UNIVERSAL HEALTH COVERAGE DAY

Potential of AI adoption in Health Insurance

AI in Health Financing Webinar

10th December 2025

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ADB

amref health africa

giz

openIMIS

About me

Meet Dr. Simona DOBRE

Technical Expert at DevAIs & Swiss Tropical and Public Health Institute

Data Scientist, PhD. in Automatic Control and Computer Science

Main activities:

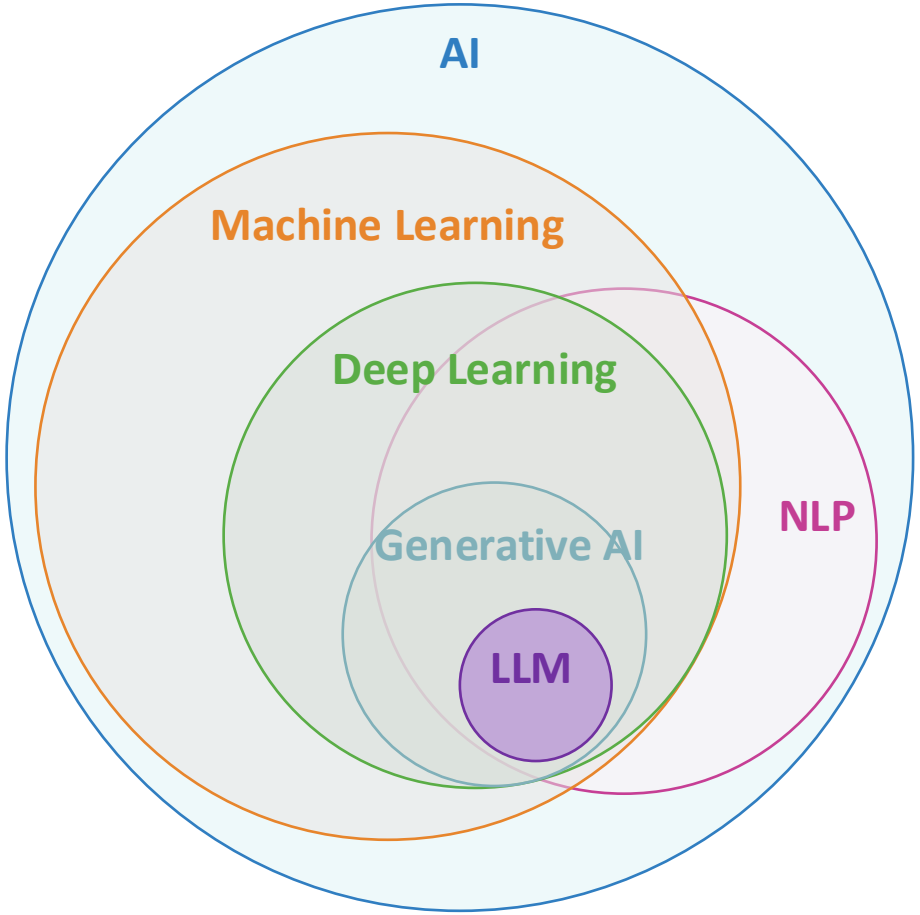
- Development of AI models in health related domains
- Support project having user centered design
- Courses related to AI and Innovation

Why AI matters for UHC & health financing right ?

1. AI - Some definitions and taxonomy

Traditional or Discriminative AI:

- **Classification:** what class?
- **Prediction:** *what values?*
- **Anomaly detection:** *what is unusual?*
- **Image and video analysis:** *what object?*
- **Speech recognition and synthesis:** *what does it say?*



Generative data

- **Generate new data:** *what new data?*
- **Chatbot:** *what should I say?*
- **Translation**
- **Auto-correction**
- **Reporting & Summarization**
- **Semantic and sentiment analysis**

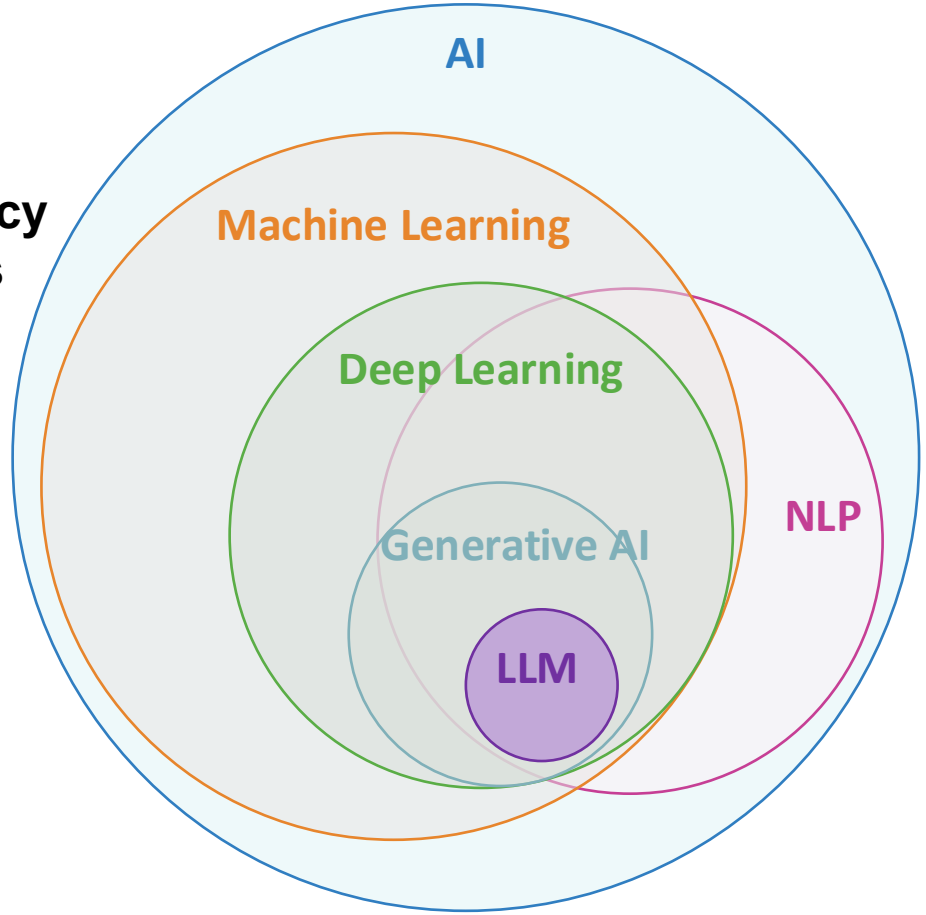
Terminology:
AI – Artificial Intelligence, ML – Machine Learning, DL – Deep Learning, NLP- Natural Language Processing, LLM – Large Language Models

1. AI - Some definitions and taxonomy

Traditional or Discriminative AI:

→ **main objective: high accuracy – have similar performance as human experts**

Time consuming – at least 6 months for AI model development



Generative data

→ **Main objective: generate new data similar to previous data; generate text that looks human written**

Could be deployed quite quick – at least 3 days

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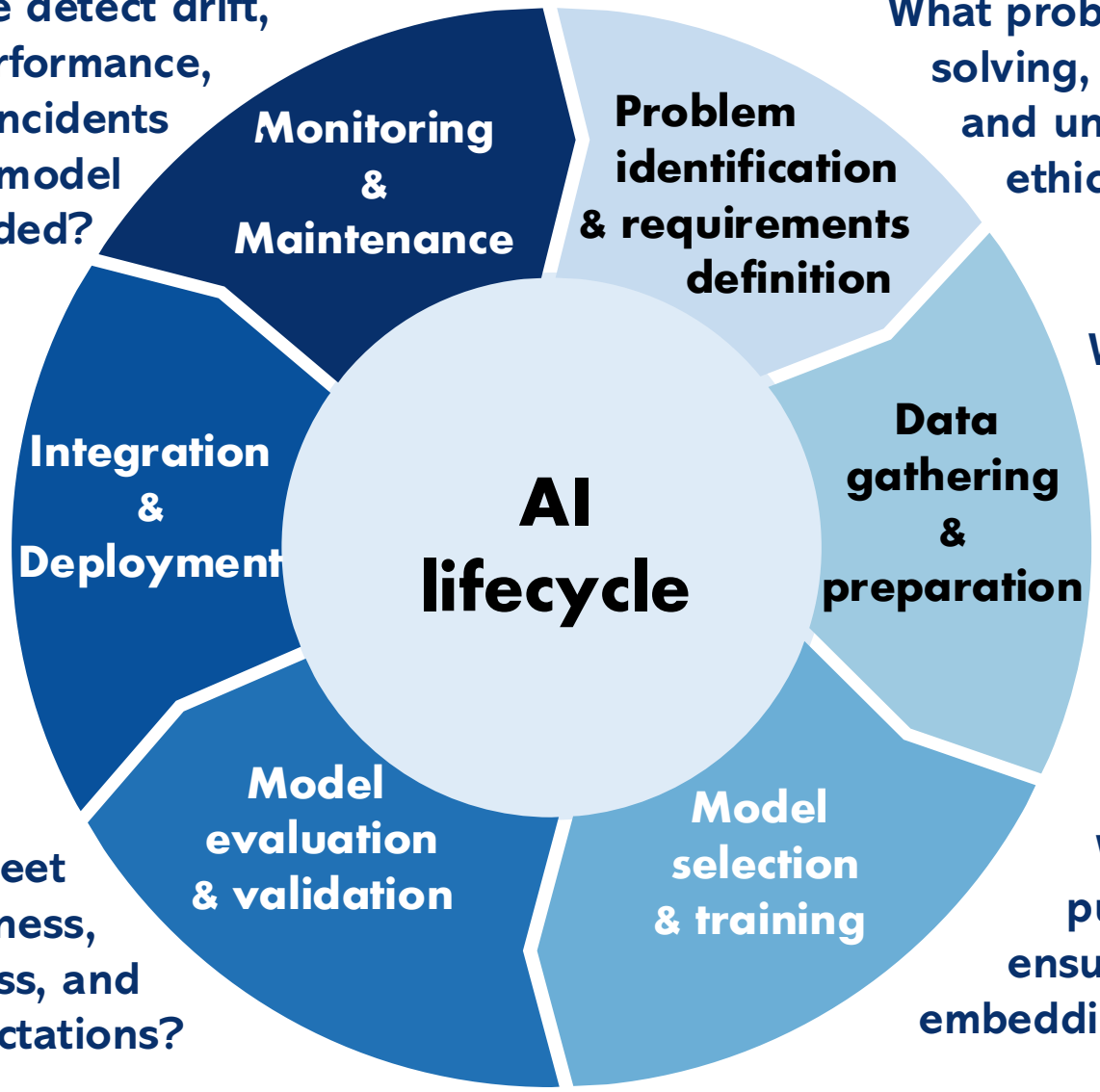
AI lifecycle



What problem are we solving, for whom, and under which legal and ethical constraints?

What data do we need, where does it come from, and is it lawful, high-quality, representative, and fit for purpose?

Which model best fits the purpose, and how do we ensure it learns without embedding bias?

Does the model meet performance, fairness, robustness, and explainability expectations?

How do we safely embed the model into real systems and workflows without disrupting operations or rights?

How do we detect drift, monitor performance, manage incidents and retire the model when needed?

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Insurance operations: the service delivery chain

Outreach	Registration	Underwriting	On-boarding	Premium collection	Claims management	Client management	Risk management	Exit
• Inform about and promote health insurance • Raise awareness of insurance availability • Encourage sign-up	• Provide registration channels • Collect applicant data • Verify information and identity	• Estimate claims profile • Categorize applicant risk • Determine coverage category • Assign premium and exclusions	• Inform applicants of underwriting outcomes • Educate successful applicants about payment, usage and customer services	• Handle billing • Monitor payments • Manage arrears	• Register claim • Review automatically • Review selected claims manually • Communicate review outcomes	• Handle complaints and appeals • Provide customer support • Update client information • Collect feedback	• Monitor claims • Manage liquidity • Review client risk • Estimate future claims • Promote client risk	• Monitor membership requirements • Inform of coverage termination

©elearning course on AI in Health Insurance

Insurance operations: the service delivery chain

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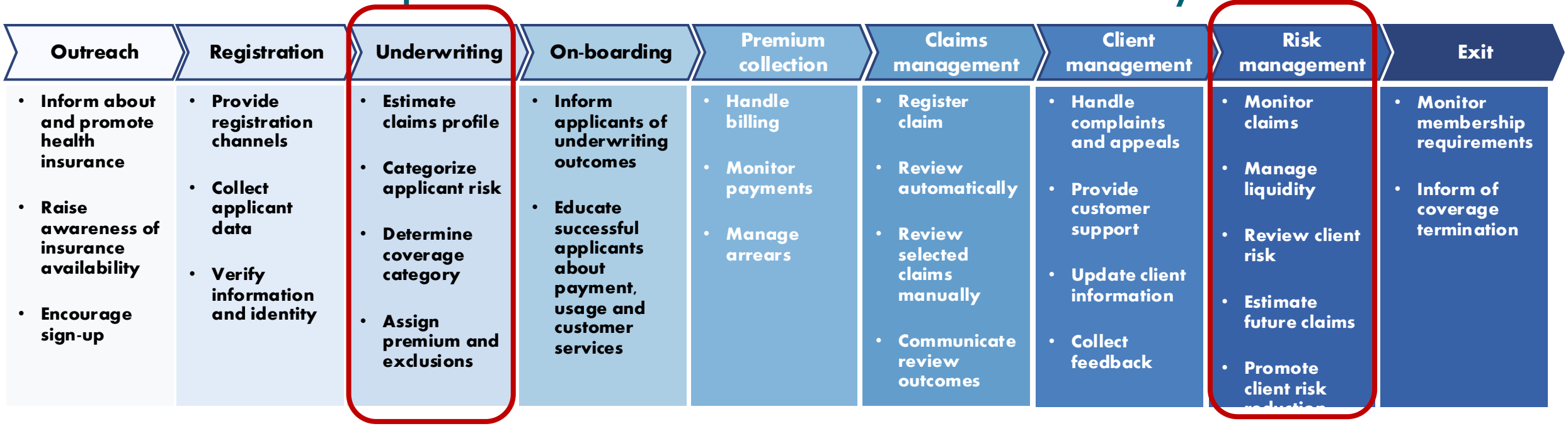
• Inform about and promote health insurance • Raise awareness of insurance availability • Encourage sign-up	• Provide registration channels • Collect applicant data • Verify information and identity	• Estimate claims profile • Categorize applicant risk • Determine coverage category • Assign premium and exclusions	• Inform applicants of underwriting outcomes • Educate successful applicants about payment, usage and customer services	• Handle billing • Monitor payments • Manage arrears	• Register claim • Review automatically • Review selected claims manually • Communicate review outcomes	• Handle complaints and appeals • Provide customer support • Update client information • Collect feedback	• Monitor claims • Manage liquidity • Review client risk • Estimate future claims • Promote client risk	• Monitor membership requirements • Inform of coverage termination

National schemes often face high claim volumes, manual verification bottlenecks, and limited capacity to spot fraud/waste in time.
→ Traditional AI can automate triage and anomaly detection to flag suspicious patterns for review and speed up the claim verification process.
→ Data requirements: historical claims data (amounts, dates, codes)

openIMIS stand alone model for Claim categorization

Insurance operations: the service delivery chain

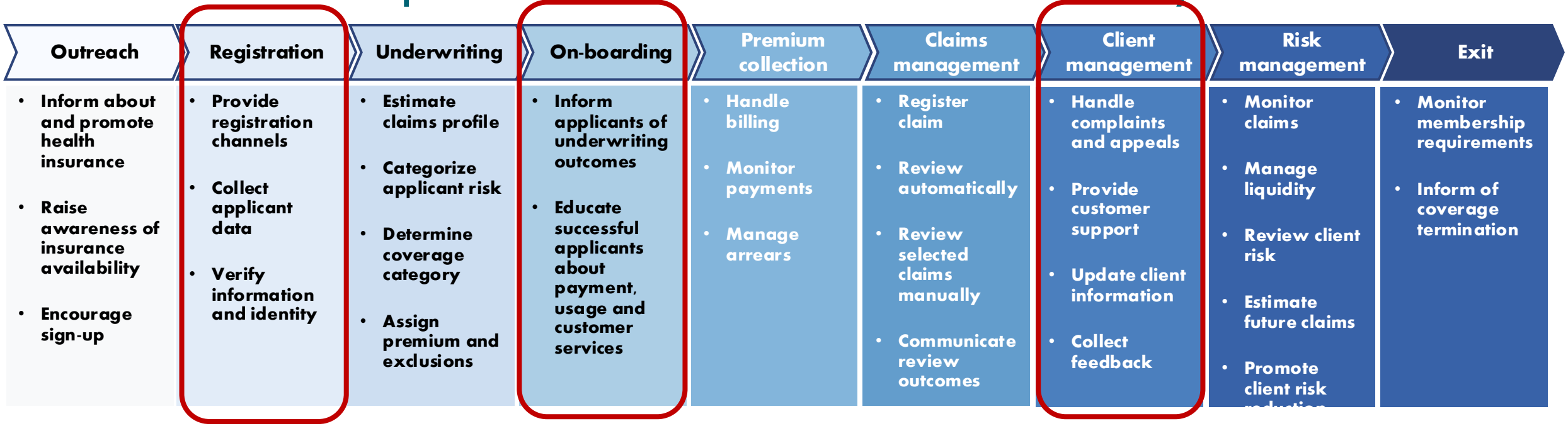


Expanding coverage can strain underwriting and risk oversight due to manual workflows and limited cost/liquidity predictability.

→ Traditional AI enables risk classification and claims-cost forecasting to support benefit/pricing decisions and early detection of emerging risk trends.

→ Data requirements: linked enrollment/policy + premium records and historical claims (dates/codes/amounts)

Insurance operations: the service delivery chain

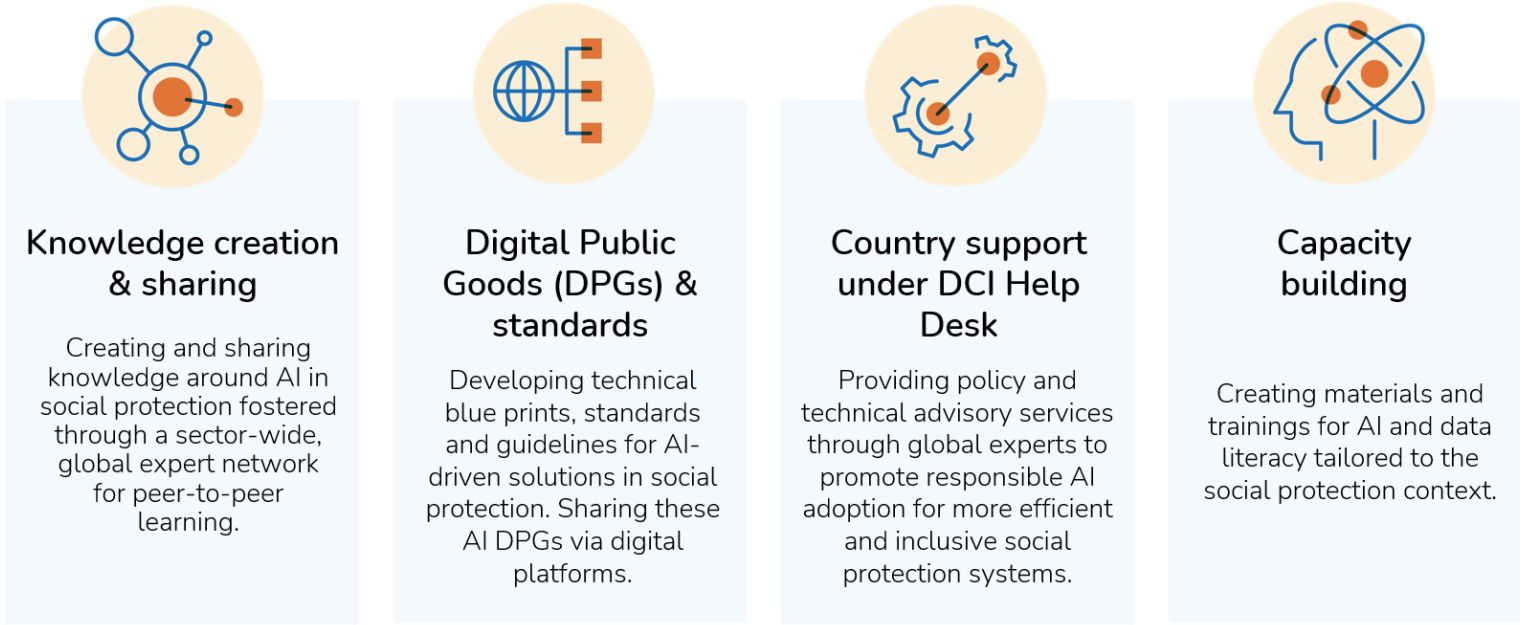


High volumes of registration and client inquiries create repetitive work and slow triage of complex cases.
→ Generative AI can automate routine support, collect key information, and route complex cases to staff.
→ Data needs: past tickets/messages + outcomes, support scripts/knowledge base, and feedback.

Now what? Turning insights into action

Building capacity & safeguards for AI in health insurance and social protection

- **E-learning course on AI in Health Insurance (GIZ – Amref – ADB)**
  Builds a shared understanding of AI concepts, health insurance use cases and data needs, and helps country teams identify/prioritise responsible use cases along the insurance delivery chain – **publicly available beginning 2026**
- **DCI AI Hub** supporting partner countries with responsible, innovative and sovereign AI adoption in social protection – through 4 DCI action areas:



Thank you for your attention