NHIS GLOBAL FORUM 2025

Digital Technology and AI to Strengthen Health Systems

Emerging Practices and Remaining Challenges

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Human capital constitutes

64%

of countries' wealth

World Bank (2021). The Changing Wealth of Nations

- Human capital raises earnings
- Human capital increases labor force participation of women
- The bulk of poverty reduction in the world in the last half-century can be explained by investments in human capital

Health is an essential part of human capital
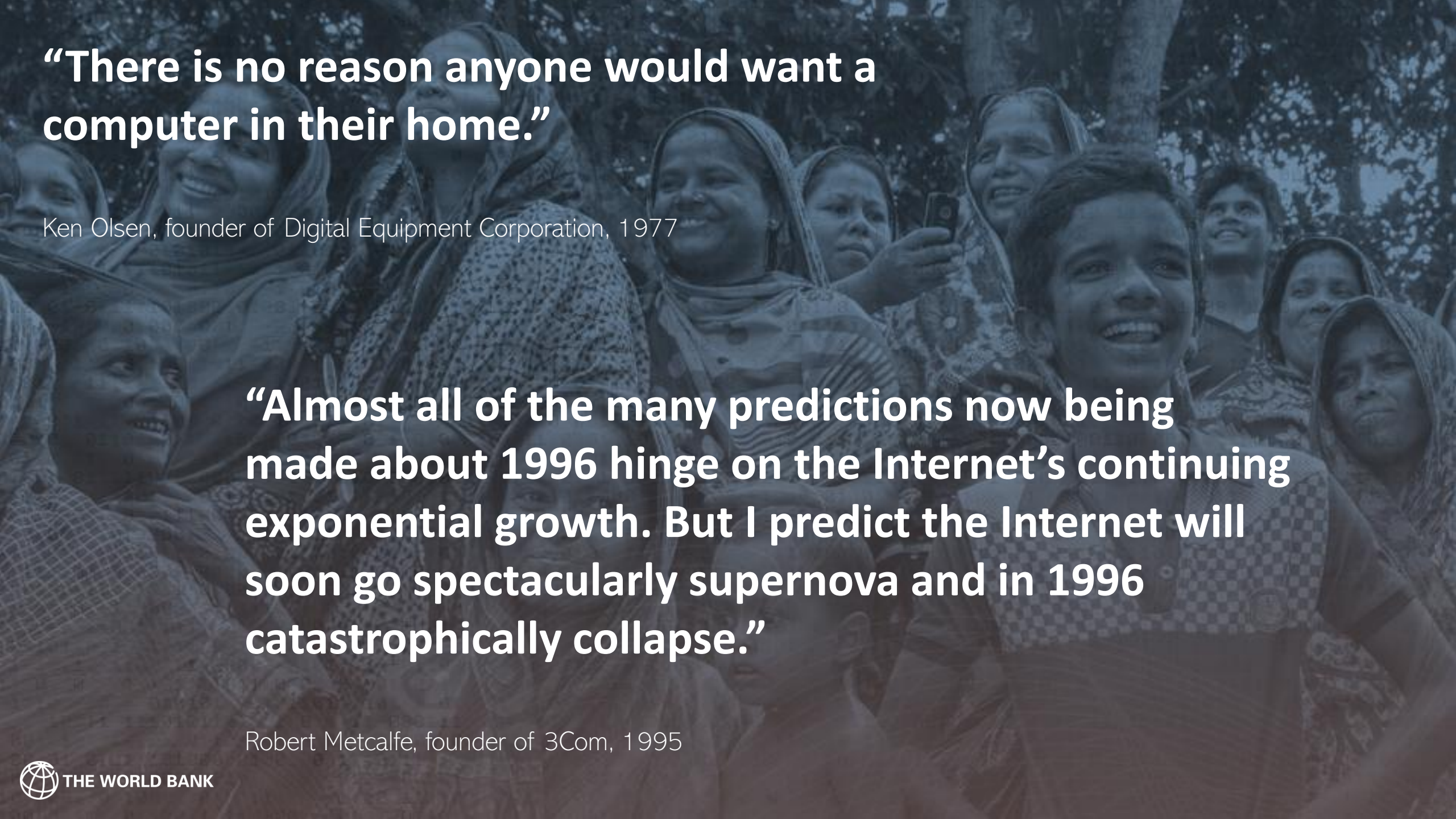
"Technology is neither good nor bad, nor is it neutral."

Melvin Kranzberg, 1986

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"There is no reason anyone would want a computer in their home."
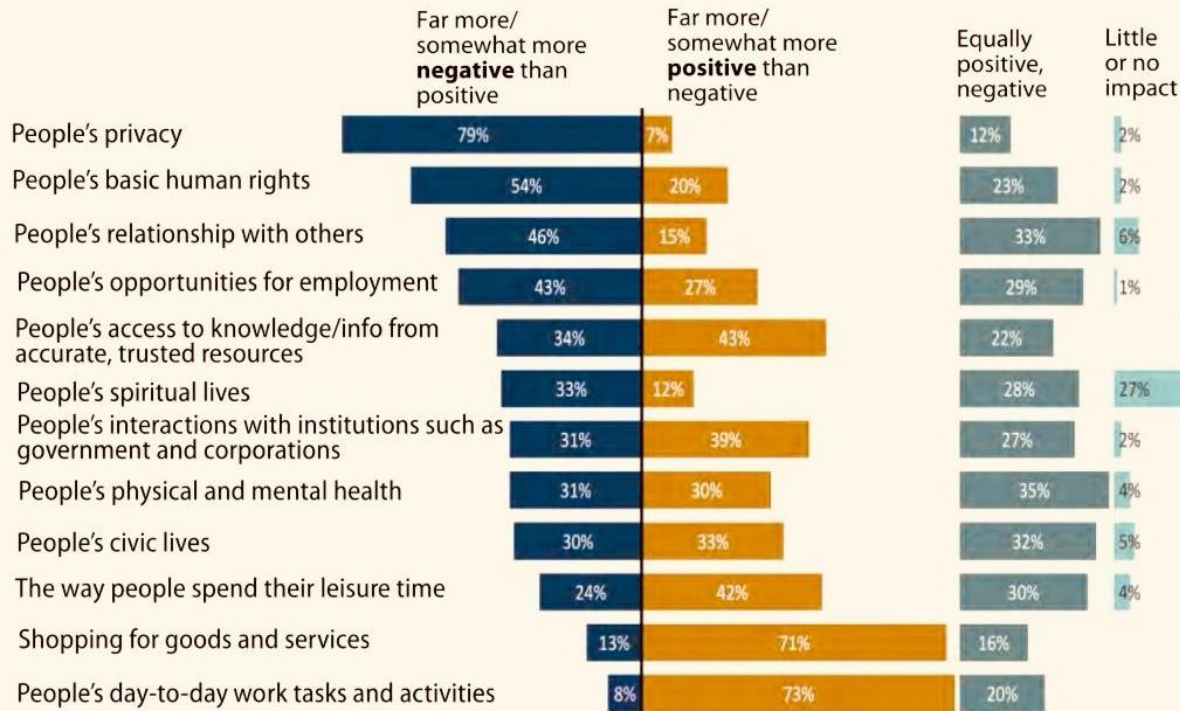
Ken Olsen, founder of Digital Equipment Corporation, 1977

"Almost all of the many predictions now being made about 1996 hinge on the Internet's continuing exponential growth. But I predict the Internet will soon go spectacularly supernova and in 1996 catastrophically collapse."

Robert Metcalfe, founder of 3Com, 1995

THE WORLD BANK

Experts' views on AI's level of impact on people's personal lives

% of experts who say artificial intelligence will have _____ level of impact by the year 2040 on ...

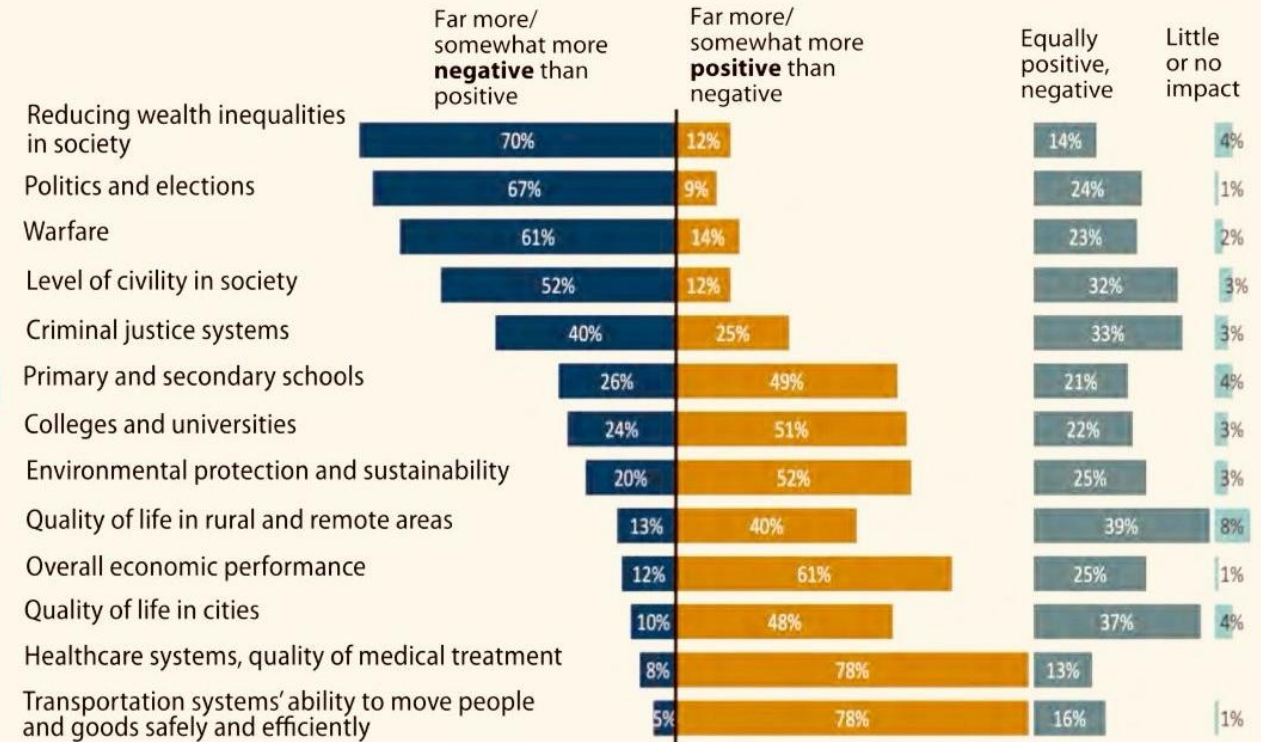|	Far more/somewhat more **negative** than positive	Far more/somewhat more **positive** than negative	Equally positive, negative	Little or no impact
People's privacy	79%	7%	12%	2%
People's basic human rights	54%	20%	23%	2%
People's relationship with others	46%	15%	33%	6%
People's opportunities for employment	43%	27%	29%	1%
People's access to knowledge/info from accurate, trusted resources	34%	43%	22%	
People's spiritual lives	33%	12%	28%	27%
People's interactions with institutions such as government and corporations	31%	39%	27%	2%
People's physical and mental health	31%	30%	35%	4%
People's civic lives	30%	33%	32%	5%
The way people spend their leisure time	24%	42%	30%	4%
Shopping for goods and services	13%	71%	16%	
People's day-to-day work tasks and activities	8%	73%	20%	

Note: Non-scientific canvassing of internet pioneers, builders and analysts
Source: Elon University canvassing of technology experts, Oct. 4-Nov. 6, 2023
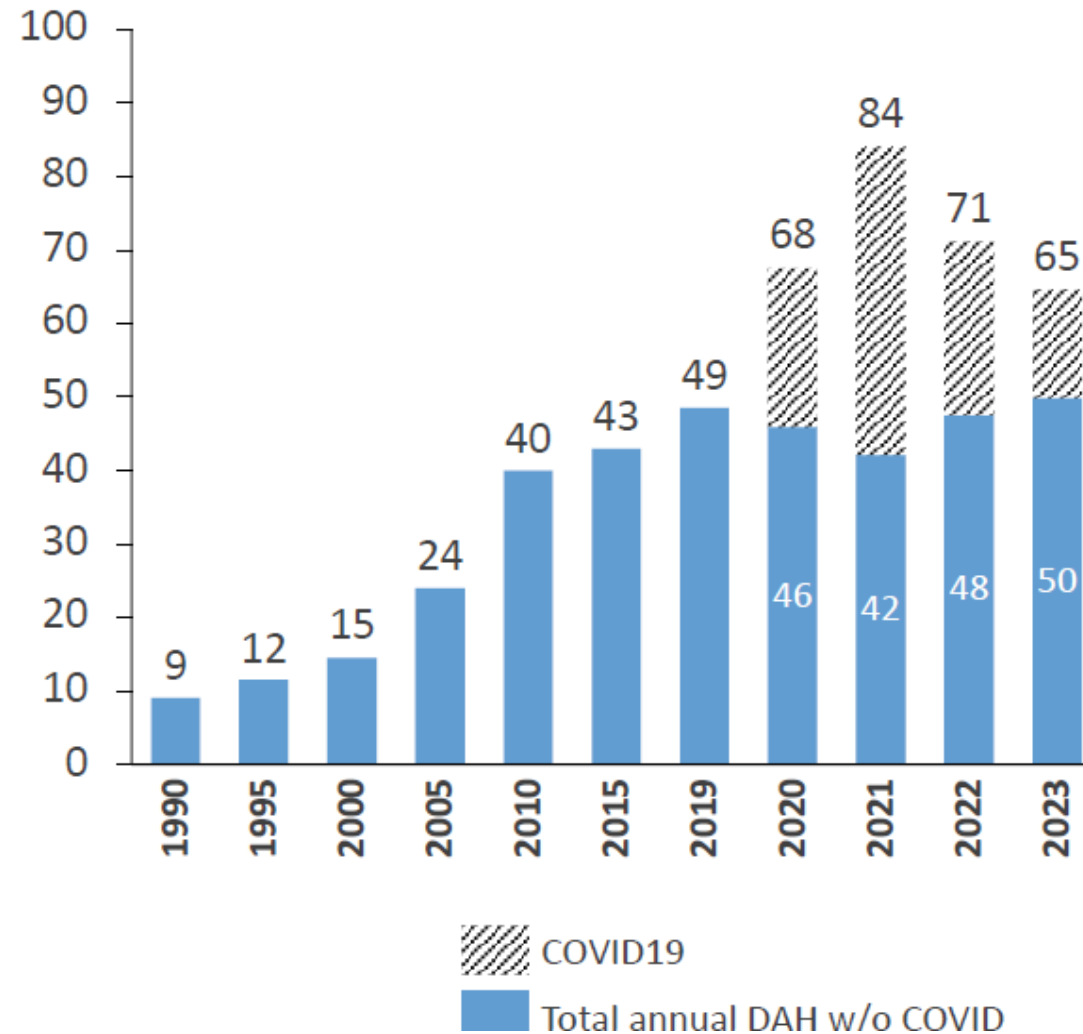
Experts' views on AI's level of impact on social institutions and systems

% of experts who say artificial intelligence will have _____ level of impact by the year 2040 on ...

	Far more/somewhat more **negative** than positive	Far more/somewhat more **positive** than negative	Equally positive, negative	Little or no impact
Reducing wealth inequalities in society	70%	12%	14%	4%
Politics and elections	67%	9%	24%	1%
Warfare	61%	14%	23%	2%
Level of civility in society	52%	12%	32%	3%
Criminal justice systems	40%	25%	33%	3%
Primary and secondary schools	26%	49%	21%	4%
Colleges and universities	24%	51%	22%	3%
Environmental protection and sustainability	20%	52%	25%	3%
Quality of life in rural and remote areas	13%	40%	39%	8%
Overall economic performance	12%	61%	25%	1%
Quality of life in cities	10%	48%	37%	4%
Healthcare systems, quality of medical treatment	8%	78%	13%	
Transportation systems' ability to move people and goods safely and efficiently	5%	78%	16%	1%

Note: Non-scientific canvassing of internet pioneers, builders and analysts
Source: Elon University canvassing of technology experts, Oct. 4-Nov. 6, 2023

Pernicious problems persist in healthcare around the world, despite significant investments

The world invested more than $880 billion in DAH from 1990 until 2019 with 80% invested after 2000 and 47% reported as allocated to countries

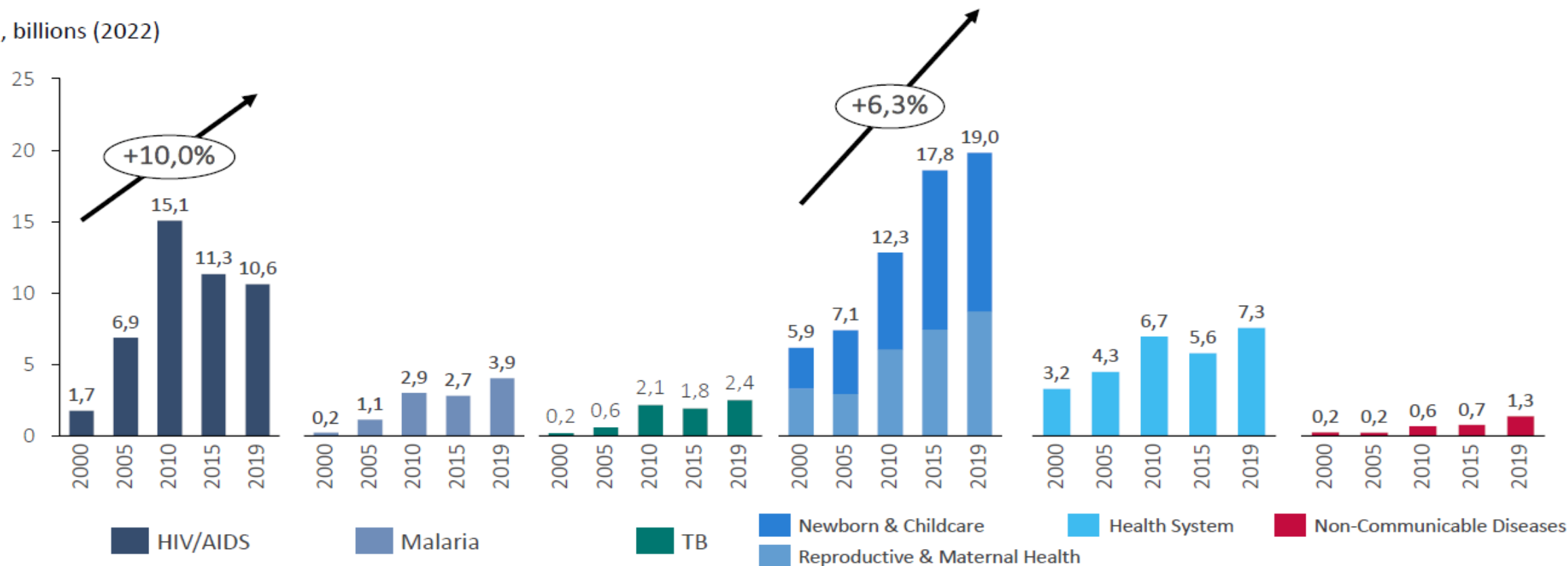(**DAH** = Development Assistance for Health)

US$, billions (2022)

Legend:
- COVID19
- Total annual DAH w/o COVID

Year	Total annual DAH w/o COVID	COVID19 / Total
1990		9
1995		12
2000		15
2005		24
2010		40
2015		43
2019		49
2020	46	68
2021	42	84
2022	48	71
2023	50	65

Fast growth of DAH was driven mainly by three priority diseases (HIV/AIDS, Malaria, and TB) and to a lesser extend RMNCH

DAH by health focus areas, 1990-2019

US$, billions (2022)

HIV/AIDS: +10,0%
- 2000: 1,7
- 2005: 6,9
- 2010: 15,1
- 2015: 11,3
- 2019: 10,6

Malaria:
- 2000: 0,2
- 2005: 1,1
- 2010: 2,9
- 2015: 2,7
- 2019: 3,9

TB:
- 2000: 0,2
- 2005: 0,6
- 2010: 2,1
- 2015: 1,8
- 2019: 2,4

Newborn & Childcare / Reproductive & Maternal Health: +6,3%
- 2000: 5,9
- 2005: 7,1
- 2010: 12,3
- 2015: 17,8
- 2019: 19,0

Health System:
- 2000: 3,2
- 2005: 4,3
- 2010: 6,7
- 2015: 5,6
- 2019: 7,3

Non-Communicable Diseases:
- 2000: 0,2
- 2005: 0,2
- 2010: 0,6
- 2015: 0,7
- 2019: 1,3

Legend:
- HIV/AIDS
- Malaria
- TB
- Newborn & Childcare
- Reproductive & Maternal Health
- Health System
- Non-Communicable Diseases

Note: Non-Communicable Diseases include: Tobacco use and prevention, mental health, human resources, other; Other Infectious Diseases include: Ebola, Zika, COVID-19, anti-microbial resistance, other. Other Health Focus Areas include: funds for health that are not currently listed. Health system: Health system strenghthening, Pandemic Preparedness, other.

CHD Center for Healthy Development

DAH allocations are imbalanced relative to preventable DALYs

Share of preventable DALYs as % of total DALYs in LICs and LMICs by main health conditions, 2010 and 2019

% of total preventable BOD

	2010 LICs Prev.	2010 LMICs Prev.	2019 LICs Prev.	2019 LMICs Prev.
NCDs	21%	35%	26%	45%
Injuries	6%	8%	8%	7%
TB	5%	5%	5%	4%
Malaria	8%	3%	10%	3%
HIV/AIDS	7%	4%	5%	3%
RMNCH	22%	19%	22%	17%
all other	31%	26%	25%	20%
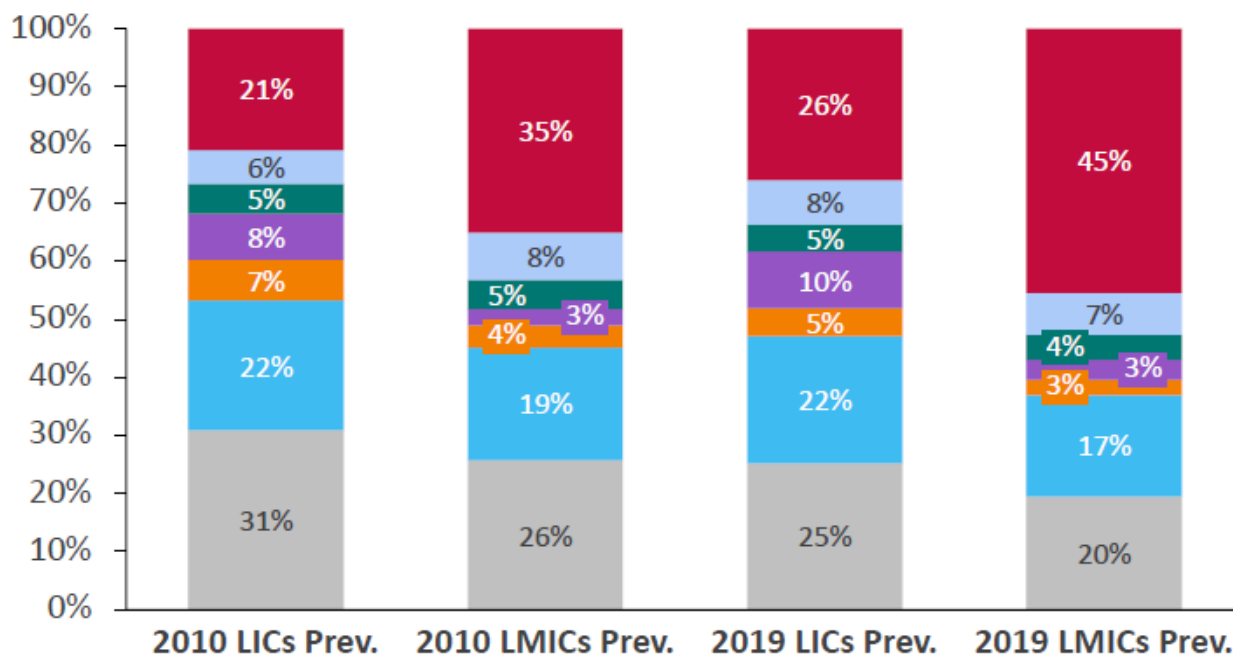
Share of total DAH in LICs and LMICs by main health conditions, 2010 and 2019

% of total DAH

	2010	2019
NCDs	1%	2%
Injuries	10%	9%
RMNCH	24%	32%
TB	4%	4%
Malaria	6%	7%
HIV/AIDS	29%	18%
all other	27%	28%

Legend: NCDs, TB, HIV/AIDS, all other, Injuries, Malaria, RMNCH
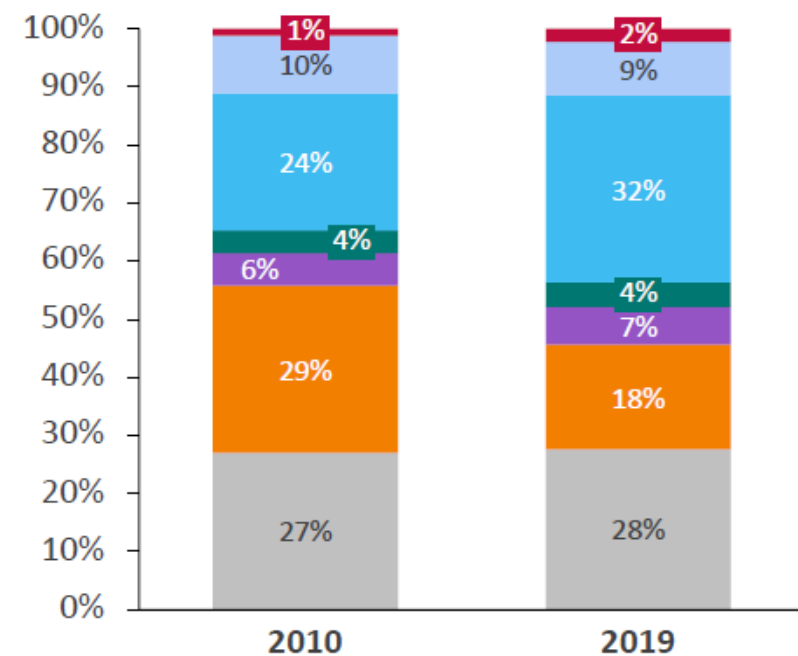
Note: Preventable BOD calculated based on total DALYs adjusted assuming on-the-ground 90% intervention effectiveness for TB, HIV/AIDS, COVID19, and RMNCH prevention and treatment; 60% for Malaria; 50% for injuries, and 50% average for all NCDs, and 70% for all other.
Source: CHD DAH analysis, estimated based on IHME GBD data 2021, and Financing Global Health 2023.

CHD
Center for Healthy Development

DAH is not well gearad for what causes disease today

- **Non-communicable diseases:** approx **~63%** of DALYs

- **Virtually no funding for NCD causes**: **metabolic risks due to o**besity, hypertension, and high blood sugar DALYs (grown 50% since 2000)

- **Neurological & mental DALYs:** ~3.4 billion people affected by nervous system disorders (stroke, dementia, migraine), with neurological conditions leading global DALY rankings

- **Persistent communicable, maternal, neonatal and nutritional challenges** in low-income settings

- Lack of recognition of non-medical determinants of health, e.g. geographic & socioeconomic inequities

- Healthcare inefficiencies

- **Know-do gap** is significant

KNOW-DO GAP IN HEALTHCARE IS SIGNIFICANT

1950 50 years

1980 7 years

2010 3.5 years

2020 73 days

17 years for research evidence to reach clinical practice (doi:10.1001/jama.2023.4387)

Only **1 in 5 evidence-based interventions** make it to clinical practice (PMID: 27699347)

60 (helpful) – 30 (useless) – 10 (harmful) ratio in health system effectiveness has not budged in three decades (https://doi.org/10.1186/s12916-020-01563-4)

"I'M SORRY BUT THERE ARE NOW 16,000 MEDICAL JOURNALS, AND I NO LONGER HAVE TIME TO SEE ANY PATIENTS."

Can Digital Health Technology be Useful in Overcoming These Challenges?

Yes

How digital technology is already supporting pernicious health system challenges

Emerging Practices around the world

Partners in the Digital Health Learning Collaborative

Learn more about the Digital Health Exemplars project.

Road to Maturity in Digital Health

Innovation and Experimentation

Strengthening Enabling Ecosystem

A Foundational data building blocks

B Aggregate data analytics and visibility

C Interoperability and individual level data

D Direct patient access and engagement

Improved coverage, access, quality and health system efficiency
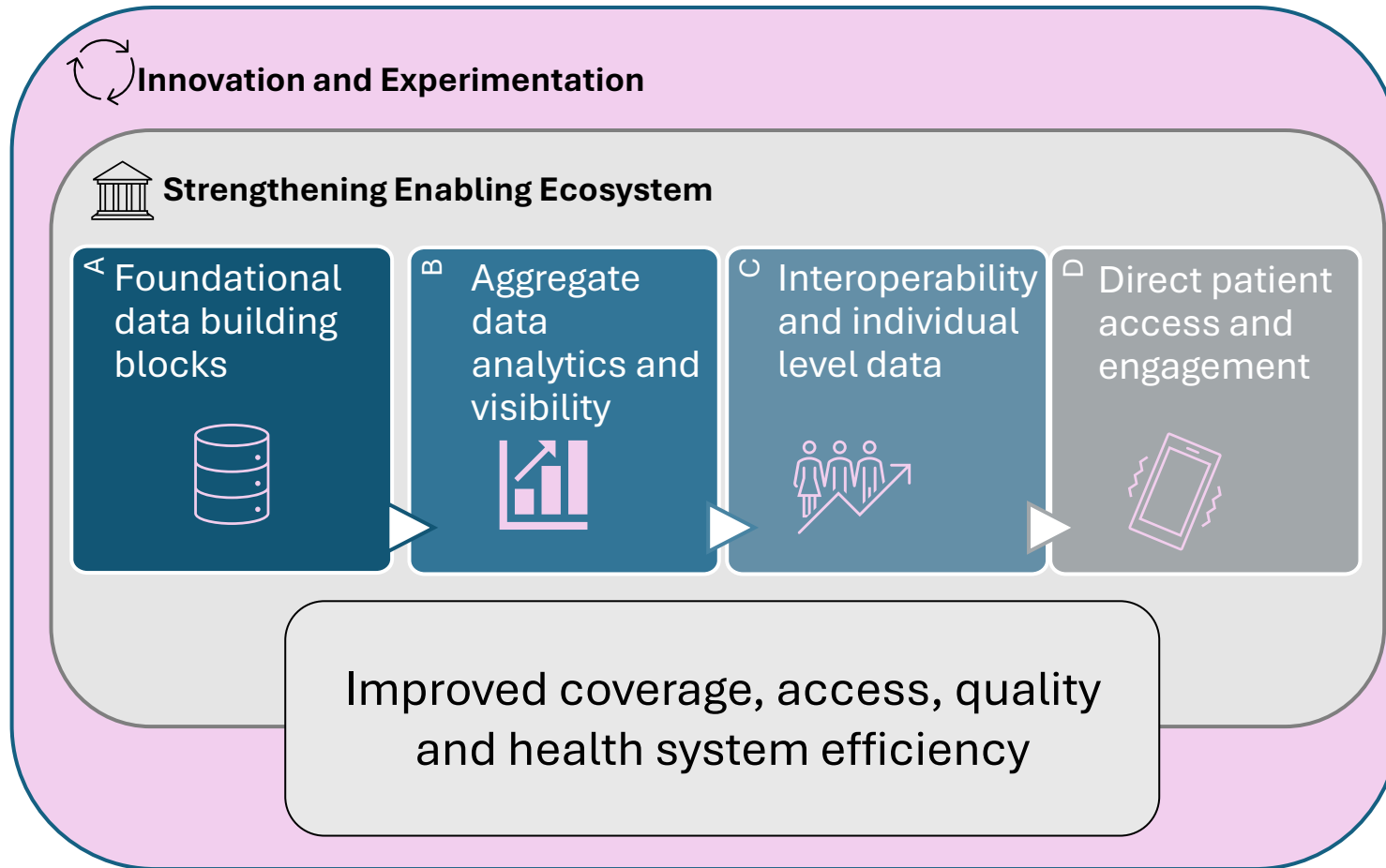
Typical Digital System Building Phases

A Early focus on the building blocks of info system like registries, data standards, population estimates, etc

B Digitization of aggregate health information (supply chain, HR, service utilization, surveillance, etc.) supports visibility and analytics

C Health system context drives design choices but focus on efficiency and service quality improvements drives focus on interoperability and individual level data.

D With an established system and strong digital literacy, increased attention on direct user engagement with the system.

COUNTRY EXAMPLES HIGHLIGHT PROGRESSION FROM MORE NARROWLY FOCUSED SYSTEMS TO MORE COMPREHENSIVE APPROACHES

RWANDA

EPI-TRACKER
Facility manager

TYPE OF INTERVENTION

Facility-based information system

DESCRIPTION

A system that uses the DHIS2 platform to enhance disease surveillance and vaccination management

GHANA
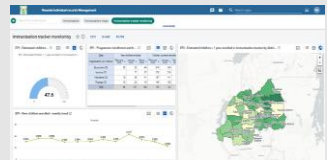
CLAIM-IT
Facility manager

TYPE OF INTERVENTION

Digital e-claim system

DESCRIPTION

A digital platform that streamlines and automates health insurance claims processing

INDIA

KHUSHI BABY
Client/worker

TYPE OF INTERVENTION

Community-based information system + job aid

DESCRIPTION

Provides solutions to digitize patient information in Rajasthan, India

BRAZIL

PEC E-SUS
Facility manager/Central planner

TYPE OF INTERVENTION

Electronic health record (EHR)

DESCRIPTION

A government-owned EHR, implemented at PHC facilities across all municipalities

FINLAND

KANTA
Facility Manager/Central planner

TYPE OF INTERVENTION

Patient-accessible electronic health record system

DESCRIPTION

Nationwide digital health information service that stores and shares citizen health information across healthcare providers and pharmacies.

Abbreviations: EMR – electronic medical record, PHC – primary health care, PEC - Prontuário Eletrônico do Cidadão, or Citizen's Electronic Health Record (HER)

How are digital health exemplar countries tackling digital transformation?

Rwanda

⚙ **Digital tool: EPI Tracker** – electronic immunization registry　　**Scale:** National
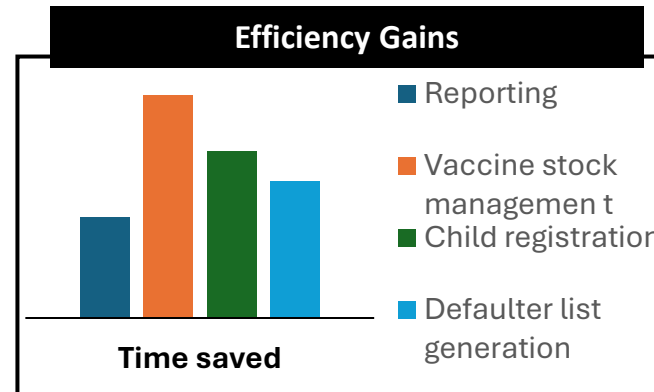

Challenges targeted

1 Delays in vaccine delivery

2 High drop-out rates

3 Limited transparency in immunization decision-making

4 Insufficient patient-level tracking for vaccine management

Impact

Impact on Coverage

- Children born before EPI Tracker
- Children born after EPI Tracker
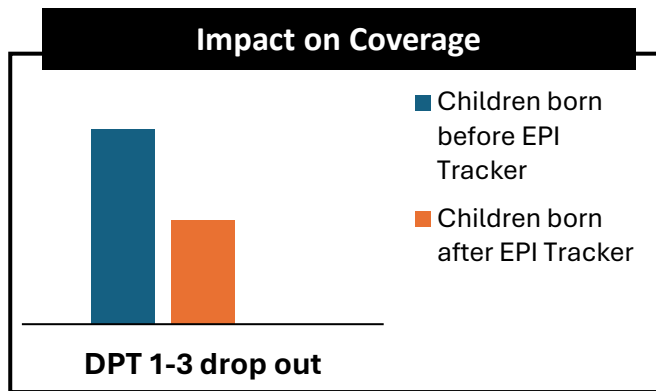
DPT 1-3 drop out

Coverage improvement

7.2% significant reduction in DPT 1-3 dropouts (comparison between birth cohorts born before v. after EPI tracker)

Efficiency Gains

- Reporting
- Vaccine stock managemen t
- Child registration
- Defaulter list generation

Time saved

Efficiency gains

- 10 hours saved per facility per month on reports
- Vaccine stock management: 22+ hrs saved
- Child registration: 16.5+ hrs saved
- Defaulter list generation: 13.5+ hrs saved

Enablers of success[1]

Strategy & investment
Scale enabled by unified national health strategy and intergovernmental coordination

Leadership & governance
High-level government support and integration with key national systems

Strategy & investment + Infrastructure
Hybrid funding model—gov't funded start-up and maintenance ops; donors supported hardware, training, and systems dev

[1]Enablers highlighted reflect factors most unique and critical to DHI success, not to be interpreted as the only levers at play across enablers

AQS Africa Quantitative Science　JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH | Center for Global Digital Health Innovation　CDHI Center for Digital Health & Implementation Science

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How are digital health exemplar countries tackling digital transformation?
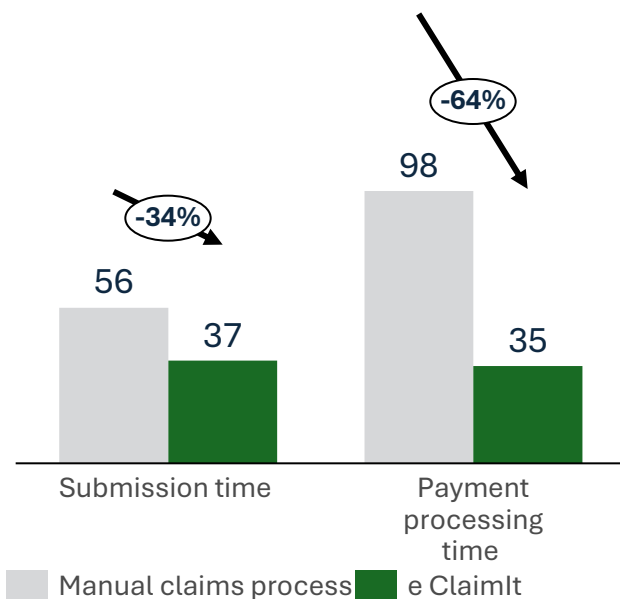
Digital tool: Claim-It – digital e-claims system   **Scale:** National

Challenges targeted

1 Delays and inefficiencies in claims management

2 Risk of financial errors, fraud, and loss

3 Inadequate and delayed funding at facilities

Impact

NHIS CLAIM-it
generate • submit • analyze

-64%

98

-34%

56

37

35

Submission time

Payment processing time

Manual claims process   e ClaimIt

Efficiency gains

Compared to manual claims:
- eClaims process has resulted in **faster reimbursements** meaning facilities have cash in hand quicker and on a more predictable timeline
- Overall **reduction in claim adjustments** (total **reduction in amount adjusted was 1.31%**)
- Submission time **reduced by 34%** (56 → 37 days)
- Payment processing time **reduced by 64%** (98 → 35 days)

Enablers of success[1]

Strategy & investment
Strong national health strategy including a mandate for UHC via NHIS

Leadership & governance + Legislation, policy, & compliance
All public health facilities were required to be credentialed and to adopt Claim-It

Infrastructure
Claim-It is an offline system to address connectivity issues, improving on a previous low-uptake online-only system

[1]Enablers highlighted reflect factors most unique and critical to DHI success, not to be interpreted as the only levers at play across enablers

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Use Only

# How are digital health exemplar countries tackling digital transformation?

Digital tool: Khushi Baby – integrated, digital community health platform + CHW job aids
Scale: Platform implementation statewide in Rajasthan w/ scale-up planned in Karnataka and Maharashtra;
job aid adoption by 75k CHWs to reach 44-50m beneficiaries

Challenges targeted

1 Low quality of community-based health service provision

2 Limited real-time decision support for CHWs

3 Weak reporting mechanisms and limited data visibility

4 Limited systems integration driving poor oversight and planning

KhushiBaby

Impact
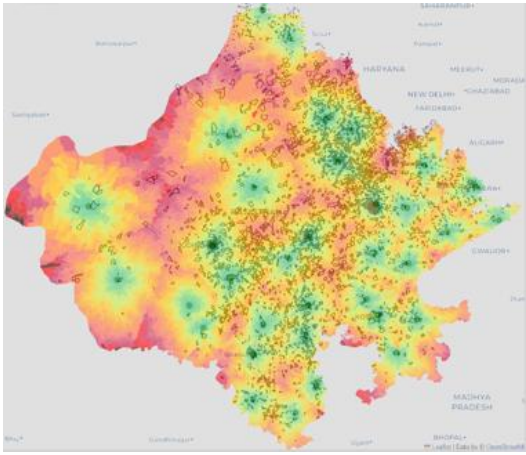
Compared to paper-based systems, use of Khushi Baby has enabled:

- **1.66x** increase in likelihood to immunize
- **4%** decrease in malnutrition
- **67%** of pregnancies tracked were registered before 12 weeks
- Reduced data synchronization time from 30 days to **~4 hours**
- The cost per 10 percentage-point increase in likelihood of full immunization was **US$0.68 (₹50) per beneficiary.**

Accessibility vs. health outcomes: Using geospatial insights to plan resource allocation in Rajasthan

Enablers of success[1]

Leadership & governance
Government partnership providing technical support to Rajasthan's health department

Strategy & investment
Scaled through diverse funding and strategic partnerships; localized, user-friendly tech to boost adoption

Workforce
Real-time tech support and WhatsApp-based training for effective implementation

[1]Enablers highlighted reflect factors most unique and critical to DHI success, not to be interpreted as the only levers at play across enablers

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How are digital health Exemplars tackling digital transformation?

Digital tool: PEC/e-sus electronic health record system   **Scale:** 60% of health facilities using PEC only for data reporting; 100% of health facility data available digitally across reporting methods

Challenges targeted

1 Lack of unified PHC information system

2 Poor data quality and completeness across PHC facilities

3 Limited tools for data-driven health system management

Impact

Adoption of EHR in Brazil

Paper-based | EHR
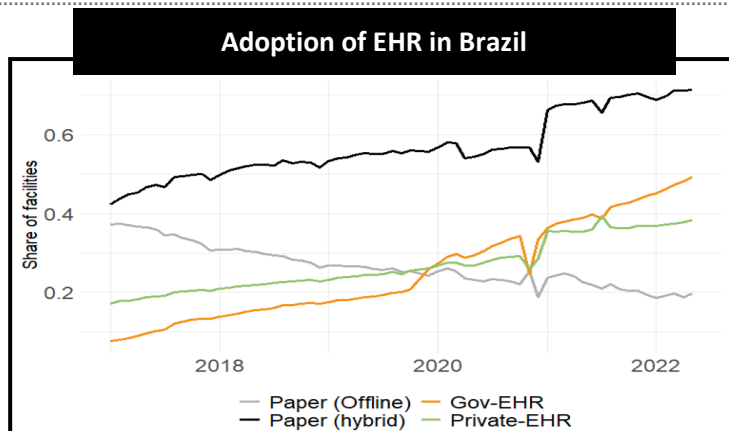
- Use of EHRs is increasing - with ~50% of facilities adopting government's PEC compared to private EHRs (~40%)
- ANC visits rose by 13% after PEC's introduction, suggesting improved service delivery
- Higher adoption of PEC was observed among facilities that had access to computers/internet due to federal financing through Informatiza program (i.e. rural, low-income)
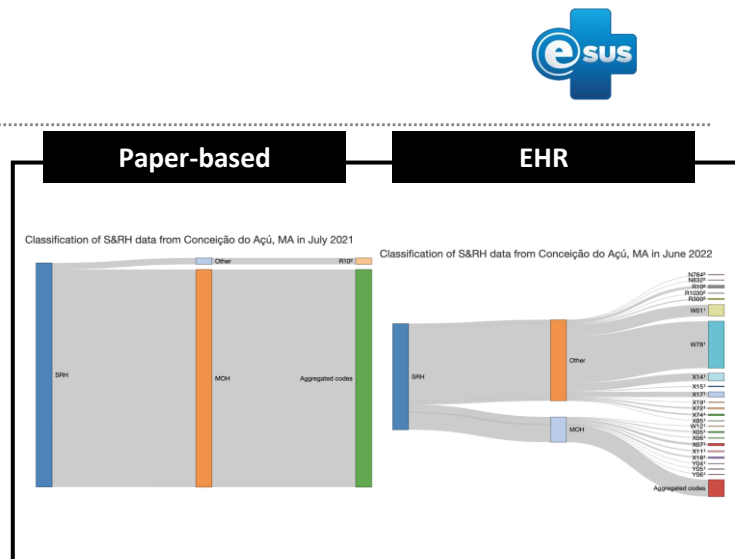
EHRs significantly increased the # and range of reported health conditions (20+ ICD-10 codes), capturing those not included in standard paper forms.

Enablers of success[1]

Leadership & governance
- Universal health system design under decentralized governance approach
- Public-academic partnerships for continual quality improvement
- Designed in alignment with health context and user needs

Strategy & investment
Financial incentives linked to data reporting to drive EHR adoption

Infrastructure
Free software provision for public tool, paper-based fallback with digitization points for low-connectivity settings, and federal support for facility upgrades

[1]Enablers highlighted reflect factors most unique and critical to DHI success, not to be interpreted as the only levers at play across enablers

How are digital health Exemplars tackling digital transformation?

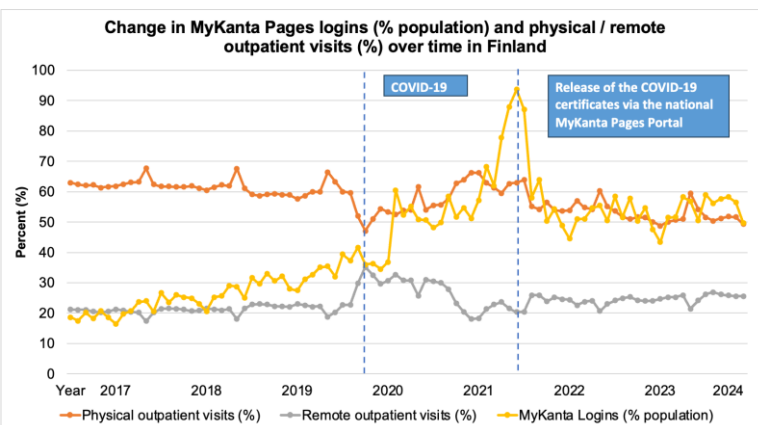**Digital tool:** MyKanta Pages - patient-accessible electronic health record system   **Scale:** National

Challenges targeted

1 Limited citizen access to personal health data

2 Hindered engagement in and self-management of health

3 Lack of centralized citizen health data for planning and decision-making

Impact

Kanta

Change in MyKanta Pages logins (% population) and physical / remote outpatient visits (%) over time in Finland

COVID-19

Release of the COVID-19 certificates via the national MyKanta Pages Portal

— Physical outpatient visits (%) — Remote outpatient visits (%) — MyKanta Logins (% population)

National adoption

Use of facility- and client- based EHRs increased overtime, with a notable spike for COVID-19

MyKanta helped facilitate…
- Higher engagement with PHC systems
- Greater use of PHC services
- 100% of public and 72% private health facilities are Kanta compliant

In municipalities with more MyKanta users, there were:
- **Increased outpatient visits**: 82.5/1,000 people
- **1.9x increase** in use of e-appointment services

Enablers of success[1]

Leadership & governance
- Mandatory Kanta use across all public and private health facilities;
- High public trust in government data security

Services & applications
COVID-19 vaccine certificates accessible via MyKanta Pages

Workforce
Unified pre- and in-service training ensures all healthcare workers are proficient in Kanta

[1]Enablers highlighted reflect factors most unique and critical to DHI success, not to be interpreted as the only levers at play across enablers

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Use Only

Value of Digital Technology in Health

Make health personal and reduce health differences

Patients with access to own health data, have
- Higher satisfaction
- More trust
- More likely to follow up
- Better blood pressure and glucose control (up to 25% improvement)

Improve health financing and keep healthcare costs from increasing

In Kenya, Nigeria and South Africa, health systems can save **15% of total health system costs** by increasing telemedicine and electronic health records

Telemedicine in India reduced costs by **$21 per year per patient**

DIGITAL-IN-HEALTH
Unlocking the Value for Everyone

WORLD BANK GROUP

Reimagine service delivery and improve conditions for health workers

Physicians who used digital health technology were 14% more likely to be **satisfied in their jobs** and 20% **more likely to have good work life balance**

Countries that adopted digital payment of community health workers, have seen higher retention rates and more volunteers available to do the work

Help accelerate earlier and better public health actions

Higher digital adoption prior to COVID-19 was associated with fewer COVID deaths and cases
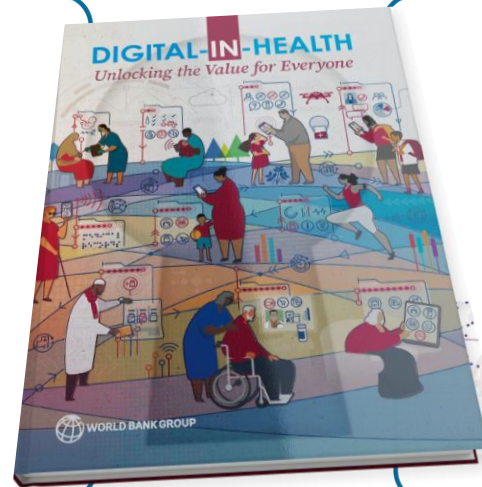
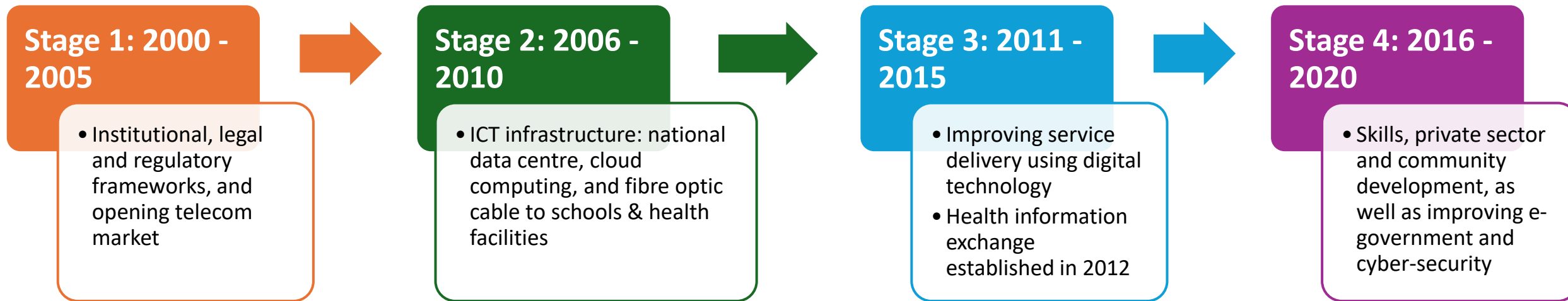Can Digital Health Technology be Useful in Overcoming These Challenges?

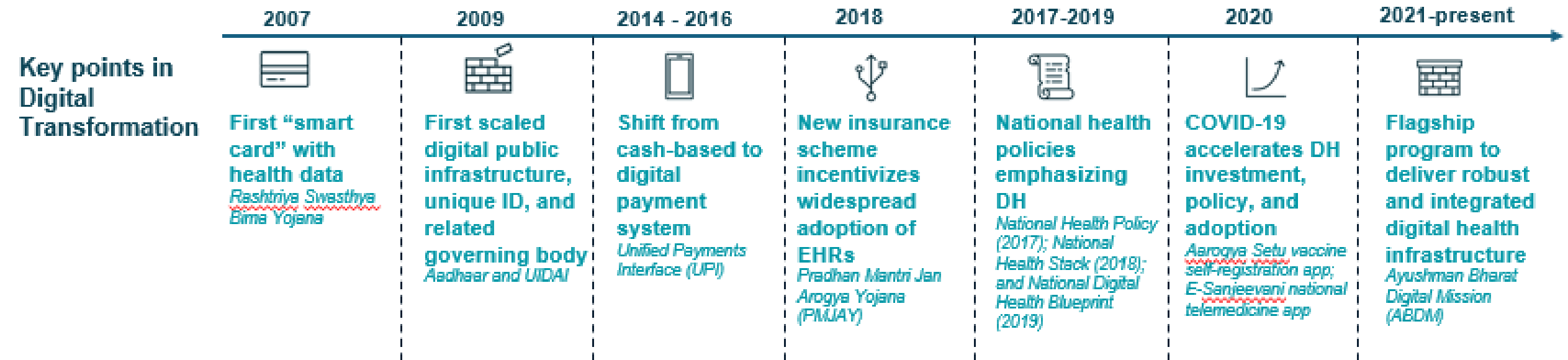Yes, *but* ....

It takes time:
Build for the Future

In Rwanda

Stage 1: 2000 - 2005
- Institutional, legal and regulatory frameworks, and opening telecom market

Stage 2: 2006 - 2010
- ICT infrastructure: national data centre, cloud computing, and fibre optic cable to schools & health facilities

Stage 3: 2011 - 2015
- Improving service delivery using digital technology
- Health information exchange established in 2012

Stage 4: 2016 - 2020
- Skills, private sector and community development, as well as improving e-government and cyber-security

- **Life expectancy doubled from 1994 to 2014:** one of only 2 countries in Africa that achieved the MDGs

- **35%** of elementary schools **and 52% of secondary and vocational** schools have 2 smart classrooms

- Irembo: **90% of Government services online**, including foreign equivalency certificates for education

Rwanda in the top quintile in 5 out of 10 BR indicators (only country in Africa)

BUSINESS READY

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INDIA'S DIGITAL TRANSFORMATION BENEFITED FROM MAJOR SHIFTS OUTSIDE THE HEALTH SECTOR

Key points in Digital Transformation

2007	2009	2014 - 2016	2018	2017-2019	2020	2021-present
First "smart card" with health data *Rashtriya Swasthya Bima Yojana*	First scaled digital public infrastructure, unique ID, and related governing body *Aadhaar and UIDAI*	Shift from cash-based to digital payment system *Unified Payments Interface (UPI)*	New insurance scheme incentivizes widespread adoption of EHRs *Pradhan Mantri Jan Arogya Yojana (PMJAY)*	National health policies emphasizing DH *National Health Policy (2017); National Health Stack (2018); and National Digital Health Blueprint (2019)*	COVID-19 accelerates DH investment, policy, and adoption *Aarogya Setu vaccine self-registration app; E-Sanjeevani national telemedicine app*	Flagship program to deliver robust and integrated digital health infrastructure *Ayushman Bharat Digital Mission (ABDM)*

NOTE: This journey is not representative of a universal sequencing for digital transformation. Intended purpose is to illustrate India's digital transformation and the supporting enablers that were / would be important. More details on each key point and enablers in backup

EXEMPLARS IN GLOBAL HEALTH

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Health Information Exchange Rollout in US

THE INTENT

HITECH Act, 2009

Improve the quality of care and reducing costs at the health care system level through:

- Computerized physician order entry (CPOE) systems (electronic health records)

- Health information exchange (HIE)

- Clinical decision support (CDS) tools

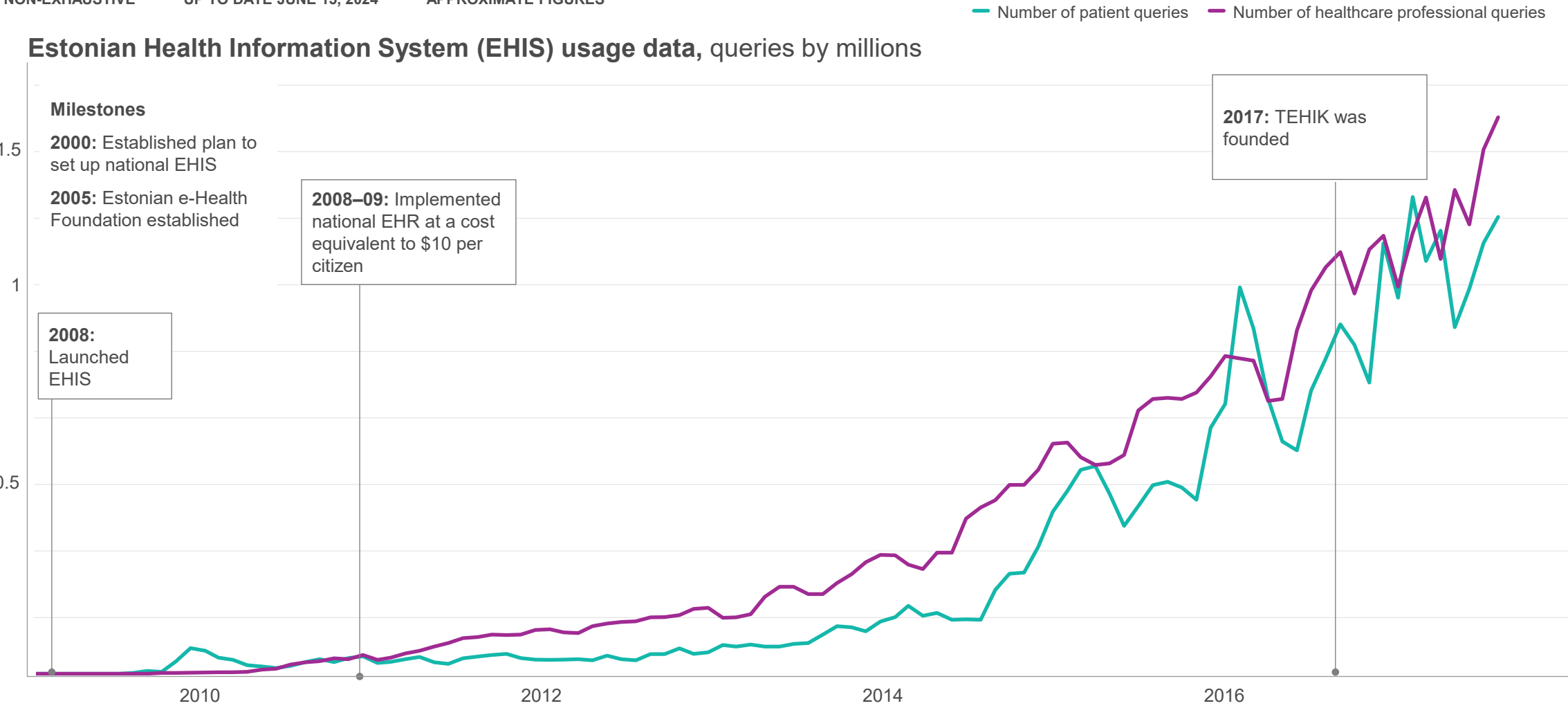(Menanchemi and Collum, 2011)

HOW LONG IT TOOK

- **EHRs immediately**: Initial EHR costs were recaptured within 16 months, with ongoing annual savings of $9,983 per provider (Grieger et al., 2007)

BUT

- 2024: FHIR standards for interoperability

- Primary care physicians in the US now **spend 49% of their day clicking buttons in an EHR**

- ER doctor – on average, **4000 clicks** in a single shift

- On average, **2.8 hours** of 'pajama time' daily (Saag et al., 2019)

INTEROPERABILITY: IT TOOK SEVERAL YEARS FOR ESTONIA'S ELECTRONIC HEALTH INFORMATION SYSTEM TO GAIN TRACTION

NON-EXHAUSTIVE   **UP TO DATE JUNE 15, 2024**   **APPROXIMATE FIGURES**

—— Number of patient queries   —— Number of healthcare professional queries

Estonian Health Information System (EHIS) usage data, queries by millions

Milestones

2000: Established plan to set up national EHIS

2005: Estonian e-Health Foundation established

2008–09: Implemented national EHR at a cost equivalent to $10 per citizen

2008: Launched EHIS

2017: TEHIK was founded

The Opportunity of AI in healthcare

Smart hospitals per million population

1. Switzerland – 1.44   13 hospitals
2. Italy – 0.36   21 hospitals
3. Canada – 0.35   14 hospitals
4. Germany – 0.32   27 hospitals
5. United Kingdom – 0.32   22 hospitals
6. Spain – 0.31   15 hospitals
7. France – 0.30   20 hospitals
8. United States – 0.30   104 hospitals
9. South Korea – 0.29   15 hospitals
10. Japan – 0.09   11 hospitals

★ ★ ★ ★ ★

WORLD'S BEST SMART HOSPITALS 2025

Newsweek

POWERED BY statista
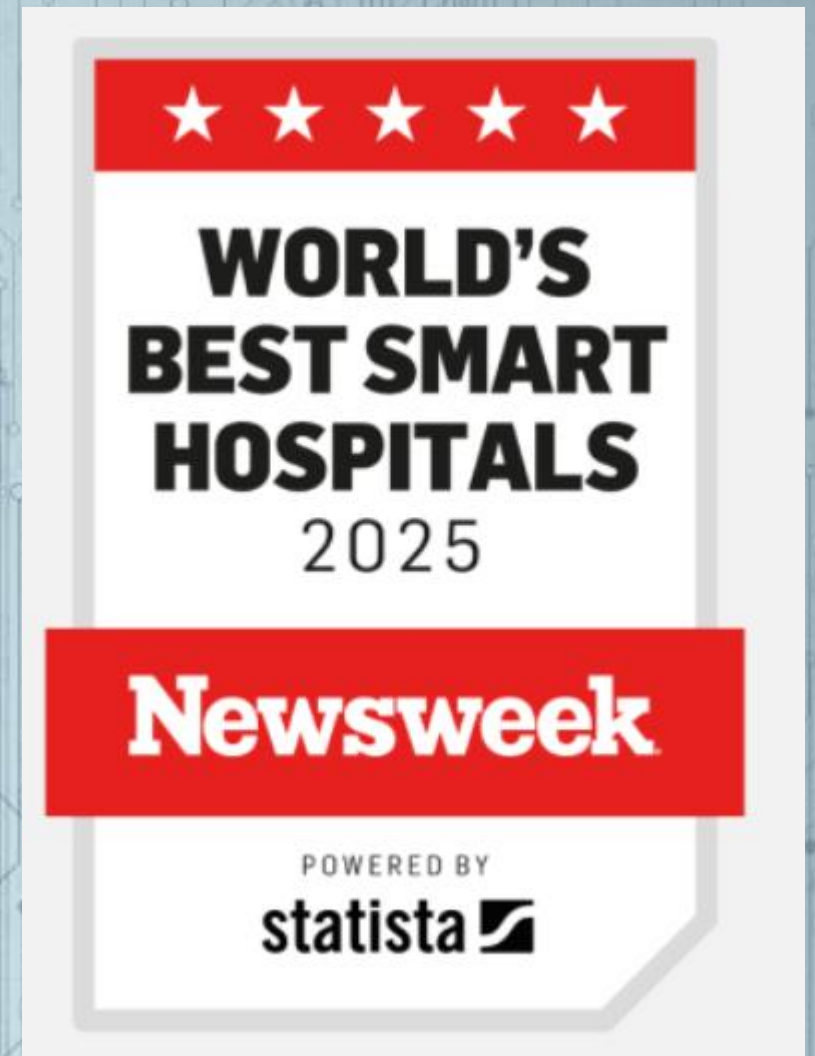
HIGH LEVEL OF INTEREST IN AND USE OF AI IN LMICs

This figure shows key indicators for the top 2-9 countries in GenAI adoption relative to the US. Middle-income countries exhibit disproportionately high GenAI adoption compared to their GDP, electricity consumption, and search engine traffic.
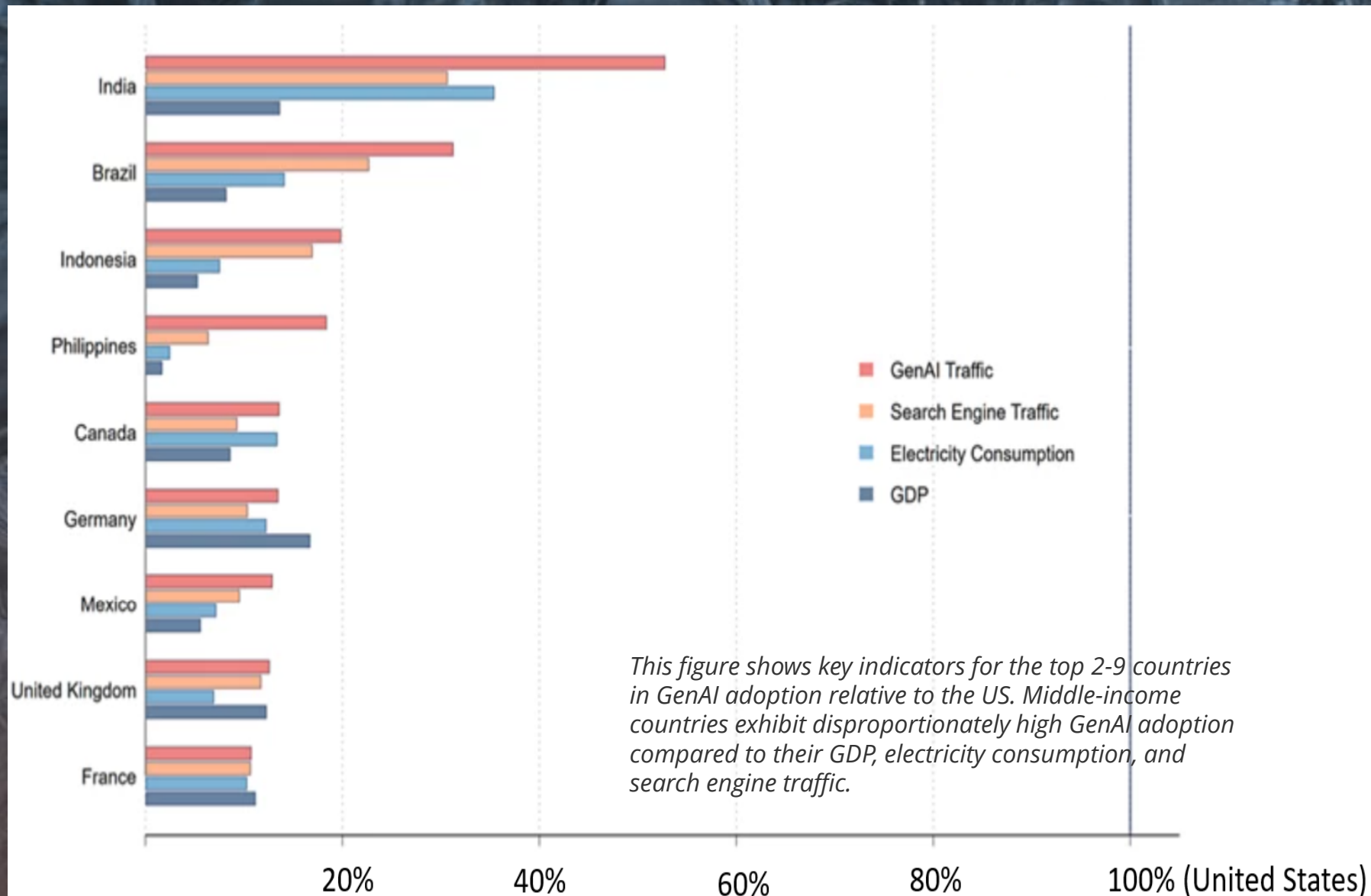
"The complexity and inefficiency of the current healthcare system frustrates me. The complicated administrative processes, varying insurance requirements and fragmented electronic medical records often lead to miscommunication and delays in patient care."

A German Primary Care Physician

"I'm using my AI scribe for almost every patient visit now. I realized that I can either be really happy with my notes, or I can eat dinner with my kids."

Cardiologist
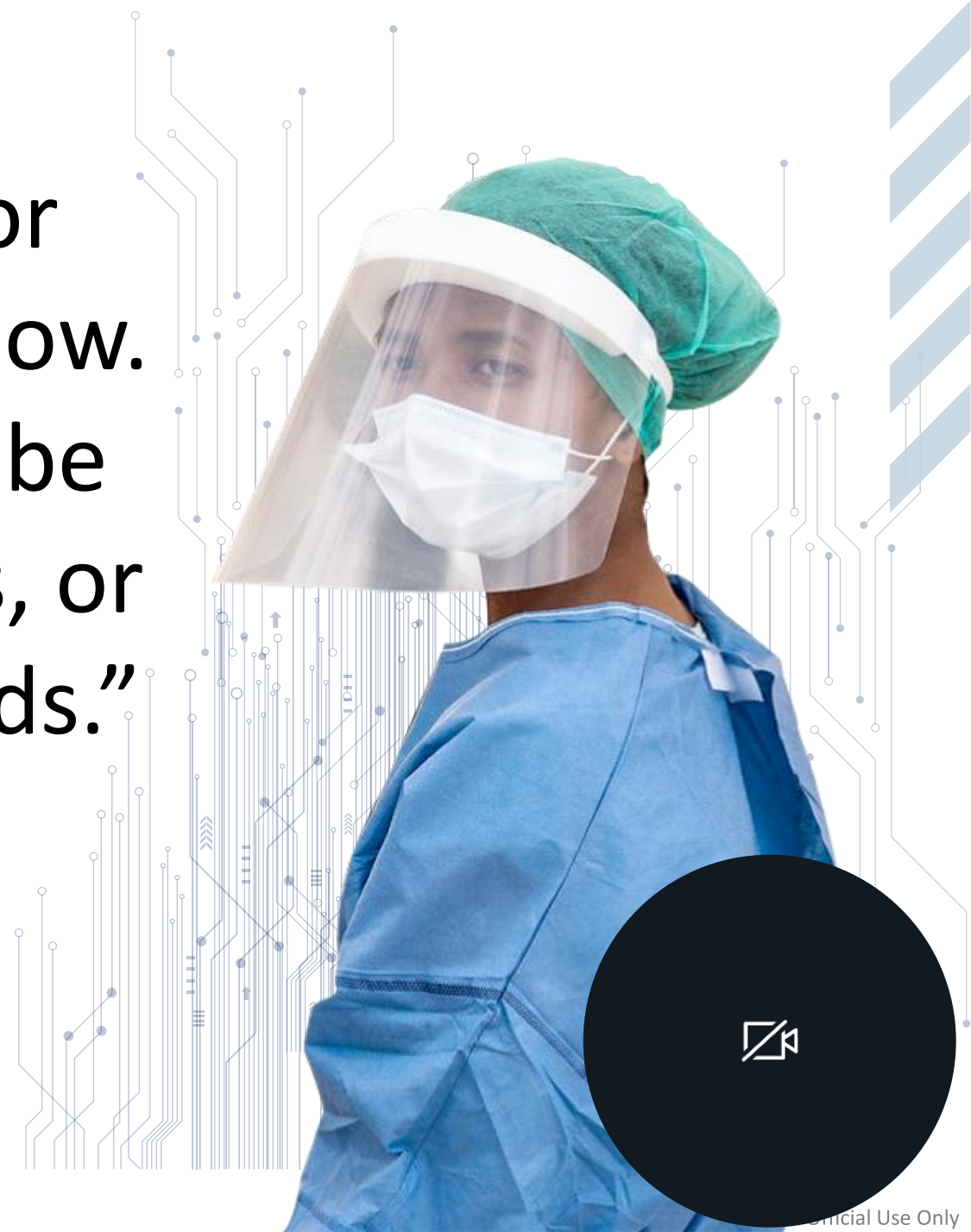
Systematic review of evaluation of 519 LLM applications in health

Evaluating accuracy (96%)	498
Evaluating fairness, bias, and toxicity (16%)	83
Evaluating robustness (15%)	78
Evaluating financial impacts	1

Source: Bedi et al., 2024

Address administrative burden **56%**

Augment physician capacity **16%**

Support chronic disease patients **9%**

Support preventative care **5%**

Most common evaluated LLMs:

Care delivery-focused tasks such as making diagnoses, educating patients, and making treatment recommendations

Least common evaluated LLMs:

Administrative tasks (assigning billing codes, writing prescriptions, generating clinical referrals, and clinical note-taking)

Do them RIGHT
- Use Real Patient Data
- Standardize Tasks and Dimensions of Evaluation
- Prioritize Impactful Administrative Tasks
- Perform Financial Impact Assessment
- Define and Quantify Bias
- Publicly Report Failure Modes

Source: Bedi et al., 2024

"Soon, it will be a violation of your hippocratic oath NOT to use AI in your medical practice."
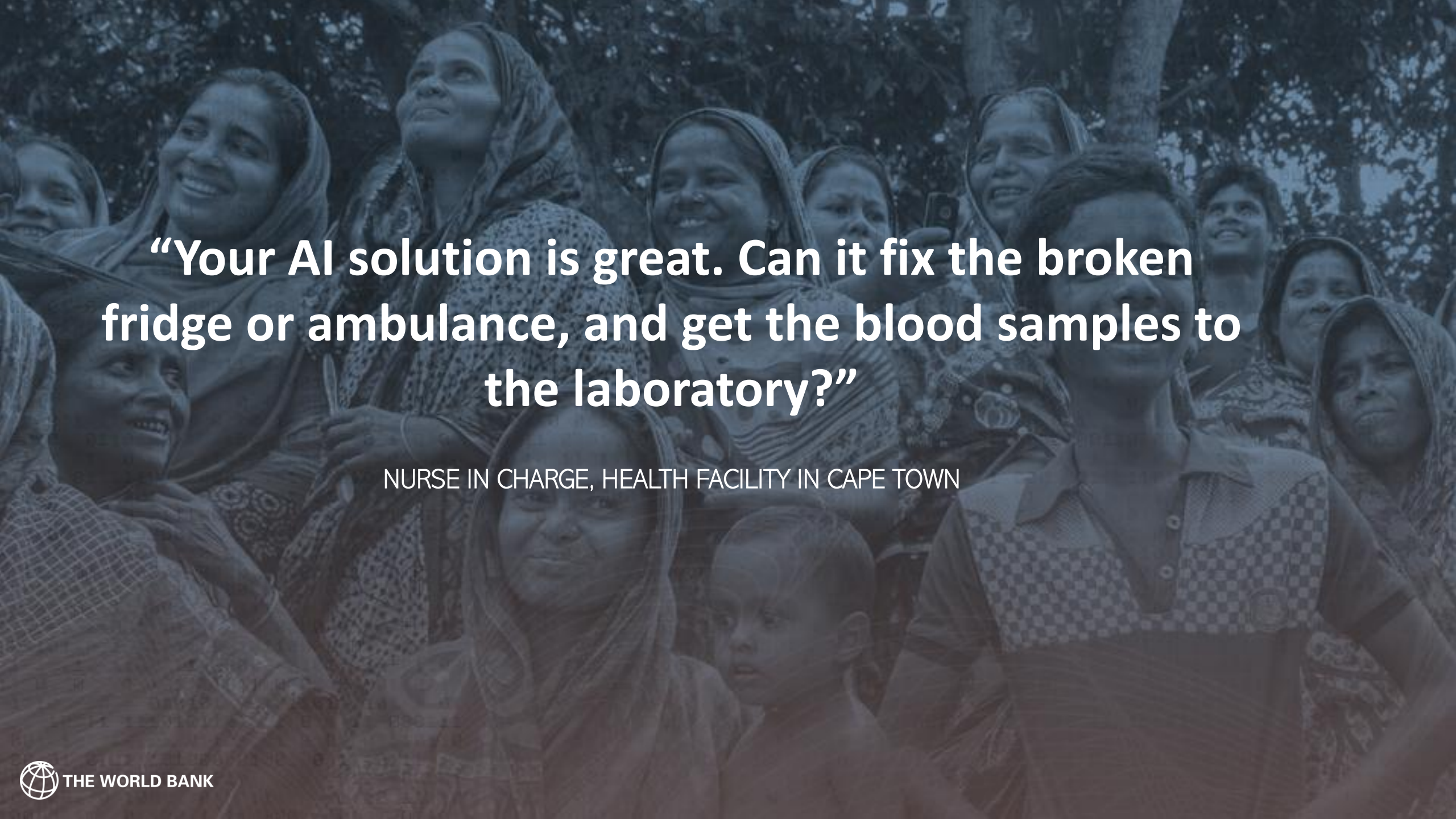
NEAL KHOSLA, 2024

Doctors go to jail, engineers don't.

"**Until the** liabilities and responsibilities of AI models for medicine **are clearly spelled out via** regulation **or a** ruling**, the default assumption of any doctor is that if AI makes an error,** the doctor is liable for that error, not the AI**."
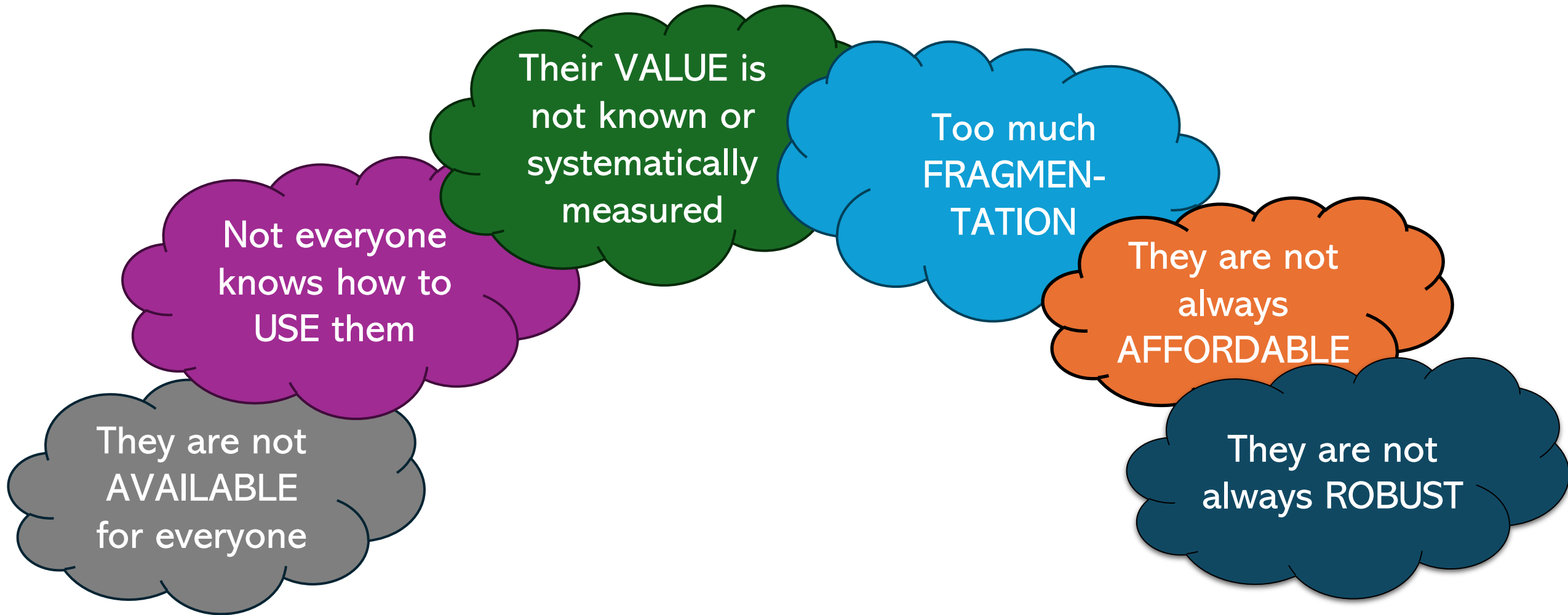
Polevikov, 2024

THE WORLD BANK

"Your AI solution is great. Can it fix the broken fridge or ambulance, and get the blood samples to the laboratory?"

NURSE IN CHARGE, HEALTH FACILITY IN CAPE TOWN

THE WORLD BANK

Many Challenges to be Addressed

"AI evangelists promise the moon, but the path to building scalable, reliable and inclusive AI systems **is riddled with roadblocks** – technical, cultural, infrastructural and political. The reality is that **we are facing challenges to build AI at scale and make it work for everyone**."

Nandan Nilekani, Infosys CEO

1.18 Billion are Energy Poor, 2020

Energy poverty

Energy poor population density
thousands of people/arc minute
0   1   2.5   5   10+
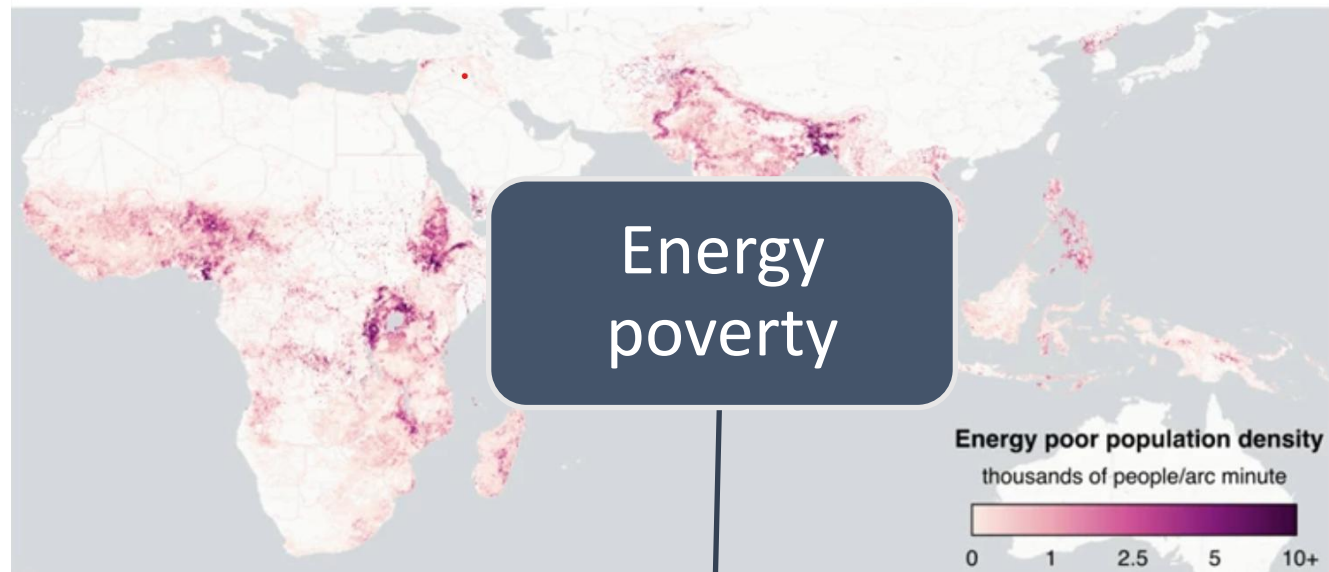
Foundations

Learning poverty

Data poverty
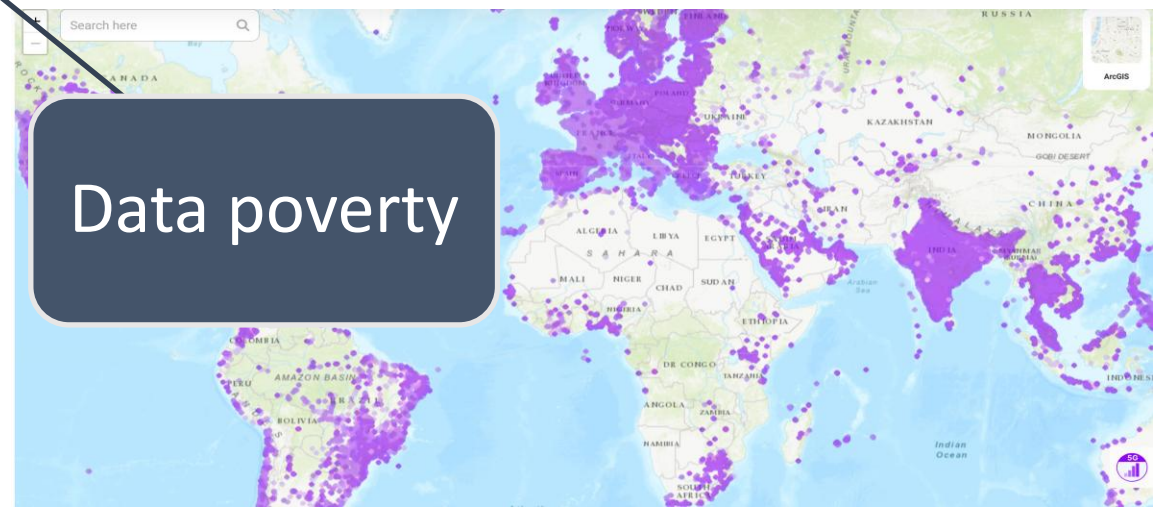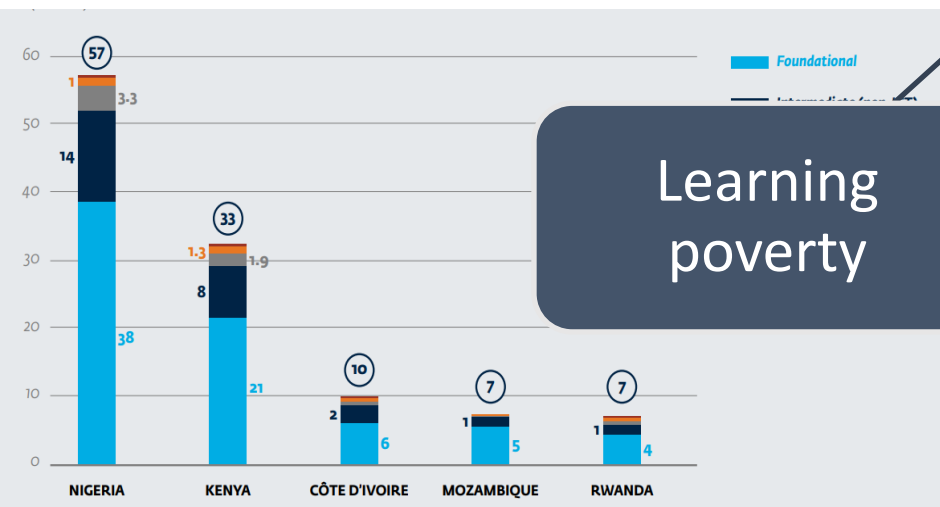
"I always feel like I need to learn many things from scratch, and I often forget some steps and end up failing in the middle. Some functions are just too hard to learn. No matter how many times [my children] teach me, I still can't remember." (68, female, Hohhot)

The Gray Digital Divide in China: Barriers to Digital Adoption

Lack of motivation and interest in digital learning — **51%**

Lack of social support — **60%**

Lack of time — **75%**

Lack of digital skills/capabilities — **84%**

Physical barriers — **89%**

Use Only

STAT+

HEALTH TECH
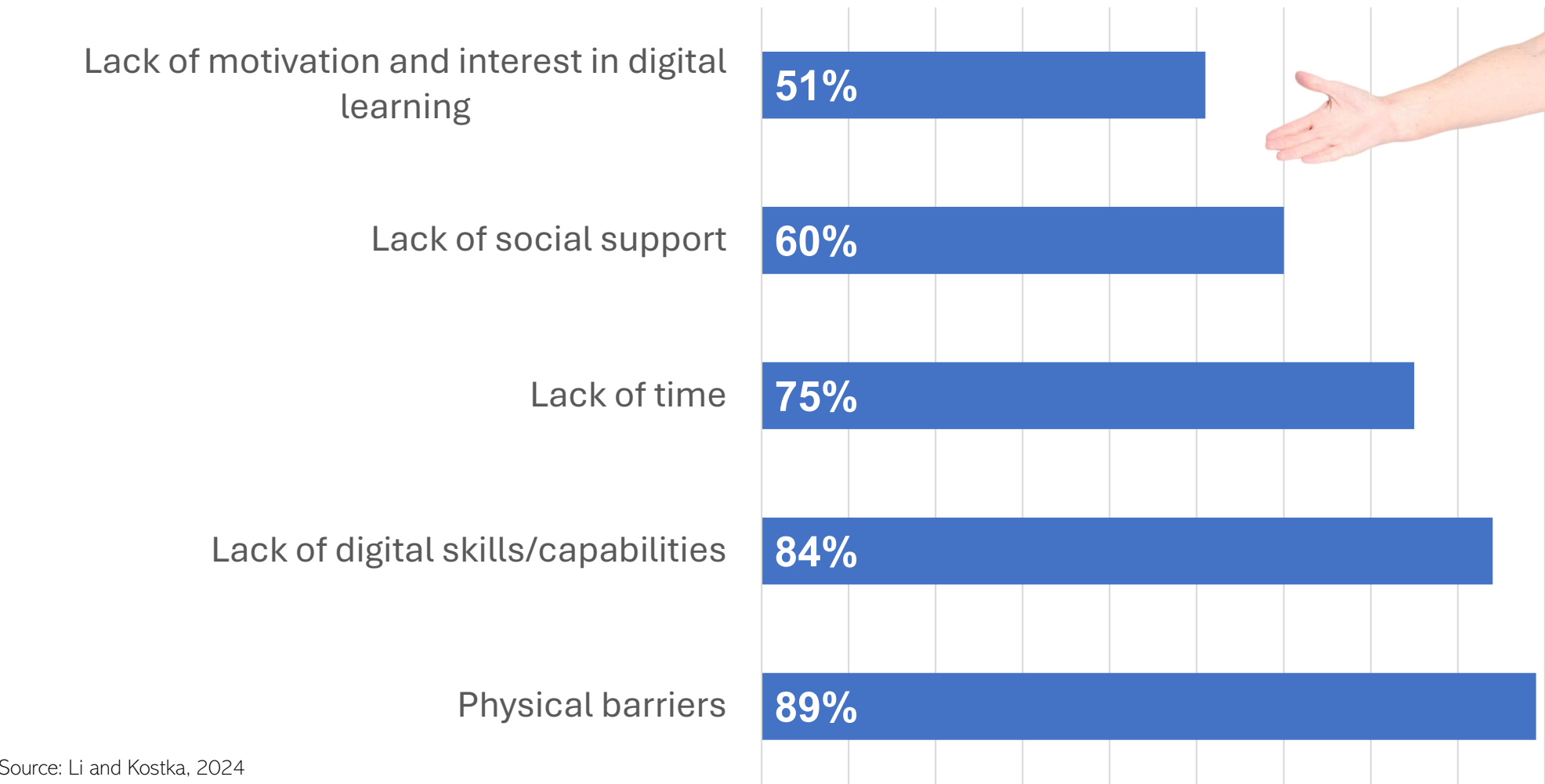
Digital tools for diabetes management did not deliver benefits that justify cost, new report finds

Reprints

By Katie Palmer 🐦 and Mario Aguilar 🐦 March 21, 2024

Real life value is context-specific

More evidence is needed

● Positive ● Moderate ● Negative
● Higher Evidence Certainty ○ Lower Evidence Certainty

		Clinical Effectiveness		Economic Impact[a]		Summary Rating[b]
Remote Patient Monitoring Glooko	🟡	**Results:** Small but not clinically meaningful reduction in HbA1c **Evidence Certainty:** Higher	🔴	Net increase in spending — current provider reimbursement exceeds cost savings from avoided care	🔴	**Current evidence does not support broader adoption**
Behavior and Lifestyle Modification DarioHealth, Omada, Perry Health, Teladoc (Livongo), Verily (Onduo), Vida[c]	🟡	**Results:** Small but not clinically meaningful reduction in HbA1c[d] **Evidence Certainty:** Higher	🔴	Net increase in spending — current solution pricing exceeds cost savings from avoided care	🔴	**Current evidence does not support broader adoption**
Nutritional Ketosis Virta	🟢 (○)	**Results:** Clinically meaningful reduction in HbA1c sufficient to achieve remission in some patients[e] **Evidence Certainty:** Lower	🟡 (○)	Initial net increase in spending with potential for long-term savings	🟡	**Evidence supports broader adoption with ongoing evidence generation**

"Although digital health has incredible potential to modernise and improve patient care, **it has evolved faster than the industry and reimbursement have been able to**. As such, more widespread use of these devices is dependent on whether the industry is willing to incorporate the use of such devices into existing treatment plans, and if reimbursement policies are updated to include digital health."

David Beauchamp, medical analyst at GlobalData
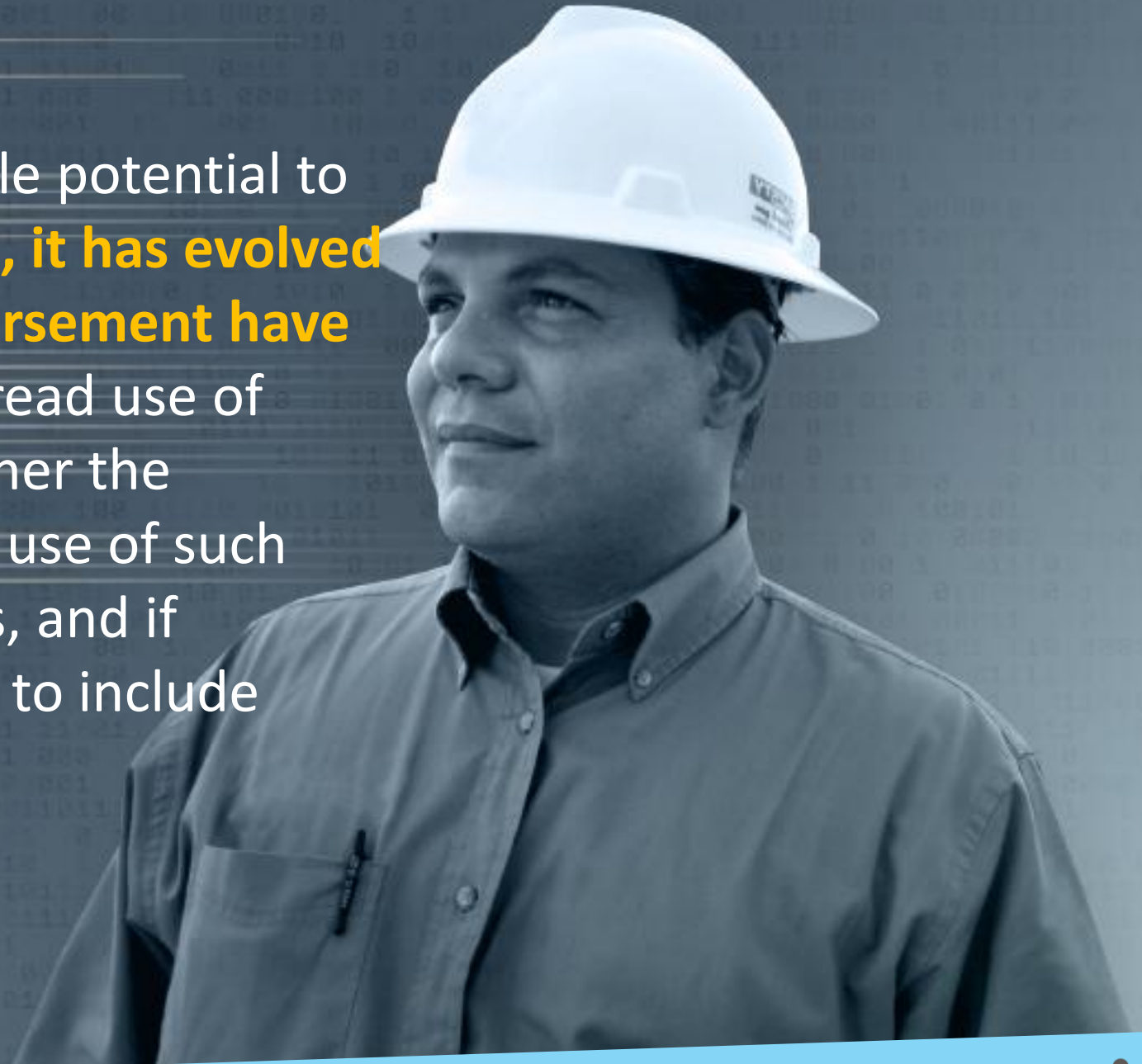
PROTECT AND INVEST *in people*

Hype

Digitally-enabled health system

Data   Evidence of value   Infrastructure   Risk management   Skills

Priorities for Governments

Build foundations

Health data!

Regulatory clarity

Meet people where they are at: skills, value preference, trust

Evidence, value, and HTA

Start with the easy problems

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