Regulatory, Infrastructural, and Workforce factors

influencing AI implementation across diverse healthcare systems

Arunnit Boonrod
Khon Kaen University, Thailand
arunsi@kku.ac.th

Outline

01

Data

Basic understanding of PACS/RIS

02

Asian-Oceanian Context

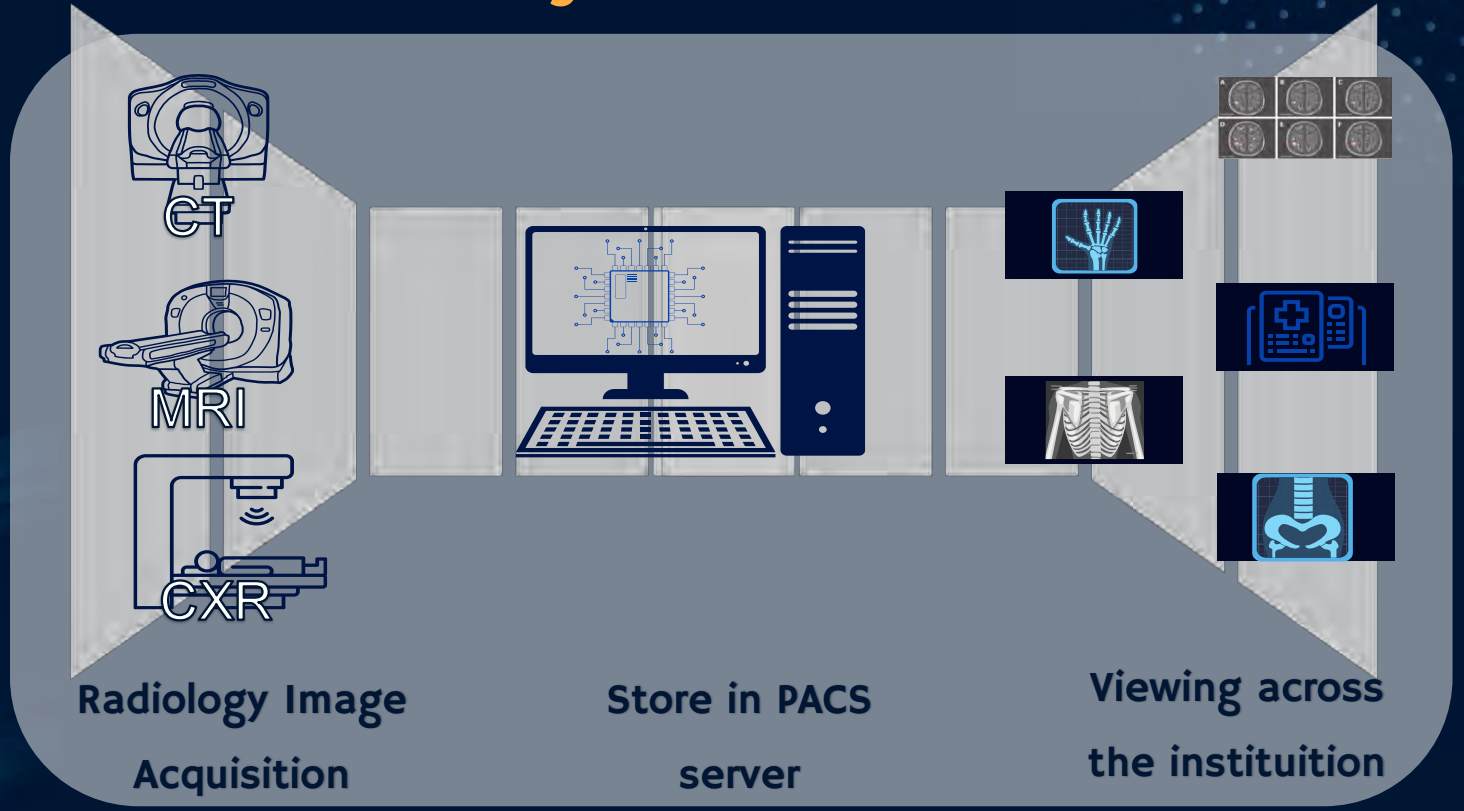
Regulation
Infrastructure
Workforce

03

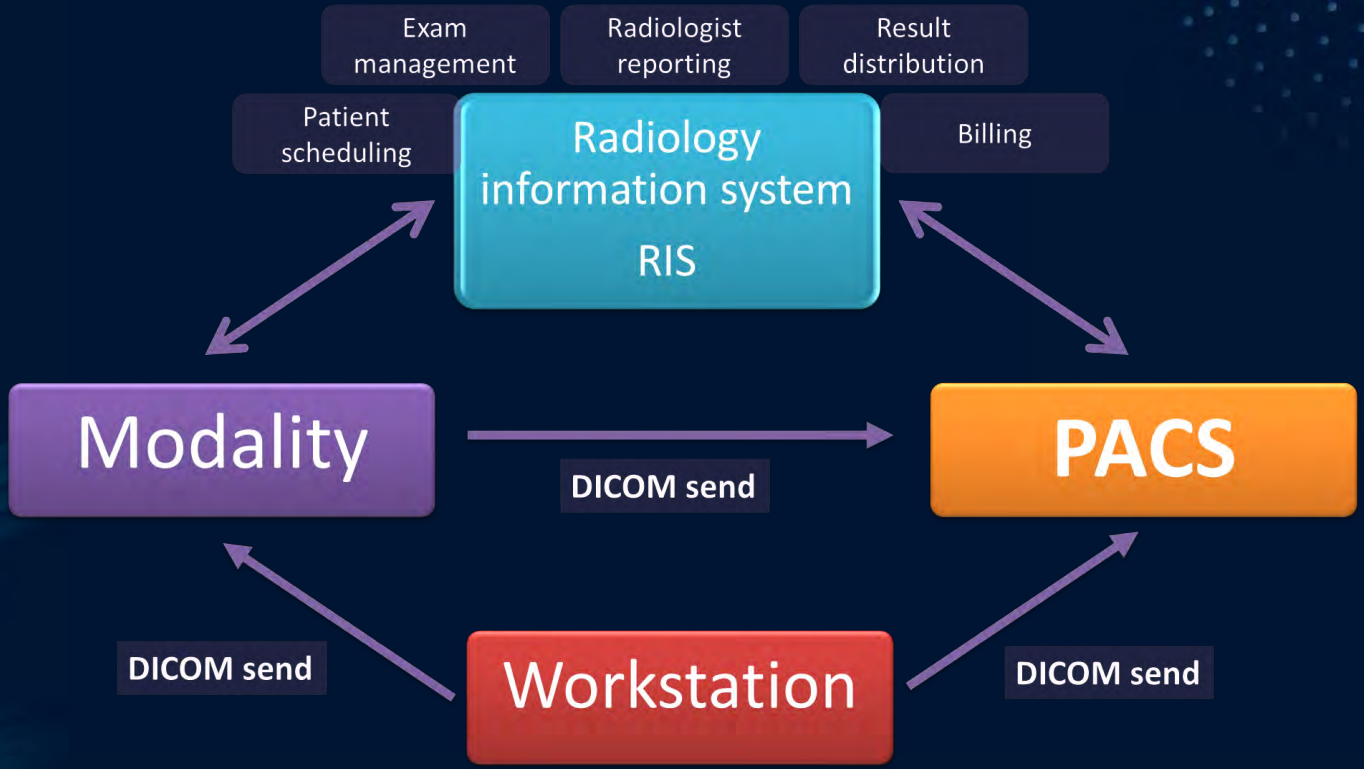
From System to Practice and Beyond

Data Management

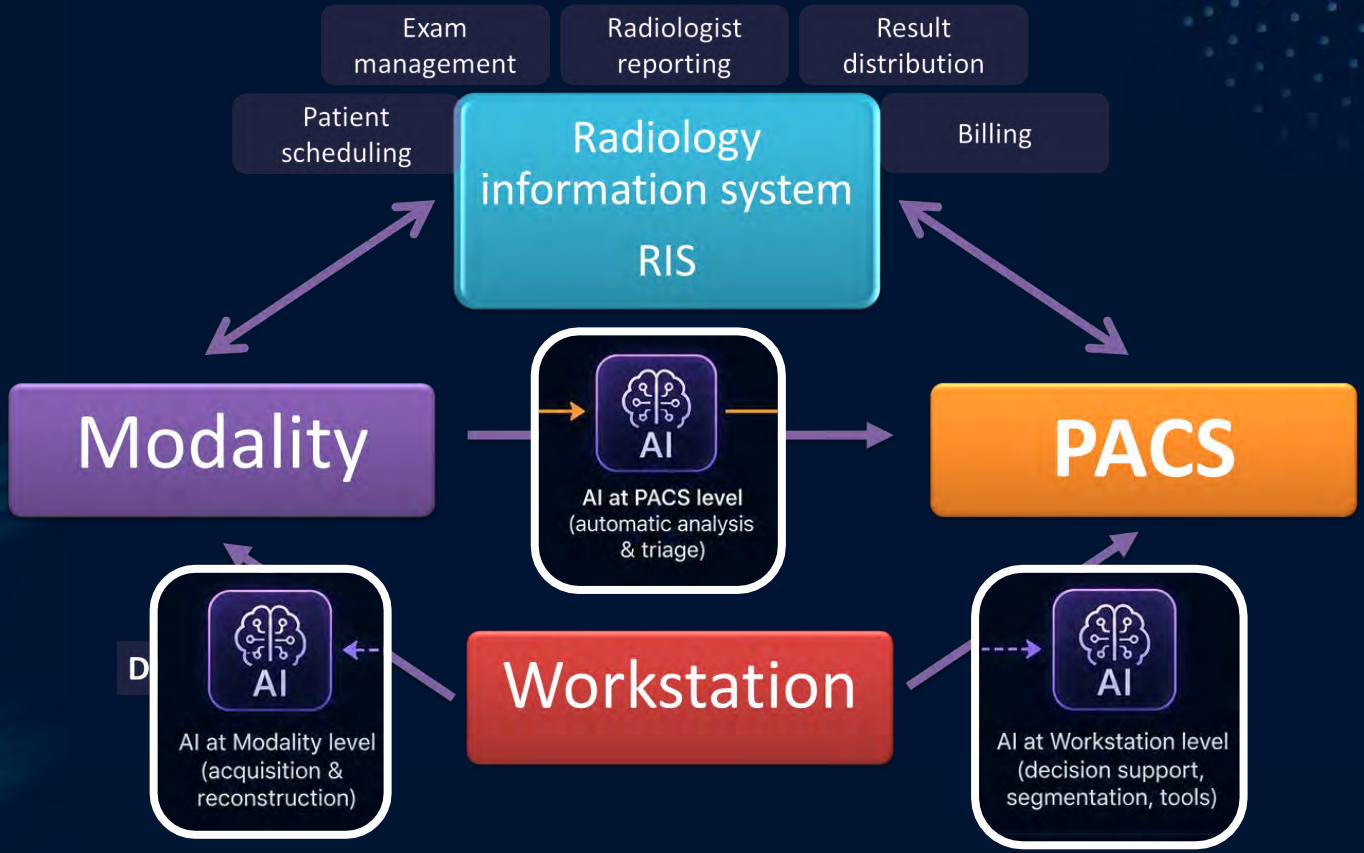
PACS Picture Archiving and Communication System



RIS Radiology information system



Where does AI go?




AI in Radiology always performs well in papers
But implementation in real life is often inconsistent.

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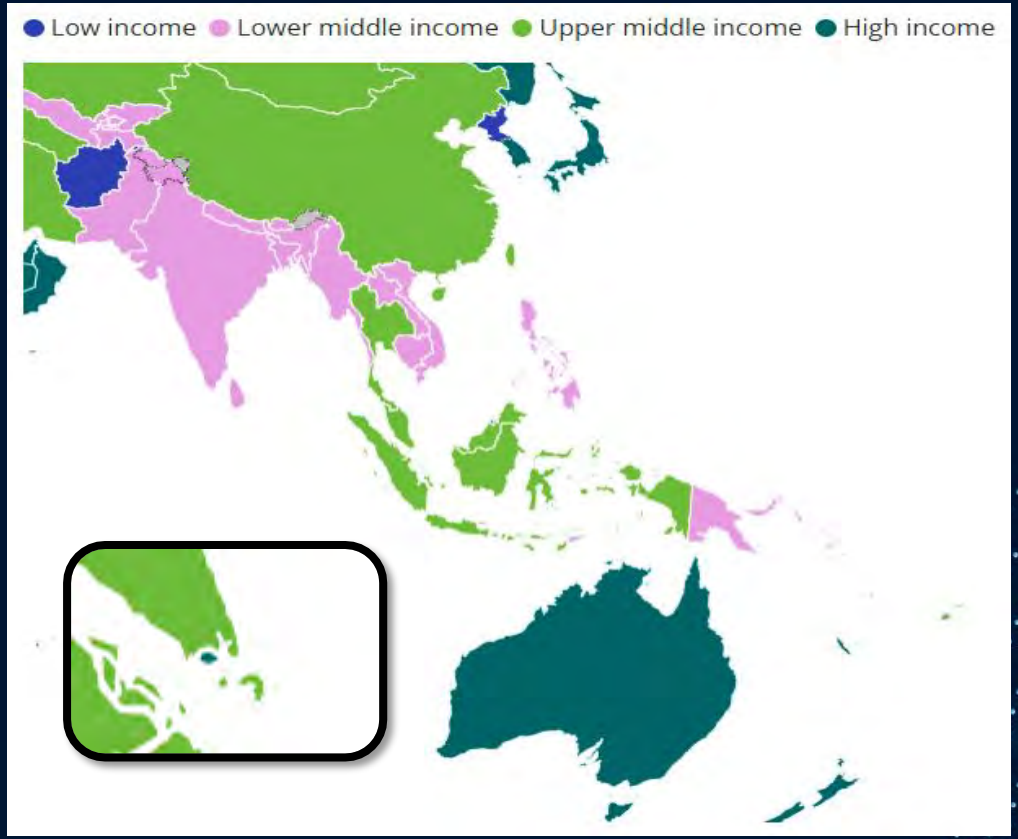
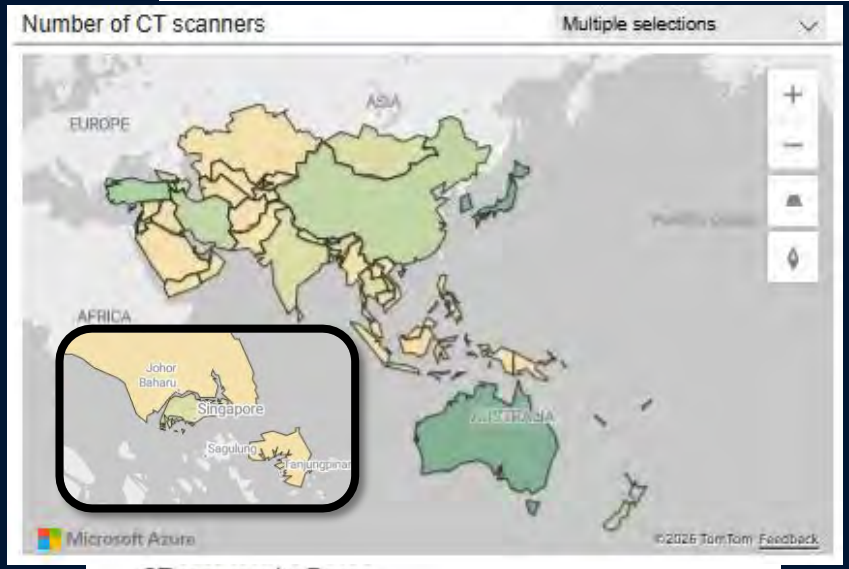
Asian-Oceanian Context

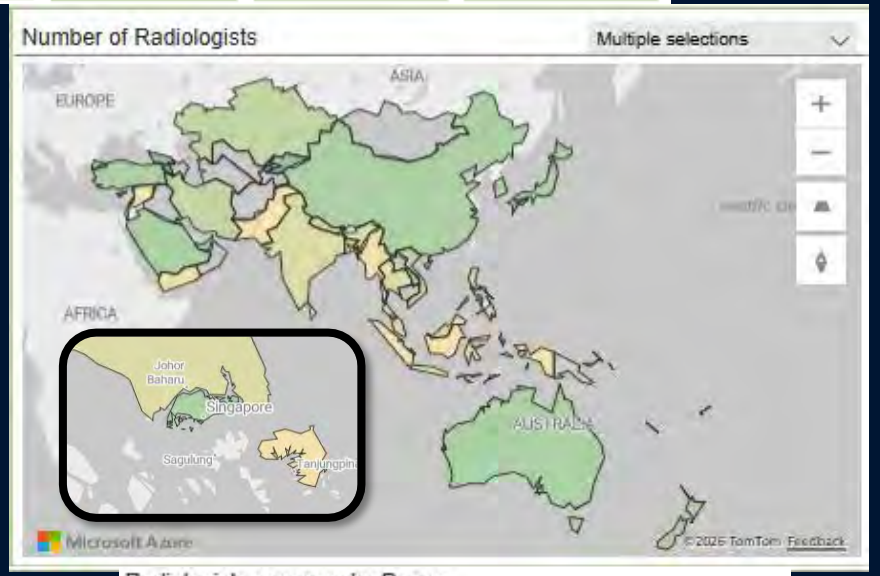


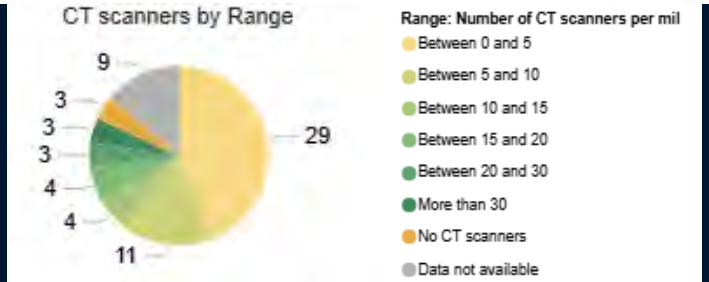
THE WORLD BANK
IBRD • IDA

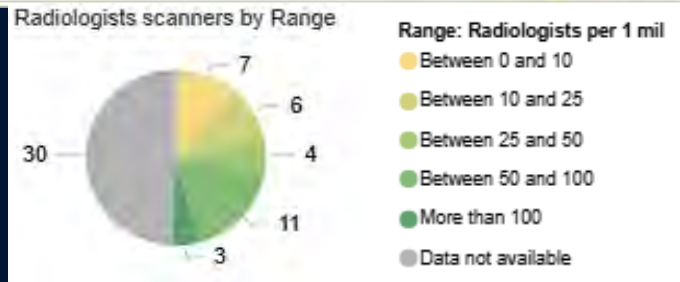
Countries with CT scanners	Countries with Radiologists	Population (mil)	Number of CT scanners	CT scanners (per 1 mil)	Number of Radiologists	Radiologists (per 1 mil)
180	141	8bn	93,429	11.94	363,710	46.47

Countries with CT scanners	Countries with Radiologists	Population (mil)	Number of CT scanners	CT scanners (per 1 mil)	Number of Radiologists	Radiologists (per 1 mil)
55	32	5bn	48,140	10.28	182,616	38.98









Asian–Oceanian Diversity: One Region, Many Realities

From highly resourced to resource-limited systems

HIGH-RESOURCE SYSTEMS

Japan, Singapore, Australia

- Radiologists per million population **70 – 80+**
- Fully integrated PACS, EMR and hospital systems
- Strong regulatory frameworks and data governance
- AI adoption: measured, cautious, evidence-driven

Technically ready, structurally cautious

MIDDLE-RESOURCE SYSTEMS

Thailand, Malaysia, Indonesia, Philippines, China (many regions)

- Radiologists per million population **10 – 30**
- PACS widely used but fragmented and heterogeneous
- Regulations growing, pathways still evolving
- AI adoption: active in leading centers, expanding rapidly

Rapid adoption, uneven systems

LOWER-RESOURCE SYSTEMS

Cambodia, Laos, Myanmar, Bangladesh, Nepal, Pacific Islands and other low-resource countries

- Radiologists per million population **< 10**
- Limited imaging access, especially in rural areas
- Infrastructure and IT systems limited or absent
- AI adoption: early stage, leapfrogging potential

Limited access, high potential

> 50% of the world's population lives in Asia–Oceania

> 60% of MRI scanners are concentrated in a few high-income countries

> 20x difference in radiologist density between the highest (e.g., Japan) and the lowest (<1–2) in the region

Diverse economies, cultures, languages and health system maturities

Singapore
A Highly Integrated System

- Nationwide EMR (NEHR)
- Fully integrated PACS–RIS–EMR
- Centralized Infrastructure (AimSG): AI Medical Imaging Platform for Singapore Public Healthcare
- AI-ready infrastructure

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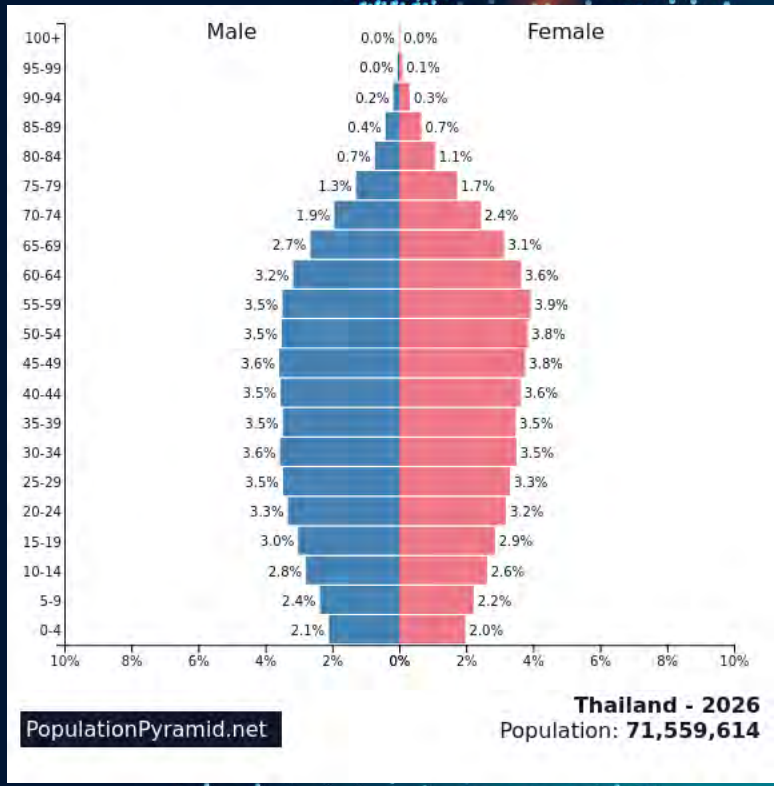
Thailand context



The Changing Landscape

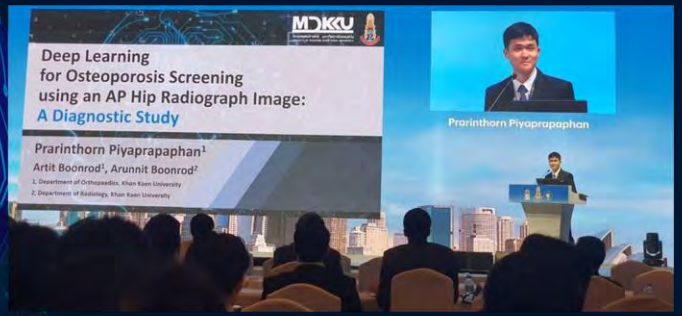
- 3,528 Radiologists
- Estimated growth in the number of diagnostic radiological examinations in PACS was approximately 8%–12% per year.

AI is a current tool, a great tool.

But it can ..... mislead us.

Never
Rarely
Sometimes
Often
Always

AIIMI
AI AND INFORMATICS IN MEDICAL IMAGING
KKU



What we should be capable of?

- Know how to use it and actually use it.
- Know when the AI is wrong, and speak up.
- Know that no one can know everything, not event about single subject.– Life long learning
- Advanced training (fellowship or equivalent) will matter more.
- Replaceable?

What our kids should be capable of?

- Learn how to learn
- Be an **expert** in the field, but have the ability to **expand** beyond one profession.
- Develop judgment: knowing what and who to trust.

PACS scaled images

AI will scale expertise

As tools scale, human judgment becomes more important.

Arunnit Boonrod, MD