



SINGAPORE'S HUMAN CENTRIC APPROACH TO AI GOVERNANCE

Lee Wan Sie
Director (Trusted AI and Data)

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Singapore's National AI Strategy

VISION

By 2030, Singapore will be a leader in developing and deploying scalable, impactful AI solutions, in key sectors of high value and relevance to our citizens and businesses.

NATIONAL AI PROJECTS



ECOSYSTEM ENABLERS



Creating Impact Through National AI Projects

Embark on an initial tranche of 5 National AI Projects

- Require a concerted effort from the government
- Have clear, realisable outcomes
- Deliver strong social and/or economic impact for Singapore and Singaporeans

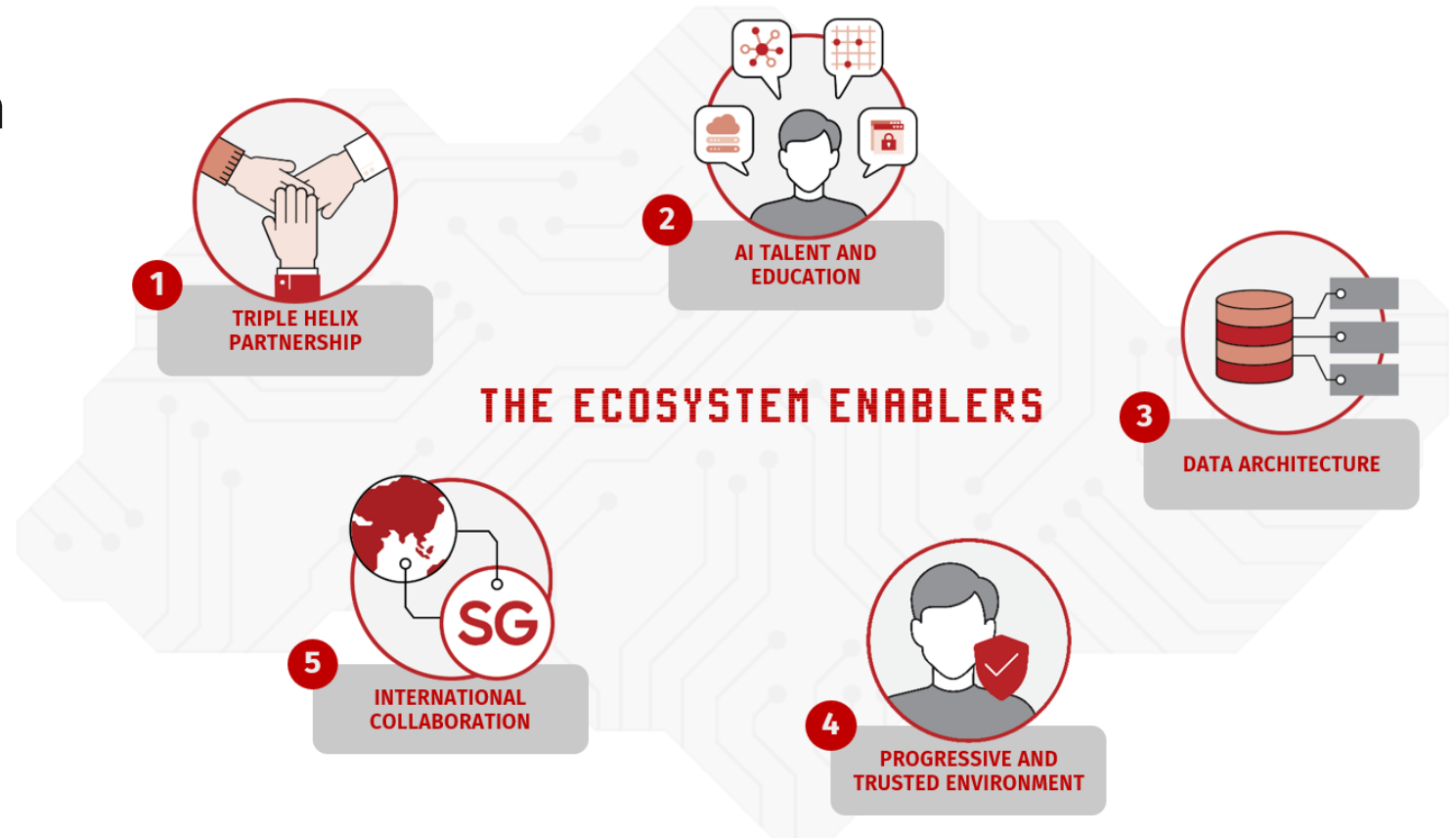
Projects will also

- Guide investment in R&D
- Generate lead demand to anchor talent and capabilities
- Guide the development of supporting digital infrastructure

Building the AI Ecosystem

Concurrently, build a vibrant and sustainable AI ecosystem to anchor AI innovation and adoption across the economy

Five enablers support AI ecosystem development



NEED FOR AI GOVERNANCE

Building Trust



Increasing application and importance of AI in many sectors, resulting in increasing benefits and risks to individuals



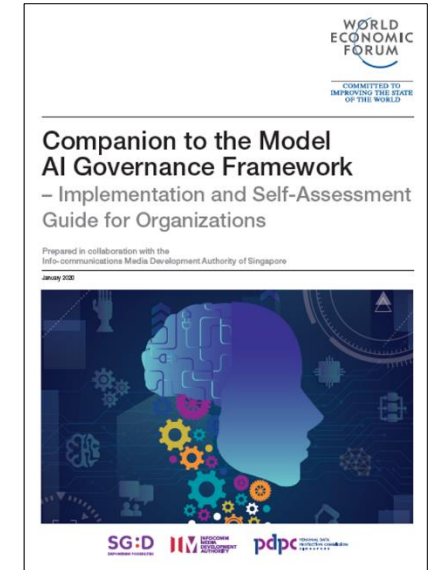
Greater adoption of AI necessitate responsible use of data, corporate accountability and the need to invest and re-skill workforce



Need for balanced governance approach to support AI adoption, promote good practices in AI development and instill high public trust

SINGAPORE'S APPROACH TO AI GOVERNANCE

- Industry **voluntary** adoption of responsible AI with detailed **government guidance**
- **Government guidance**
 - **Model AI Governance Framework (2nd edition)**
 - **Implementation & Self-Assessment Guide for Organisations**
 - **2 volumes of Compendium of Use Cases**
- **Multi-stakeholder approach**
 - Living documents that will evolve with tech development
 - Input and feedback from >60 companies of different sizes, from different sectors, locally and internationally
 - Worked with int'l organizations like WEF, OECD



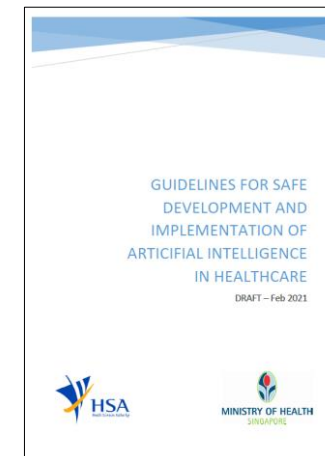
MODEL FRAMEWORK IS A BASELINE

- **Accountability-based framework to engender trust:** Helps companies be transparent about their governance practices in developing & deploying AI systems
- **Takes AI ethics into corporate governance, risk management and operational structures**
- **Baseline** for other sectors to build on
- **Key characteristics**
 - Sector-agnostic
 - Technology-agnostic
 - Algorithm-agnostic
 - Scale- and business-model-agnostic
 - From principles to practice: practical, implementable
 - Does not define ethical standards

Published
**MAS FEAT
Principles**



Draft
**AI Guidelines
in Healthcare**



other sectors e.g.
government

**MODEL AI GOVERNANCE
FRAMEWORK**

ALIGNED WITH INTERNATIONALLY ACCEPTABLE ETHICS PRINCIPLES FOR TRUSTWORTHY AI SYSTEMS

FOUR ASPECTS OF A TRUSTWORTHY AI SYSTEM

UNDERSTANDING HOW AI MODEL REACHES DECISION To know what it does and that results are consistent	SAFETY AND RESILIENCE OF AI SYSTEM AI system is reliable and will not cause harm	FAIRNESS / NO UNINTENDED DISCRIMINATION AI system does not unintentionally discriminate	MANAGEMENT AND OVERSIGHT OF AI SYSTEM Human accountability and control
<p>1. EXPLAINABILITY Ability to understand and interpret what the AI system is doing</p> <p>2. REPEATABILITY Check that it's consistent: Be able to replicate an AI system's results</p> <p>3. REPRODUCIBILITY Ability to replicate an AI system's results (by independent 3rd-party)</p>	<p>4. SAFETY Check that it's safe: Known risks have been identified/mitigated</p> <p>5. SECURITY Cybersecurity of AI systems</p> <p>6. ROBUSTNESS Ensuring that AI system can still function despite unexpected inputs</p>	<p>7. FAIRNESS Check that there is no unintended bias: AI systems makes same decision even if an attribute is changed</p> <p>8. DATA GOVERNANCE Know the source and quality of data: Good data governance practices when training AI models</p>	<p>9. ACCOUNTABILITY Proper management oversight of AI system development</p> <p>10. TRANSPARENCY Appropriate info is provided to individuals impacted by AI system</p> <p>11. HUMAN AGENCY AND OVERSIGHT AI system designed in a way that will not decrease human ability to make decisions</p> <p>12. INCLUSIVE GROWTH, SOCIETAL & ENVIRONMENTAL WELL-BEING Beneficial outcomes for people and planet</p>

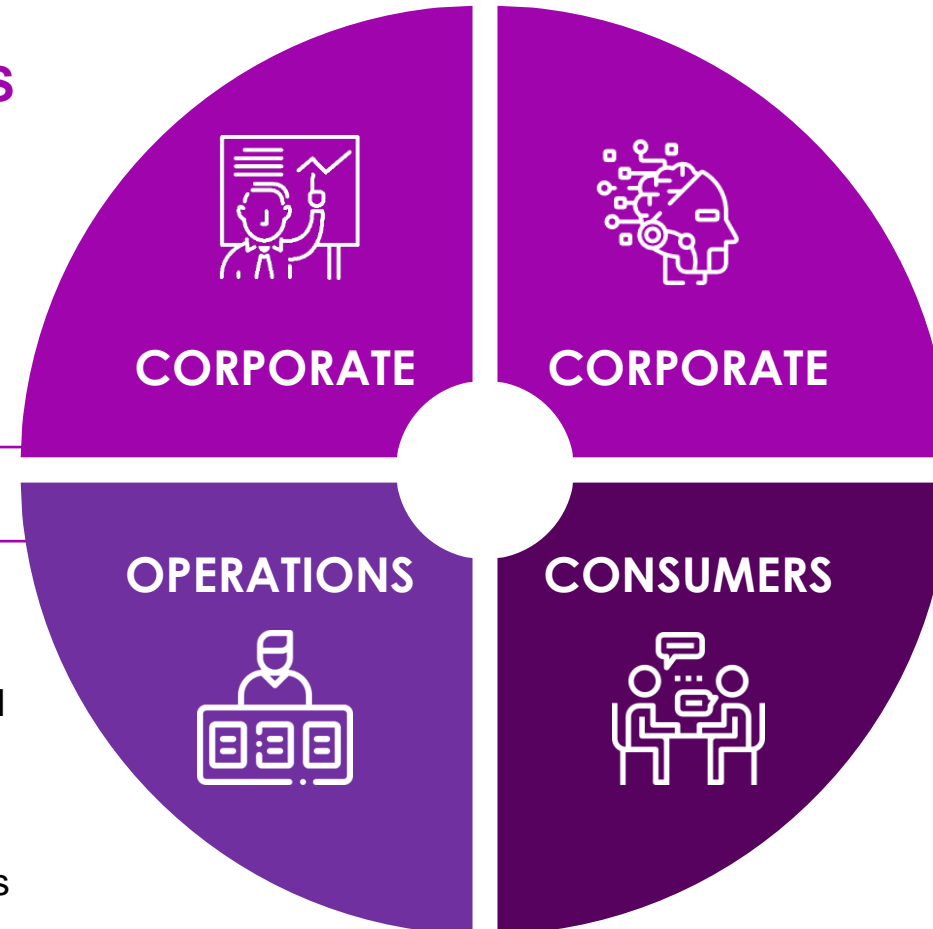
ACCOUNTABILITY-BASED PRACTICES & MEASURES

Guiding Principles

- Decision making process should be explainable, transparent and fair
- AI systems should be human-centric and fair

INTERNAL GOVERNANCE STRUCTURES AND MEASURES

- Corporate governance structures
- Oversight mechanisms
- Roles and responsibilities
- Monitoring and reporting systems and processes
- Periodic review



HUMAN INVOLVEMENT IN AI-AUGMENTED DECISION-MAKING

- Risk and impact assessments incorporating ethical considerations
- Degree of human intervention in AI decision-making
- Risk mitigating measures

OPERATIONS MANAGEMENT

- Data curation, model formulation, model selection, training and tuning
- Ensure quality, credibility of source, veracity, while mitigating inherent bias
- Explainability, repeatability & robustness
- Reproducibility, auditability for certain scenarios

STAKEHOLDER INTERACTION & COMMUNICATION

- Build and maintain open relationship with stakeholders that builds trust
- Communication appropriate to audience, purpose and context
- Communication channels

SUMMARY OF SINGAPORE'S APPROACH TO AI GOVERNANCE

- **Partnership:** Collaboration with key stakeholders in government, industry, consumers and academia,
 - e.g. WEF and its network, tech MNCs
- **Practicality:** Operationalisation of AI ethics principles through implementable practices
 - e.g. Organisations from various sectors, both local and overseas, putting in place the responsible AI practices outlined in the Framework
- **Participation:** Strong support for open and interoperable international environment and regime, enabling human-centric AI innovation and its adoption
 - e.g. contribution to international platforms like GPAI, OECD

What's Next:

- Demonstrate responsible AI through testing AI system against ethical principles - objective, verifiable tests
- Help companies build trust with their stakeholders and meet regulatory requirements (e.g., upcoming EU AI Act)



Thank You

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