PMAC | PRINCE MAHIDOL AWARD CONFERENCE 2025

SYNTHESIS: SUMMARY, CONCLUSION AND RECOMMENDATIONS

Harnessing Technologies in an Age of AI

to Build a Healthier World

28 January-2 February 2025

Bangkok, Thailand

PMAC and the Megatrends

2022 The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society

2023 Setting a New Health Agenda – at the Nexus of Climate Change, Environment, and Biodiversity

2024 Geopolitics, Human Security, and Health Equity in an Era of Polycrises

2025 Harnessing Technologies in an Age of AI to Build a Healthier World

2026 (Tentatively) Navigating Global Demographic Transition Through Innovative Policy: An Equity-Centered Approach

Table of Contents

PMAC 2025 Structure

Pre-conference: 28 – 30 Jan 2025

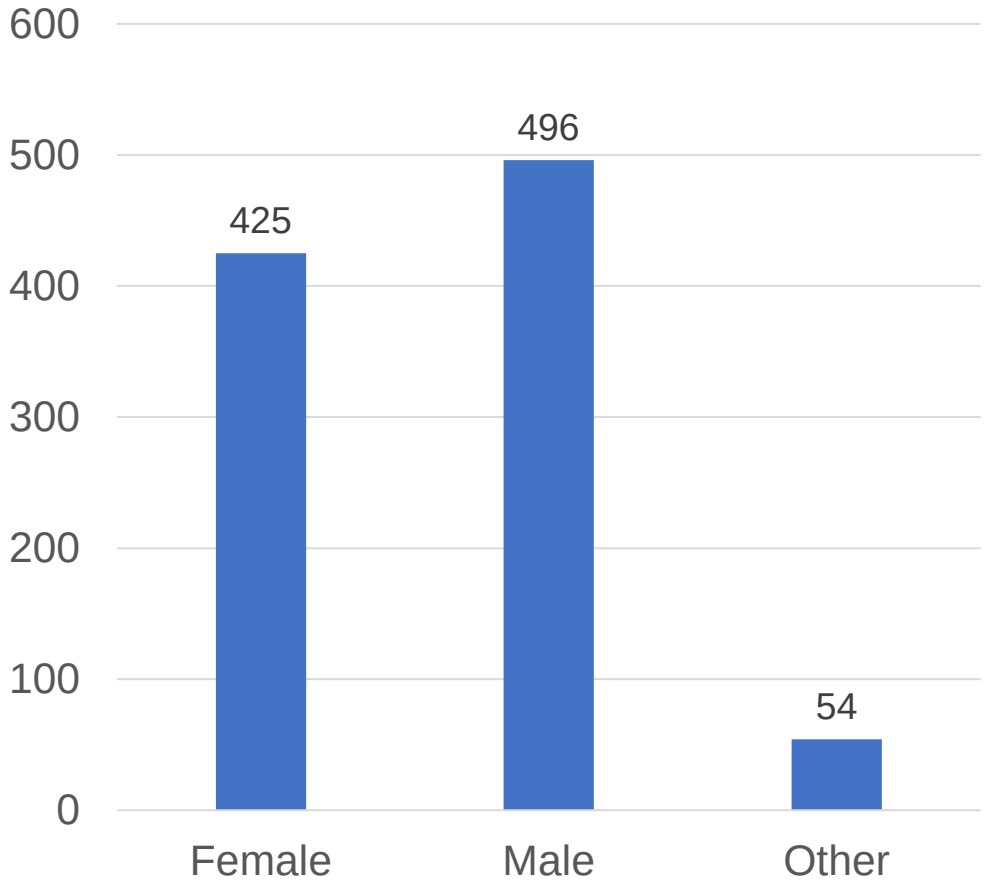
- Art contest: 529 artworks submitted from 13 countries
- 46 Side meetings
- 4 Field trips

Main Conference: 31 Jan – 2 Feb 2025

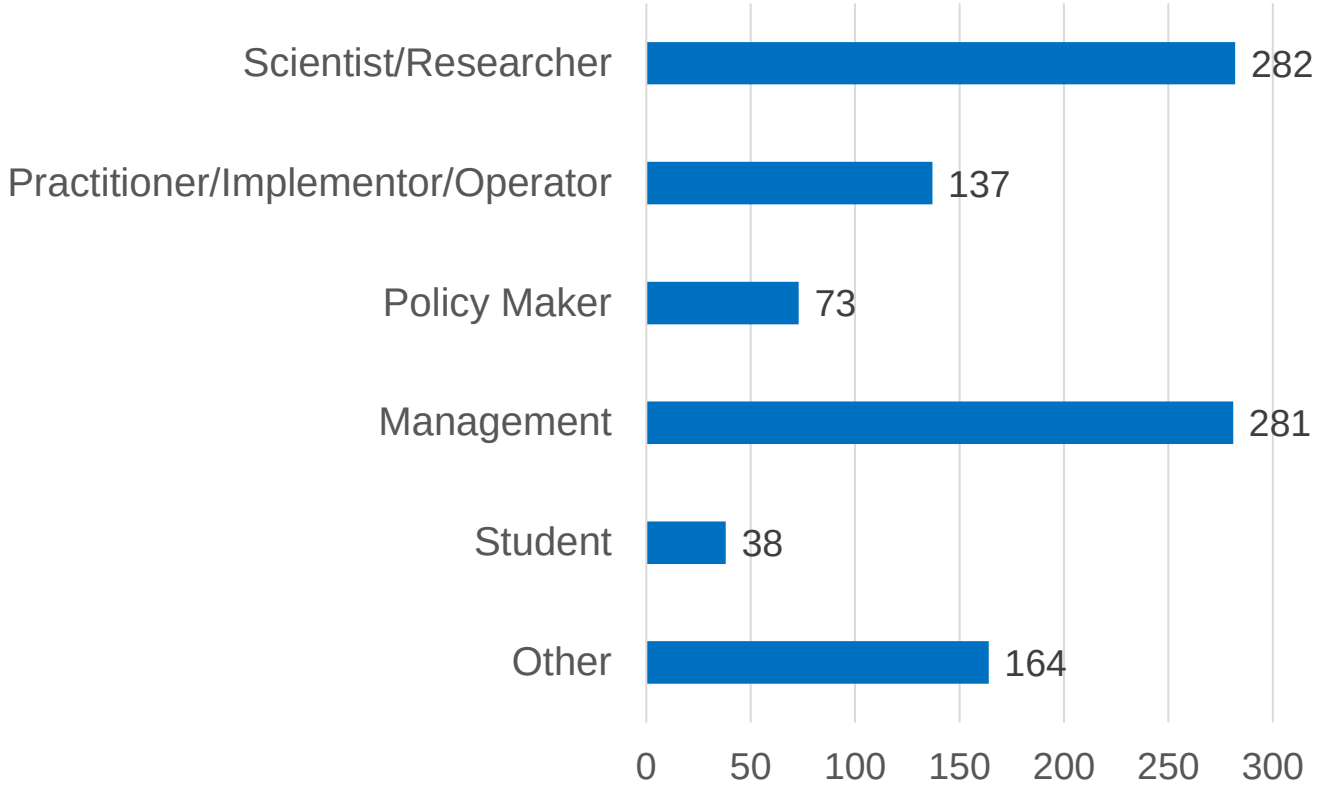
- Opening session
- 4 Plenary sessions
- 15 Parallel sessions
- 47 poster presentation
- 4 special events

Participant Characteristics

Total number of participants = 975

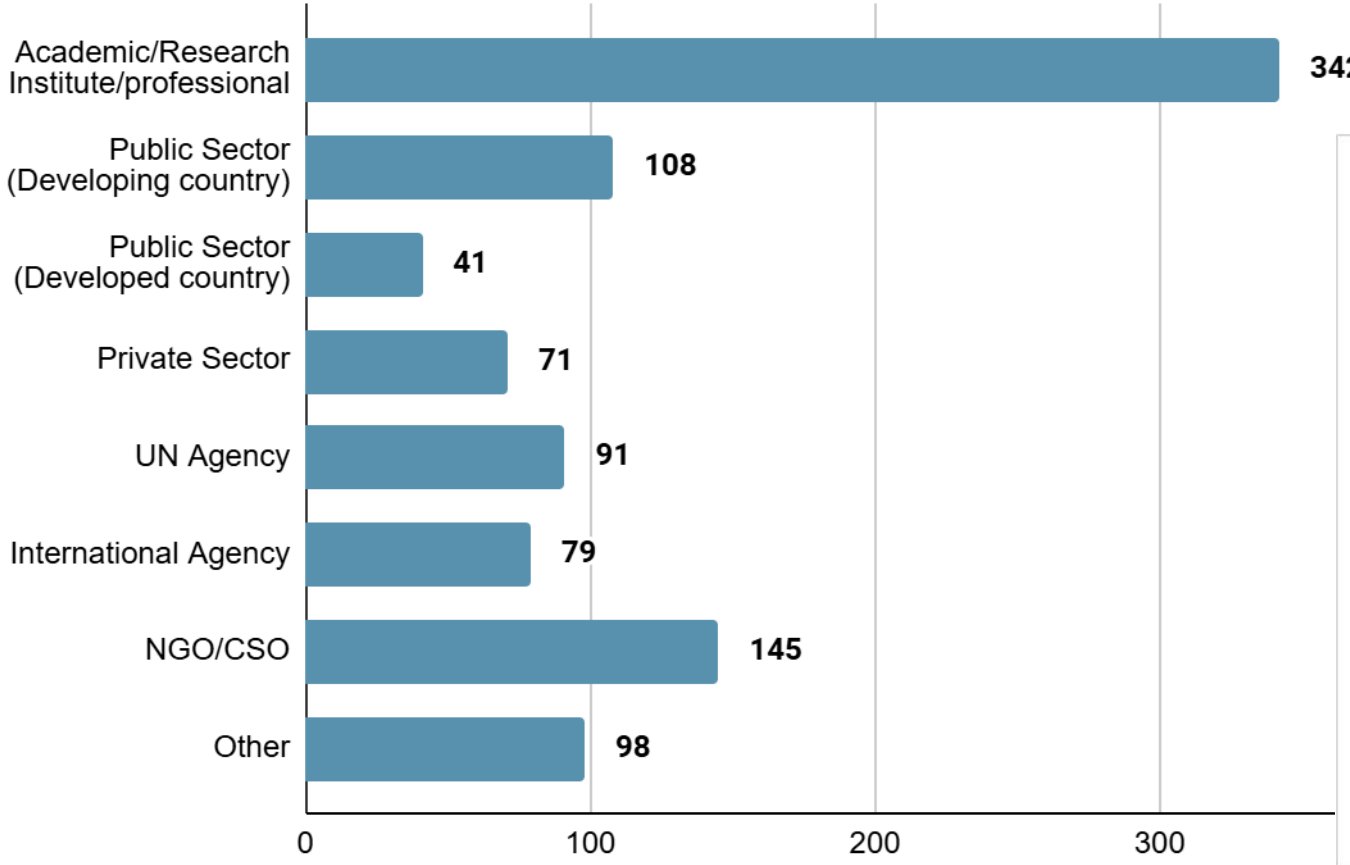


Sorted by Genders

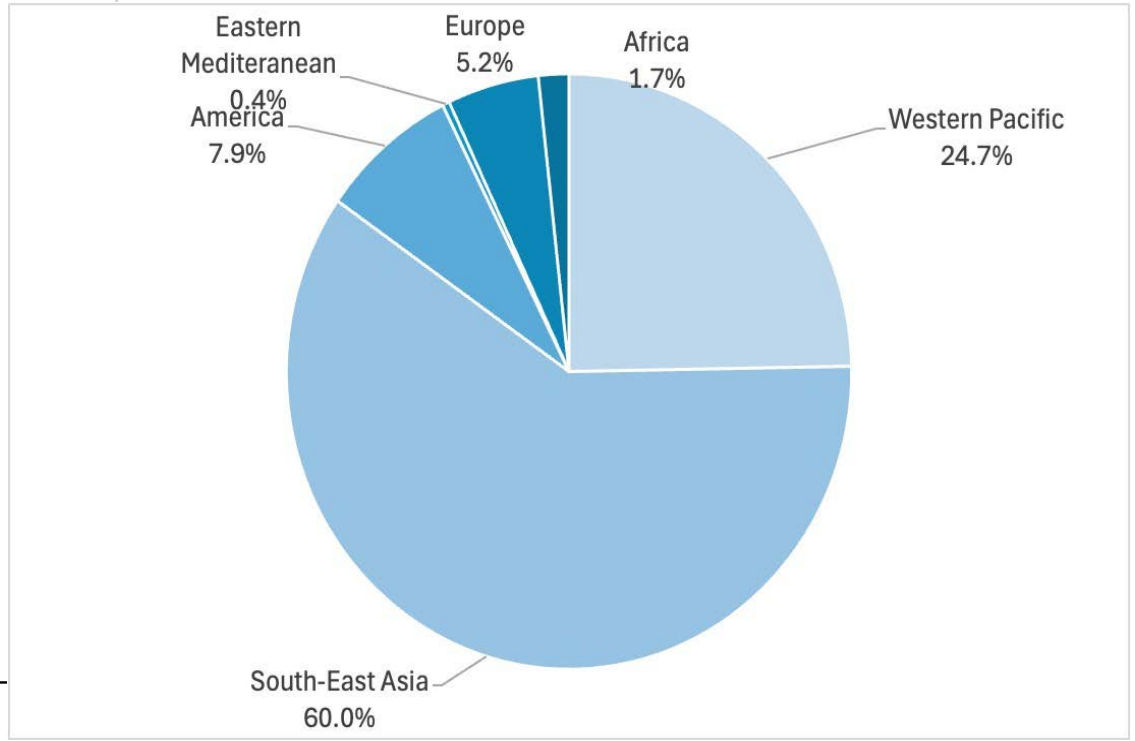


Sorted by Job Function

Participant Characteristics



Sorted by Organization



Sorted by WHO Region

Synthesis and Summary

The PMAC 2025 encompasses three sub-themes comprising :

Sub-Theme 1

Technological Innovations to Strengthen Health Systems and Achieve Universal Health Coverage

More Details >

Sub-Theme 2

Equity, Ethics, and Empowering the Vulnerable

More Details >

Sub-Theme 3

Governance, Policy and Stewardship

More Details >

How long has artificial intelligence been a topic of global discussion?

[1-100 years]

https://www.mentimeter.com/
code 1739 3605

1956 Dartmouth Summer Research Project on Artificial Intelligence

- The workshop has been referred to as "the Constitutional Convention of AI"

Slide from PS2.4 by Leo Anthony Celi

Video of PMAC 2025: Let ethics guide technology in an age of AI https://youtu.be/iGjv-igK4lI

1. Promise of Technology & AI for Health

Global AI in Healthcare Market

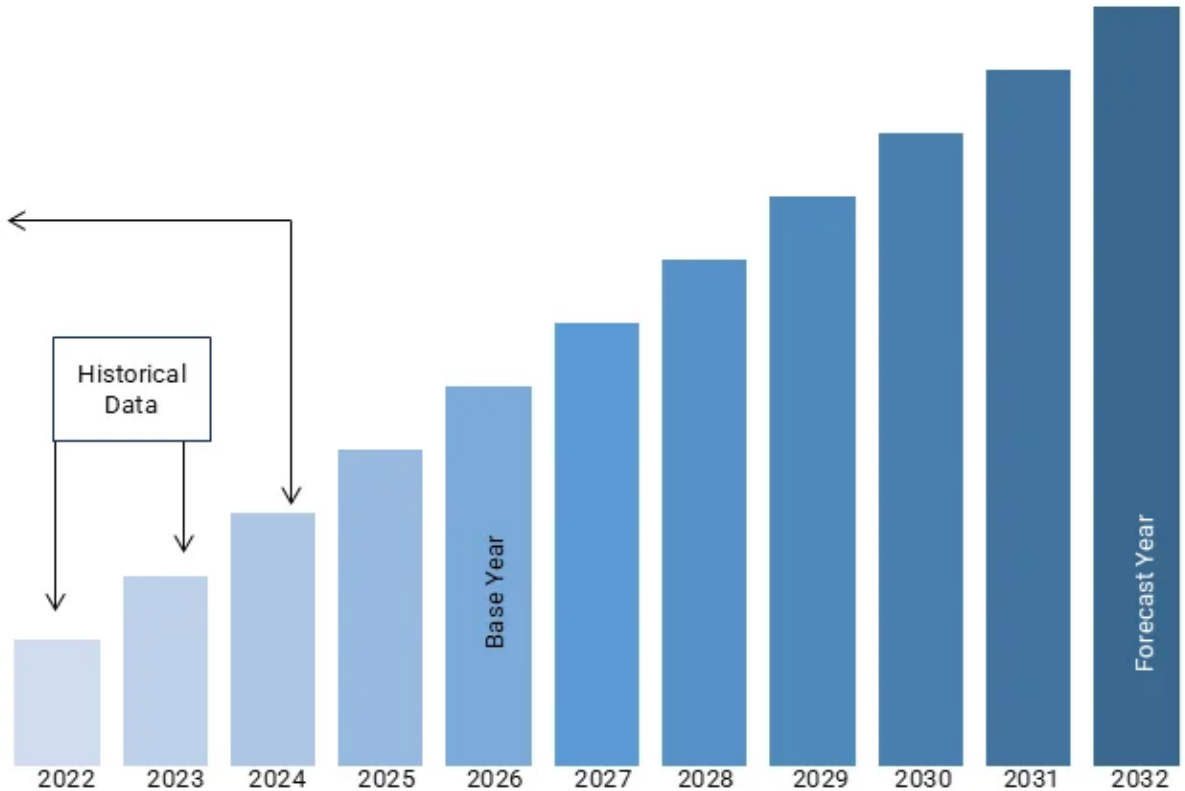
Market Size Overview

49.8%

Global market CAGR, 2024 – 2032

USD 16.61 Billion

USD 421.18 Billion



CAGR: Compound Annual Growth Rate

www.marketdataforecast.com

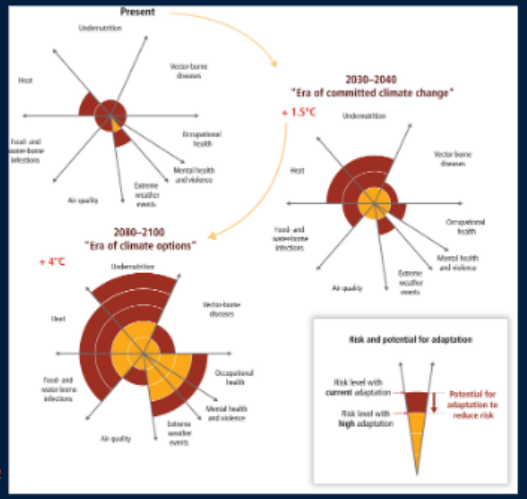
Source: Market Data Forecast Analysis

The Role of Analytics

Providing real-world data

Improving knowledge on climate and health

Adaptation of health systems



Climate impact on 8 health sectors and potential for mitigation through adaptation.
Smith et al. Human health: impacts, adaptation, and co-benefits. *Climate Change IPCC 5th AR 2014*

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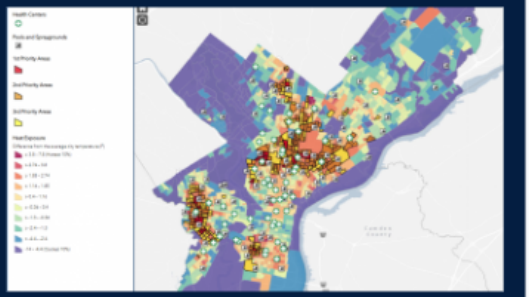
Early Warning Systems

- Traditionally based on local knowledge
- Intelligent EWS based on
  - Expert Knowledge
  - Real-time big data
  - Advanced analytics

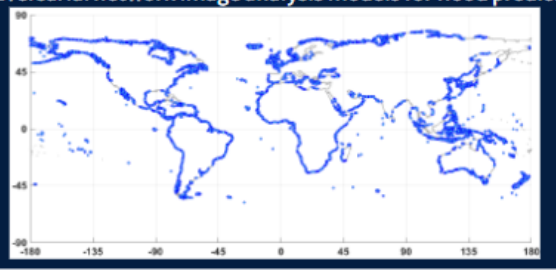


Heat risk index Philadelphia, USA.

Personalised early warning system for those most vulnerable to high levels of pollution

Credit: londonair.org.uk

Adversarial network image analysis models for flood prediction



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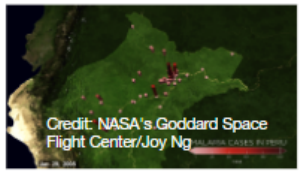
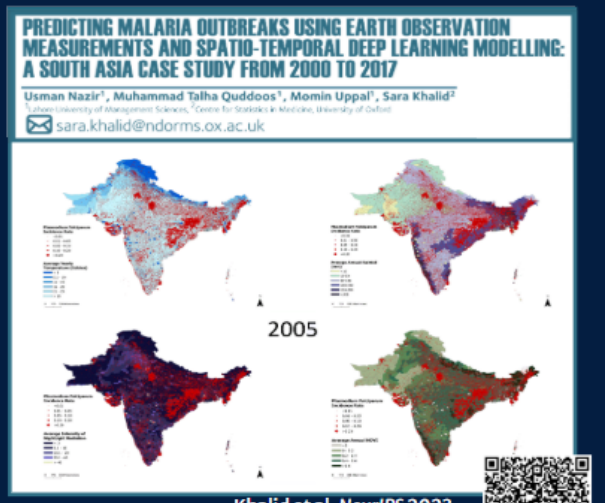
Predicting Disease Outbreaks

Satellite data from Landsat series combined with ground data on precipitation, temperature, soil moisture, vegetation



Computational models tracking human and environmental events

Predicting malaria outbreaks in Peru at household level
Schmidt et al. ICLAR 2019.



Khalid et al. *NeurIPS* 2023

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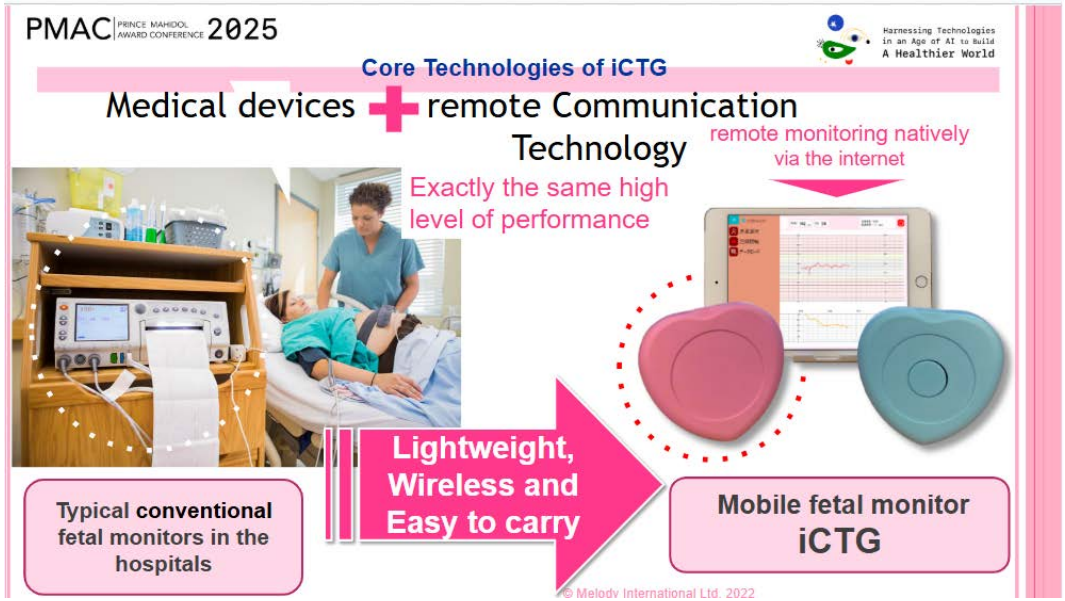
Slide from PS2.5 by Kara Khalid

Health Services

Improve Availability, Accessibility, Quality and Efficiency e.g.,

- Telemedicine and mHealth especially for people in remote areas
- Optimizing chronic disease management
- Streamlined healthcare service
- Early disease detection by AI-assisted tools

Slide from PS1.3 by Hongqiao Fu



Slide from PS1.3 by Yhuko Ogata

Health Financing

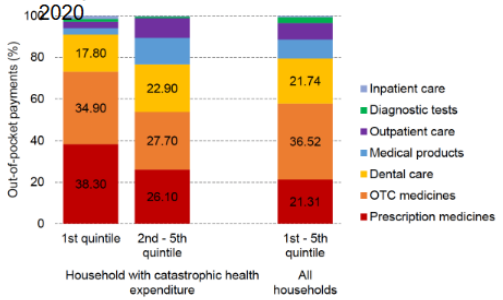
Improving financial risk protection

Digital solution for reducing fraud, waste and abuse

Improving financial protection via digital in finance

Harnessing Technologies in an Age of AI to Build A Healthier World

Composition of OOPs for health in 2020



Policy problem
- OOPs 23% of THE (2023)
- Outpatient medicines and dental care driving OOPs
- The poor affected most

Policy solution
- Revision of cost-sharing policies with better targeting
- Empowered by eHealth digital solutions and automation

Võrk et al, 2023

Slide from PS1.1 by Toomas Palu

Implemented biometric checks to help ensure the integrity of claims

- PhilHealth, a government-owned and controlled entity, was created in 1995 to provide UHC.
- PhilHealth has confronted several challenges recently, including potential internal and external fraud, waste, and abuse (e.g., providers charging for unrendered services or delivering medically unjustified services, false claims due to identity theft). Efforts are underway to enhance the systems to guard against FWA.
- One new technology example is using biometric checks at the level of health facilities to ensure the integrity of hospital claims. The biometric checks include fingerprint scanning and facial recognition to capture different facial structures and landmarks (e.g., eyes & facial contours).

In 2020, PhilHealth identified **9,200** fraudulent claims

Sources: Development Academy of the Philippines, Center of Excellence on Public Sector Productivity (COE PSP). 2024. PhilHealth Region V Integrity Drive: A Data Analytics Solution for Healthcare Fraud Detection and Prevention. 24 June; Philippine Health Insurance Corporation (PhilHealth). 2019. PhilHealth Adopts State of the Art Technology to Fight Fraud. 6 November; M. Oranje and I. Mathauer. 2024. Exploring the Effects of Digital Technologies in Health Financing for Universal Health Coverage: A Synthesis of Country Experiences and Lessons. Oxford Open Digital Health, Vol. 2; A. Ulitin, et al. 2022. Measuring the Extent of Fraudulent Risky Benefit Claims in PhilHealth Development of a Fraud Risk Index for PhilHealth Benefit Claims. Science and Engineering Journal. 15. pp. 34–42. October.

ADB

Leveraged big data and AI to combat fraud and optimize monitoring

- BPJS Kesehatan is a national social health insurance scheme. By the end of 2017, BPJS had received more than 80 million claims (annually) and faced significant cost pressures and concerns about fraudulent activity.
- Indonesia invested in big data analysis and business intelligence to monitor behavioural trends and tackle fraud. They adopted machine learning to detect potential fraud more efficiently, reducing detection time and providing cost-effective solutions.
- Indonesia developed DEFRADA, a business intelligence-based fraud detection tool for hospital services, and an online pharmacy system to improve billing and drug delivery efficiency, significantly impacting fraud reduction

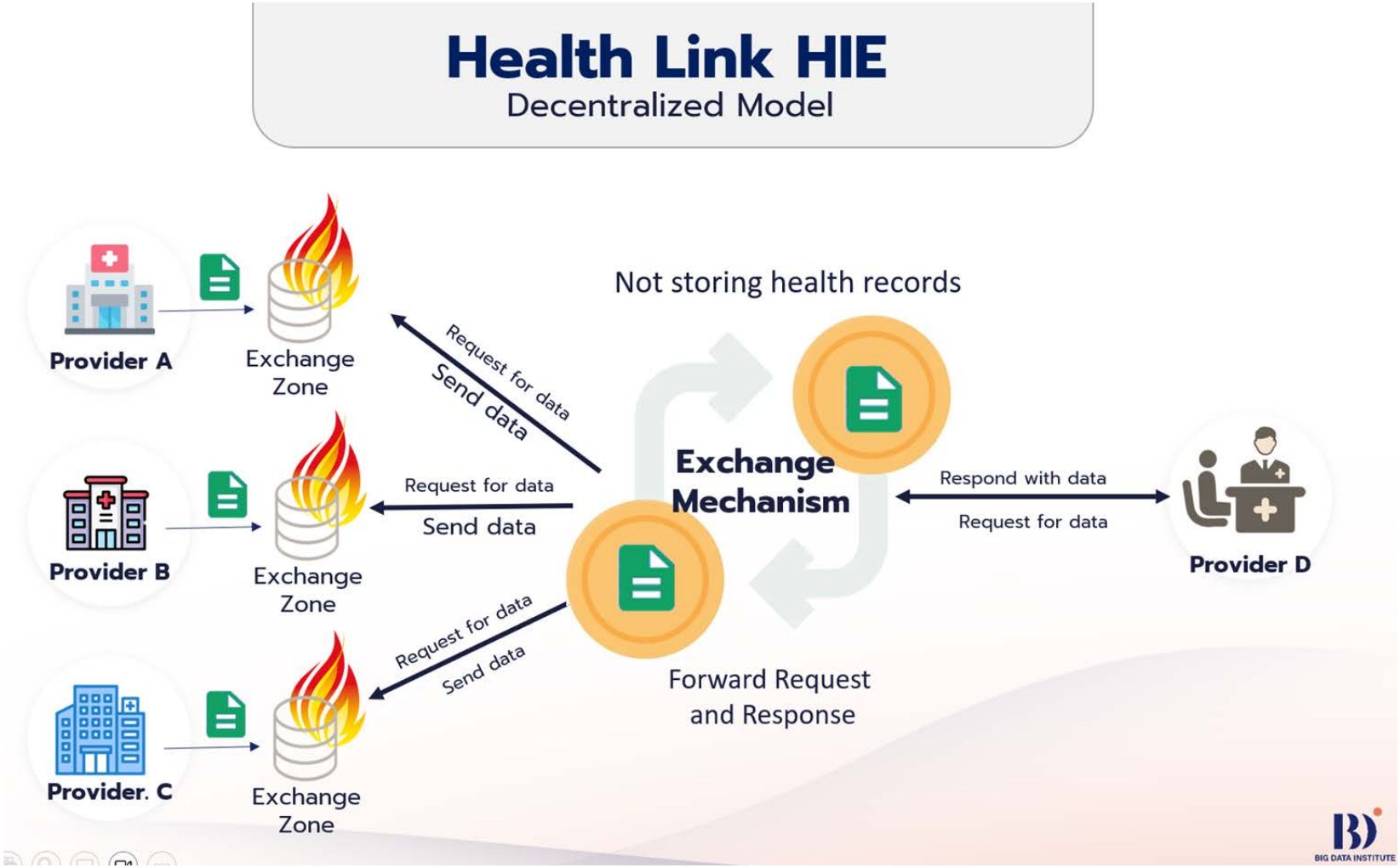
In 2017, DEFRADA has contributed about **25-30%** of the total efficiency gains realized by the scheme

Sources: W. H. Saputra, Agus Prima. 2022. E Claim System for Health Insurance and Social Security (BPJS) Types in Indonesia: Innovation and Effectiveness of Services. Journal of Society Medicine. 1 (1); Asrori and Y. Hikmah. 2018. Analysis of Health Insurance Claim Decisions in Indonesia. Advances in Social Science, Education and Humanities Research, Vol. 426. 3rd International Conference on Vocational Higher Education (ICVHE); D. S. Susanti, et al. 2022. Tackling Fraud and Corruption in Indonesia's Health Insurance System. U4 Anti Corruption Resource Centre; N. Munaa, et al. 2020. Fraud Detection in Indonesia National Health Insurance Implementation: A Phenomenology Experience from Hospital. International Conference of Business and Social Sciences.

ADB

Slide from PS1.1 by Akihito Watabe

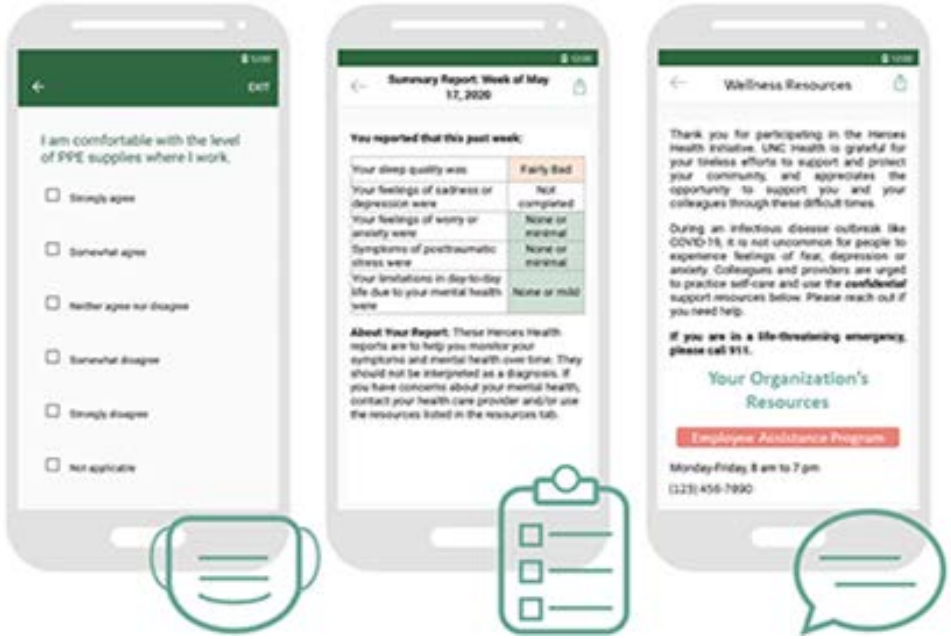
Health Information Systems



Slide from PS1.1 by Tiranee Achalakul

Health Workforce

Ref: https://smarttek.solutions/blog/vr-training-for-healthcare-why-your-hospital-needs-it/



Ref: https://healthtechinsider.com/2020/07/20/free-mental-health-app-for-frontline-workers/

Education

- Distance education
- Virtual reality & simulation
- Learner-adaptive education driven by AI

Mental Health

- Access to the internet to reduce professional & personal isolation
- Digital apps for health worker mental health
- Digital apps for mentoring

Adapted from PS1.2 by Kate Tulenko

2. Perils of Technology & AI for Health

Challenges

Digital Divide

- Between countries
- Between socioeconomic groups
- Men vs women
- Varying levels of digital literacy

Data Colonialism and Bias

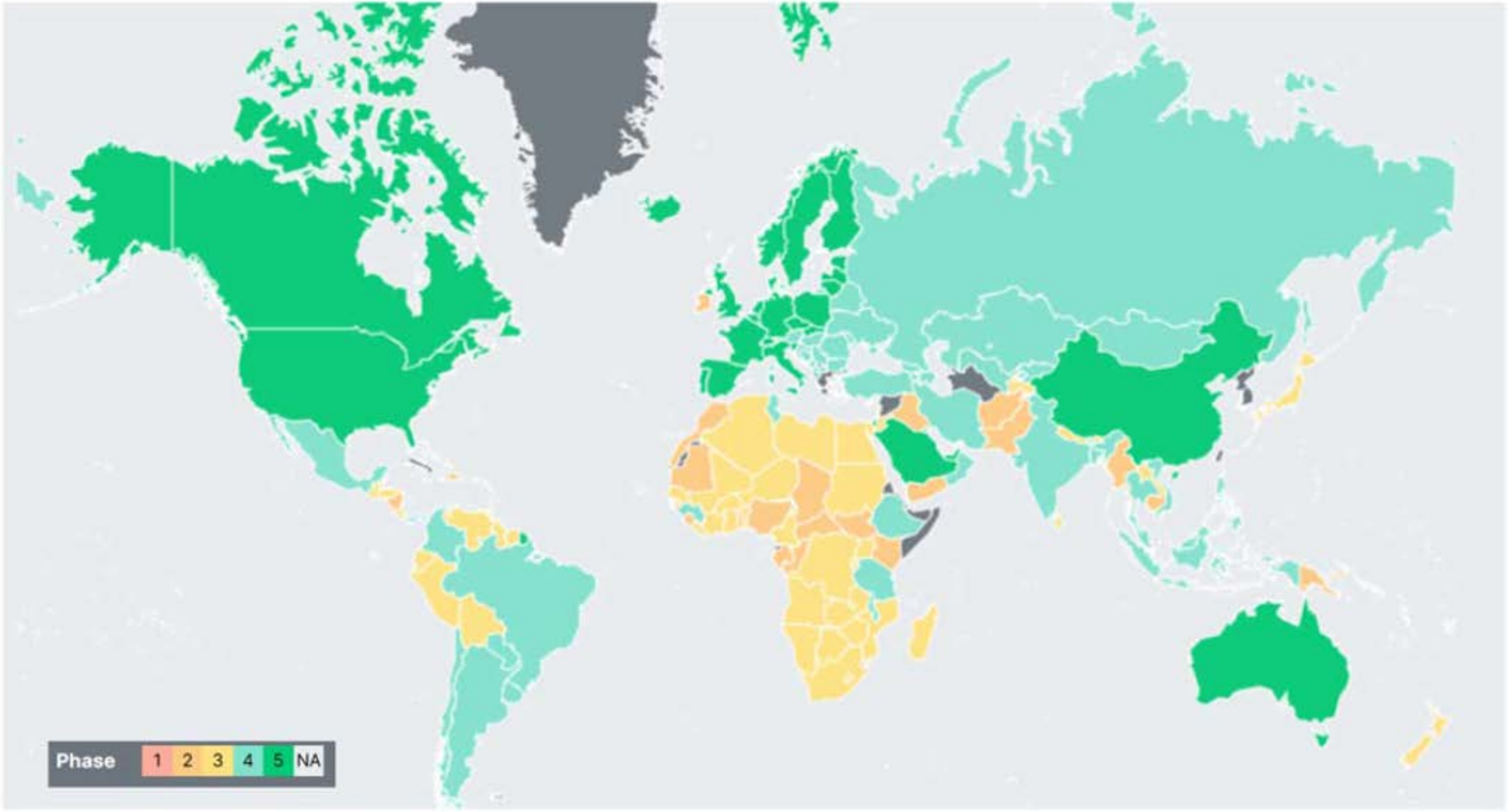
- Bias in data collection, algorithm development, product design and deployment
- Hesitancy in adoption due to social and cultural practices
- Lack of trust in data source

Climate Impact

- Energy intensive
- Water intensive
- Contradicting climate action goals (?)

Current Digital Health Divide

The Global Digital Health Monitor (GDHM) is an interactive web-based resource that aims to track, monitor, and assess the enabling environment for digital health throughout the world.



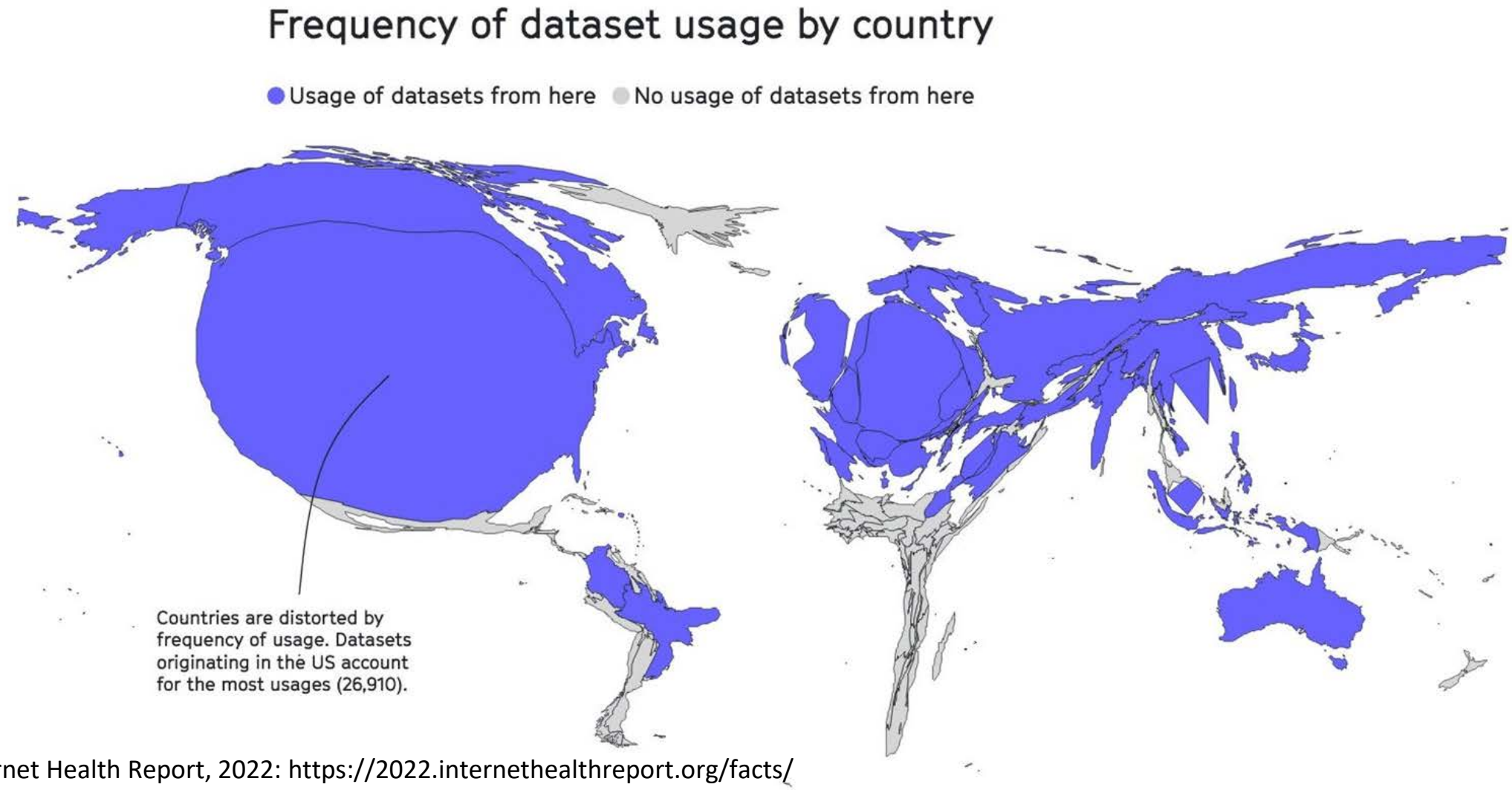
Ref: https://monitor.digitalhealthmonitor.org/map

Enabling environment

- Leadership and governance,
- Strategy and investment,
- Legislation, policy, and compliance,
- Infrastructure,
- Workforce,
- Services and applications,
- Standard and interoperability

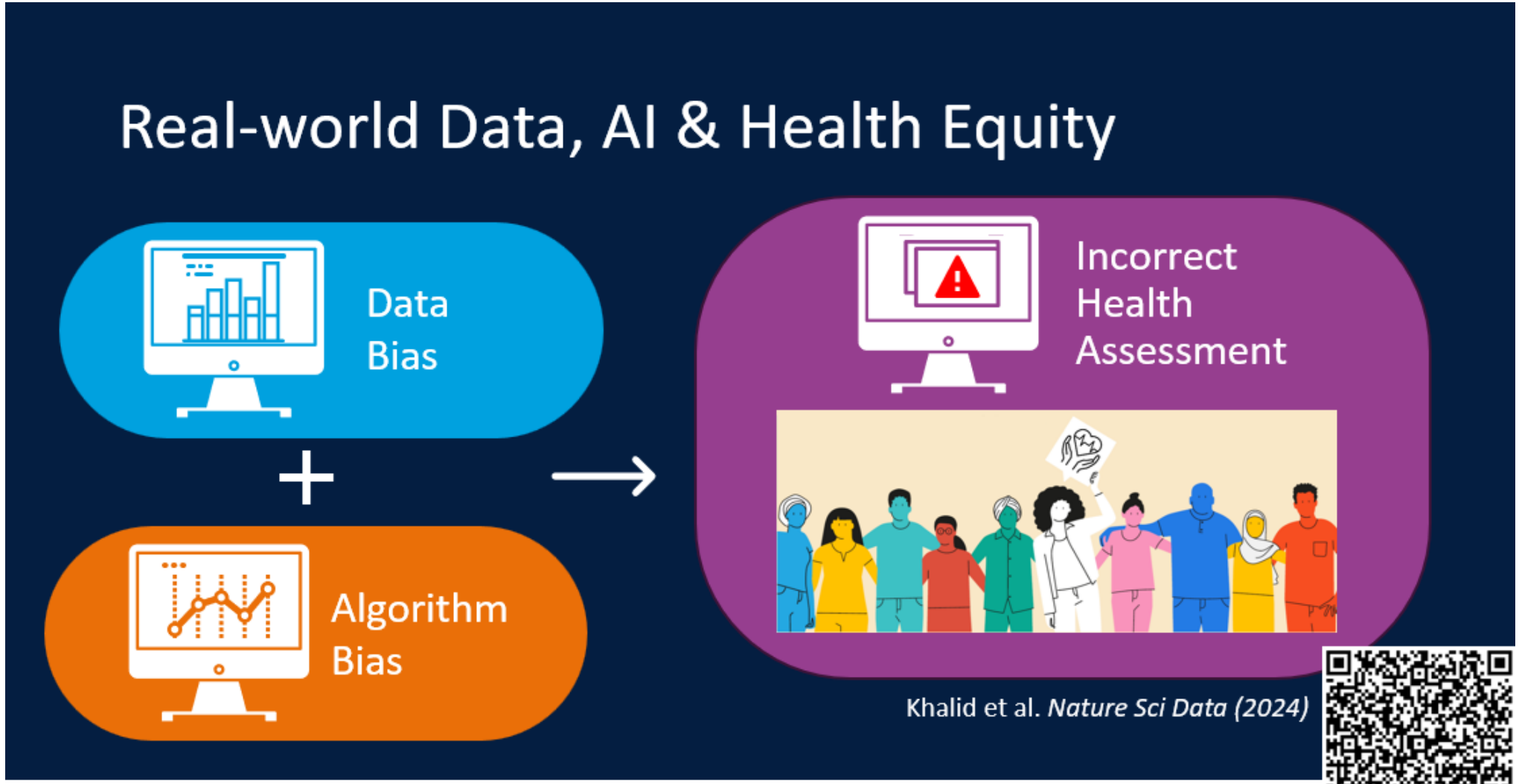
Slide from PS2.1 by Debbie Rogers

Data Colonialism



Ref: Internet Health Report, 2022: https://2022.internethealthreport.org/facts/

Unrepresentative → Unreliable



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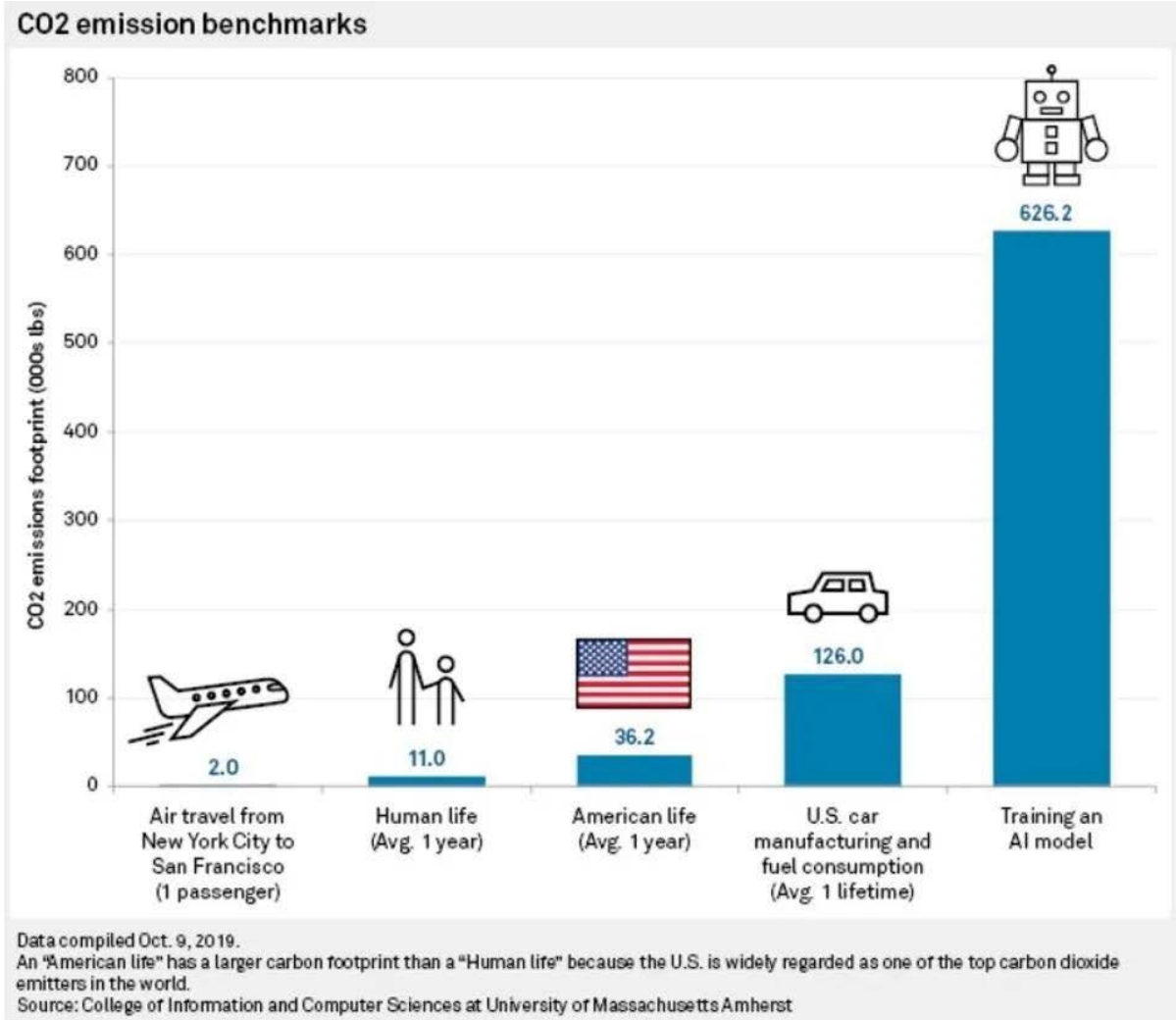
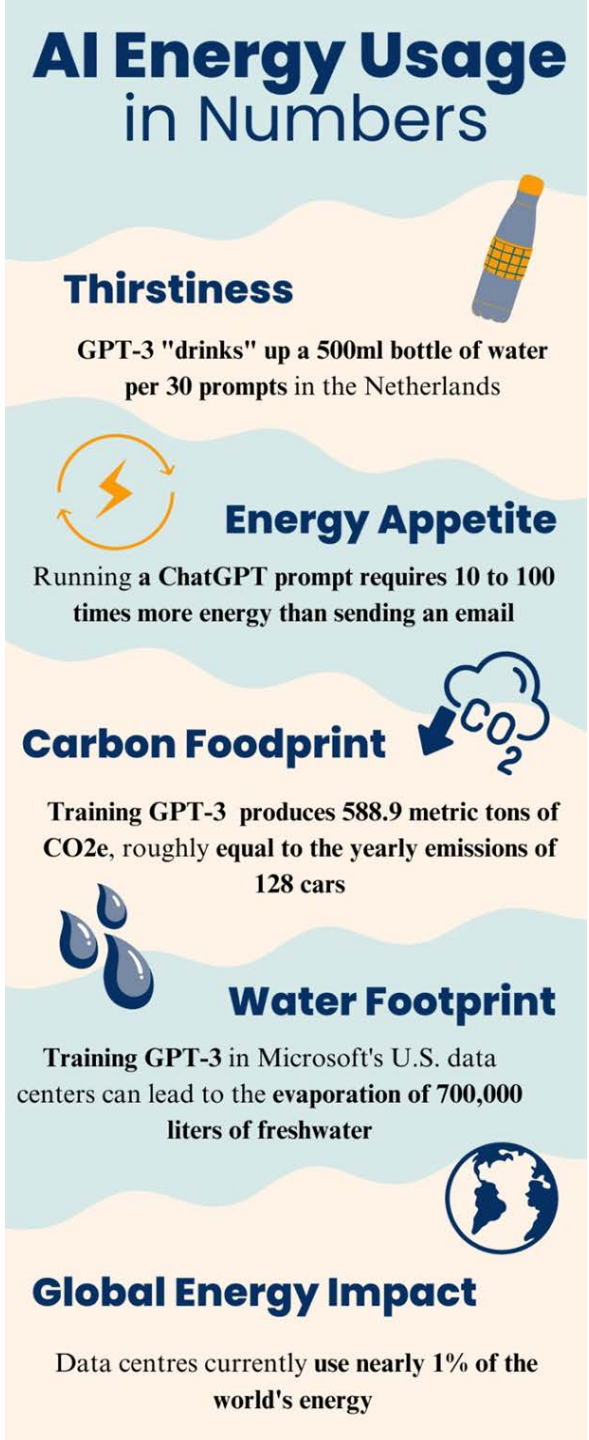
Slide from PS2.5 by Kara Khalid

Negative Climate Impact





Ref: 1. College of Information and Computer Sciences at University of Massachusetts Amherst
2. https://tilburg.ai/2024/09/ai-environmental-impact/

Challenges

Lack of supportive governance & infrastructure

- ICT infrastructure: electricity, internet, mobile phones, etc.
- Regulatory body
- Limited capacity of users, healthcare workers, policy makers
- Siloed digital health architecture
- Fragmented AI governance frameworks

Privacy and security

- Lack of informed consent in data collection and sharing
- Cyberattacks
- Data leaks

3. The Way Forward

Handle with Care

Top scientists call for caution over artificial intelligence

Artificial intelligence has the potential to eradicate disease and poverty, say world's top scientists, but researchers must not create something which cannot be controlled

Artificial intelligence must be carefully considered, say scientists Photo: REX

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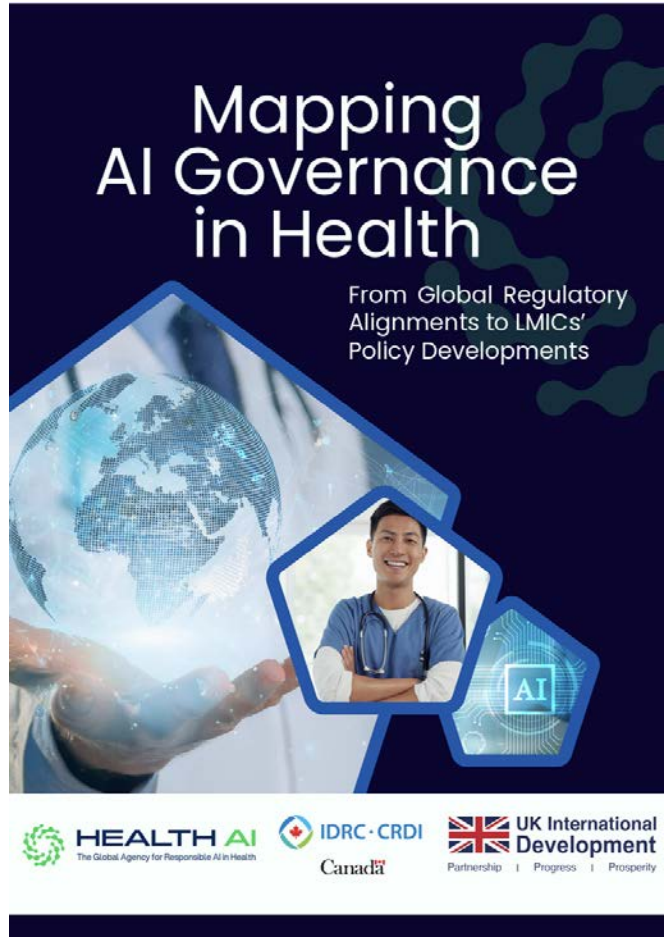
Slide from PS2.5 by Sara Khalid

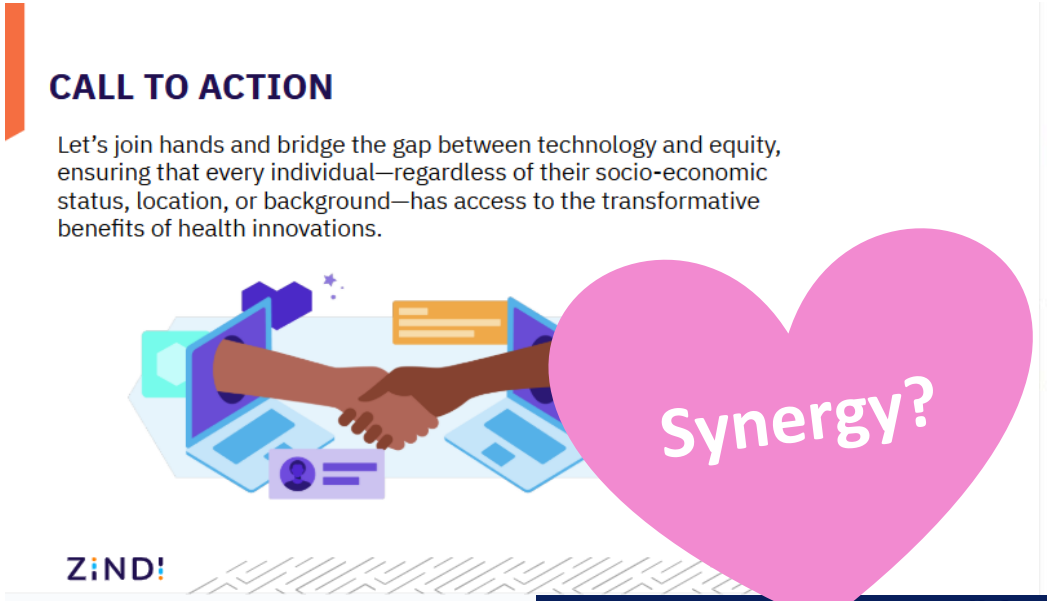
Global Institutions Mapping AI Governance for Health

Institution	Scope	Documents
World Health Organization (WHO)	Sectoral (health)	Guidelines, reports, standards, policy briefs, regulatory frameworks
International Medical Device Regulators Forum (IMDRF)	Sectoral (health)	Guidelines, frameworks, technical documents
Global Harmonization Working Party (GHWP)	Sectoral (health)	Guidelines, technical documents, regulatory frameworks
International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC)	Sectoral (health) and Cross-sectoral	International standards, technical specifications, guidelines
United Nations Specialized Agencies (UNESCO, UNICEF, UN-DESA, UNDP, UNICRI, UNIDO, WIPO)	Cross-sectoral	Declarations, guidelines, reports, toolkits, regulatory frameworks
Organization for Economic Co-operation and Development (OECD)	Cross-sectoral	Reports, regulatory frameworks, guidelines

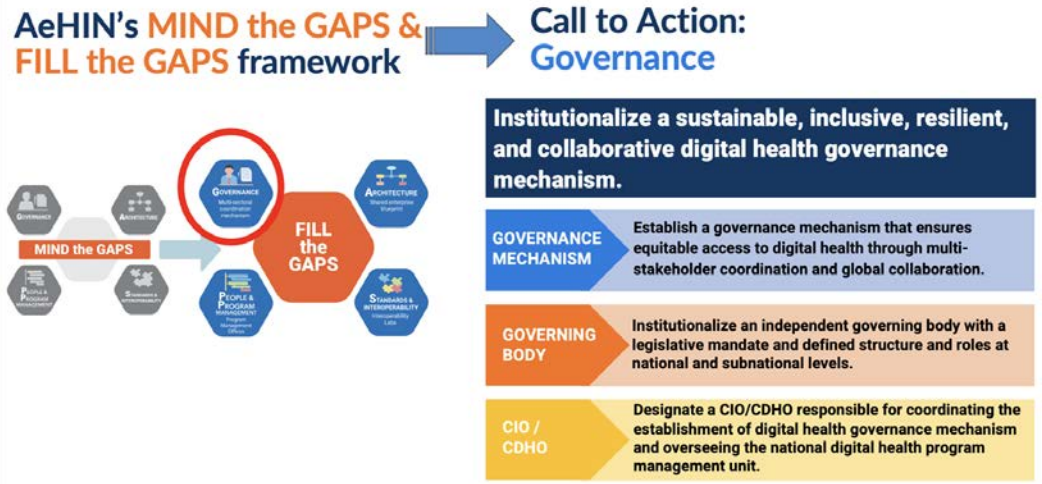
Institution	Scope	Documents
Institute of Electrical and Electronics Engineers (IEEE)	Cross-sectoral	Standards, guidelines, technical reports
G7	Cross-sectoral	Declarations, communiqués, reports, commitments
G20	Cross-sectoral	Declarations, action plans, reports, commitments
International Telecommunication Union (ITU) (FG-AI4H)	Cross-sectoral	Standards, recommendations, reports
Global Partnership on Artificial Intelligence (GPAI)	Cross-sectoral	Reports, recommendations, policy briefs
World Economic Forum (WEF)	Cross-sectoral	White papers, guidelines, regulatory frameworks



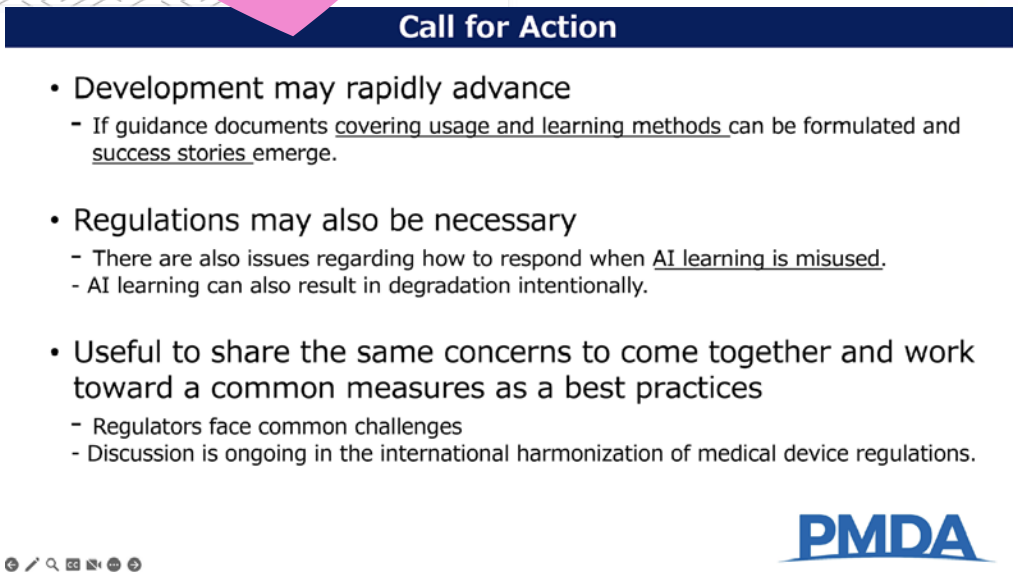
Numerous calls to action – what's next?



Slide from PS2.1 by Rose Delilah Gesicho



Slide from PS3.4 by Alvin B. Marcelo



Slide from PS3.1 by Fujiwara Yasuhiro

Acknowledgement

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Titiporn Tuangratananon


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Divya Lakhotia


Jintana Jankhotkaew


Jinnapat Suvannakatka


Chatpot Lairungruang


Ravikanya Prapharsavat

Session Rapporteurs (65 persons – names on the next slide)

- 27 Thai Rapporteurs
- 19 International Rapporteurs (from 4 countries-India, Japan, the Philippines, and Singapore)
- 19 Medical students (from 4 organizations-SI, RA, CU, and IFMSA-Thailand)

PMAC 2025 Session Rapporteur (65 persons)

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Krittin
Kyi
Liza
Mayumi
Nalinee
Napatrada
Natabhorn
Natthawat
Nongnuch
Nutwara
Orawan
Orratai
Pariyakul
Pat
Phatthanamon
Pongpaka
Ponlagrit
Sukgul
Prem
Chavarina
Yodinlom
Prechachaisurat
Chanprapab
Thar
Tabora
Okada
Ruangrittisak
Chanthachorn
Kashemsri Na Ayudhaya
Sakthawisakul
Borkham
Kijthammarat
Tawatipong
Waleewong
Chuensuwonkul
Ngamdachakij
Sinsawat
Puntaluck
Kumwichar
Puttinan Pingpitayakul
Randolph Dacanay
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Saki Nara
Saranya Sunanta
Sasatorn Sirikunsathit
Shaheda Viriyathorn
Shiela Marie Selisana
Shintaro Takahashi
Sukontee Suracharoenjai
Suladda Pongutta
Supida Komjakraphan
Suttithan Suwannoppakun
Tanatat Pisankunakit
Thanasak Thumbuntu
Theeradon Sakpetch
Voraruthai Puengchanchaikul
Vorawee Varavithya
Wilasinee Samniang
Wit Wichaidit
Zoe Morrison

Points for Discussion

- Fragmented existing platforms or mechanisms for convening multiple stakeholders for governance of AI for health
- Some of the core guiding principles for a representative governance of AI for health
  - Representative of global and local needs
  - Fast(er)
  - Fair, ethical and inclusive
- Ecosystem for technology and AI for health
  - Roles of government, private, community, and individual

Thank You