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Designing AI That Works for All, Not Just for Some

:Appropriate, Human-centered, and Application-driven AI for Inclusive Deployment in Asia-Pacific

Hanbat National University, Dept. of Computer Engineering

Changbeom Choi

cbchoi@hanbat.ac.kr

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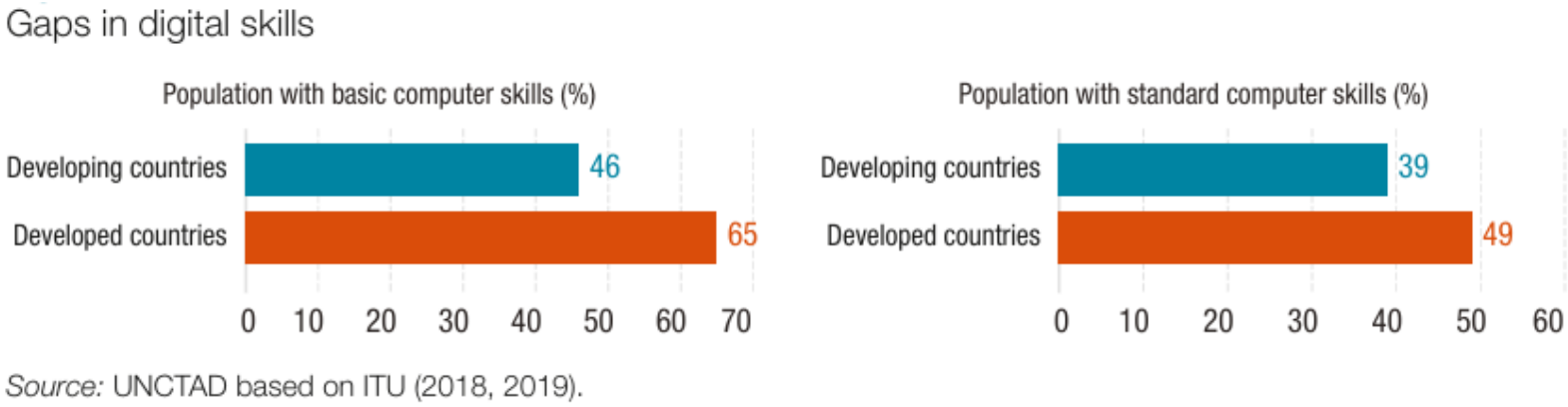
Motivation: AI is not reaching those who need it most

- **AI is widening development gaps across countries**
  - High-capacity countries benefit disproportionately
  - Many regions lack infrastructure and AI readiness

Developing countries face structural barriers to accessing frontier technologies

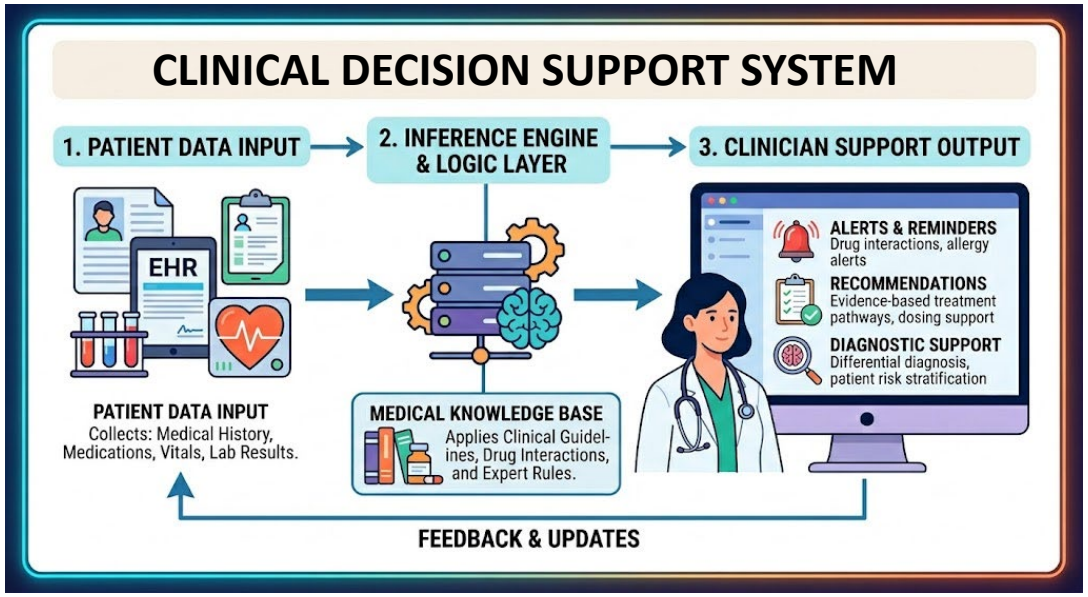
- **Economic constraints**: limited affordability, especially in rural areas
- **Digital divide & skills gap**: lack of infrastructure and insufficient digital capabilities



Source: UNCTAD based on ITU (2018, 2019).

Problem Diagnosis

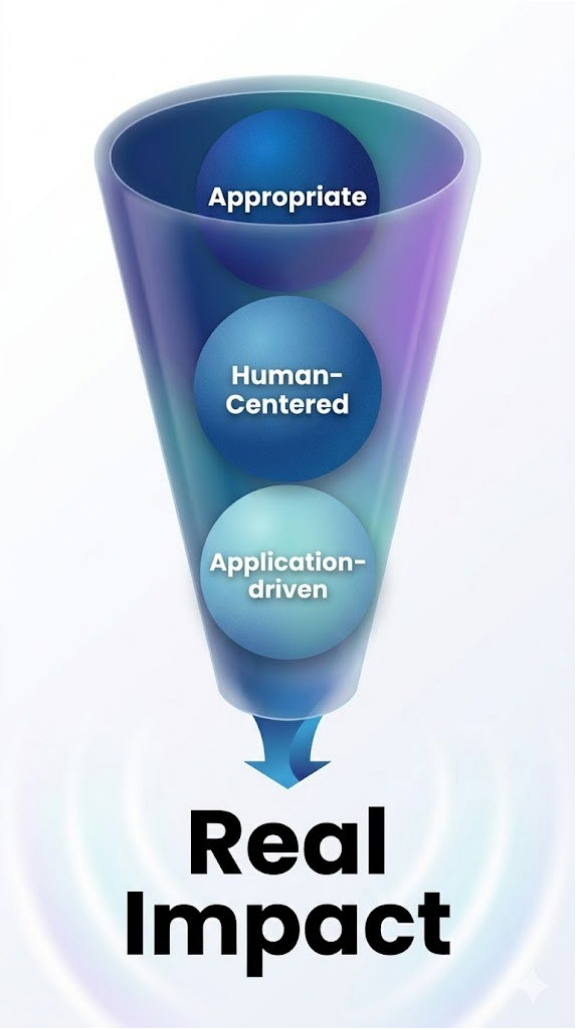
- **AI fails not due to technology, but due to mismatches**
  - Mismatch with context and infrastructure
  - Mismatch with users and real-world needs



Data & Guidelines	**Contextual Fit Failure (Appropriate)** • Limited or biased training data from specific institutions • Differences in infrastructure, regulations, and clinical environments
Clinical Workflow	**User Alignment Failure (Human-centered)** • Misalignment with clinical workflows and decision-making processes • Lack of transparency and explainability
Real World Deployment	**Real-world Deployment Failure (Application)** • Gap between pilot performance and real-world deployment • Misalignment with local guidelines and operational systems

AHA Framework: Three Conditions that AI must satisfy

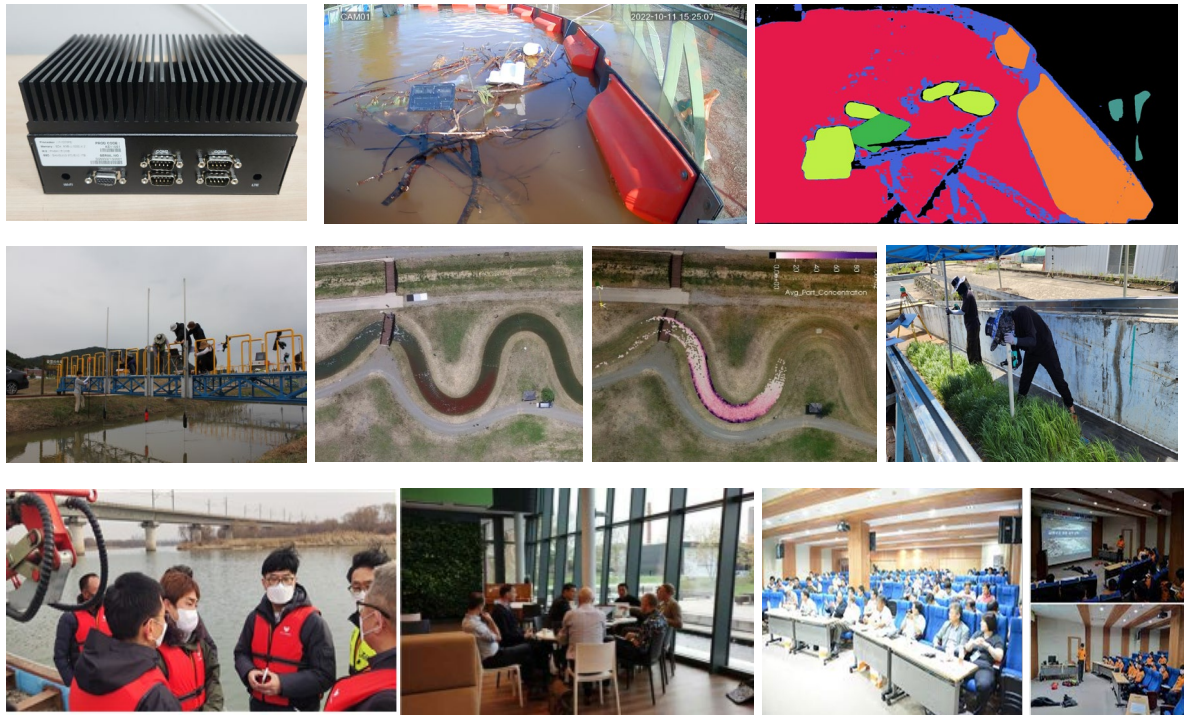
- **Appropriate**
  - Localizing technology to fit existing budgets, infrastructure, and environmental constraints considering AI Capability, Infrastructure(HW, Testbed), and Technologies
- **Human-Centered**
  - Focusing on climate action, accessibility, and intuitive service design for the underserved
- **Application**
  - Moving beyond labs to "Living Labs" where AI is validated in real-world scenarios.



Case #1: Climate Actions

- **Deployable AI enables real impact in constrained environments**
  - Edge AI for flood monitoring in low-connectivity settings
  - Validated through living lab experimentation

Appropriate	**Infra structure, EdgeAI**
Human Centered	**Climate Action, pollutant dispersion**
Application	**Validation though Living Lab, Empowerment Programs**



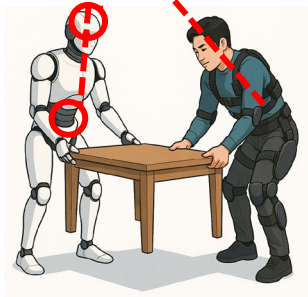
Case 2: Human-Centered Robotic Service Design

- **Robot-Service with Appropriate AI**
  - Human-centered interaction and service design
  - Appropriate AI hardware and system integration

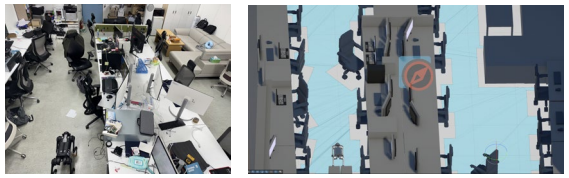
Appropriate	**AI HW/SW, Digital Twin, On-Device AI, AI-Robots**
Human Centered	**Interaction Design for all generations, Human-centered Policy Design**
Application	**Validation though Living Lab, Policy Development**

Energy-efficient, High-performance, and Cost-effective

3D-Printed Robotics Living Lab for Developing and Testing Human-Centered Robot Models



Supporting form factors and performance for integration into various robots and wearable suits



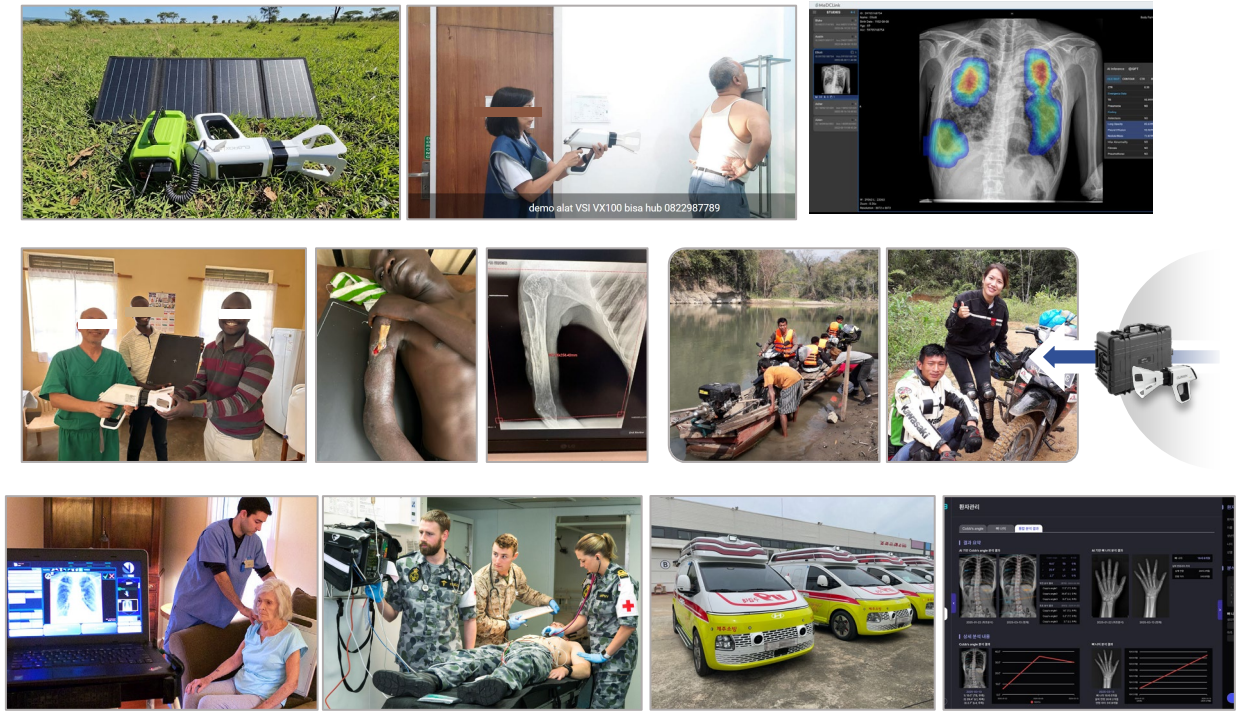
Digital Twin

Living Lab

Case 3: Mobile X-ray

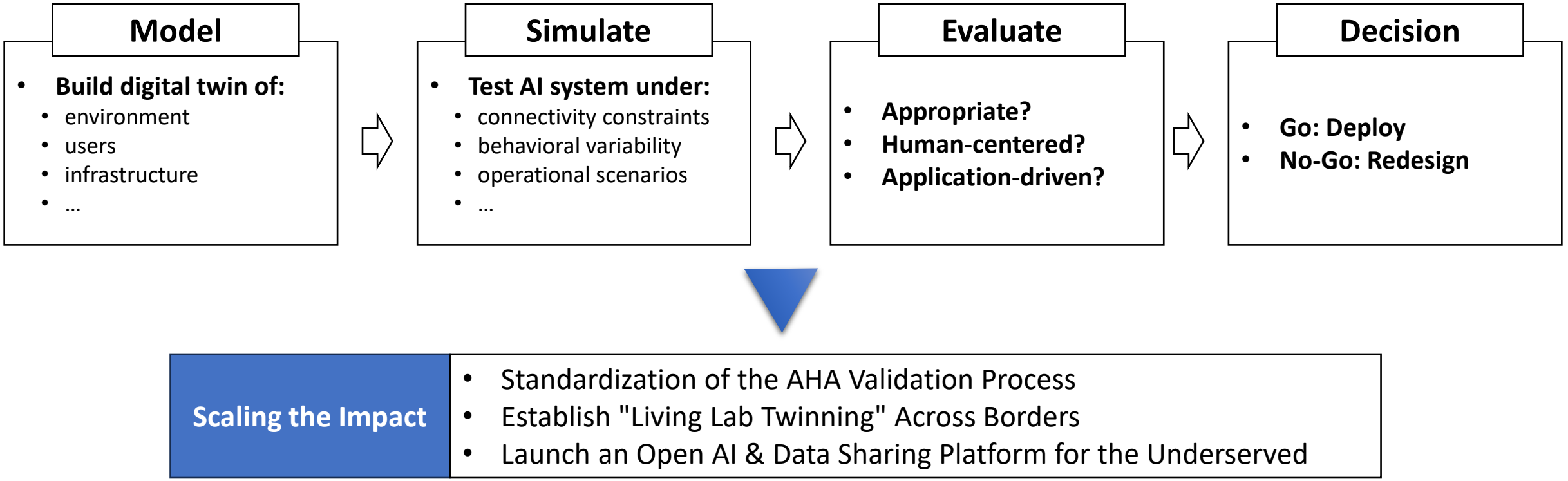
- **AI creates impact only when embedded in service systems**
  - Mobile diagnostic system for underserved communities
  - Application-driven deployment with accessibility focus

Appropriate	Battery-powered Mobile X-ray System, AI Diagnosis Support
Human Centered	Utilized in underserved medical environments
Application	Providing universal healthcare services



From Design to Decision: Digital Twin Go/No-Go Framework

- **AI deployment should be validated before real-world implementation**
  - Digital twins enable simulation under local conditions
  - Go/No-Go decisions ensure safe and context-appropriate adoption



Conclusion

- **AI should be judged by its relevance to real-world contexts**
  - Not sophistication, but usability determines impact
  - AHA enables inclusive and scalable AI deployment
- **Policy Recommendations for Inclusive AI**
  - Adopt the AHA Framework in Public AI Procurement
  - Institutionalize the **Digital Twin Go/No-Go Framework**
  - Invest in **Empowerment Programs** to Bridge Real-World Mismatches
- **Governments should:**
  - (Pilot) Prioritize on-device AI for low-connectivity regions
  - (Validation) Use Digital Twin validation systems before deployment
  - (Scale-up) Policy Integration, Fund local capacity building programs