AI for All

Workforce Skilling Policy Toolkit

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CONTENT

Authored by

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About the Toolkit

The toolkit identifies critical policy principles and practical guidance for policymakers and key stakeholders to strengthen AI learning systems and employability across the Asia-Pacific region. Mapped across four pillars, the framework underpinning this toolkit guides policymakers in defining, classifying, and identifying the skills needed for AI; assess existing gaps in skilling ecosystems; designing and implementing an actionable workforce skilling roadmap; and monitor and evaluate progress of its skilling initiatives. Progression pathways have also been developed for each pillar, prompting policymakers to assess their relative stage of progress while identifying next steps to scale and sustain effective and targeted AI skilling initiatives. The report concludes by applying this framework to three countries in the case study section, illustrating how design principles can be translated into policy action for effective AI skilling.

Information is current as of 31 December 2025, unless otherwise stated

Acknowledgements

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Executive Summary

Introduction

The advent of AI has brought about significant benefits across governments, industries, and individuals. The deployment and integration of AI into existing workstreams can transform daily operations of individuals, while driving productivity gains across the public and private sector.

These benefits can only be realised if individuals are empowered to capture the AI opportunity. To effectively adopt AI, individuals must be equipped with the skills to (i) use AI ethically, responsibly, and sustainably; (ii) mitigate AI-associated risks; and (iii) engage effectively with AI systems.

Forward-looking policy frameworks are critical in fostering an enabling environment for the development of skills needed for AI. In support of the AVPN AI Opportunity Fund, the AI for All Workforce Skilling Policy Toolkit aims to foster collaboration and share best practices among policymakers and key stakeholders towards improving AI learning outcomes and employability.

AI For All Workforce Skilling Policy Toolkit

The AI for All Workforce Skilling Policy Toolkit aims to equip policymakers and key stakeholders with critical policy principles and practical guidance to strengthen AI learning systems and employability across the Asia-Pacific region.
The tool is built around two complementary building blocks:

a) AI for All Workforce Skilling Policy Framework	Provides a structured policy framework through four pillars to guide the **design and development** of national and sectoral skilling initiatives across the APAC region
b) AI for All Workforce Skilling Case Studies	Showcases practical examples that reflect the identified policy actions, serving as a resource for governments and key stakeholders to guide the **implementation** of AI skilling programs

The toolkit builds on insights from the AI for All: Building an AI-ready Workforce in Asia-Pacific report ("AI for All landscape report")*, translating the design principles identified for more effective AI skilling initiatives in the report, into actionable policy considerations and implementation pathways that can be undertaken through the skill development cycle.

*NOTE: The AI for All: Building an AI-Ready Workforce in Asia Pacific (2025) is a research report produced part of the AI Opportunity Fund: Asia Pacific, that identifies priority workforce segments who stand to benefit most from targeted AI skilling and offers design principles for more effective AI skilling efforts.

How to navigate this Toolkit

Your Objective	Quick Link	
To harmonise approaches in **identifying critical AI skills** across key sectors and the wider economy	Pillar 1: Identify the skills needed for AI	**a) AI for All Workforce Skilling Policy Framework**
To gain deeper insight into **labour market needs** and **AI skilling gaps** in the workforce	Pillar 2: Assess gaps in skilling ecosystems	
To ensure a **coordinated and consistent approach** across AI skilling initiatives	Pillar 3: Develop and implement a workforce skilling roadmap	
To ensure the **continued effectiveness and relevance** of AI skilling initiatives	Pillar 4: Monitor and evaluate progress	
To enhance **implementation effectiveness** across AI skilling initiatives	Case studies	**b) AI for All Workforce Skilling Case Studies**

AI for All Workforce Skilling Policy Framework

AI for All Workforce Skilling Policy Framework

Given the fast-evolving nature of AI, the AI for All Workforce Skilling Policy Framework sets out to ensure that skilling initiatives are **flexible, receptive to emerging needs, and future-proof.** This acknowledgement is echoed by industry, academia, and public sector stakeholders engaged during the framework:

"With the onset of AI, skills requirements are changing very fast. We **must not lock ourselves into a rigid roadmap**, nor update skills taxonomy only when the need arises."

Key issue #1:
AI is evolving faster than current skilling initiatives can keep pace

"The co-development of skilling initiatives with industry players is **critical in informing us what both the public and private sector requires**."

Key issue #2:
Evolving nature of AI continually reshapes sectoral and business use cases

"Financial incentives are often insufficient in encouraging broader AI adoption. We need to **improve access** to training initiatives and **closer align** the value of AI skilling with varied priorities."

Key issue #3:
Current AI training programs often fall short in terms of accessibility and relevance

Source: Access Partnership held stakeholder consultations with industry, academia, and non-profit organisations over June and July 2025.

AI for All Workforce Skilling Policy Framework

Objectives and Principles

Against this backdrop, the objectives of the **AI for All Workforce Skilling Policy Framework** are to:

- Identify **essential, fit-for-purpose AI skills** needed to adapt to evolving job landscapes;
- Establish a **tailored approach** towards developing skilling initiatives for sectoral and demographic groups (e.g., Micro, Small, and Medium Enterprises (MSMEs));
- Design **actionable and agile** steps to build AI capabilities at scale

To achieve these objectives, the framework will be **underpinned by the following principles**:

- **Collaboration** across academia, industry, and government stakeholders to identify and deliver **essential, fit-for-purpose AI skills**
- **Foster broad-based participation** by adopting various outreach strategies that are **tailored** to the needs and interests of various demographic groups
- **Adaptability** to ensure that skilling initiatives are **agile** to evolving industry and technological trends

AI for All Workforce Skilling Policy Framework

4 Key Policy Pillars

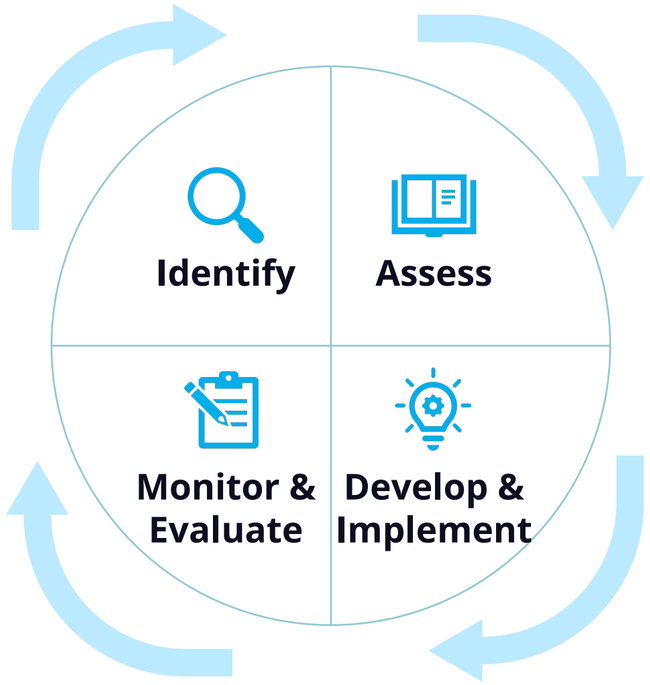
The AI for All Workforce Skilling Policy Framework sets out to achieve the objectives through an iterative, fluid process. While the framework represents an initial starting point for policymakers to begin tailoring skilling initiatives toward AI skilling, it is intended to be a living document that is continually adapted to national needs and priorities.

1

Identify the skills needed for AI

Develop a skills taxonomy that enables policymakers to define and classify skills transformed by AI; and

Identify emerging AI skills that align with national and sectoral policies and priorities



2

Assess gaps in skilling ecosystems

Conduct a gap assessment to identify gaps in existing skilling programs, ensuring that future skilling programs remain targeted

3

Develop and implement a workforce skilling roadmap

Design an actionable AI workforce skilling roadmap, prioritising the key actions to be taken by various stakeholders

4

Monitor and evaluate progress

Identify and develop key performance indicators (KPIs) as part of the MEL approach to continuously refine the framework

AI for All Workforce Skilling Policy Framework

3 Progression Pathways

Recognising that countries are at different stages of development along each pillar, **three** progression pathways have been developed to reflect their varying levels of readiness at each pillar:

- *Starting action*: Aimed at establishing foundations for AI skilling ecosystems currently at a formative stage
- *Scaling efforts*: Bolstering coordination and processes for AI skilling ecosystems where efforts are underway
- *Sustaining impact*: Enhancing institutional procedures for countries with established AI skilling processes in place, for continuous improvement

Countries can self-assess against these guiding statements in each pillar, to identify their stage of development ("Current state") and how they can best apply the Framework ("Apply") to design, scale, and sustain AI skilling initiatives.

Pillar 1
Identify the skills needed for AI

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a skills taxonomy pertaining to AI	Multiple, fragmented taxonomies or frameworks across the economy	Updated and integrated taxonomy
Apply	Leverage framework to develop initial taxonomy aligned with national priorities	Harmonise definitions, and align frameworks across ministries and sectors	Institutionalise regular reviews and revisions to maintain relevance with technological shifts

Pillar 2
Assess gaps in skilling ecosystems

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Limited visibility on existing skilling initiatives and labour-market needs	Absence of a structured approach to gap assessment across systems	Structured approach to gap assessment in skilling initiatives exists
Apply	Conduct a baseline mapping of skilling programmes and gaps	Establish a formal process to review needs based on common assessment framework	Embed findings of gap assessment into policies and programs

Pillar 3
Develop and implement skilling roadmap

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a coordinated strategy/roadmap for AI skilling	Preliminary roadmap formulated but lacks coordination	Established roadmap with implementation guidance
Apply	Identify key stakeholders and define shared objectives for a national roadmap	Define timelines, resources, and coordination mechanisms for implementation	Regularly update the roadmap to reflect evolving skills demands and feedback

Pillar 3
Monitor and evaluate progress

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Absence of robust mechanisms to collect and measure impact of skilling programs	Data is being collected, but lacks a systematic Monitoring, Evaluation, & Learning (MEL) framework	Robust MEL system in place with established data collection processes but underutilised
Apply	Define initial KPIs and simple data collection methods to measure progress	Establish a structured MEL framework and input relevant data	Institutionalise data-driven decision-making and framework/policy refinement

Pillar 1

Pillar 1: Identify the skills needed for AI

Pillar 1 sets out to develop a skills taxonomy by:

- Defining and classifying essential skills for AI; and
- Identifying emerging AI skills rendered critical to utilise AI

Policymakers

Nationally, policymakers provide an economy-wide level assessment of essential and emerging AI skills, provide high-level strategic guidance for the general population, sectoral bodies, and wider industry

Sectors

Consistent with national strategies, sectors tailor the taxonomies and shortlisted skills to their own contexts, incorporating sector-specific or role-specific competencies where applicable

Transitional skills	Enabling skills	Emerging skills
Skills that are **declining in importance** due to being extensively impacted by AI	Skills that will **continue to be essential** in the future, with minimal or moderate AI impact	**New skills** that are directly relevant to AI, made critical through economic shifts

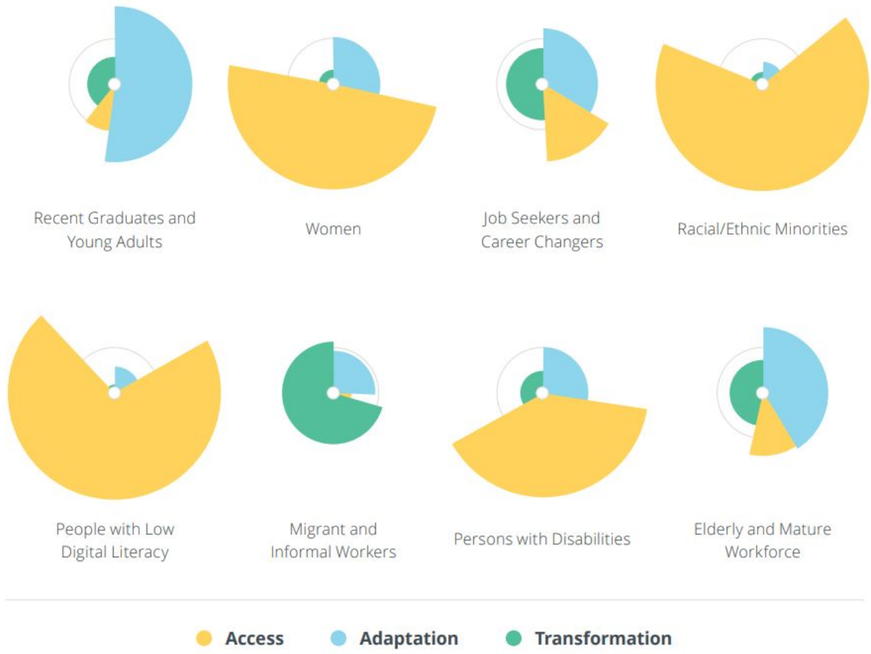
The taxonomy will enable policymakers to:

- Identify sectors where reskilling needs are urgent due to higher risk of automation (transitional skills)
- Identify key skills across sectors that are critical to harness the AI opportunity

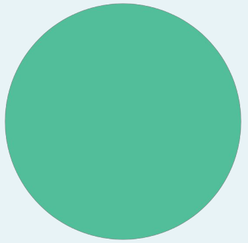
Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

Prior, the AI for All landscape report* had identified role transformation, skill adaptation, and the need for accessible systems as factors that will influence AI's impact on the workforce. Correspondingly, various demographic groups would be impacted by AI differently:



Extension of findings from the AI for All landscape report:



With **role transformation**, 160 skills have been identified to likely be transformed by AI in the landscape report - across analytical and technical skills, administrative and practical skills, strategic and creative skills, and repetitive and specific skills.

As an extension of these findings, Pillar 1 builds on this classification to evaluate the extent to which each skill will be affected by AI based on their respective work activities, further categorising them according to their degrees of relevance.

This classification allows policymakers to gain insights on the skilling needs of job functions that are significantly disrupted and to prioritise skilling investments accordingly.

*NOTE: The AI for All: Building an AI-Ready Workforce in Asia Pacific (2025) is a research report produced part of the AI Opportunity Fund: Asia Pacific, that aims to identify design principles for more effective AI skilling efforts.

Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

The methodology outlining how to identify and organise the 160 skills transformed by AI is summarised as follows: *

1

Ground-up assessment of the expected effects of AI on the undertaking of specific work activities

2

Work activities are sorted into different categories of AI impact based on the share of specific activities affected by AI

3

Skills from the skills taxonomy developed for the AI for All report are mapped to their top work activities (maximum of 3)

4

Skills are mapped to their relevant economic sectors

*NOTE: Full methodology is available in the Appendix.

Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

The sectoral skills are then sorted into two categories based on their AI impact:

Transitional skills	Enabling skills
Skills with competency areas that are **declining in relevance** due to being extensively impacted by AI	Skills with competency areas **continue to be essential** in the future, with minimal or moderate impact by AI
Reskilling efforts are critical in pivoting workers to other critical competencies within the skillsets, job functions, or sectors	Workers must continue to hone these skills so that they can continue to perform their job functions

Implications

- The proportion of skills in each sector that falls under transitional skills informs **where reskilling efforts would be most urgent** (i.e., where AI will have the largest disruptive impacts)
- Skilling efforts and initiatives need to shift away from training for transitional skills, and towards training for enabling skills

Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

Enabling skills

Skills that will **continue to be essential** in the future, with minimal or moderate impact by AI

Workers must continue to hone these skills so that they can continue to perform their job functions

Skills that demonstrate human-centred abilities will be critical to work effectively alongside AI. Enabling skills – while non-exhaustive – can largely be conceptualised across the following tenets:

Interpersonal competencies
(e.g., effective communication, teamwork, leadership skills, empathy

Builds trust and fosters collaboration to overcome data silos and employ AI effectively and innovatively

Self-efficacy competencies
(e.g., adaptability, resilience, flexibility, curiosity)

Ability to drive individuals to continually upskill themselves and adapt to evolving skill needs

Cognitive competencies
(e.g., ethical and moral judgment, critical thinking, creativity, design thinking)

Ability to interpret, perceive, and evaluate AI outputs to ensure accuracy, consistency, and alignment with societal values

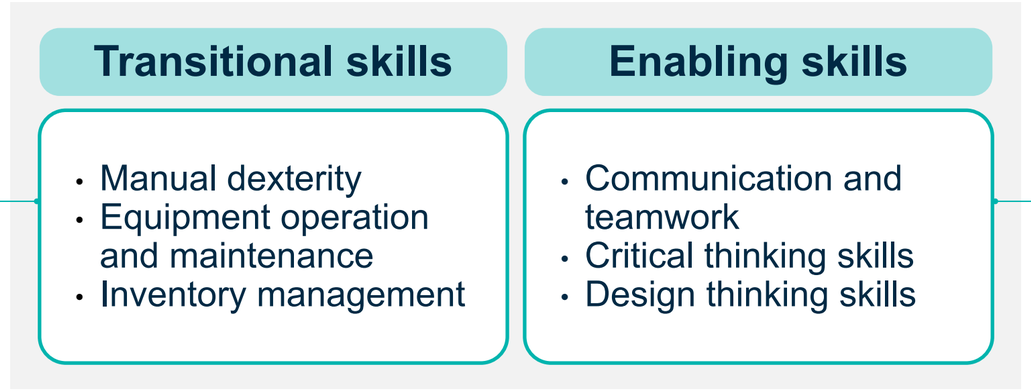
Source: Workday, World Economic Forum

Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

Nationally, policymakers can spearhead efforts in identifying higher-level transitional and enabling skills to provide strategic direction in alignment with national priorities. Some examples of transitional and enabling skills that have been widely identified across the literature include:

The AI for All landscape report identifies skills such as operational dexterity, operation and maintenance, and quality control are among skills that could be significantly impacted by automation.



- The World Economic Forum's Future of Jobs Report 2025 finds that seven of 10 employers identify **analytical thinking skills**, to be the top core skill
- Experts highlight the continued relevance of **interpersonal skills** in contributing to an agile and collaborative workforce

Example of strategic guidance issued by policymakers:

Jobs and Skills Australia has undertaken a study to evaluate the ongoing needs in skilling and training curriculums amidst Australia's shift to an AI-driven economy. In particular, non-digital enabling skills such as **critical thinking**, **communication**, and **adaptability** have been identified to remain valuable in applying judgment in overseeing AI-generated outputs, and adapt to the evolving expectations of the labour market.

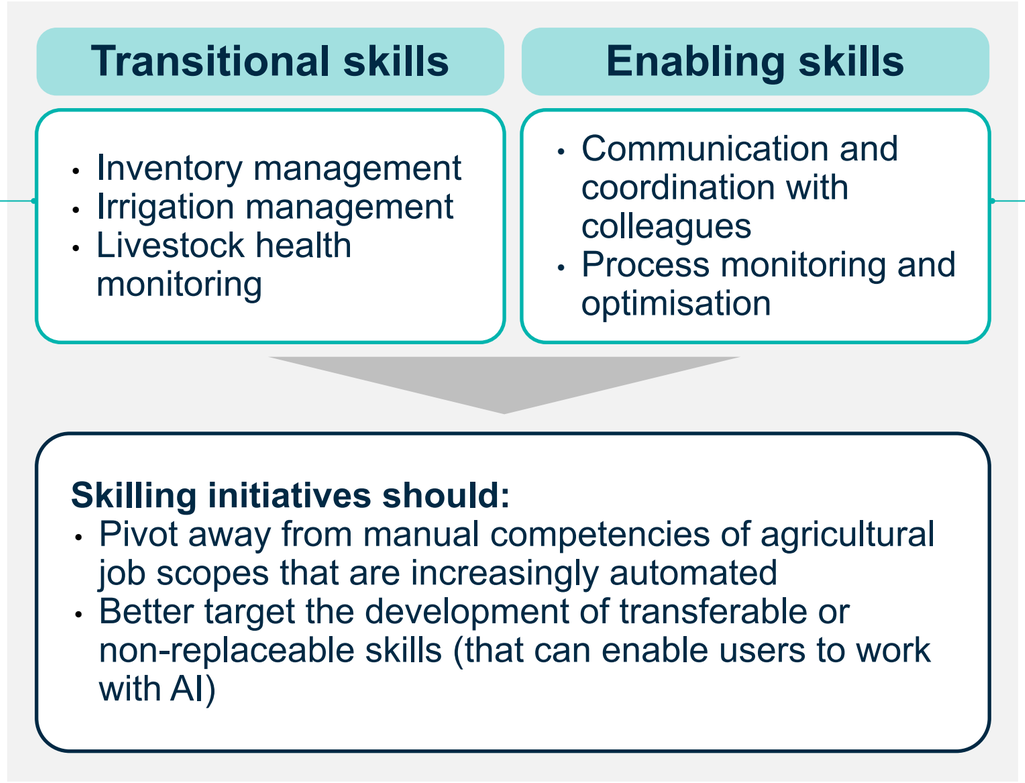
Pillar 1: Identify the skills needed for AI

Defining and classifying essential skills for AI

Ultimately, greater granularity and tailoring of essential skills needed for AI within each sector would need to be driven by sectoral efforts. A non-exhaustive example for the agriculture sector is provided below:

The automation of livestock health monitoring in agriculture
Livestock health monitoring usually involves real-time monitoring, inspection, and documentation of information. Solutions such as AI-enabled Internet of Things (IoT) sensors and machine learning help to automate livestock monitoring through:

- Detailed sensors that track animal health and patterns;
- AI analysis of livestock footage or sensor data to identify signs of illnesses or stress



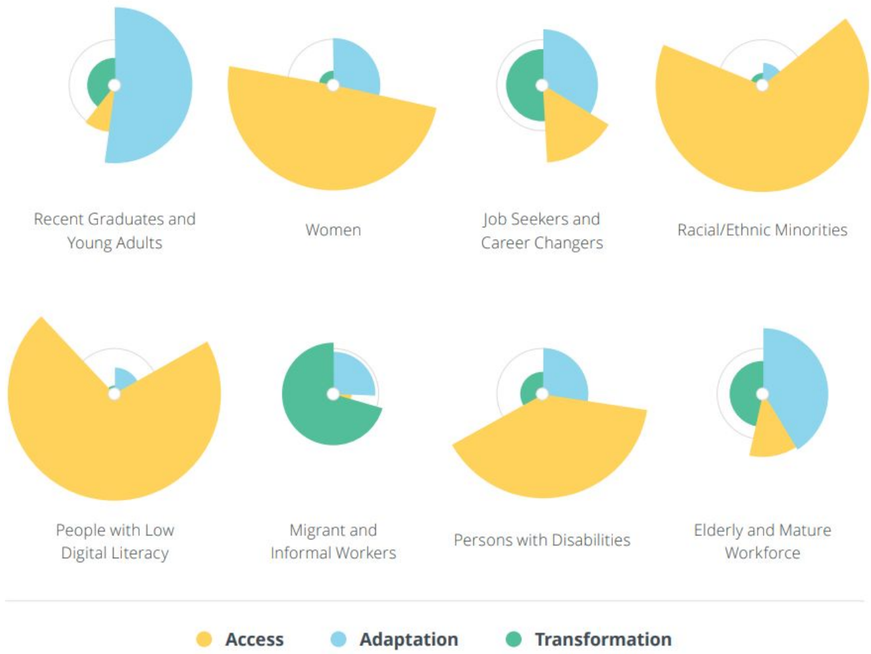
The continued relevance of process monitoring and optimisation
While aspects of process monitoring and optimisation can be automated by AI systems, the following AI-agnostic work activities remain critical to ensure robustness of processes:

- Ensuring data quality and integrity
- Strategic judgment to interpret AI outputs
- Evaluate existing processes and establishing feedback loops

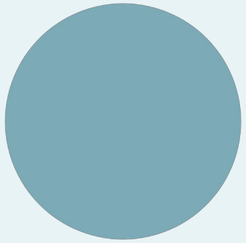
Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

Prior, the AI for All landscape report* had identified role transformation, skill adaptation, and the need for accessible systems as factors that will influence AI's impact on the workforce. Correspondingly, various demographic groups would be impacted by AI differently:



Extension of findings from the AI for All landscape report:



Skill adaptation represents the need for individuals to acquire the knowledge and capabilities to effectively leverage AI technologies in support of their existing job functions.

Drawing from the findings of the AI for All landscape report, Pillar 1 defines and identifies the various forms of emerging AI skills that would be essential for individuals in capturing the AI opportunity, under its emerging skills category.

*NOTE: The AI for All: Building an AI-Ready Workforce in Asia Pacific (2025) is a research report produced part of the AI Opportunity Fund: Asia Pacific, that aims to identify design principles for more effective AI skilling efforts.

Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

After categorising skills based on their extent of AI transformation, the skills taxonomy further identifies **emerging skills.** As a start, several emerging skills have been identified based on those prioritised in national skilling roadmaps and international best practices.

Transitional skills	Enabling skills	Emerging skills
Skills that are **declining in importance** due to being extensively impacted by AI*	Skills that will **continue to be essential** in the future, with minimal or moderate AI impact	**New skills** that are directly relevant to AI, made critical through economic shifts (e.g., prompt engineering, AI auditing)
Workers should pivot to other critical skillsets within sector	Workers must continue to hone these skills so that they can continue to perform their job function	Upskilling of individuals so that they are better equipped to capture the AI opportunity

*NOTE: AI impact refers to how the widespread adoption of AI reshapes the importance, application, or context of a skill.

Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

Emerging AI skills should be identified and categorised based on three main levels of AI competency to enable tiered learning and progression across job functions and scopes (OECD):

Emerging skills

New skills that are directly relevant to AI, made critical through economic shifts (e.g., prompt engineering, AI auditing)

Upskilling of individuals so that they are better equipped to capture the AI opportunity

1

Basic AI literacy encompasses foundational concepts for general audiences, such as:

- Crafting effective prompts in generating accurate and relevant responses
- Using AI ethically, responsibly, and sustainably
- Recognising hallucinations, bias, and inaccuracies in AI
- Safeguarding and mitigating AI risks and biases

Policymakers should provide strategic guidance on fundamental AI literacy skills and applications (see slide 77)

2

AI tools and applications involve the use and practice of AI tools to enhance productivity:

- Interact effectively with AI systems by crafting AI prompts for specific functions and purposes
- Introduction of AI tools and platforms for business needs and productivity

3

Advanced AI competencies that are tailored to sectoral and role-specific needs:

- Advanced AI skills (e.g., natural language processing, deep learning) that can cut across disciplines
- Application of AI within specialised technical fields, e.g., financial modelling, healthcare

Sectoral insights should inform the development of advanced AI skills

SOURCE: OECD (2025), Boosting Productivity and Business Growth: The Role of Artificial Intelligence Skills.

Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

Based on pre-identified national priorities, policymakers can provide strategic guidance on emerging AI skills. Some examples include:

Transitional skills	Enabling skills	Emerging skills
• Manual dexterity • Equipment operation and maintenance • Inventory management	• Communication and teamwork • Critical thinking skills • Design thinking skills	• Knowledge of AI and its relevant applications • Awareness of AI-associated risks (e.g., ethical, operational, security)

Example of overarching guidance provided on a national level:

Japan has continually reaffirmed its commitment to ensuring the responsible adoption and deployment of AI, marked by the publication of the Social Principles of Human-Centered AI since 2019.

The prioritisation of responsible and ethical use of AI has also since been incorporated in its Digital Skill Standards for digital transformation practitioners.

More details can be found in the case study section (slide 83).

Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

The list of emerging skills should also be tailored to sectoral needs in alignment with longer-term sectoral strategies. For example, Australia's AI Action Plan (2021) embodies several sectoral priorities, including the National Agricultural Workforce Strategy.

Transitional skills	Enabling skills	Emerging skills
• Inventory management • Irrigation management • Livestock health monitoring	• Process monitoring and optimization • Resource allocation and optimization	• Decision support systems for irrigation, pest management • Programming autonomous farm equipment • Precision farming and decision-making

Skilling initiatives should:

- Pivot away from manual competencies of agricultural job scopes (e.g., documenting/recording information; visual examination) that are increasingly automated;
- Better target the development of transferable skills that can enable users to work with AI (e.g., skills related to critical thinking, creative thinking, strategy development)
- Develop technical competency skills that can better allow farmers to directly use AI (e.g., AI literacy & integration, AI-driven task automation, data-informed decision making, autonomous system oversight)

Benefit to policymakers

Through this taxonomy, policymakers can gain insights on:

- Skill requirements contextualised to the needs of the economy, with **short-term** and **longer-term national and sectoral priorities** built into its consideration; and
- A prioritised list of **AI-enabled skills** for each sector and/or demographic group

Pillar 1: Identify the skills needed for AI

Identifying emerging AI skills rendered critical to utilise AI

Aside from national and sectoral skilling initiatives, the taxonomy should also draw on recent and emerging AI use cases deployed across sectors and MSMEs to ensure that the identified emerging skills reflect real-world skilling needs. For greater detail on how these insights can be coordinated across policymakers, industry bodies, and academia to inform the development of the taxonomy, see slides 47 and 48.

Emerging skills

New skills that are directly relevant to AI, made critical through economic shifts (e.g., LLM Monitoring & Evaluation, agentic workflow development)

Upskilling of individuals so that they are better equipped to capture the AI opportunity

Co-development of AI use cases in Singapore

In Singapore, Google Cloud has collaborated with public and private sector organisations to jointly develop and scale use cases of AI to address real-world challenges.

In particular, Google has partnered with Enterprise Singapore to work with local startups to scale their generative AI use cases through enhancing access to Google's products and experts, promoting talent development and AI adoption in Singapore.

Source: Economic Development Board, Singapore (n.d.)

Developing AI talent through open source Large Language Models (LLM) in India

IndiaAI and Meta have jointly launched the YuvAI Initiative for Skilling and Capacity Building in collaboration with the All India Council for Technical Education (AICTE).

A key tenet of the programme includes the Unleash LLM Hackathon, where students will submit AI solutions to problem statements across critical sectors such as healthcare, education, and agriculture. Top ideas will receive seed grants, mentoring, and market support, while catalysing the development of indigenous solutions in India.

Source: Ministry of Electronics and IT, India (2024)

Additional principles to refine the skills taxonomy

1

Adapt taxonomy to national context

Update taxonomy by applying national competencies to the transitional and enabling skills categories, **ensuring relevance to national needs**

2

Prioritise sectoral skilling needs

Prioritise sectors and/or demographic groups based on underlying economic structure, **identifying urgent reskilling/ upskilling needs**

3

Build alignment with national policies

Enhance taxonomy by aligning short-term and long-term national AI priorities to the emerging skills category, **ensuring longer-term strategic alignment**

4

Align taxonomy with evolving demands

Update the taxonomy periodically to ensure that identified skilling needs are **in line with technological and economic shifts**

Guiding Questions

Pillar 1

Identify the skills needed for AI

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a skills taxonomy pertaining to AI	Multiple, fragmented taxonomies or frameworks across the economy	Updated and integrated taxonomy
Apply	Leverage framework to develop initial taxonomy aligned with national priorities	Harmonise definitions, and align frameworks across ministries and sectors	Institutionalise regular reviews and revisions to maintain relevance with technological shifts

Starting action | **Scaling efforts** | Sustaining impact

In which sectors or demographic groups are transitional skills evidenced to be particularly centered in?	To identify areas where reskilling and/or upskilling initiatives should be prioritised, and wide-scale efforts should be focused
What are the immediate and longer-term national AI priorities?	To determine the key focus areas for emerging skills that should be distilled across the economy

Starting action | Scaling efforts | **Sustaining impact**

What are the mechanisms currently in place to periodically evaluate the relevance of the skills taxonomy?	To establish a process for the regular review and evaluation of skilling needs across the economy, allowing the taxonomy to remain reflexive and agile to evolving needs

Pillar 2

Pillar 2: Assess gaps in skilling ecosystems

Pillar 2 sets out to conduct a gap assessment of existing skilling ecosystems by:

- Evaluating the coverage of priorities and focus areas; and
- Identifying demand-supply mismatches in skilling initiatives, both on a national and sectoral level

The gap assessment will enable policymakers to:

- Have a stocktake of existing skilling resources, initiatives, and investments
- Ensure that skilling initiatives remain targeted to sectoral needs and development goals
- Align national strategies against global best practices and benchmarks with regard to skills and skilling initiatives

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas

The framework will map the priority skilling areas from national digital skilling initiatives (including nation-wide skilling strategies, sectoral workforce strategies, and broader national policies) and international best practices. This serves 3 functions:

1. Align AI skill initiatives with **sectoral priorities** identified in Pillar 1, based on relative proportion of transitional skills

2. Evaluate **the coverage of AI competencies** across existing skilling initiatives and broader national policies.

3. Align with **global best practices** on supported areas of digital and/or AI competencies

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas

	Generative AI	Agentic AI	Frontier AI	Responsible & Ethical AI	Sectoral focus
Definitions	Generative AI focuses on creating new content like text, images, or code	Agentic AI refers to AI systems that possess the ability to act autonomously, make decisions independently, and adapt to changing environments in pursuit of specific goals	Frontier AI represents the most exploratory and innovative AI models, pushing the boundaries of what AI can do	The development and use of AI guided by principles of fairness, transparency, accountability, and safety, supported by clear governance frameworks to prevent harm and uphold human rights	Sector-specific AI use cases
Policy Implication	The transformative potential of generative AI highlights the need for individuals to have corresponding skills to be able to use it effectively, fully capturing its opportunities. This should be accompanied by corresponding skilling investments in the responsible and ethical use of AI.	The benefits of agentic AI are strongly tied to specific job functions, making it essential to first define organisational use cases and sectoral priorities prior to undertaking skilling investments. Realising these benefits also requires a strong understanding of the ethical and responsible use of AI to manage associated risks.	Building and maintaining cutting-edge frontier AI systems requires significant investment, and frontier AI skilling investments may remain a longer-term priority relative to expediting sectoral AI adoption or establishing a strong foundation in broad-based AI literacy.	In line with the OECD's AI Principles for trustworthy AI, knowledge on the responsible, ethical, and safe use of AI should remain an area of priority in order to ensure that users can engage with AI effectively and safely.	The prioritisation of AI skilling across sectors would enable policymakers to enhance competitive advantages in strategic sectors through targeted AI use, deployment, and development.

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas – national skilling initiatives and broader national strategies (1/3)

Country, National Strategy	Generative AI	Agentic AI	Frontier AI	Responsible & Ethical AI	Sectoral focus
Australia • National AI Capability Plan • Future Skills Organisation Skills Accelerator – AI	✔		✔	✔	Manufacturing, Security, Agriculture, SMEs, Finance, Logistics, Utilities, Construction, Food and Beverage, Healthcare, Environment
Cambodia • National AI Development • Cambodia Skills Development Roadmap 2023 – 2035	✔			✔	Education, Healthcare, Agriculture, Finance
India • National Strategy for Artificial Intelligence • Skill India Programme, Pradhan Mantri Kaushal Vikas Yojana 4.0 • FutureSkills Initiative • IndiaAI Governance Guidelines	✔	✔	✔	✔	Healthcare, Agriculture, Education, Infrastructure, Transportation, Finance
Indonesia • National Strategy on Artificial Intelligence • Making Indonesia 4.0 • National Industrial Development Master Plan 2015-2035 • White Paper on the National Artificial Intelligence Roadmap	✔			✔	Healthcare, Public sector, Food and Beverage

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas – national skilling initiatives and broader national strategies (2/3)

Country, National Strategy	Generative AI	Agentic AI	Frontier AI	Responsible & Ethical AI	Sectoral focus
Japan • AI Strategy 2022 • Society 5.0 • Grand Design and Implementation Plan for New Capitalism • AI Promotion Act • AI Basic Plan	✔			✔	Food and Beverage, Healthcare, Energy, Transportation, Agriculture, Logistics, Manufacturing
Malaysia • Artificial Intelligence Roadmap 2021-2025 • Malaysia Digital Economy Blueprint • MyMahir National AI Council for Industry (MyMahir-NAIC) • New Industrial Master Plan 2030	✔	✔	✔	✔	Agriculture, Healthcare, Transport, Education, Public Service
Singapore • National Artificial Intelligence Strategy 2.0 • SkillsFuture for Digital Workplace 2.0	✔	✔	✔	✔	Finance, Public sector, Healthcare, Security, Transportation

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas – national skilling initiatives and broader national strategies (3/3)

Country, National Strategy	Generative AI	Agentic AI	Frontier AI	Responsible & Ethical AI	Sectoral focus
South Korea • National Strategy for AI Intelligence; • Comprehensive Plan to Nurture Digital Talent • First Master Plan for Developing Critical and Emerging Technologies (2024-2028): A Blueprint for National S&T Sovereignty	✔	✔	✔	✔	Public sector, Healthcare, Tourism, Education
Thailand • National AI Strategy and Action Plan (2022-2027) • Higher Education Plan for Thailand's Manpower Production and Development (2021-2027) • Science, Research and Innovation Plan (2023-2027)				✔	Government, Agriculture, Healthcare, Energy, Finance, Transportation, Security, Tourism, Education, Manufacturing
Vietnam • AI Strategy 2021-2030 • National Digital Transformation Programme (2025-2030)			✔	✔	National Defence, Security, Socio-economic fields

Pillar 2: Assess gaps in skilling ecosystems

Evaluating the coverage of priorities and focus areas – international best practices

Organisation, Strategy	Generative AI	Agentic AI	Frontier AI	Responsible & Ethical AI	Sectoral focus
Asia-Pacific Economic Cooperation (APEC), AI Landscape in APEC	✔			✔	-
Association of Southeast Asian Nations (ASEAN), Responsible AI Roadmap	✔		✔	✔	-
Organisation for Economic Co-operation and Development (OECD), AI Strategies and Policies			✔	✔	Healthcare, Education, Public Service, Transportation, Finance, Manufacturing, Construction, Telecommunications
UNESCO (United Nations Educational, Scientific and Cultural Organization), Recommendation on the Ethics of Artificial Intelligence				✔	-
World Economic Forum, Navigating the AI Frontier		✔	✔	✔	Healthcare, Education, Finance, Transport

Pillar 2: Assess gaps in skilling ecosystems

Identifying demand-supply mismatches in skilling initiatives

The framework leverages quantitative and qualitative inputs to assess the current skills demand (skills in demand from the workforce) and supply (skilling initiatives by educational and training institutes, and the stock of skills reported in the workforce). For further detail on how the assessment can be conducted in practice, see slides 47 and 48.

	Quantitative	Qualitative
Demand	• **Labour market data:** Analyse job posting and vacancies data, employment and wage trends • **Sectoral growth forecasts:** Use projections to determine emerging occupations and skill needs	• **Industry engagements:** Collate pain points and sector-specific skill needs • **Horizon scanning and trend analysis:** Understand how emerging trends and technologies shape skills demand
Supply	• **Education data:** Measure enrolment and graduation rates by field of study and level • **Training initiative mapping:** Track number, type, capacity of government-led initiatives and private training providers	• **Industry engagements:** Gather insights on whether employees and graduates meet skill demands • **Frequency of job changes:** Measure average time between employment and share of users switching roles • **Graduate employment surveys and interviews:** Track graduate employment outcomes and trends

Tracking demand and supply helps to identify gaps between the **skills that employers need** (demand) and the **skills that the workforce possesses / that academic and educational institutes are training for** (supply).

By pinpointing the **specific gaps**, stakeholders can design more **targeted and responsive interventions**:

- Quantitative gaps (i.e., insufficient workers to fill specific roles)
- Qualitative gaps (i.e., there are sufficient workers, but they do not have the relevant skills)
- Socioeconomic gaps (i.e., rural vs urban disparities)

Guiding Questions

Pillar 2

Assess gaps in skilling ecosystems

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Limited visibility on existing skilling initiatives and labour-market needs	Absence of a structured approach to gap assessment across systems	Structured approach to gap assessment in skilling initiatives exists
Apply	Conduct a baseline mapping of skilling programmes and gaps	Establish a formal process to review needs based on common assessment framework	Embed findings of gap assessment into policies and programs

Starting action | Scaling efforts | Sustaining impact

Which stakeholders should be engaged in the process of mapping and informing skilling initiatives?

To conduct a holistic and informed stock-take of skilling initiatives currently implemented across the economy

Starting action | **Scaling efforts** | Sustaining impact

What existing resources can be leveraged to inform current skilling supply and demand?

To establish a streamlined process that leverages existing capabilities

Starting action | Scaling efforts | **Sustaining impact**

What are some avenues or channels through which gap assessment findings can inform future program development?

To ensure that findings from the gap assessment are incorporated into subsequent iterations of skilling initiatives in a timely manner

Pillar 3

Pillar 3: Develop & Implement a workforce skilling roadmap

Pillar 3 sets out to develop and implement a workforce skilling roadmap by:

Mapping the priority areas from national digital skilling initiatives; and

Distilling key lessons from skilling efforts into core principles for programme efficacy

While the **AI for All landscape report** has identified existing gaps and opportunities in skilling initiatives for specific demographic groups, this roadmap applies a policy lens across the national skilling ecosystem – aligning skilling initiatives with broader economic priorities and supporting sustainable economic growth.

This pillar provides a base template for developing a skilling roadmap, with key action items that can then be implemented by policymakers according to economic and sectoral needs. This roadmap represents an initial starting point and will need to be future proofed through periodic reviews and updates.

The roadmap will also enable policymakers to:

- Identify the key actions to be taken by each stakeholder group
- Determine how to prioritise their efforts across multiple thematic areas and key actions

Pillar 3: Develop & Implement a workforce skilling roadmap

Mapping priority areas from national skilling initiatives and broader national strategies (as of Aug 2025) (1/3)

Country, National Strategy	AI courses, training, and curriculum	AI project investment and funding	Public-private or international partnerships	Government-supported AI centres	Broad-based participation	AI tax incentives
Australia • National AI Capability Plan • Future Skills Organisation Skills Accelerator – AI	✔	✔	✔	✔		✔
Cambodia • National AI Development • Cambodia Skills Development Roadmap 2023 – 2035	✔	✔	✔		✔	
India • National Strategy for Artificial Intelligence • Skill India Programme, Pradhan Mantri Kaushal Vikas Yojana 4.0 • FutureSkills Initiative • IndiaAI Governance Guidelines	✔	✔	✔	✔	✔	✔
Indonesia • National Strategy on Artificial Intelligence • Making Indonesia 4.0 • National Industrial Development Master Plan 2015-2035 • White Paper on the National Artificial Intelligence Roadmap	✔	✔	✔	✔		

Pillar 3: Develop & Implement a workforce skilling roadmap

Mapping priority areas from national skilling initiatives and broader national strategies (as of Aug 2025) (2/3)

Country, National Strategy	AI courses, training, and curriculum	AI project investment and funding	Public-private or international partnerships	Government-supported AI centres	Broad-based participation	AI tax incentives
Japan • AI Strategy 2022 • Society 5.0 • Grand Design and Implementation Plan for New Capitalism • AI Promotion Act • AI Basic Plan	✔	✔	✔	✔		
Malaysia • Artificial Intelligence Roadmap 2021-2025 • Malaysia Digital Economy Blueprint • MyMahir National AI Council for Industry (MyMahir-NAIC) • New Industrial Master Plan 2030	✔	✔	✔	✔	✔	✔
Singapore • National Artificial Intelligence Strategy 2.0 • SkillsFuture for Digital Workplace 2.0	✔	✔	✔	✔	✔	

Pillar 3: Develop & Implement a workforce skilling roadmap

Mapping priority areas from national skilling initiatives and broader national strategies (as of Aug 2025) (3/3)

Country, National Strategy	AI courses, training, and curriculum	AI project investment and funding	Public-private or international partnerships	Government-supported AI centres	Broad-based participation	AI tax incentives
South Korea • National Strategy for AI Intelligence; • Comprehensive Plan to Nurture Digital Talent • First Master Plan for Developing Critical and Emerging Technologies (2024-2028): A Blueprint for National S&T Sovereignty	✔	✔	✔	✔	✔	✔
Thailand • National AI Strategy and Action Plan (2022-2027) • Higher Education Plan for Thailand's Manpower Production and Development (2021-2027) • Science, Research and Innovation Plan (2023-2027)	✔	✔	✔	✔	✔	
Vietnam • AI Strategy 2021-2030 • National Digital Transformation Programme (2025-2030) • Law on Digital Technology Industry	✔	✔	✔	✔	✔	✔

Pillar 3: Develop & Implement a workforce skilling roadmap

Distilling key lessons from workforce skilling efforts into core principles for programme efficacy

Programme Design

Focuses on how programmes are structured to maximise reach and effectiveness

Principle 1: Ensure Access
Ensuring accessible learning resources for communities with diverse needs

Principle 2: Be Targeted
Targeted recruitment and community engagement to bridge AI skill gaps

Principle 3: Measure Outcomes
Measuring programme outcomes for continuous improvement

Programme Content

Focuses on what is being taught to ensure job readiness and ethical considerations

Principle 4: Foster Job-Readiness
Emphasising practical AI skills and job-oriented training and certification

Principle 5: Include Human-Centric Lens
Integrating ethical, safe, and responsible AI use into skilling opportunities

Beyond Content

Focuses on strengthening ecosystems for sustainable learning

Principle 6: Enable Continuity
Establishing continuous learning and support systems through mentorship and networking

Principle 7: Leverage Collaboration
Collaborating with local partners, industry experts and educational institutions

SOURCE: AI for All: Building an AI-Ready Workforce in Asia Pacific (2025).

Pillar 3: The AI for All Workforce Skilling Roadmap

Key action items have also been identified for the three key thematic areas, based on the three different progression pathways. Countries should customise the framework to their respective needs and self-identify their starting point depending on their progression pathway.

	Starting action	Scaling efforts	Sustaining impact
Identifying skills needed and gaps in ecosystems	a) Develop an AI skills taxonomy and assess existing AI skilling ecosystems* b) Conduct a national stock-take of the demand and supply of AI skills^	c) Develop country- and sector-specific AI skill taxonomies	d) Institutionalise regular updates to AI skill taxonomies
Fostering collaboration	a) Convene multi-stakeholder working groups and dialogue platforms on AI	b) Co-design AI skill training programs and curricula c) Implement industry placement and apprenticeship schemes	d) Align long-term education and workforce needs in AI e) Encourage cross-border collaboration for AI skills recognition and talent mobility
Promoting continuous learning	a) Launch national AI awareness and literacy campaigns to promote continuous learning culture b) Provide financial incentives for AI training	c) Expand access to AI upskilling pathways d) Embed AI learning and upskilling into the workplace	e) Integrate lifelong learning into education and labour policy planning

** Pillar 1 lays the foundation for policymakers to develop an AI skills taxonomy and identify essential AI skills.*
^ Pillar 2 provides an initial framework that can be leveraged to assess AI skilling gaps.

Pillar 3: The AI for All Workforce Skilling Roadmap

Identifying skills needed and gaps in ecosystems (1/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
a) Develop a skills taxonomy and assess existing skilling ecosystems Define and prioritise the AI-related competencies needed across roles and sectors. Draw on localised research to capture industry-specific transformations. Use findings to identify emerging skill needs and gaps in existing skilling programmes, institutional capabilities, and government initiatives.	Lead the development of national or sectoral AI skills taxonomies, and commission research on emerging AI skill demands and skilling gaps across demographics and regions.	Provide real-time labour market insights and input on evolving job roles and in-demand skills to ensure AI skilling taxonomies remain industry-relevant.	Align curricula and training programmes with the taxonomy and contribute evidence-based research on skill transformations driven by AI adoption.
b) Conduct a national stock take of the demand and supply of skills Establish a systematic process to assess the current and projected demand for AI-related skills across industries, alongside the existing supply of talent from training institutions, academia, and in the labour market, as well as available training initiatives. Create a robust evidence base to inform skilling policies, address mismatches, and shape targeted interventions.	Coordinate data collection efforts on AI demand and supply across ministries and labour agencies.	Provide input on evolving AI skill needs and hiring trends through structured surveys or employer roundtables.	Supply data on AI-affiliated programme enrolment and graduate outcomes, and flag areas where current offerings may be misaligned with industry demand.

Starting action Scaling efforts Sustaining impact

Pillar 3: The AI for All Workforce Skilling Roadmap

Identifying skills needed and gaps in ecosystems (2/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
c) Develop country- and sector-specific skills taxonomies Supplement the general AI skilling taxonomy to reflect varying national development priorities, local labour market structures, and sector-specific digital maturity levels. Enable targeted interventions in curriculum design, workforce planning, or policy development, ensuring that skilling efforts are responsive to the unique contexts and needs of each country and industry.	Coordinate the development of country-specific AI skilling taxonomies in consultation with local industry bodies and workforce agencies.	Offer sector-level input on specific job roles, skill gaps, and technology adoption patterns to inform AI skilling taxonomy customisation.	Support the localisation process through research and adapt training programmes to reflect national and sectoral nuances in AI-related skill needs.
d) Institutionalise regular updates to skills taxonomies Establish mechanisms to regularly update AI skilling taxonomies in response to evolving technologies, labour market shifts, and industry demand, keeping skilling frameworks relevant, forward-looking, and reflective of real-world applications. Ensure updates are informed by structured feedback loops involving the public sector, private sector, and academia, as well as ongoing labour market and technological trend analysis.	Create and maintain governance structures to coordinate regular review cycles, and ensure alignment with national development strategies.	Participate in structured feedback loops by sharing real-time information on evolving skill demands, job roles, and industry needs.	Feed insights from curriculum reviews, student outcomes, and labour market research into the update process to ensure evidence-based alignment.

Starting action Scaling efforts Sustaining impact

Pillar 3: The AI for All Workforce Skilling Roadmap

Fostering collaboration (1/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
a) Convene multi-stakeholder working groups and dialogue platforms	Organise and moderate dialogue platforms, ensuring broad-based representation and fostering cross-sector collaboration.	Actively contribute labour market insights and future skill requirements based on industry trends to inform curriculum development and policy discussions.	Share expertise on educational content, teaching methods, and research trends to support alignment with industry needs.
Facilitate regular dialogues between academia, private sector, and public sector to ensure education and training programmes remain aligned with evolving labour market demands. Multi-stakeholder working groups provide a collaborative forum to share insights, identify skill gaps, and co-create responsive AI skilling strategies.			
b) Co-design skill training programs and curricula	Provide regulatory guidance and funding support to facilitate collaborative programme development	Share practical insights and emerging skill requirements to shape curricula aligned with industry needs and trends.	Integrate industry feedback into curriculum design, ensuring training is up-to-date and industry-relevant.
Collaborate closely across public sector, private sector, and academia to design training programmes and curricula that reflect the evolving demands of AI-driven workplaces. Such co-design ensures relevance, practical applicability, and responsiveness to both technological advances and labour market shifts.			
c) Implement industry placement and apprenticeship schemes	Create enabling policies and incentives to support participation.	Offer structured opportunities and provide feedback to refine programme content.	Integrate placement requirements into academic pathways and prepare students with foundational skills needed.
Establish structured placement and apprenticeship schemes to equip learners with hands-on experience in AI-relevant roles. These programmes help bridge the gap between theoretical knowledge and workplace application, strengthening the employability of trainees.			

Starting action Scaling efforts Sustaining impact

Pillar 3: The AI for All Workforce Skilling Roadmap

Fostering collaboration (2/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
d) Align long-term education and workforce needs Anticipate future AI skill demands by aligning education pathways with evolving labour market trends. Incorporate strategic and scenario planning to adapt curricula, funding priorities, and workforce strategies in anticipation of emerging roles and technologies.	Lead national workforce planning efforts and invest in future-oriented education initiatives that reflect long-term economic and technological shifts.	Share insights on future skill requirements and collaborate on forward-looking talent development strategies.	Continuously update curricula and research priorities to reflect anticipated industry transformations and ensure students are equipped for emerging occupations.
e) Encourage cross-border collaboration for skills recognition and talent mobility Promote regional and international cooperation to harmonise skills standards and facilitate mutual recognition of qualifications. Support cross-border talent mobility to address skills shortages, enhance workforce flexibility, and strengthen regional economic integration.	Negotiate mutual recognition agreements and integrate skills frameworks with regional initiatives to enable seamless talent movement.	Identify critical skill sets needed across borders and support regional training initiatives that align with international standards.	Align certification programmes with international benchmarks to ensure portability and relevance of qualifications across jurisdictions.

Starting action Scaling efforts Sustaining impact

Pillar 3: The AI for All Workforce Skilling Roadmap

Promoting continuous learning (1/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
a) Launch national awareness campaigns to promote continuous learning culture Raise awareness on the importance of lifelong learning in adapting to AI-driven changes, especially for MSMEs that are the key drivers of economic growth across Asia-Pacific. Campaigns should highlight evolving skill demands, promote available upskilling resources, and encourage individuals and organisations to invest in continuous development. Upskilling resources should focus on securing buy-in via sectoral approaches to demonstrate the potential of AI, allowing MSMEs to experiment and get firsthand experiences with AI.	Lead nationwide campaigns, develop messaging on broad-based participation, and ensure accessibility across regions and demographics.	Endorse continuous learning through internal initiatives and public advocacy, reinforcing its relevance to workplace resilience.	Support campaigns by promoting upskilling pathways and aligning outreach with evolving educational offerings.
b) Provide financial incentives for training Introduce targeted financial mechanisms such as subsidies, tax relief, or training credits to reduce the cost barriers of upskilling and reskilling. Prioritise support for MSMEs by encouraging participation in AI-related training. Adopt a train-the-trainers approach, where middle managers attend AI skilling programmes and then cascade their knowledge to employees, helping to control costs while still building organisation-wide AI capabilities.	Design and fund financial support schemes, with clear eligibility criteria and mechanisms for equitable distribution.	Promote uptake of available incentives among employees and collaborate in co-funding or scaling industry-aligned training initiatives.	Offer bursaries and scholarships to participate in training, with clear eligibility criteria and mechanisms for equitable distribution.

Starting action Scaling efforts Sustaining impact

Pillar 3: The AI for All Workforce Skilling Roadmap

Promoting continuous learning (2/2)

Key actions	Roles and responsibilities		
	Public sector	**Private sector**	**Academia**
c) Expand access to upskilling pathways Broaden the availability and accessibility of AI upskilling opportunities through flexible, modular, and inclusive learning formats. Develop online, part-time, and micro-credential programmes designed to accommodate diverse learner needs, which is particularly pertinent for MSMEs that may require greater flexibility due to time and infrastructural constraints.	Support the development and scaling of accessible AI learning platforms.	Support employee participation by subsidising course fees, providing paid learning time, or forming partnerships with training providers to widen access.	Adapt delivery models and content to offer more flexible, demand-driven learning options for working learners and non-traditional students.
d) Embed learning into the workplace Promote a culture of continuous learning by integrating AI skill development into daily work routines. This includes on-the-job training, peer learning, access to digital learning tools, structured learning time during working hours, and specific support for MSMEs. Embedding learning in the flow of work supports sustained skills development, boosts retention, and ensures that workers are equipped to adapt as technologies and tasks evolve.	Design work environments and human resource (HR) policies that allocate time and resources for regular learning, and incentivise skill development as part of performance management.	Provide guidance and incentives for employers to integrate training into workplace practices, especially for SMEs and high-impact sectors.	Collaborate with industry to deliver workplace-aligned training content and short courses that can be directly applied on the job.
e) Integrate lifelong learning into education and labour policy planning Establish lifelong learning as a core pillar within national education and workforce strategies. Embed AI reskilling and upskilling pathways into formal education systems, align MSME needs and considerations with skilling initiatives, and ensure policy coherence across ministries responsible for education, labour, and economic development.	Develop integrated policy frameworks that connect education, labour, and economic planning to support lifelong learning.	Share insights on future AI skilling requirements and collaborate on forward-looking talent development strategies.	Align educational offerings and institutional missions with national goals for lifelong learning to support continued skill development.

Starting action Scaling efforts Sustaining impact

Guiding Questions

Pillar 3

Develop and implement skilling roadmap

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a coordinated strategy/roadmap for AI skilling	Preliminary roadmap formulated but lacks coordination	Established roadmap with implementation guidance
Apply	Identify key stakeholders and define shared objectives for a national roadmap	Define timelines, resources, and coordination mechanisms for implementation	Regularly update the roadmap to reflect evolving skills demands and feedback

Starting action	Scaling efforts	Sustaining impact
Which stakeholders should be engaged for the development of the roadmap?	To effectively design and develop a coordinated roadmap that is representative of economy and industry needs	
What existing mechanisms can be leveraged to foster tripartite collaboration between the public sector, private sector, and academia?	To establish a streamlined process that leverages existing channels and resources	

Starting action	Scaling efforts	Sustaining impact
How can AI skilling initiatives be designed to appeal to the interests of various demographic groups (e.g., MSMEs)?	To ensure that skilling initiatives remain relevant and closely aligned with priorities of various sectoral/demographic groups, expediting AI adoption	

Pillar 4

Pillar 4: Monitor and evaluate progress

Pillar 4 ensures effective implementation processes by:

- Developing and identifying KPIs for each pillar of the framework

KPIs must be tracked alongside specific demographic data, enabling disaggregated insights by gender, age, geography, and employment information. This ensures the framework supports broad-based participation across the population from its onset, supporting joint prosperity.

These KPIs will enable policymakers to:

- Identify key strengths and areas for improvement in the framework
- Inform the reiteration of the framework at regular agreed upon intervals, so as to strengthen outcomes and maintain relevance (amid continuously evolving technology and developments)

Pillar 4: Monitor and evaluate progress

1

Comprehensive

Ensure KPIs reflect the diversity of demographic groups, supporting collective participation and joint prosperity

2

Iterative

Ensure mechanisms are in place for monitoring and evaluation insights to inform the development of successive skilling initiatives

3

Practical

Incorporate feasibility considerations relating to the collection of KPIs, ensuring that monitoring and evaluation continues to be actionable

Pillar 4: Monitor and evaluate progress

NON-EXHAUSTIVE

Thematic area	KPI	Method of data collection	Frequency of data collection
Development of an accurate and comprehensive skills taxonomy	Adoption of skills taxonomy	Holistic stakeholder assessment*	Upon completion of Pillar 1 and every 2 to 3 years after
	Percentage of users rating taxonomy as useful	Holistic stakeholder assessment	Upon completion of Pillar 1 and every 2 to 3 years after
Develop country- and sector-specific skills taxonomies	Percentage of sectors that have developed a skills taxonomy	Holistic stakeholder assessment	Upon completion of Pillar 1 and every 2 to 3 years after
	Percentage of users rating taxonomy as relevant	Holistic stakeholder assessment	Upon completion of Pillar 1 and every 2 to 3 years after
Institutionalise regular updates to the taxonomy	Percentage of updates completed within planned review cycle	Holistic stakeholder assessment	Upon completion of Pillar 1 and every 2 to 3 years after
	Number of stakeholders contributing to updates	Holistic stakeholder assessment	Upon completion of Pillar 1 and every 2 to 3 years after
Continuously evaluate priorities and focus areas	Percentage of new priorities aligned with latest market, technology, or policy developments	Holistic stakeholder assessment	Upon completion of Pillar 2 and every 2 to 3 years after
Develop a robust gap assessment	Number of gaps identified	Holistic stakeholder assessment	Upon completion of Pillar 2 and every 2 to 3 years after
	Percentage of identified gaps supported by data, and with clear interventions	Holistic stakeholder assessment	Upon completion of Pillar 2 and every 2 to 3 years after

*NOTE: Stakeholders that could facilitate with data collection include: the Manpower Ministry, Information and Digital Ministry, trade and commerce associations, representatives from academia, and industry

Pillar 4: Monitor and evaluate progress

NON-EXHAUSTIVE

Thematic area	KPI	Method of data collection	Frequency of data collection
Baseline digital literacy	Proficiency in basic digital skills	Existing indicator – World Economic Forum Executive Opinion Survey (WEF EOS)	Annually
Training infrastructure	Number of training centres or institutions offering digital/AI-related courses	National data aggregated from training institutions and programme providers	Annually
Training participation rates	Number or percentage of individuals enrolled in training programmes	National data aggregated from training institutions and programme providers	Annually
Training completion rates	Number or percentage of individuals that have graduated from training programmes	National data aggregated from training institutions and programme providers	Annually
AI funding	Total funding for AI companies	Market intelligence firms like CB Insights, Tracxn	Annually
	Public funding for AI research and programmes	Government data	Annually

Examples of existing monitoring and evaluation approaches

Future Skills PRIME, India is an initiative launched by the Ministry of Electronics and Information Technology (MeitY) aiming to reskill IT professionals in emerging technologies, including AI. Its 2023 annual report reported total sign-ups of 1,072,082 candidates, enrolment of 460,492 candidates, and completion by 156,056 candidates. This lies against MeitY's target rate of 412,000 beneficiaries, highlighting a completion rate of 38%.

Indonesia's Digital Literacy Index is an annual measurement conducted by Komdigi (formerly Kominfo) that evaluates digital literacy on four pillars: digital skills, digital ethics, digital security, and digital culture. Surveys were conducted with 10,000 respondents over 514 districts and cities in Indonesia in 2022 to determine the country's levels of digital literacy.

While digital literacy indices may not necessarily be an indicative measure of AI literacy, they demonstrate the requisite foundational skill levels and familiarity needed to grasp deeper AI technologies.

Pillar 4: Monitor and evaluate progress

NON-EXHAUSTIVE

Thematic area	KPI	Method of data collection	Frequency of data collection
AI adoption rates	Extent to which local businesses are adopting AI	Existing indicator – WEF EOS	Annually
Employment outcomes	Job placement rate of training graduates within AI-related or AI-augmented roles	Graduate employment surveys	Annually
	Wage growth for training graduates	Graduate employment surveys (Longitudinal)	Annually
AI innovation outputs	Number of AI companies	Market intelligence firms like CB Insights, Tracxn	Annually
	Volume of AI research publications	Scimago Journal & Country Rank	Annually
	Number of generative AI patent filings	World Intellectual Property Organization Generative Artificial Intelligence Patent Landscape Report 2023	Annually
Skills relevance	Employer satisfaction or feedback with new hires	Structured employer surveys	Every 2 to 3 years
Training ROI	Productivity gains attributed to skilling efforts	Targeted case studies and surveys	Every 2 to 3 years

Example of existing monitoring and evaluation approaches

K-Digital Training is a vocational training program focussed on digital technologies and digitally-enabled industries. It is implemented by the Ministry of Employment and Labour (MOEL), in collaboration with academic institutions (e.g, Seoul National University, Hanyang University), and leading digital companies (e.g., Samsung, KT) in Korea. MOEL regularly reports the employment rate for graduates of the K-Digital Training Programme, with employment rates reaching 67.4% in 2021.

Guiding Questions

Pillar 4

Monitor and evaluate progress

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Absence of robust mechanisms to collect and measure impact of skilling programs	Data is being collected, but lacks a systematic Monitoring, Evaluation, & Learning (MEL) framework	Robust MEL system in place with established data collection processes but underutilised
Apply	Define initial KPIs and simple data collection methods to measure progress	Establish a structured MEL framework and input relevant data	Institutionalise data-driven decision-making and framework/policy refinement

Starting action | **Scaling efforts** | Sustaining impact

What are your intended outcomes from the skilling initiatives? How can they be measured?

To define the Key Performance Indicators (KPIs) that should be collected in assessing the overall effectiveness of skilling curriculums

Which are some existing data collection methods that can be leveraged for Pillars 1, 2, and 3? What other forms of baseline data is required, and how will it be collected?

To establish a MEL process that leverages existing capabilities and mechanisms; while ensuring that data collected through the course of the framework remains consistent as curriculums are iteratively revised

Starting action | Scaling efforts | **Sustaining impact**

What institutional processes are in place to ensure that MEL findings inform skilling policies/programs?

To ensure that there are formal mechanisms enabling the continued refinement of skilling initiatives

AI for All Workforce Skilling Case Studies

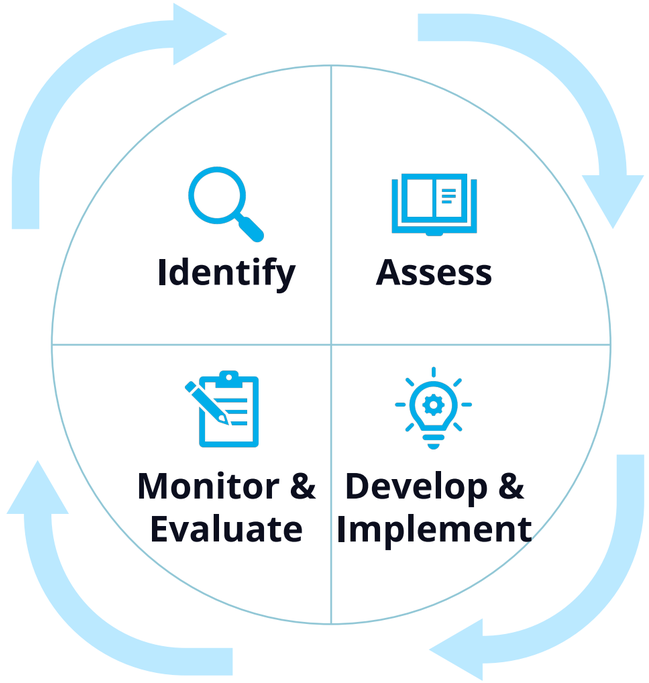
Recap: The AI for All Workforce Skilling Policy Framework informs the design of AI skilling initiatives...

1

Identify the skills needed for AI

Develop a skills taxonomy that enables policymakers to define and classify skills transformed by AI; and

Identify emerging AI skills that align with national and sectoral policies and priorities



2

Assess gaps in skilling ecosystems

Conduct a gap assessment to identify gaps in existing skilling programs, ensuring that future skilling programs remain targeted

3

Develop and implement a workforce skilling roadmap

Design an actionable AI workforce skilling roadmap, prioritising the key actions to be taken by various stakeholders

4

Monitor and evaluate progress

Identify and develop key performance indicators (KPIs) as part of the MEL approach to continuously refine the framework

Objective of the framework

- Identify **essential, fit-for-purpose AI skills** needed to adapt to evolving job landscapes;
- Establish a **tailored approach** towards developing skilling initiatives for sectoral and demographic groups (e.g., Micro, Small, and Medium Enterprises (MSMEs));
- Design **actionable and agile** steps to build AI capabilities at scale

...and identifies 3 progression pathways

Recognising that countries are at different stages of development along each pillar, three progression pathways have been developed to reflect their varying levels of readiness at each pillar:

- *Starting action*: Aimed at establishing foundations for AI skilling ecosystems currently at a formative stage
- *Scaling efforts*: Bolstering coordination and processes for AI skilling ecosystems where efforts are underway
- *Sustaining impact*: Enhancing institutional procedures for countries with established AI skilling processes in place, for continuous improvement

Countries can self-assess against these guiding statements in each pillar, to identify their stage of development ("Current state") and how they can best apply the Framework ("Apply") to design, scale, and sustain AI skilling initiatives.

Pillar 1
Identify the skills needed for AI

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a skills taxonomy pertaining to AI	Multiple, fragmented taxonomies or frameworks across the economy	Updated and integrated taxonomy
Apply	Leverage framework to develop initial taxonomy aligned with national priorities	Harmonise definitions, and align frameworks across ministries and sectors	Institutionalise regular reviews and revisions to maintain relevance with technological shifts

Pillar 2
Assess gaps in skilling ecosystems

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Limited visibility on existing skilling initiatives and labour-market needs	Absence of a structured approach to gap assessment across systems	Structured approach to gap assessment in skilling initiatives exists
Apply	Conduct a baseline mapping of skilling programmes and gaps	Establish a formal process to review needs based on common assessment framework	Embed findings of gap assessment into policies and programs

Pillar 3
Develop and implement skilling roadmap

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a coordinated strategy/roadmap for AI skilling	Preliminary roadmap formulated but lacks coordination	Established roadmap with implementation guidance
Apply	Identify key stakeholders and define shared objectives for a national roadmap	Define timelines, resources, and coordination mechanisms for implementation	Regularly update the roadmap to reflect evolving skills demands and feedback

Pillar 3
Monitor and evaluate progress

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Absence of robust mechanisms to collect and measure impact of skilling programs	Data is being collected, but lacks a systematic Monitoring, Evaluation, & Learning (MEL) framework	Robust MEL system in place with established data collection processes but underutilised
Apply	Define initial KPIs and simple data collection methods to measure progress	Establish a structured MEL framework and input relevant data	Institutionalise data-driven decision-making and framework/policy refinement

This section identifies case studies of AI skilling initiatives that demonstrates how to apply the Framework in practice

To show how countries are operationalising different pillars and progression pathways of the Framework, we present three case studies that illustrate what effective AI skilling looks like in action.

IndiaAI Mission. As a national effort to promote responsible and inclusive growth of AI, India has established a preliminary roadmap and mechanisms to encourage inter-agency collaboration – corresponding to Pillars 3 and 4 of the Framework. By bridging the gaps in India's AI ecosystem, it will help India to progress from *Scaling efforts* to *Sustaining impact*.

AI untuk Rakyat and the Go Cloud Program. Recognising the need to enhance AI literacy across the wider population, these AI skilling campaigns represent broad-based efforts to narrow AI skill gaps identified across the ecosystem, supporting Malaysia's digital transformation goals. With structured mechanisms in place to evaluate digital skilling gaps – corresponding to Pillar 2 of the Framework, this case study demonstrates how Malaysia *Sustains impact* through targeted skilling interventions.

Digital Skill Standards. The Digital Skill Standards were developed to provide broad guidance on digital skilling for both business practitioners and technical experts within organisations, ahead of evolving digital technologies and digital transformation. Applicable across sectors and industries, the taxonomy demonstrates *Sustained impact* through its agile and adaptive approach.

AI for All Workforce Skilling Case Studies

INDIA

IndiaAI Mission: A strong example of the actions needed for a country to move from *Scaling efforts* to *Sustaining impact*

Pillar 4: Monitor & Evaluate

Pillar 3: Develop & Implement

Pillar 3

Develop and implement skilling roadmap

Pillar 4

Monitor and evaluate progress

IndiaAI Mission

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a coordinated strategy/roadmap for AI skilling	Preliminary roadmap formulated but lacks coordination	Established roadmap with implementation guidance
Apply	Identify key stakeholders and define shared objectives for a national roadmap	Define timelines, resources, and coordination mechanisms for implementation	Regularly update the roadmap to reflect evolving skills demands and feedback

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Apply	Define initial KPIs and simple data collection methods to measure progress	Establish a structured MEL framework and input relevant data	Institutionalise data-driven decision-making and framework/policy refinement

This case study dives into the IndiaAI Mission, and how it has established a preliminary AI roadmap and supporting implementation mechanisms, as well as KPIs to measure progress.

This has helped India to build a robust foundation for identifying essential, fit-for-purpose AI skills and developing a skilled AI workforce.

Leveraging a whole-of-ecosystem approach to bridges gaps in India's AI ecosystem

Launched by the Government of India in 2024, the IndiaAI Mission represents a significant national effort undertaken in extending AI access, use, and deployment to every citizen. The initiative adopts a **whole-of-ecosystem approach** to promote the responsible and inclusive growth of AI across India, structured around seven core pillars ranging from AI infrastructure ("IndiaAI Compute Capacity") to AI skilling ("IndiaAI Future Skills").

This holistic approach has also paved the way for similar, subsequent AI initiatives in India, such as the India AI Governance Guidelines, which call for a whole-of-government approach to coordinate policy actions and prepare for future AI development.

Drawing on an initial AI roadmap published in October 2023, the IndiaAI Report 2023, First Edition, the IndiaAI Mission aims to bridge gaps identified in India's existing AI ecosystem, furthering its commitment to build AI in India, for India.

The successful implementation of the IndiaAI Mission is driven by several levers:

1. **Integrating AI skilling with real-world applications**
2. **Embedding mechanisms that enable inter-agency collaboration**
3. **Sector-focused identification of skilling shortages**

Integrating real-world applications by establishing collaboration mechanisms between stakeholders

Pillar 3: Develop & Implement

1. Integrating AI skilling with real-world applications

A key priority of the IndiaAI Mission is to strengthen the development of **indigenous AI models** and solutions tailored to India's needs and national challenges.

This is reflected through two pillars of the IndiaAI Mission:

- IndiaAI Innovation Centre: Inviting **researchers**, **startups**, and **entrepreneurs** to collaborate on building indigenous AI models
- IndiaAI Application Development Initiative: Inviting **Indian startups**, **innovators**, and **businesses** to develop and scale indigenous AI solutions with propensity for broad-based impact

The adoption of a use case-led approach in co-creating solutions helps to build **deep technical capabilities** across startups and businesses outside of formal skilling initiatives, promoting skill diffusion across enterprises in manners that are **aligned** with their needs and interests

Embedding collaboration mechanisms between experts across different stakeholder groups to co-create scalable solutions

Pillar 3: Develop & Implement

2. Embedding mechanisms that enable inter-agency collaboration

Acknowledging the multidisciplinary nature of AI solutions and applications, the IndiaAI Mission has also established three AI Centres of Excellence (CoEs) across India. AI CoEs provide avenues for experts from **academia, industry, and government institutions** to convene and co-create scalable solutions, addressing critical issues across India while providing capacity-building across ecosystem builders.

Employing a hub-and-spoke approach,

- Knowledge generation and sharing across the field of AI will be supported by academic and research institutions, start-ups, industry partners through Memorandum of Understandings (MoUs);
- Stewardship of CoE agenda and priorities will be led by one academic institution, who will also coordinate relevant activities (e.g., training and development opportunities provided for AI users and practitioners)

The **institutionalisation** of a multistakeholder approach to AI research and deployment ensures that cooperation across stakeholders is **systematic and sustained**, while fostering broader alignment on a shared approach to AI skilling

Establishing monitoring and evaluation processes and mechanisms help to promote progress tracking and continual refinement

Pillar 4: Monitor & Evaluate

2. Embedding mechanisms that enable inter-agency collaboration

Beyond the establishment of the CoEs, their effectiveness is further enhanced through the embedment of robust **monitoring and evaluation** processes across the pillar. Key performance indicators, accompanying metrics, and scoring mechanisms have been outlined in the IndiaAI Report (2023), with a sample for the evaluation of capacity-building initiatives included below:

Section	Main metric	Sub-metric	Description	Score	Weightage
5	**Capacity Building:**				10%
5.1	Skilled Workforce Development	Number of skilled AI professionals trained through the CoE's programs	Number of skilled AI professionals trained through the CoE's training programs and workshops		
		Placement rate of students and researchers associated with the CoE	Placement rate of students and researchers associated with the CoE in leading AI companies or research Institutions		

The detailing of key performance indicators (KPIs), substantiated clearly by their sub-metrics and descriptions enable programs to be **continually enhanced** to achieve their intended outcomes

Enabling inter-agency collaboration through enhanced governance mechanisms

Pillar 4: Monitor & Evaluate

2. Embedding mechanisms that enable inter-agency collaboration

The pillar also includes **governance mechanisms** to enhance accountability and promote stakeholder coordination throughout the initiative. As detailed in the IndiaAI Report (2023), the governing structure is proposed to be:

Project Review & Steering Group (PRSG)
Chaired by the CEO of IndiaAI; Comprising members across academia, industry, and government

Governing Council
Chaired by the Secretary of MeitY and the CEO of IndiaAI; Comprising members across academia, industry, and government

Provides high-level direction

Executive Council for each CoE
Led by a Chief Executive Officer (CEO)

Oversees and monitor activities

Technical team
Comprising AI programmers, engineers, and domain experts

Research team
Comprising faculty members from academic institutions, researchers, PhD students

The India AI Governance Guidelines recognise that India would benefit from a **coordinated institutional effort** when formulating and implementing policy frameworks.

To that end, strong governance mechanisms outlining roles and responsibilities **coordinate actions** across stakeholders, ensuring that multistakeholder initiatives are **sustainably managed**

Driving wider and more transformative impact through a sectoral focus (1/2)

Pillar 3: Develop & Implement

3. Sector-focused identification of AI capability needs

The IndiaAI Mission adopts a sectoral focus, in alignment with the five economic sectors prioritised for AI deployment across India. Initiatives across the Mission's pillars have been designed with these critical sectors in mind. The **healthcare** sector is among the key sectors identified where broad-based AI adoption and deployment can yield wider, more transformative impact:

IndiaAI Innovation Centre

- Through the IndiaAI Innovation Initiative, the Mission promotes the development of foundational AI models, with the health sector as a priority.
- Selected projects include Fractal Analytics, India's large reasoning model for medical problem solving; and NeuroDX, an AI-enabled signal analysis to aid neurological screening

IndiaAI Centres of Excellence

- Of the three CoEs established across India, a CoE was developed for the healthcare sector, designed to revolutionise diagnostics, treatment planning, and patient care; and foster the development of scalable AI solutions in the healthcare sector

Driving wider and more transformative impact through a sectoral focus (2/2)

Pillar 3: Develop & Implement

3. Sector-focused identification of AI capability needs

The Ministry of Skill Development and Entrepreneurship (MSDE) has also implemented robust skilling development programmes pertaining to the healthcare sector through national skilling initiatives:

- Under Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 4.0, digital skilling courses relating to Artificial Intelligence and Machine Learning have been introduced (e.g., AI-enabled Pharmacovigilance)
- Under the Craftsmen Training Scheme (CTS), 29 Industrial Training Institutes currently offer courses in Smart Healthcare across India.

These skilling initiatives however, are currently not integrated with the skilling initiatives under IndiaAI Mission, presenting an opportunity to align skilling efforts in creating an AI-ready workforce that can drive improved health outcomes.

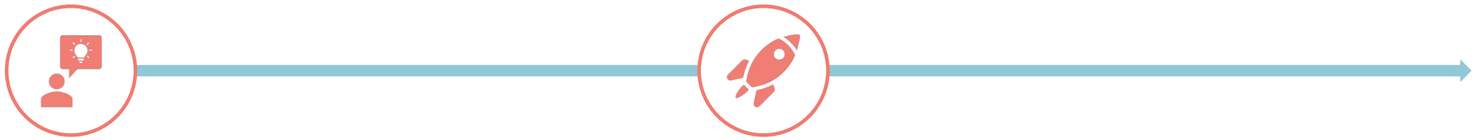
National AI strategies can build on synergies from other national skilling initiatives, **leveraging their existing institutional networks, training infrastructure, and industry partnerships** to accelerate AI skill development and adoption

Unifying AI initiatives and priorities across the country

AI skilling initiatives prior

Were fragmented across ministries and institutions, and lacked a unified focus on specific AI skilling priorities:

- AI capacity-building programs were siloed within respective sectors and state/district boundaries
- Varying AI priorities across ministries (e.g., vocational workforce training vs industry-focussed)



Launch of India AI Mission

A roadmap that employs a whole of eco-system approach to promote responsible use, adoption, and growth of AI in India, with clear sectoral priorities and unified vision for AI development across the country

Going forward

In the **near-term**, the India AI Mission can:

- Harness existing momentum and create synergies with existing national skilling initiatives (e.g., PMKVY 4.0, CTS), accelerating AI skill adoption

In the **longer-term**, the India AI mission can:

- Continually evaluate its progress and assess the relevance of its priorities, ensuring that MEL findings continue to inform AI skilling initiatives through established mechanisms

AI for All Workforce Skilling Case Studies

MALAYSIA

Malaysia's National AI Skilling Initiatives: *Sustaining Impact* in identifying AI skilling gaps

Pillar 2

Assess gaps in skilling ecosystems

Malaysia's AI skilling initiatives

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Limited visibility on existing skilling initiatives and labour-market needs	Absence of a structured approach to gap assessment across systems	Structured approach to gap assessment in skilling initiatives exists
Apply	Conduct a baseline mapping of skilling programmes and gaps	Establish a formal process to review needs based on common assessment framework	Embed findings of gap assessment into policies and programs

This case study explores the breadth of AI skilling initiatives currently implemented across Malaysia, and how it has set a robust foundation for the continual assessment of AI skill gaps in the existing digital skilling landscape.

These insights have enabled policymakers and stakeholders to cultivate tailored and targeted programmes that effectively address and meet Malaysia's digital transformation goals.

Fostering broad-based participation in and adoption of AI

Malaysia's national AI Skilling initiatives are characterised by efforts to **expand and democratise AI knowledge and capabilities for the general public** in Malaysia. Two notable initiatives are AI untuk Rakyat (AI for the People) and Google's Go Cloud Program.

AI untuk Rakyat aims to close the AI literacy gap across Malaysians by enabling all individuals to be empowered to participate in AI-enabled digital economy and society. Within 6 months of its launch, one million Malaysians have completed the self-learning programme, highlighting the expansive reach of the programme.

Go Cloud Program is a partnership between Google Cloud, CloudMile, and Trainocate that aspires to provide Malaysians with more digital training opportunities. The program aims to upskill 300,000 Malaysians by 2026.

These skilling initiatives achieves its goals through the following levers:

1. **Align relevance of AI courses to the interests and needs of demographic groups**
2. **Leverage local networks to expand reach**
3. **Poised for scale at its inception**

Providing critical insights on AI skilling needs through regular assessment of demand and supply

1. Align relevance of AI courses to the interests and needs of demographic groups

Malaysia continually sets out to evaluate the landscape of AI skilling demand and supply across the economy. Through the Digital Talent Snapshot, The Malaysia Digital Economy Corporation (MDEC) conducts a quarterly evaluation of digital talent and job vacancies across Malaysia, which provides granular insights on regional and sectoral skilling needs.

	Quantitative	Qualitative
Demand	**Labour market data:** MDEC research regularly tracks digital job vacancies across 5 job portals, LinkedIn, JobStreet, MauKerja, MYFutureJobs, and Foundit. These insights are complemented by national-level census data.	**Horizon scanning and trend analysis:** The Digital Talent Snapshot continually reviews hiring trends and market outlooks across research pieces
Supply	**Education data:** MDEC continually tracks enrolment and achievement of its digital talent initiatives, focussing on enrolment rates, employability rate, and job placements	**Graduate employment surveys and interviews:** The Digital Talent Snapshot tracks the employment outcomes of recent graduates, and their corresponding digital skilling level.

Consistent methodology and **regular data collection frequencies** in analysing skilling gaps ensures that skilling needs are continually captured and prioritised

Identifying gaps in the AI talent landscape to inform the design of skilling initiatives

1. Align relevance of AI courses to the interests and needs of demographic groups

These insights then go to inform the objective and focus of AI skilling initiatives implemented across Malaysia. For example, *AI untuk Rakyat* focuses more on **fundamental AI skills**, thereby tailoring curriculum design and delivery toward the needs of local communities and individuals; while the *Go Cloud Program* focuses on training in **specific functional areas** like generative AI, data analytics, and cloud-based productivity tools.

AI untuk Rakyat's curriculum	• AI Aware modules introduces and explores the use of AI and generative AI • AI Appreciate modules promote understanding of the responsible and ethical use of AI • Courses are delivered in Bahasa Malaysia, English, Tamil, and Mandarin
Go Cloud Program's curriculum	• Users have free access to six digital learning paths. • Completing the learning paths grants users digital skills badges that can be shared on their resumes, and extended access to more learning paths at no cost.

Applicable for **local communities and individuals** looking to **expand AI awareness and literacy**

Applicable for **career practitioners and entrepreneurs** looking to **improve workplace productivity**

Identifying skilling gaps to design targeted initiatives

2. Leverage local networks to expand reach and effectiveness

Effective and well-designed skilling initiatives require established networks and deep contextual knowledge. In particular, the *Go Cloud Program* has partnered with the following organisations to engage effectively with potential learners:

CloudMile

- Leading AI solutions provider that has worked on over 1,200 digital transformation engagements across the Asia Pacific region

Trainocate Malaysia

- Well-recognised training provider in Malaysia that has partnered with some of the leading big tech companies, and developed tailored curriculums for some of the most prominent companies in Malaysia

Tapping on trusted training providers with **strong networks and deep knowledge** facilitates more effective learning outcomes, enhancing impact

Identifying skilling gaps to define longer-term objectives of skilling initiatives

3. Poised for scale at its inception

The understanding of AI skilling gaps help stakeholders and policymakers define longer-term objectives for AI skilling initiatives, thereby planning for growth in mind. These considerations were weaved into the design of the AI skilling initiatives in Malaysia:

i. **Collaboration with learning institutes:** Partners include training and vocational institutes, alongside human resource corporations across Malaysia to conduct guided programmes and technical workshops

ii. **Progressive digital training programmes:** The Go Cloud Program builds on *Gemilang,* a previous initiative from Google that has already provided 31,000 Google Career Certificate scholarships to less fortunate individuals in partnership with educational institutions and nonprofits. The Go Cloud Program itself promotes sustained engagement through extended access to learning resources at no cost.

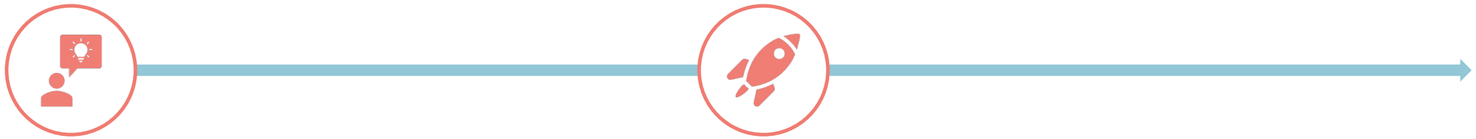
Leverages existing resources, capabilities, and infrastructure in learning institutes to expand reach of AI skilling campaigns

Enables the sustainable cascade of AI skills to wider audiences

Driving a targeted response to AI skilling gaps

Assessment of AI skill gaps

The Ministry of Education, Malaysia Digital Economy Corporation, has underscored the need for stronger digital and AI literacy skills across specific demographic groups across the population



Malaysia's AI skilling initiatives

In response, AI skilling initiatives launched across Malaysia have been characterised by efforts to expand and democratise AI literacy and knowledge across the general public in Malaysia

Going forward

In the **longer-term**, Malaysia can:

- Further strengthen its assessment ecosystem by expanding national-level assessments to more granular sectoral assessments, promoting the development of specific AI competencies in high-growth sectors.
- Introduce coordination mechanisms with other stakeholders (e.g., industry bodies, academia) in the skilling ecosystem to ensure that newer insights on skill demands and industry needs are regularly updated in the Digital Talent Snapshot

AI for All Workforce Skilling Case Studies

JAPAN

Japan's Digital Skills Standards: Continued effort in identifying critical AI skills needed to *Sustain Impact*

Pillar 1: Identify

Pillar 1

Identify the skills needed for AI

Japan's Digital Skill Standards

	Starting Action	Scaling Efforts	Sustaining Impact
Current State	Yet to establish a skills taxonomy pertaining to AI	Multiple, fragmented taxonomies or frameworks across the economy	Updated and integrated taxonomy
Apply	Leverage framework to develop initial taxonomy aligned with national priorities	Harmonise definitions, and align frameworks across ministries and sectors	Institutionalise regular reviews and revisions to maintain relevance with technological shifts

Digital policy in Japan today is largely characterised by the philosophy of agile governance, as represented by the pro-innovation stance in its AI Basic Plan, launched in Dec 2025. This case study explores how Japan keeps its digital skilling taxonomy, the Digital Skills Standards, reflexive and agile to shifting economic and national priorities.

Providing digital skilling guidance to business professionals and digital experts

The Ministry of Economy, Trade, and Industry (METI) Japan and the Information Technology Promotion Agency (IPA) have developed the Digital Skill Standards in 2022. These standards aim to provide guidelines on the development of human capital within organisations, ahead of evolving digital technologies and digital transformation.

The Digital Skill Standards comprise of:

- DSS-L: **Broad digital literacy guidelines** for general business practitioners
- DSS-P: **Specialised digital skills** required for key digital experts

The Japanese government ensures that the Digital Skill Standards remain reflective to industry needs through:

1. Periodic revision of the Digital Skill Standards based on evolving industry trends and alignment with national priorities

2. Keeping guidelines broad rather than prescriptive, providing overarching principles that allow room for flexibility as requirements evolve

Ensuring alignment with evolving needs through iterative revisions

Pillar 1: Identify

1. Iterative revision of the Digital Skill Standards based on evolving industry trends and alignment with national priorities

The Digital Skill Standards have been iteratively updated following a wider review of digital and AI skilling needs and requirements:

May 2023

The AI Strategic Council developed a report titled "Tentative Summary of AI issues":

- Discussed the **impact of AI on the development and retention of digital skills**
- Highlighted the need for a review of talent development initiatives

Early-Aug 2023

The Study Group on Human Resources Policy in the Digital Age conducted a review of how digital skills development initiatives should be reconceptualised in light of the emergence and evolution of generative AI

Aug 2023

METI and IPA revised the Digital Skill Standards to:

- **Adapt digital skill literacy requirements** across general business practitioners
- Emphasise emerging and evolving digital skills

Early 2024

Japan reaffirmed its **commitment to ensuring responsible AI use and deployment**:

- Published the AI Guidelines for Business V1.0 that call for ethical AI deployment

Jul 2024

METI and IPA revised the Digital Skill Standards to:

- Place greater emphasis on **responsible and ethical use of AI** by digital transformation experts and practitioners

Dec 2025

Japan recognised the continued importance of digital skills, designating "Developing and Securing AI talent" as a specific initiative within its AI Basic Plan

Enabling timely changes to AI policy through structured coordination mechanisms

Pillar 1: Identify

1. Iterative revision of the Digital Skill Standards based on evolving industry trends and alignment with national priorities

The short lead time taken to incorporate report findings and to update the Digital Skill Standards can be attributed to the collaboration mechanisms established between the METI and other relevant AI agencies (i.e., the AI Strategy Council, Ministry of Internal Affairs and Communications (MIC)).

The AI Strategy Council is the main coordinating body for AI development in Japan. It charts the overall strategic direction of AI development across Japan, and coordinates AI development across METI, MIC, and the Ministry of Education, Culture, Sports, Science and Technology, and key industry bodies.

The AI Strategy Council, together with the abovementioned ministries, convenes bi-monthly to discuss emerging issues relating to the use of AI and AI governance policies.

Structured coordination mechanisms ensure **wider policy alignment** and **strategic consistency** across participating stakeholders, supporting responsiveness and agility to guidelines and policymaking

Enabling adaptation of skilling guidelines through a broad, guided approach

Pillar 1: Identify

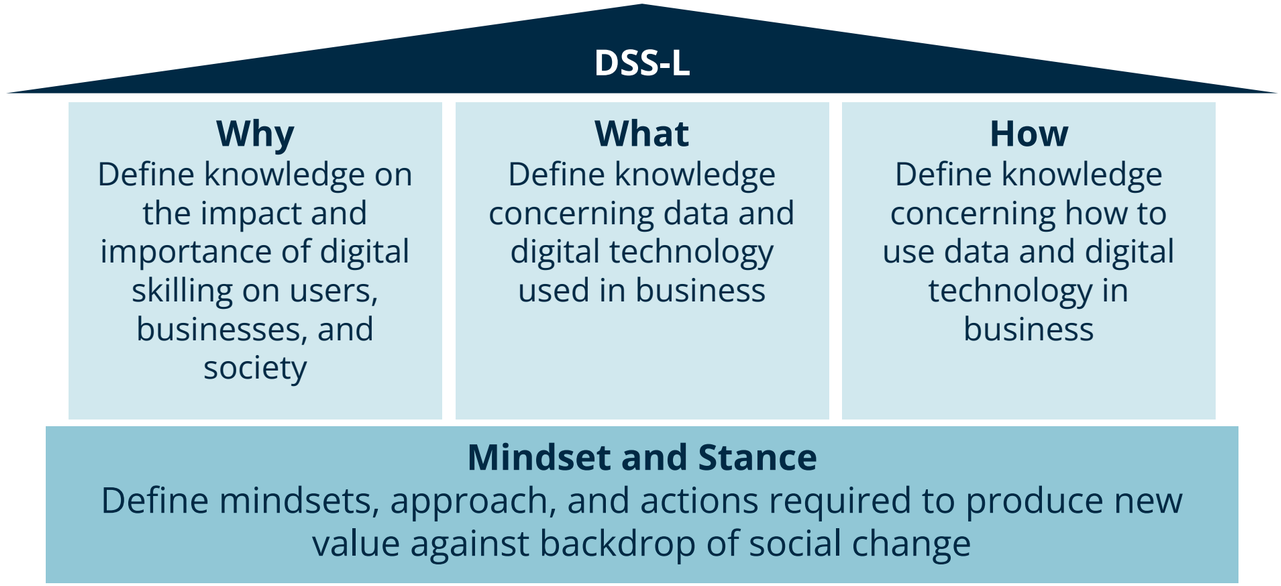
2. Keeping guidelines broad rather than prescriptive, providing overarching principles that allow room for flexibility as requirements evolve

Digital Skill Standard – Literacy

Applicable across industries, departments, roles, or levels of experience

Underscores the significance of **mindsets and attitudes** towards digital technologies, that shape the ways individuals use and approach AI

Identification of digital literacy knowledge is guided by ***why*, *what*, and *how* considerations** that organisations can apply to personalise the framework to their needs



Note: adapted from the Digital Skill Standards

Adopting a process-led approach remains adaptive while maintaining sight of critical capabilities

Pillar 1: Identify

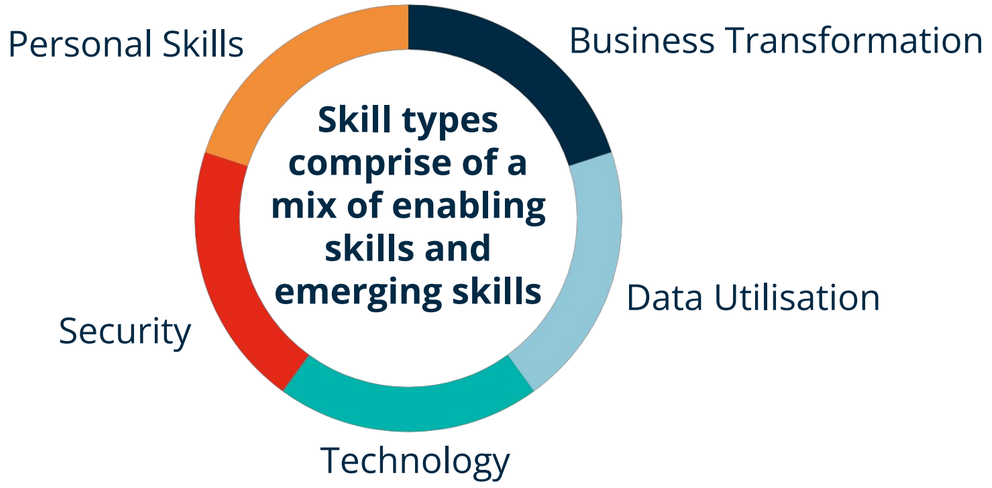
2. Keeping guidelines broad rather than prescriptive, providing overarching principles that allow room for flexibility as requirements evolve

Digital Skill Standard – Proficiency

Process-led approach in identifying, developing, and acquiring digital skills tailored to the needs of the enterprise

Define five basic human resource types central to the promotion of digital skills within the enterprise

Provides **high-level guidelines** on the mapping of roles and responsibilities to a pre-defined List of Common Skills



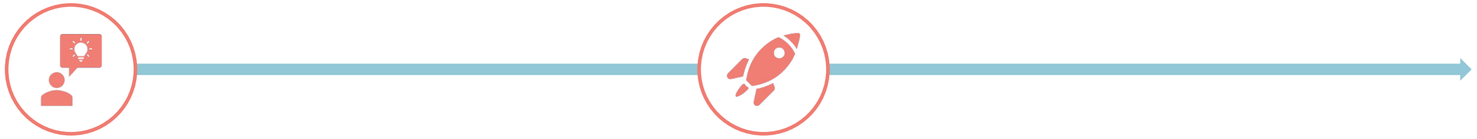
Note: adapted from the Digital Skill Standards

Enabling flexible, demand-driven digital standards through an adaptive taxonomy

Evolving national and economic priorities

In light of recent AI developments, Japan has:

- Affirmed the need for the responsible deployment and adoption of AI
- Developed a vision for Society 5.0, creating a human-centered, connected society where technologies are closely integrated with social and economic life



Japan's Digital Skill Standards

In response to these shifting priorities, the Digital Skill Standards in Japan have been updated to provide general guidance on digital and AI skilling needs across general business practitioners and digital experts

Going forward

In the **longer-term**, the METI can:

- Implement recurring review processes to **continually evaluate the taxonomy's relevance**, even without major shifts in strategic priorities

- Develop **feedback loops/channels** with users of the Digital Skill Standards (e.g., private sector bodies, academia representatives) beyond its bimonthly meetings, ensuring that **real-time information and updates can be shared more directly**

Appendix A: Detailed methodology

Step 1

1. Ground-up assessment of AI impact

NON-EXHAUSTIVE

The proportion of detailed work activities affected by AI provides the share of activity affected by AI. Refer here for the full classification of detailed and intermediate work activities.

Detailed work activities	Intermediate work activities	Work activities
Obtain property information	Gather information from physical or electronic sources	Getting information
Use databases to locate investigation details or other information		
Search information sources to find specific data		
Gather financial records		
Retrieve information from electronic sources		
Gather information in order to provide services to clients		
Search files, databases or reference materials to obtain needed information		
Collect archival data		
Gather organizational performance information	Gather data about operational or development activities	
Gather information about work conditions or locations		
Gather physical survey data		
Collect data about project sites		

SOURCE: National Center for O*NET Development

2. Sorting work activities by AI impact

Extensive impact (≥1) Moderate impact (<1, or >-1) Minimal impact (≤-1))

Work activities	AI impact (z-score)	Share of activity affected by AI
Scheduling Work and Activities	1.6	100.0%
Performing Administrative Activities	1.6	100.0%
Monitoring and Controlling Resources	1.6	100.0%
Monitoring Processes, Materials, or Surroundings	1.5	96.2%
Processing Information	1.4	94.5%
Documenting/Recording Information	1.4	93.5%
Analyzing Data or Information	1.2	85.8%
Inspecting Equipment, Structures, or Materials	1.2	84.0%
Estimating the Quantifiable Characteristics of Products, Events, or Information	1.1	80.0%
Getting Information	0.9	72.1%
Thinking Creatively	0.8	71.5%
Developing Objectives and Strategies	0.8	70.4%
Evaluating Information to Determine Compliance with Standards	0.5	59.7%
Working with Computers	0.5	56.9%
Staffing Organisational Units	0.4	56.3%
Providing Consultation and Advice to Others	0.4	53.9%
Identifying Objects, Actions, and Events	0.1	43.8%

SOURCE: Access Partnership analysis, National Center for O*NET Development

2. Sorting work activities by AI impact

Extensive impact (≥1) Moderate impact (<1, or >-1) Minimal impact (≤-1))

Work activities	AI impact (z-score)	Share of activity affected by AI
Organizing, Planning, and Prioritising Work	0.0	40.3%
Training and Teaching Others	0.0	37.7%
Making Decisions and Solving Problems	-0.4	23.6%
Judging the Qualities of Objects, Services, or People	-0.5	20.0%
Updating and Using Relevant Knowledge	-1.0	0.0%
Performing General Physical Activities	-1.0	0.0%
Handling and Moving Objects	-1.0	0.0%
Controlling Machines and Processes	-1.0	0.0%
Operating Vehicles, Mechanised Devices, or Equipment	-1.0	0.0%
Repairing and Maintaining Mechanical Equipment	-1.0	0.0%
Interpreting the Meaning of Information for Others	-1.0	0.0%
Communicating with Supervisors, Peers, or Subordinates	-1.0	0.0%
Communicating with People Outside the Organisation	-1.0	0.0%
Establishing and Maintaining Interpersonal Relationships	-1.0	0.0%
Assisting and Caring for Others	-1.0	0.0%
Selling or Influencing Others	-1.0	0.0%
Resolving Conflicts and Negotiating with Others	-1.0	0.0%

SOURCE: Access Partnership analysis, National Center for O*NET Development

3. Mapping skills to work activities

NON-EXHAUSTIVE

160 skills identified to be transformed by AI ("Transformed Skills"), from research commissioned under the AI Opportunity Fund: Asia-Pacific have been mapped to their top work activities **(maximum of 3)**, to ensure a robust consideration of their potential AI impact.

Transformed skills	Work Activity I	Work Activity II	Work Activity III
Academic writing	Analysing Data of Information	Documenting/Recording Information	Interpreting the Meaning of Information for Others
Accounting	Evaluating Information to Determine Compliance with Standards	Processing Information	N.A.
Administrative support	Performing Administrative Activities	N.A.	N.A.
Animation	Thinking Creatively	Documenting/Recording Information	Working with Computers
Anomaly detection	Monitoring Processes, Materials, or Surroundings	Identifying Objects, Actions, and Events	Analysing Data or Information
Assembly line operation	Operating Vehicles, Mechanised Devices or Equipment	N.A.	N.A.

SOURCE: Access Partnership analysis, National Center for O*NET Development

4. Mapping skills to economic sector

NON-EXHAUSTIVE

Transformed skills	Agriculture	Industry	Services
Academic writing			✔
Accounting			✔
Administrative support			✔
Animation			✔
Anomaly detection		✔	✔
Assembly line operation		✔	
Assessment development			✔
Autonomous vehicle operation		✔	✔
Basic agricultural skills	✔		
Basic data analysis		✔	✔
Basic graphic design			✔
Basic troubleshooting	✔	✔	✔
Billing and invoicing			✔
Bioinformatics processing		✔	✔
Blockchain data analysis			✔
Blockchain smart contract development			✔
Case law analysis			✔

The 160 transformed skills were then mapped to the relevant economic sectors based on sectoral skilling needs. At this stage, the following considerations were taken into account:

- Skills were assumed to serve sectoral functions than general functions to allow a cleaner mapping of skills to sector (e.g., accounting skills were taken to refer to accounting services rather than accounting functions)
- Where skills were cross-cutting, they were marked as present across all (e.g., basic troubleshooting, email management, problem solving)

SOURCE: Access Partnership analysis, National Center for O*NET Development

Defining and organising the skills transformed by AI

EXAMPLE

Based on the work activities tagged to each skill, skills are sorted into two categories:

- **Transitional skills:** Skills that are declining in importance where reskilling efforts would be most urgent (skills that support activities with extensive AI impact)
- **Enabling skills:** Skills that will continue to be essential in the future (skills that support activities with minimal or moderate AI impact)

An example is provided for the industry sector below:

Sector-relevant skill	Work Activity I	Work Activity II	Work Activity III	Skills that support activities with minimal or moderate impact
Anomaly detection	Monitoring Processes, Materials, or Surroundings	Identifying Objects, Actions, and Events	Analyzing Data or Information	✔
Assembly line operation	Controlling Machines and Processes	N.A.	N.A.	✔
Autonomous vehicle operation	Operating Vehicles, Mechanised Devices, or Equipment	N.A.	N.A.	✔
Basic data analysis	Analysing Data or Information	N.A.	N.A.	
Basic troubleshooting	Making Decisions and Solving Problems	N.A.	N.A.	✔

Text in blue represents work activity elements either minimally or moderately impacted by AI

Text in black represents work activity elements extensively impacted by AI

SOURCE: Access Partnership analysis, National Center for O*NET Development

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