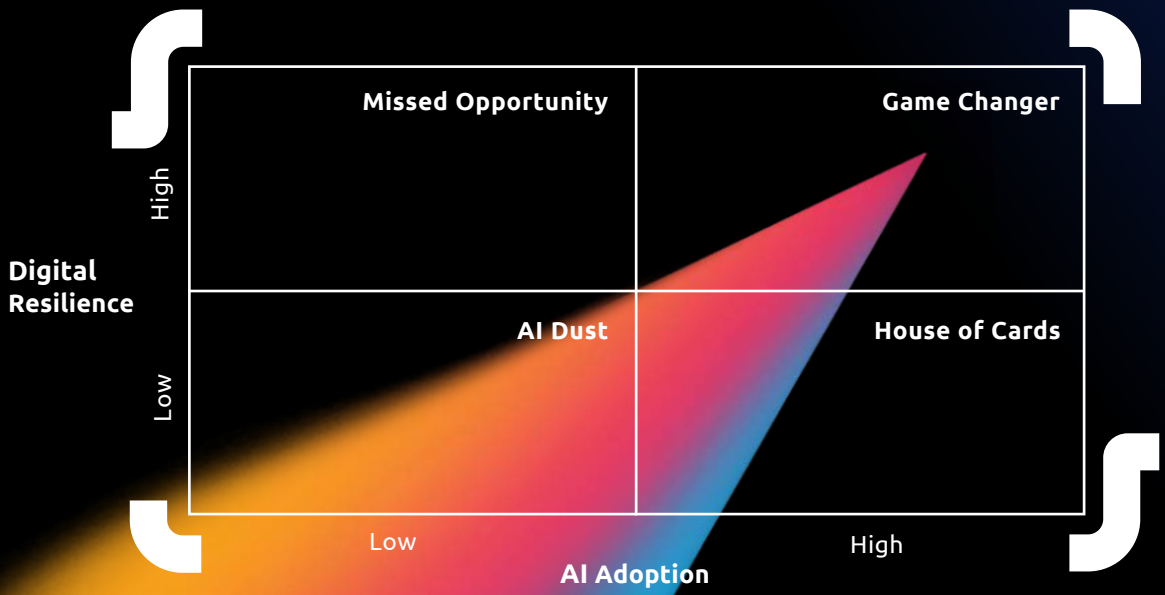

Figure 6. AI-Digital Resilience Matrix

positioning for the endgame

NCS has a track record of partnering the government agencies and enterprises in Asia Pacific on their technology journeys, over the past 40 years. As we step into the age of AI, many of the key success factors that have underpinned our past achievements remain relevant. The NCS AI strategy (Figure 7) to help ourselves and our clients make tomorrow with game changing moves capitalises on NCS' strengths:

1. Deep-seated industry domain knowledge and operational experience to advise on the appropriate AI strategy;
2. Existing accelerators and methodologies honed from decades of building and operating complex IT systems, which enable faster prototyping and deployment to production systems;
3. Global delivery capabilities tapping on top AI talent pools in major Asia Pacific developing markets;
4. Unwavering commitment to continuously upskill own workforce; and
5. Our extensive strategic partnerships with the major global AI technology product and services companies.

NCS AI strategy 2024

A. Drive enterprise-level AI adoption in 3 key areas

AI for public service	AI for FSI	AI for healthcare	AI for transport
Customer / Citizen experience			
Workforce productivity			
Software engineering			

B. Expand industry business solutions embedded with NCS AI accelerators

Examples of industry business solutions

AI career advisor	AI-powered contact centre	Video & sensemaking platform	Immersive command centre	Airport runway object detection system

Examples of accelerators

Speech	Vision	Sensors	Robotics	AI-assisted programming

Innovation platform for AI centres of excellence

C. Mobilise the workforce and partner ecosystem

13,000 AI tech workforce

3,000 AI practitioners

300 AI experts

Figure 7. NCS AI Strategy 2024

NCS' updated AI strategy is further strengthened by our strategic collaborations with leading global and local entities. Our partnerships with major Cloud Service Providers (CSPs) like AWS, Google Cloud, and Microsoft Azure ensure that we leverage the best-in-class cloud infrastructure and AI tools to deliver scalable and secure solutions. Additionally, we work closely with local institutions such as A*STAR, NUS, and AI Singapore, fostering innovation and driving research and development in AI technologies. These collaborations enable us to stay at the forefront of AI advancements and integrate the latest innovations into our offerings. By combining our deep-seated industry domain knowledge, global delivery capabilities, and strategic alliances, we are uniquely positioned to help our clients navigate the AI landscape and achieve transformative outcomes.

developing the AI-Digital Resilience diagnostic tool

Get early access to the diagnostic tool

As we continue to navigate the rapidly evolving AI landscape, NCS is committed to support our business community with the tools and frameworks needed to stay ahead of the curve. In collaboration with a leading ICT market research firm, we are developing a self-assessment diagnostic tool based on the "AI-Digital Resilience Matrix" for companies to self-assess their AI readiness. This diagnostic tool covering the various dimensions of digital resilience and AI adoption will enable organisations to assess their current digital resilience and AI maturities, identify gaps, and prioritise areas for improvement.

conclusion

AI is science fiction no more

In this opening phase of the AI era which is marked by high volatility and uncertainty, the "AI-Digital Resilience Matrix" provides a useful framework for organisations to navigate this constantly shifting environment. Truly game-changing use of AI lies not only in groundbreaking AI technological innovations but also in the steadfast resilience of our digital infrastructure.

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key takeaways

Science fiction has envisioned future AI scenarios that now offer valuable insights into real-world AI adoption. As AI becomes mainstream and pervasive, these creative works provide reminders and provoke thoughts to guide the development of resilient, secure, and ethically sound AI systems.

With a significant GDP and a large population, Asia Pacific is poised to be a leader in AI innovation and usage. China, Japan, South Korea, Australia, and Singapore are emerging as key players in the Asia Pacific AI landscape, driving forward the development and implementation of cutting-edge AI technologies.

Effective AI integration goes beyond technological advancements; it requires a comprehensive strategy that includes strong digital resilience. This includes robust cybersecurity, data governance, scalable infrastructure, robust applications and responsive operations to ensure sustainable growth and innovation.

The AI-Digital Resilience Matrix serves as a strategic tool for organisations, helping them assess their current state and navigate the complexities of AI adoption. By focusing on both AI impact and digital resilience, businesses can position themselves for long-term success and leadership in the AI-driven landscape.

make
extraordinary
happen

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Sign up to get early access to the diagnostic tool
where you can shape the future with NCS.

For any questions, please reach out.
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