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AI Infrastructure for AI Adoption and Economic Development

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Agenda:

- A brief introduction
- What constitutes AI infrastructure
- Benefits of AI infrastructure
- Cloud based Adoption of AI technologies
- Examples across the region
- Key recommendations

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Making AI helpful for everyone

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AI Infrastructure or AI Stack?

- The hardware and software that supports artificial intelligence (AI) and machine learning (ML) applications.
- Includes - specialised processors like GPUs (Graphics Processing Units) or TPUs (Tensor Processing Units), high speed networking solutions, scalable storage systems, and advanced software tools
- Designed to handle the large datasets and computational demands of AI applications,
- Critical backbone for efficient data processing, model training and deployment

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Benefits of AI Infrastructure

- Increased scalability and flexibility (Cloud based…)
- Greater performance and speed (High Performance Computing (HPCs)…)
- More collaboration (developers and engineers…)
- Better Compliance (data privacy - data management and processing…)
- Reduced costs (optimization of resources, better ROI…)
- Exploitation of generative AI capabilities (increased productivity…)

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Cloud based adoption of AI technologies

- **With the right cloud first policy framework in place, AI can help accelerate the transformation of a country's economy, society and public services**

- **If fully harnessed, AI has the potential to substantially boost a country's economy**
- **AI can accelerate positive social transformation and social inclusion in a country**
- **Opportunity for governments in emerging economies to leverage AI for public services**

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Three core components

1. **Investing in foundational infrastructure for AI development**
    a. Democratizing AI
    b. Fostering innovation and development in various sectors
2. **Improving AI skills through training**
    a. Upskilling the youth and workers - AI essentials online,
    b. Training government officials in technical knowledge to leverage AI for governance solutions
3. **Developing innovative AI services and use cases** - partnering with Public & Pvt. sector stakeholders to foster AI innovation in essential sectors and build a robust ecosystem

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Which AI Use Cases Will Truly Transform Economy & Society?

AI is delivering significant benefits across the economy and society. As an enabling capability, AI is optimising and augmenting many aspects of our lives, including by:

- *supporting diagnosis and early detection of health conditions in our hospitals*
- *expediting travellers at airports through the use of SmartGates*
- *supporting personalised learning and teaching in remote areas.*

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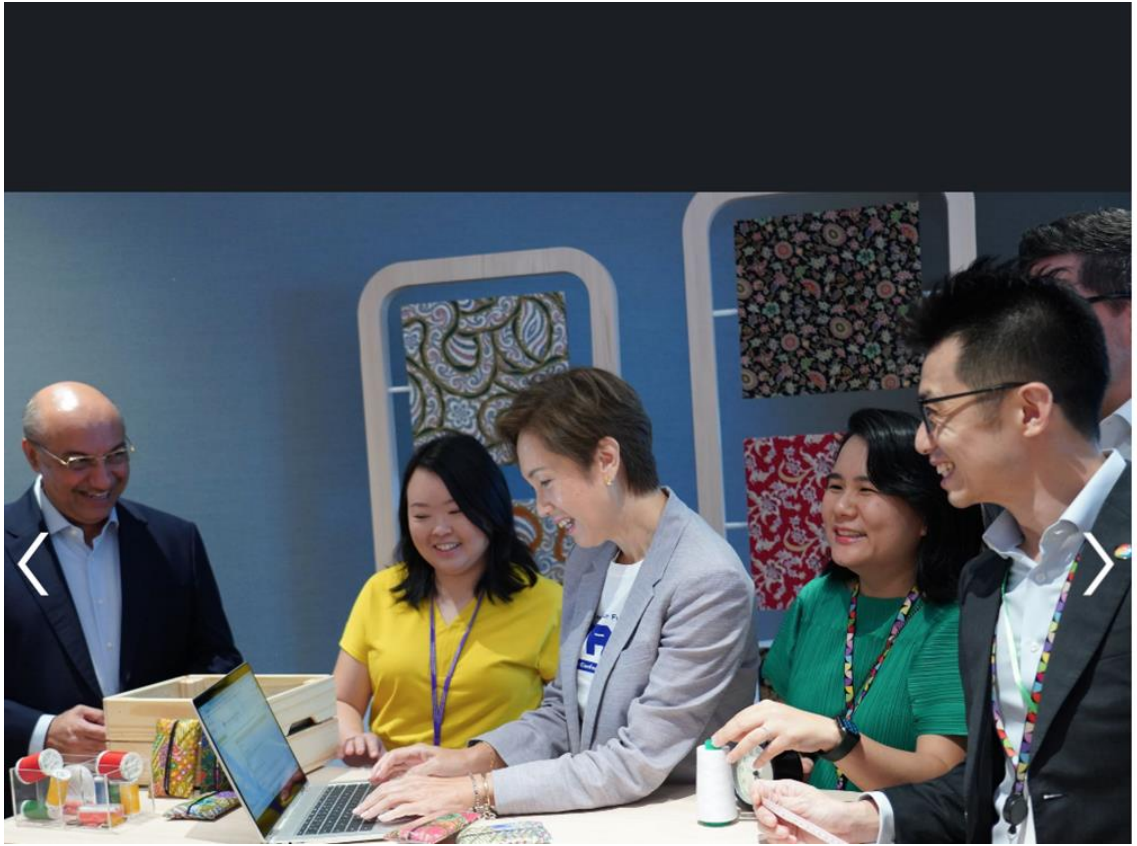
Which AI Use Cases Will Truly Transform Economy & Society?



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Minister for Communications and Information at ...
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IMPROVING LIVES AND LIVELIHOODS THROUGH AI

In the past few months, we've seen how the potential of AI can fundamentally transform our lives.

It can monitor bank transactions for fraud detection, provide targeted career guidance for workers, and even help school counsellors produce comprehensive case notes so that they can better support mental wellness of students.

With these expanding possibilities, the opportunities to harness AI to deliver public good outcomes – at speed and scale – have multiplied accordingly.

...see more

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Key AI Governance and Regulatory Issues

Risk Management

- Proportionate, risk-based framework
- Should reflect complexity of AI ecosystem
- Ensure parity of expectations between AI & non-AI systems

Accountability

- Transparency is not an end in itself, but a means to ensure accountability
- Provide clarity on what transparency means (eg, user disclosure vs model explainability)

Privacy and Fairness

- Ensure protection of personal data, with reasonable exceptions (eg, anonymization)
- Need for fairness benchmarks and representative data
- Tradeoffs between privacy and fairness

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What are Policymakers' Top Concerns/Questions about AI?

Data Governance

- Use of personal data for AI training
- Copyright infringement with AI input & output
- Control of data quality for AI training
- Data confidentiality

Misinformation/Bias

- Mis/Disinformation & deepfakes
- Amplification of existing biases

Safety & Security

- Safety evaluation (eg, red-teaming)
- Vulnerability & incident reporting
- Independent assurance & audit
- Data poisoning
- Robustness & resilience

Risk Management

- Risk-based approach
- Who should regulate AI
- Concentration risk
- Key players in ecosystem
- Allocation of responsibilities
- Transparency/Explainability
- Human involvement

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Lifecycle of a Typical AI Model

1

AI Infrastructure
Set up IT infrastructure such as servers & processing chips (eg, GPUs)

2

Model Development
Develop algorithms for foundation models (eg, large language models, regression models)

3

Model Pre-training
Training of foundation models either through unsupervised or supervised learning

4

Model Fine-tuning
Adapt pre-trained foundation models to custom applications using proprietary data

5

Model Deployment
Integrate AI model as-is into business processes & applications

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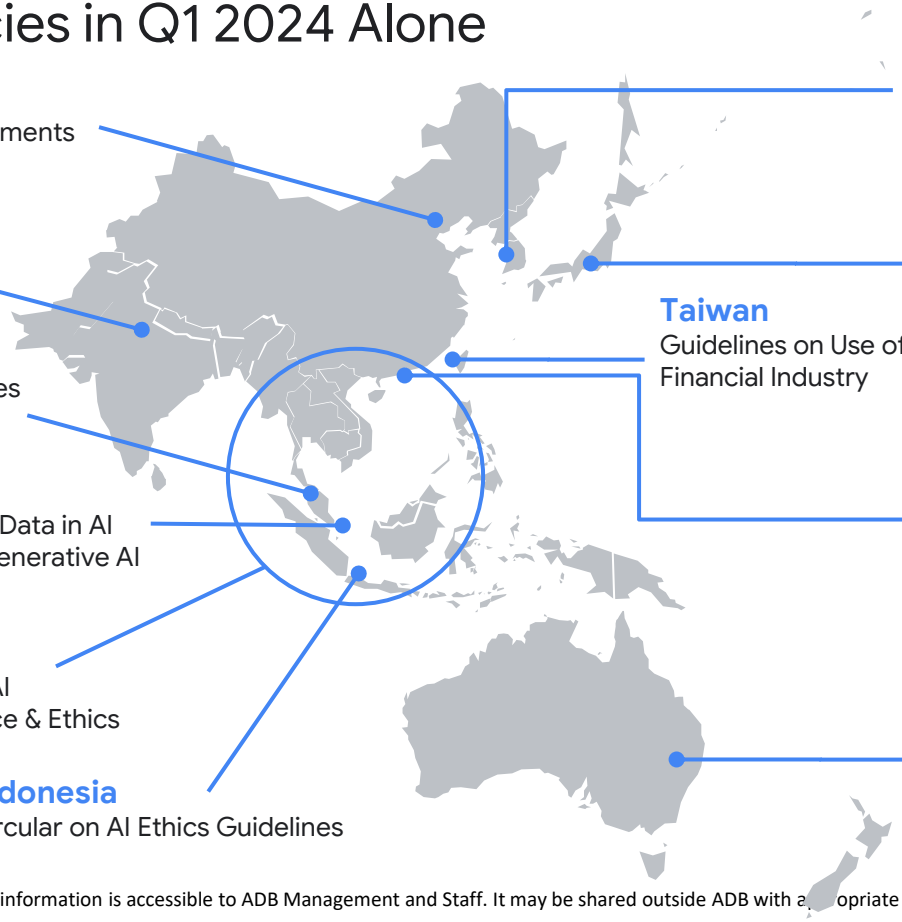
AI Policy Landscape is Heating Up Across APAC:
13 AI-related Policies in Q1 2024 Alone



China
Basic Security Requirements for Generative AI

India
Advisory on Due Diligence Obligations for AI

Malaysia
AI Governance & Ethics Guidelines

Singapore
Advisory Guidelines on Use of Personal Data in AI
Model AI Governance Framework for Generative AI

ASEAN
Guide on AI Governance & Ethics

Indonesia
Circular on AI Ethics Guidelines

Korea
Guidebook on AI & Copyright
Guidelines on Use of Personal Data in AI

Japan
AI Guidelines for Business

Taiwan
Guidelines on Use of AI in Financial Industry

Hong Kong
AI Governance Recommendations for Organizations

Australia
Safe & Responsible AI

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Key recommendations to harness AI responsibly and to its fullest potential

1. **Invest in infrastructure and innovation**
    a. Invest in AI research & development
    b. Access to and quality of digital infrastructure and compute capacity
    c. Providing a balanced regulatory environment to convert ideas and data into new discoveries, products & services
2. **Build human capital and an AI-empowered workforce**
    a. Investing in people to ensure they can use and benefit from AI, from students to workers, and from small businesses to traditional industries
3. **Promote widespread adoption and universal accessibility** - harnessing AI across governments and all sectors of society to address major societal and economic challenges and ensure benefits of AI are widely shared

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Policymakers Around the World are Paying Attention to AI

EU

AI Act: Proposes detailed requirements focused on high-risk AI applications. Trilogues have started with aim of final text by end 2023, expected implementation 2025.

US

NIST AI Risk Management Framework (January 2023)
White House Voluntary AI Commitments (July 2023): Focused on safety, security and trust, with 7+8 signatories
White House Executive Order on AI (October 2023)

China

Draft regulation on Generative AI: GAI content to be "consistent with socialist values", model optimization to weed out censored content, security reviews etc.

Singapore

Model AI Governance Framework: Guide responsible AI implementation
AI Verify: AI governance testing toolkit
AI advisory guidelines under PDPA
MAS FEAT Principles and Veritas: Responsible AI guidelines for finance sector

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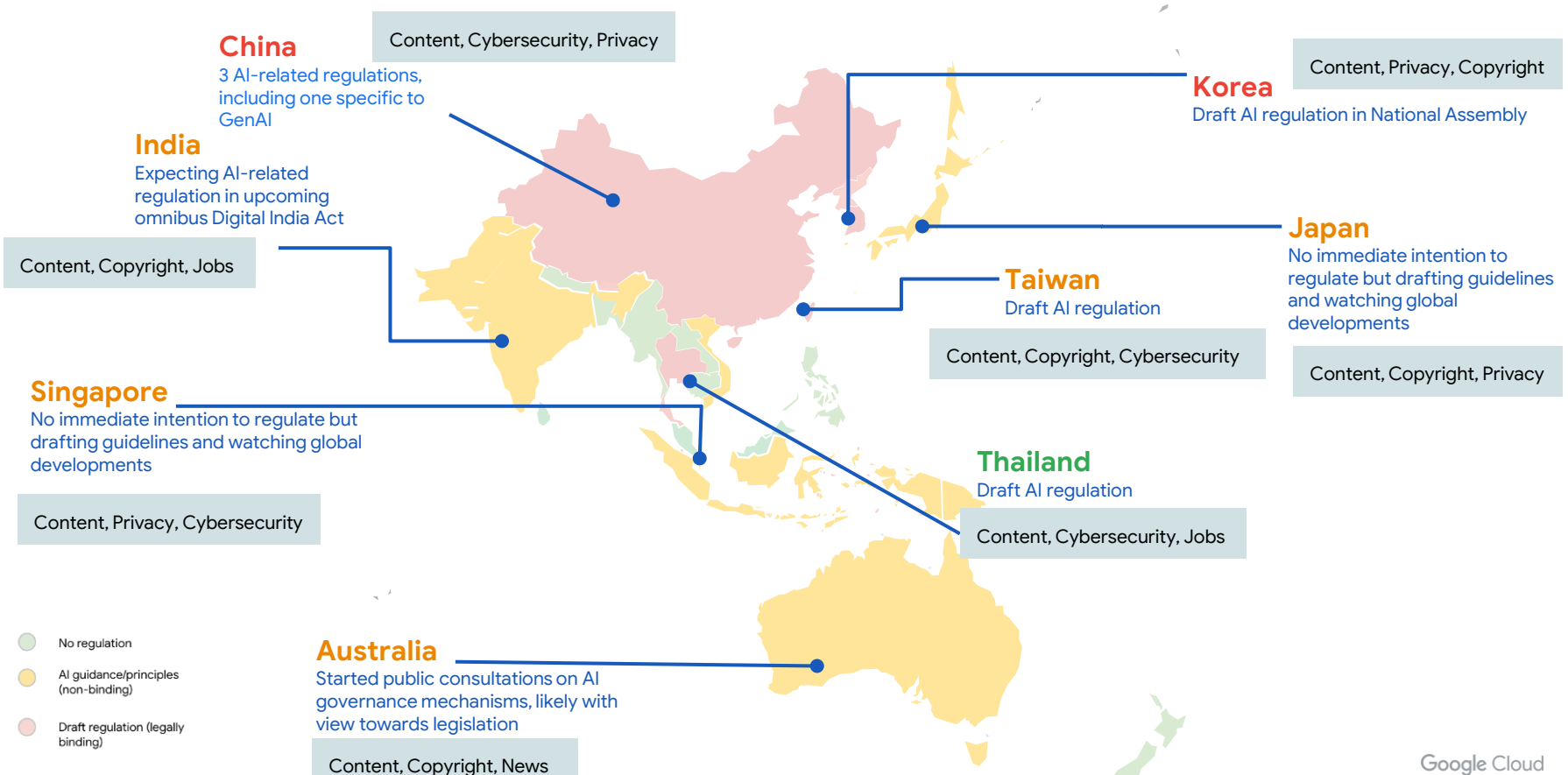
APAC AI Regulatory Heatmap



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