Confronting the Diseases of Poverty: Creating a Digital He@lth Dynamic

Digital He@lth Initiative (DHI)

Technology for Equity

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Background

Global Challenges and the Networked Economy

Global Challenges and Opportunities 2009-2015

With unprecedented flows in information, products, services, people, capital and ideas all amidst the worldwide financial downturn - the great global challenges for developed and developing countries have *converged*:

- Peace and Security
- Poverty and Hunger
- Education and Health
- Environmental Sustainability
- Ageing Populations
- Information Revolution

Millennium Development Goals
2000-2015

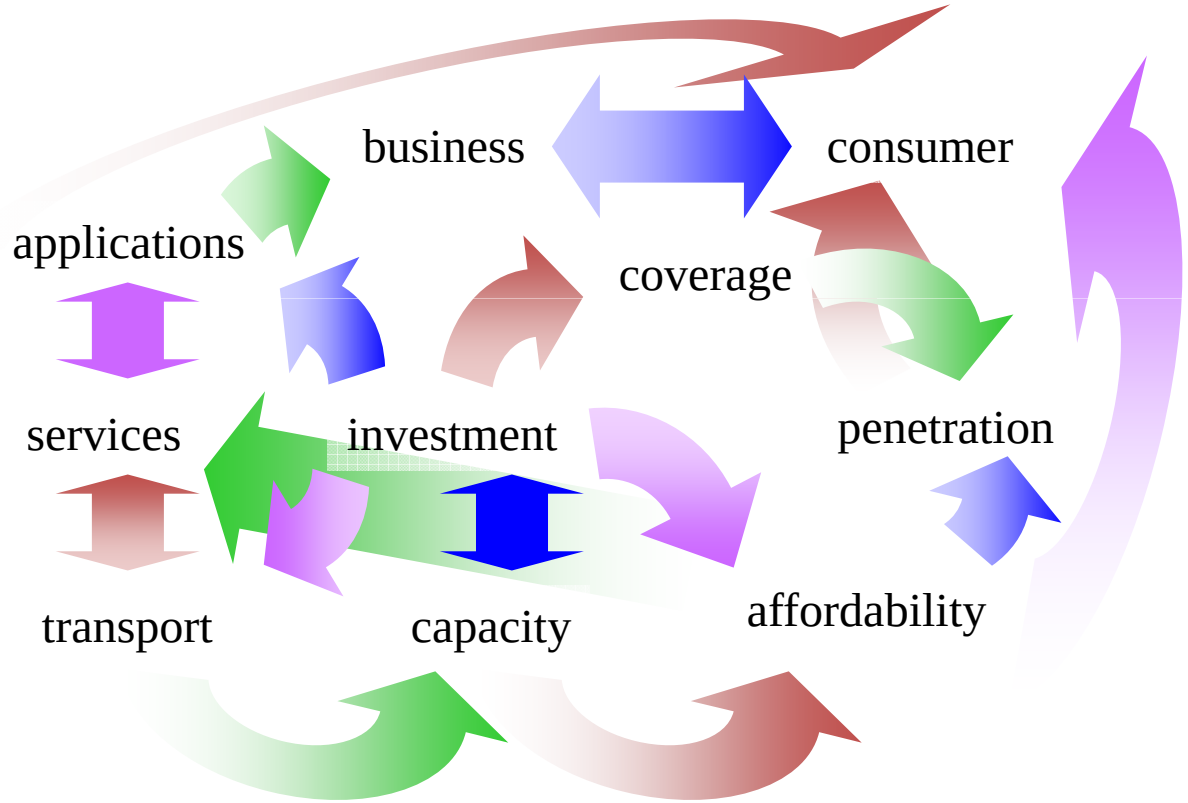
By 2015 all United Nations Member States have pledged to:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and gender empowerment
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, tuberculosis, malaria and other infectious diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

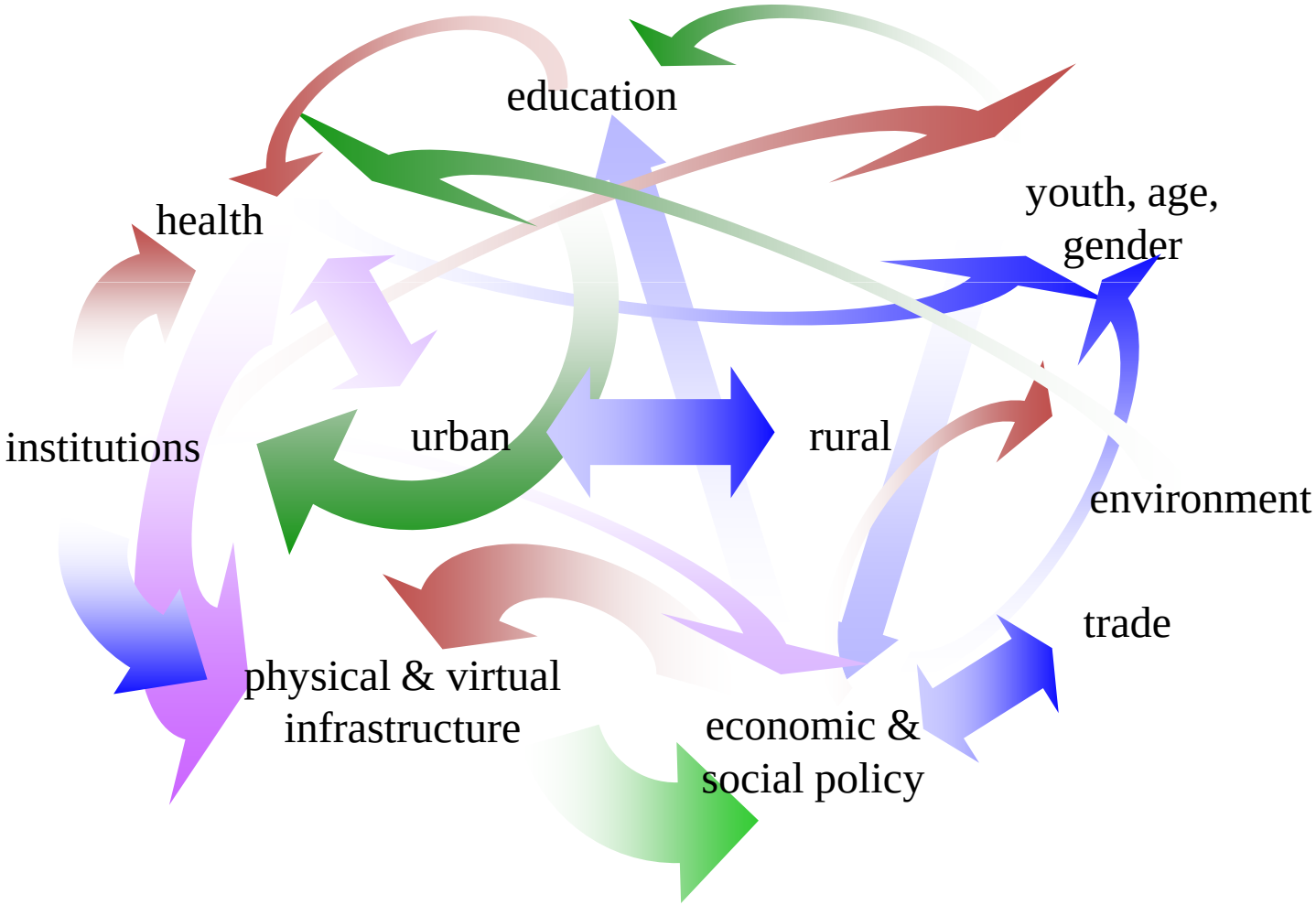
For more information see www.un.org/millenniumgoals

So how do the Goals relate to the networked economy? Are any of the Goals achievable by 2015 without the strategic and innovative use of low-cost technology for the scaling up of joined-up interventions? And what are the missing links in the health and development value chains?

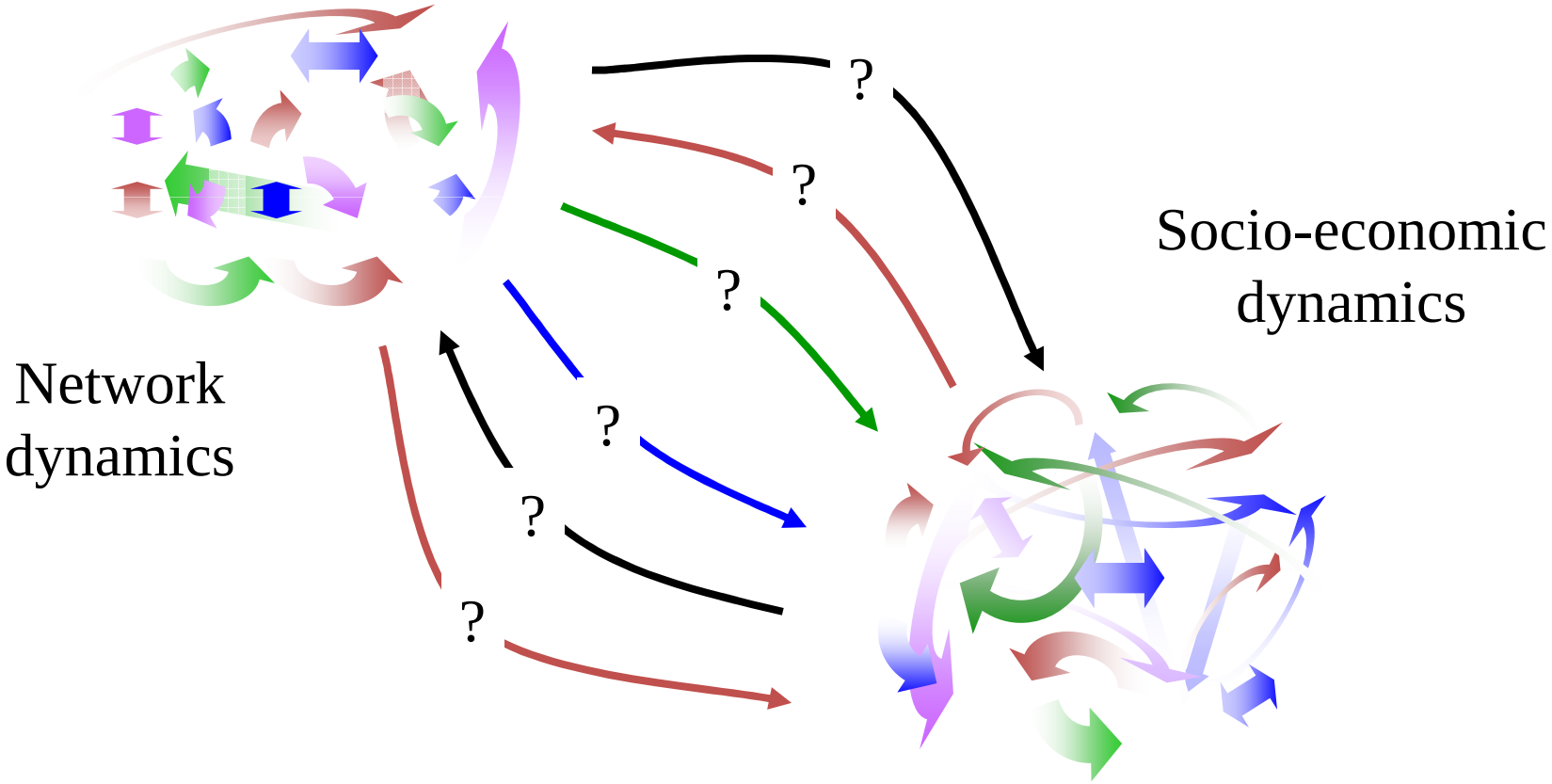
The new networked economy dynamics are complex and only partially understood



The complexity of socio-economic dynamics is equally daunting

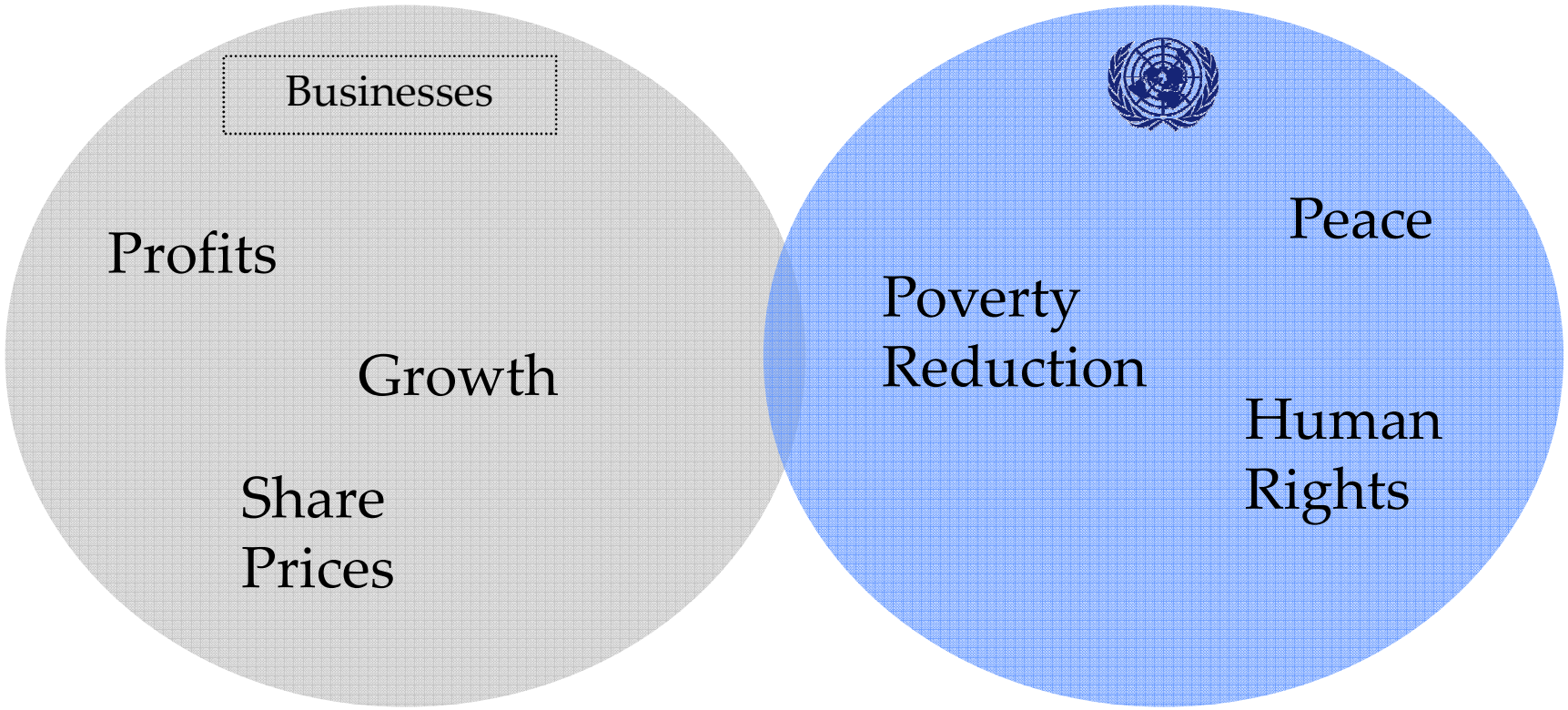


Assessing the interaction of network and socio-economic dynamics is highly subjective



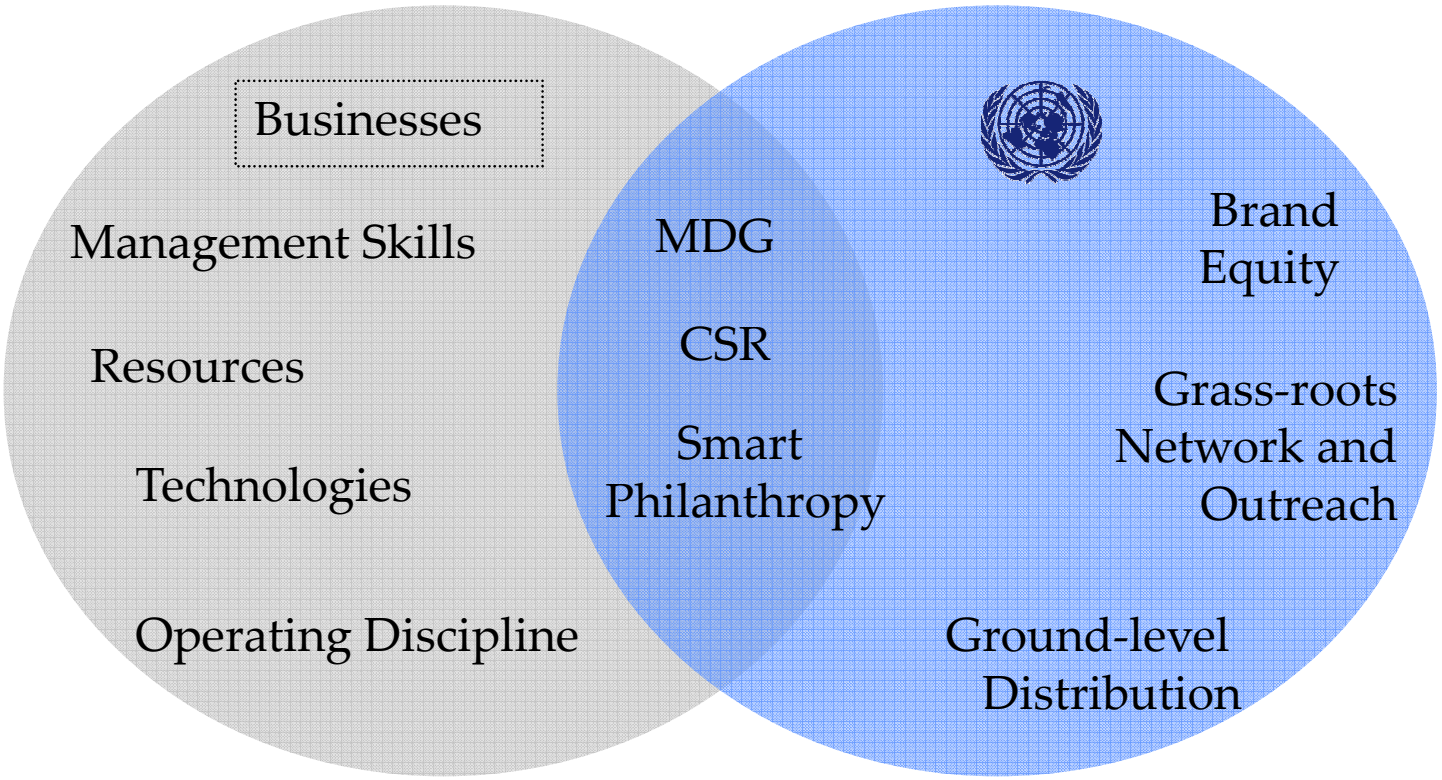
United Nations and the Private Sector

The UN has 60 years of history working with the private sector and the civil society. However, the traditional model of interaction was generally conducted at arms-length



Changing Landscape of Partnership

Lately, partnership activities have taken a new direction. The UN has witnessed and embraced this paradigm shift for over 10 years



Towards "Digital Public Goods" - Connecting the Mobile, Internet and Broadband Value Chains with the Health and Development Value Chains

Today the great self-sustaining, self-replicating and multi-stakeholder enterprise that constitutes the wired and wireless Internet has acquired almost by accident the attributes of a global public good and impinge on precisely the areas of difficulty and contention in meeting the MDG 2015 agenda:

- New Approaches to Intellectual Property Rights – via *social licensing & open source*
- Integration of legal, regulatory, technical and physical infrastructures – via *the virtualisation of infrastructures*
- Youth, Age and Gender Empowerment – via *knowledge sharing & collaboration in health, education and enterprise*
- Viral, low-cost and bottom-up growth models for very large scale projects and initiatives – via *the cell-phone and cyber-space models that scale very quickly to critical mass*

Towards Digital Public Goods – Breaking Health and Development Bottlenecks

Digital access technology allows for the creation of enabling environments quickly, effectively and relatively cheaply

- The general purpose platform for innovation and investment offered by the mobile, internet and, increasingly, broadband revolutions is the multi-sector enabler for connected nations and national transformation
- The “network effect” or multiplier of web-enabled digital platforms is increasingly breaking infrastructure bottlenecks and short-circuit the traditional development cycle
- Delivery of shared knowledge interactively and instantaneously across the globe is unleashing people and community power by moving from dependency to self-help models
- The “ripple” or “spill-over” benefits of digital network investment for innovation and cost-savings in other sectors of the economy, including health, education, energy, transport and content distribution, are only now being recognised at the highest political levels

BUT ALL THIS NEEDS TO BE MONITORED AND MEASURED-NO ECONOMIC MODELS OR METRICS CURENTLY EXIST FOR DIGITAL HEALTH

MDGs *circa* 2010 – What Must Happen to Re-energise and Refocus on Delivery? MDG 4&5 Must Be Prioritized in 2010

Identifying replicable lessons and key gaps for scaling up and fast tracking joined-up implementations of the MDGs remains a critical challenge for the development community:

- Firstly, it must be recognised that the intrinsically inter-linked MDG agendas of poverty, education, gender, health and environment are being throttled at birth by inter-agency disconnects, and the incentives for innovation and investment by the private sector are being choked
- Secondly, the at once immensely disruptive yet hugely collaborative nature of the mobile, internet and high-speed broadband value chains must be embraced and exploited for jobs, growth and global public good sooner rather than later
- Third, advocacy for both technology and development in exploiting the use of communications technologies to accelerate joined-up delivery of the MDGs must be used to reignite the MDG campaign and put it once again at the forefront of the global agenda.

DHI WILL FOCUS UPON MDG 4&5 IN 2010 AS PRIORITIES FOR ACTION

Health and Broadband Economic and Social Imperatives

The Burden of Care

Burden of Care - Achieving the Health-related MDGs 4, 5 & 6 in Africa (at Midpoint 2008 Few are on Target)

Health Systems, Child Survival, Maternal Health	***Build effective primary health systems:*** *** Comprehensive primary health systems that meet demand and supply-side constraints** *** Adequate human resources for health, including paid community health workers** *** Universal access to immunization and key child survival interventions** *** Universal access to emergency obstetrical care, skilled birth attendants & other reproductive health services**	**UNICEF, WHO**	**GFATM health systems window & GAVI Alliance health systems window**	**US$10 billion per year**
Family Planning	***Universal access to family planning***	UNFPA, WHO	UNFPA	US$1 billion per year
Vertical Disease Control Programmes *Source*: Recommendations of MDG Africa Steering Group, June 2008	***Comprehensive control of AIDS, TB, Malaria and Neglected Tropical Diseases (NTDs), e.g.:*** * Effective HIV prevention and universal access to AIDS treatment by 2010 * Malaria burden halved by 2010 (from 2000 levels) and malaria mortality reduction to near zero by 2015 * Control of TB through implementation of Global Stop TB Plan of Action * Sharply reduced morbidity and mortality from NTDs	UNAIDS, UNICEF, WHO	GFATM	Total US$17 billion, o/w: * HIV/AIDS: US$12 billion per year * Malaria: US$2.4 billion per year * TB: US$2.0 billion per year * NTDs: US$0.5–1.0 billion per year

Burden of Care - Chronic Non-Communicable Disease, Ageing and the Networked Economy

Age and Demography

High income countries will see their elderly populations (70 years and older) increase from 93 million to 217 million by 2015. At the same time, the elderly populations in low and middle income countries will increase from 174 million to 813 million.

Worldwide, there were 58 million deaths in 2005, of which approximately 35 million were the result of chronic disease. Chronic diseases is the major cause of death among adults, and is expected to increase by 17% over the next decade. It is projected that there will be 64 million deaths in 2015, 41 million due to chronic disease

Health Care Burden

With 80% of deaths in low and middle income countries due to chronic disease, a double burden is brought on those countries already grappling with infectious diseases, especially in sub-Saharan Africa

In South Africa, one in three men and 50% of women are overweight or obese. Cardiovascular disease is the commonest cause of death for those aged 45 or older.

In Uganda, where the population totals 28 million, 1 million people are diabetic, the number of diabetic patients is about to double until the year 2015

In Gambia, nearly a third of urban women aged 35 and over are obese.

In Cameroon, 35% of the population is overweight or obese. 600,000 people have diabetes

Burden of Care - Chronic Non-Communicable Disease, Ageing & the Networked Economy

Myths and Misunderstandings

Twice the number of people alive today die from chronic rather than infectious diseases

One quarter of chronic diseases deaths occur in people under 60 years old including children – almost half chronic diseases deaths occur prematurely in people under 70 years old

Only 20% of chronic disease deaths occur in high income countries, while 80% of chronic disease deaths occur in low- or middle-income countries in part as a result of globalisation

Chronic Costs

In the US, the total health care costs resulting from heart disease alone increased from $298.2 billion in 2000 to $351.8 billion in 2002

In Europe, the number of diabetic patients is about to double until the year 2015. The European heat-wave of 2003 resulted in the deaths of more than 44 000 people

WHO estimates China, India & Russia could lose up to $550 billion in GDP by 2015

Burden of Care – Diseases of Climate Change & the Networked Economy

Need for Enhanced Data

Health risks posed by climate change are significant, distributed throughout the globe and difficult to reverse

The 2003 heat wave in Europe was responsible for the deaths of more than 44 000 people

Under-nutrition is estimated to kill 3.7 million people per year

Diarrhea is estimate to kill 1.9 million people per year

Malaria kills more than 0.9 million people per year

Adverse Affects on Food, Water and Population

Such conditions and other health outcomes will be increasingly affected by accelerating climate change through its adverse affects on food production, water availability and population dynamics of vectors and pathogens

Already, for example, evidence shows that higher temperatures are increasing the risk of malaria in the Eastern African highlands

Source: *Climate Change and Health,* Report by the Secretariat to the Executive Board, WHO, 2008

High-Speed Broadband: the Natural and Transformational Change Agent for 21st Century Healthcare

- Broadband embodies the ripening of the digital revolution with the potential to jump a generation in local development within a generation
- Broadband will play a pivotal role in helping spur innovation in healthcare applications delivery which will address some of the key challenges facing both developed and developing countries
- Broadband is expected to play a key role in supporting the increasingly older populations
- Broadband is not a solution in and of itself. Some of the greatest challenges in delivering digital health care are not technology or network related but rather tied to social and legal questions surrounding remote care and these will need to be addressed
- Access to a secure, fast and reliable broadband network will lay a foundation for innovation in the health sector but will need to be coupled with progress with financial and logistical and social obstacles as well

Who will pay the price of admission to 21st Century Health and Development – The Future: Built on Broadband

- The OECD offers a new approach to building the most forward-looking networks possible by evaluating what short-term cost savings would have to be achieved in other key economic sectors to justify the investment
- On average, cost savings of just 0.5% to 1.5% in the health, education, energy and transport sectors over ten years could justify the cost of building national point-to-point, fibre optic to the home networks in all OECD countries.
- Savings in the health sector alone could justify the cost of rolling out a fast broadband network if health costs were to fall between 1.4% and 3.7% as a direct result of having the new network in place.
- In many cases, the social returns of broadband connectivity are potentially much larger than the costs of building networks – but national operators do not invest because their private returns would not justify the investment

Source: *Network Development in Support of User Needs*, OECD, December 2009

Harnessing Digital Health Care for Catalytic Scaling-up

The Advent of Digital Health

Digital Health (e-Health+m-Health) Heralds Transformational Change for Health Systems Strengthening

- Health systems are facing tremendous pressure to improve health quality, accessibility and outcomes and to do so in a cost-effective manner. Broadband supporting information and communication technologies in health offers great potential to address these challenges
- E-health applications have been discussed and promoted since the arrival of residential Internet access but the implementation progress has been slow. With the arrival of m-Health access and applications a worldwide reappraisal of the “digital health” landscape is underway
- Health ICTs are increasingly seen as part of an inevitable process of modernisation of the health care system, with the potential to enable health system transformation and patient empowerment
- Recognising this potential, forward-looking governments have issued nation-wide strategies, set targets, allocated significant resources and established coordination bodies to promote widespread use of ICTs in the health sector. Developing countries are lagging in this area

Developing a Global MDG Partnership for Development with the ICT and Pharmaceutical Communities – Work in Progress

Definition of an MDG Partnership Platform for the ICT and Pharmaceutical Communities is Urgently Needed

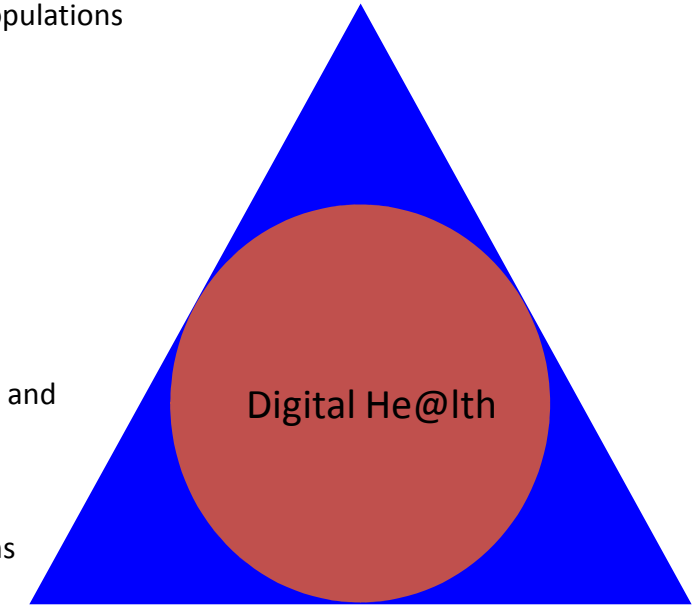
- MDG 8 Target 18 is a clear call to action to: "Develop a global partnership for development . . . In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries . . . In cooperation with the private sector, make available the benefits of new technologies – especially information and communications technologies."
- Momentum is building for coordination of digital health solutions among industry groups while a panoply of ICT icons ranging from Microsoft, Google, Cisco and Intel to Ericsson, Qualcomm, Vodafone and Bharti. . . enter the digital health space
- The transformation of the pharmaceutical sector by ICT-related technologies in discovery, development and delivery has likewise sparked interest in digital health among industry icons including Novartis, Pfizer, Johnson & Johnson and GSK . . .
- How can governments and international organizations capitalize on this surge in innovation and investment?

Digital Health can optimize improvement of efficiency, equity, and quality, easing troublesome tradeoffs

Equity

Digital Health provides greater access through broader reach, so underserved populations gain access

- Telemedicine provides access to experts in underserved populations
- Ability to track health outcomes allows donor orgs to make informed funding decisions
- HC information provided through alternate channels (kiosks, druggists) to reach additional populations



Efficiency

Digital Health leverages scarce expertise and technology, automates manual tasks, measures outcomes so system can be continuously improved

- Online training for practitioners trains more at lower cost
- Electronic inventory tracking can increase availability of preventative care (e.g. treated bed nets)
- Telemedicine lets fewer experts serve larger populations

Quality

Digital Health improves quality of care, adherence to standards

- SMS reminders shown to improve drug regimen compliance
- Best practice HC information available to practitioners online
- Universal access to patient info facilitates more effective treatment
- Practitioners have improved access to technology, research, support

What is Digital Health?

Digital Health = mHealth+eHealth:

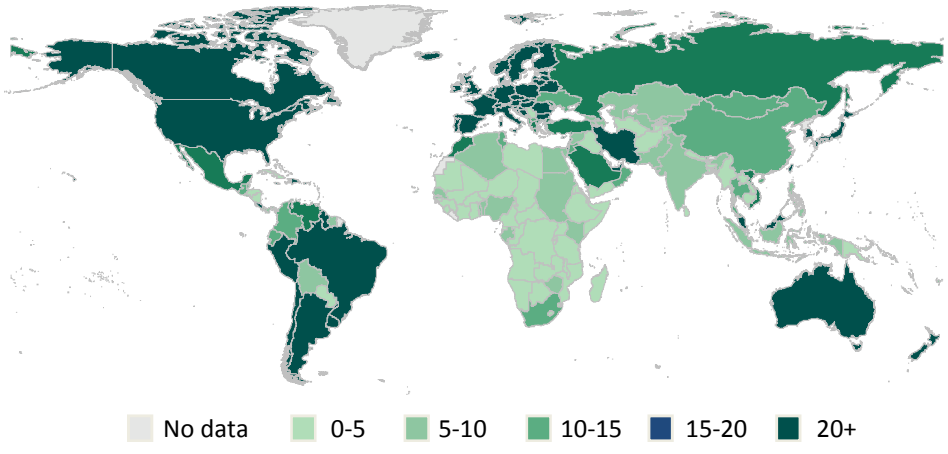
The use of information and communication technologies (ICT) and related ripple technologies to improve the health of a given population, urban and rural

Different types of Digital Health initiatives include, but are not limited to:

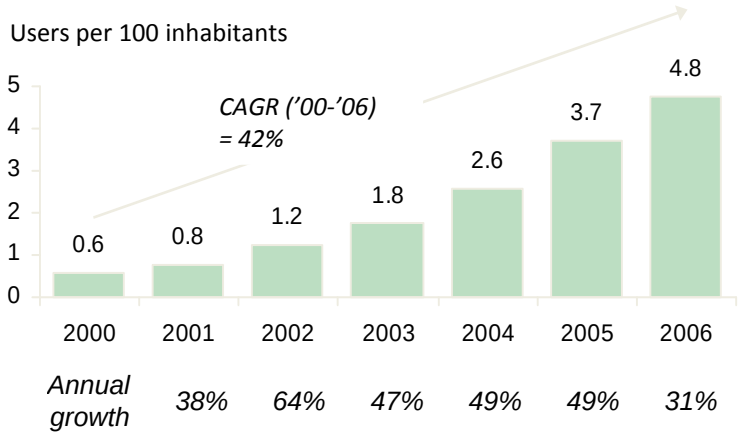
- Point of Care support (Telemedicine, Clinical Decision Support, Etc.)
- Patient support and information (SMS reminders for drug compliance, online health information, etc.)
- Electronic Health Records (EHR), Electronic Medical Records (EMR), Patient Health Records (PHR)
- eLearning for physician, nurse, healthcare personnel training, research access
- Inventory management for supplies
- Disease and intervention surveillance
- Faster and more efficient orders and results (e.g. lab work)

Rapid ICT Infrastructure Growth for Digital Health in the Developing World

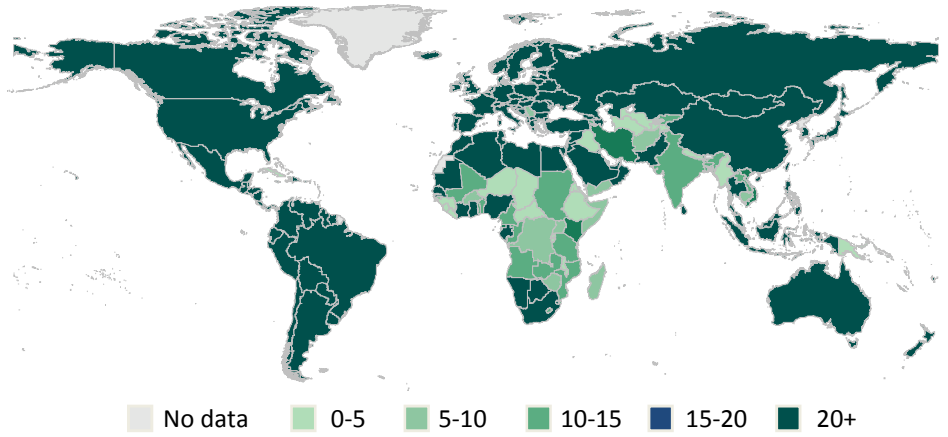
Internet users (per 100 inhabitants)



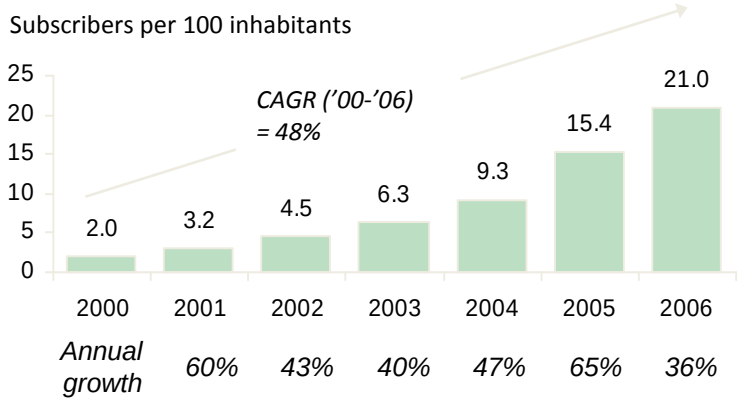
Internet users in Africa



Mobile phone subscribers (per 100 inhabitants)



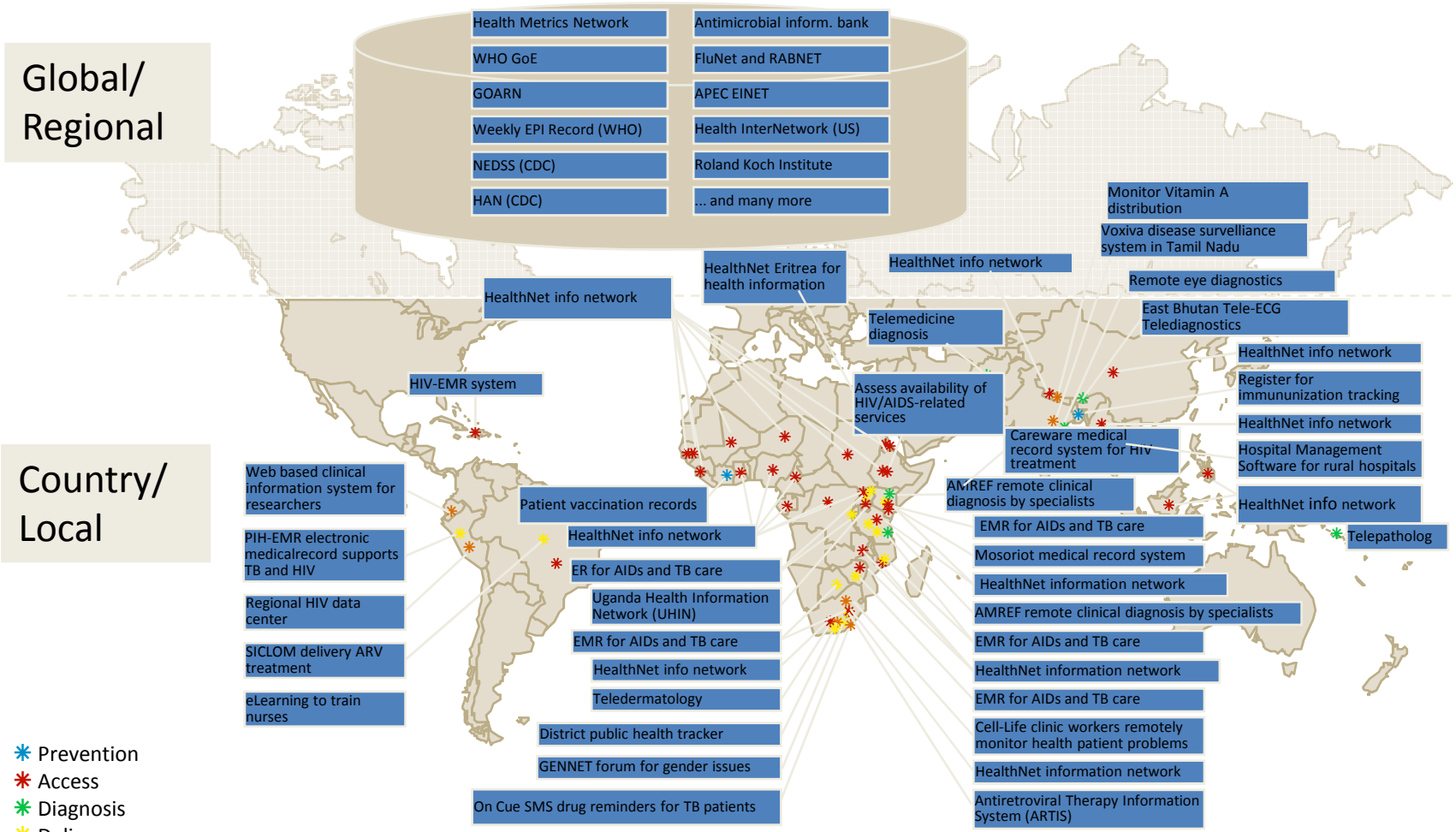
Mobile phone subscribers in Africa



Source: International Telecommunication Union, World Bank WDI, WHO

Myriad Projects at Local and Global Levels

Broad range of initiatives, but few EHR-type interventions at scale of Northern implementations



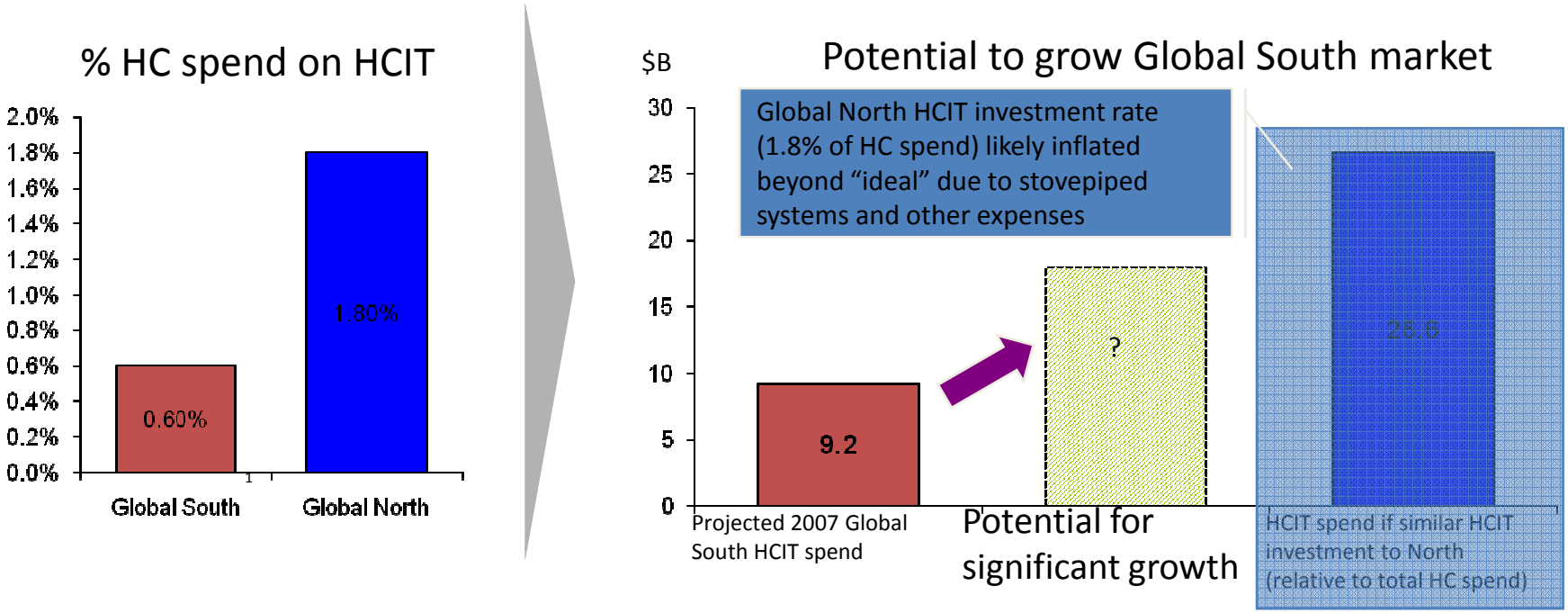
Sample demonstrates great progress, but significant fragmentation

Source: BCG research

Vast Potential for Digital Health Market Growth

Developed spend 3x more than developing countries on digital health relative to total HC spend

While South not likely to invest in digital health at same proportion as North in near term, significant potential for market growth



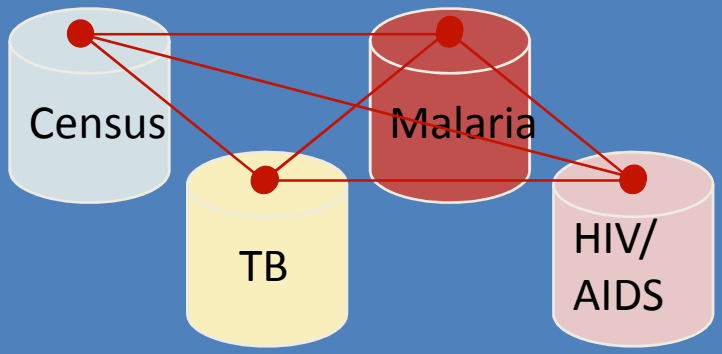
How to grow the market?:

1. Increasing investment by advocating and proving value of Digital Health
2. Catalyzing development of Digital Health solutions by lowering fixed costs and barriers to market entry

1. Approximation - defined as all countries outside of US, Europe, Japan
Source: PJB Clinica Report 2003

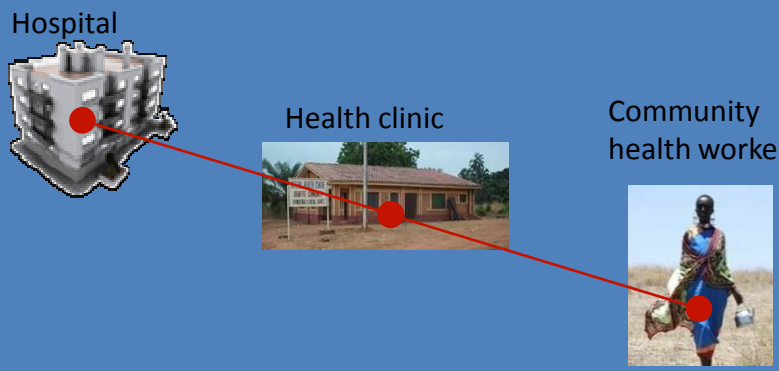
To avoid data silos need to ensure data can be communicated and merged across several dimensions

Across programs

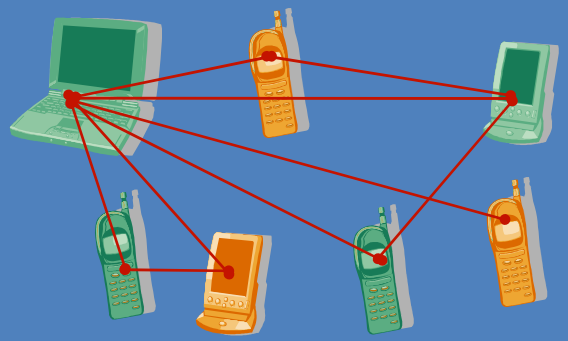


Across geographies

Across points of care



Across technologies



Requires interoperable systems and data standards

In future better information management is vital to advance state of developing country health systems

As health systems improve, several trends likely to emerge

- Increasing number of people entering health system
- Decreased acute care and late-stage disease
- Heavier proportion of disease burden due to chronic disease
- Increasing number of repeat patients
- More informed health consumers

But information needed to shift developing country health systems focus to advanced care

- Evidence-based health management
- Patient-focused treatment
- Chronic disease management
- Proactive wellness management
- More sophisticated payer system

Cannot scale up collection, communication and management of health information without ICT

Global effort needed to address challenges impeding speed of growth & endangering development path of Digital Health

Challenges	Needs
Market is fragmented – donors and other buyers push for narrow, specific solutions without interoperability considerations • Leads to inefficient use of funds • Creates program stovepipes Lack global forums with all relevant stakeholders in which to discuss progress, issues and lessons	Convening relevant stakeholders, facilitating communications, priority setting
Lack of awareness about value of Digital Health and breadth of possible solutions Sustainability – lack of private sector providers due to low market incentive	Advocacy/championing for eHealth and value demonstration
Little capacity for developing and managing healthcare information technology Prohibitive policy environment	Program support including results monitoring and provision of resources to adopters

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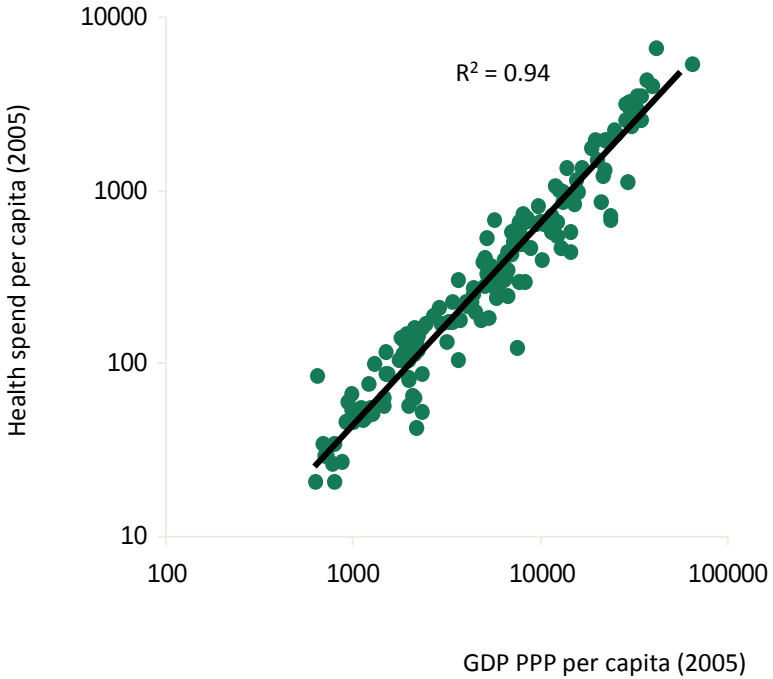
The Road to Digital Health for All

Digital Health in Practice

Health investments focus on improving sector productivity

Level of HC spending directly proportional to GDP/capita regardless of external funding



Healthcare is an inefficient sector, can improve productivity through technology

Baumol's cost disease: Labor intensive services, such as health care, face productivity lag - cannot substitute capital for labor as efficiently as the general economy, so the cost of producing them goes up faster than general inflation

5 ways to improve productivity:

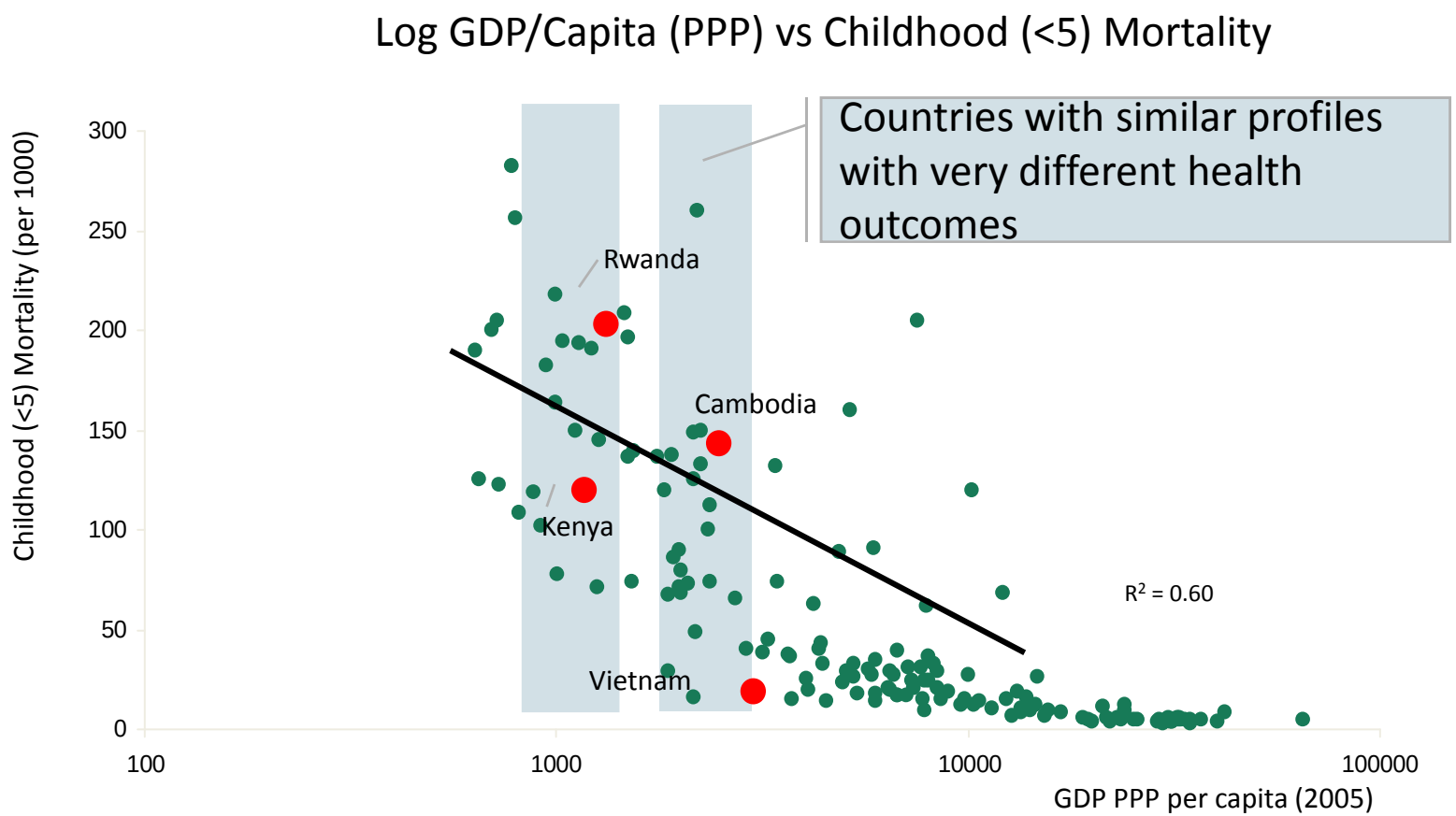
1) *Increase capital per worker*
2) *Improved technology*
3) *Increased labor skill*
4) *Better management*
5) *Economies of scale as output rises*

The most effective way to improve productivity is to improve health systems

Source: Nicholas C. Petris Center on Health Care Markets & Consumer Welfare (UC Berkeley), WHO, *A Handbook of Cultural Economics* (James Heilbrun)

Effectiveness of health spending widely variable

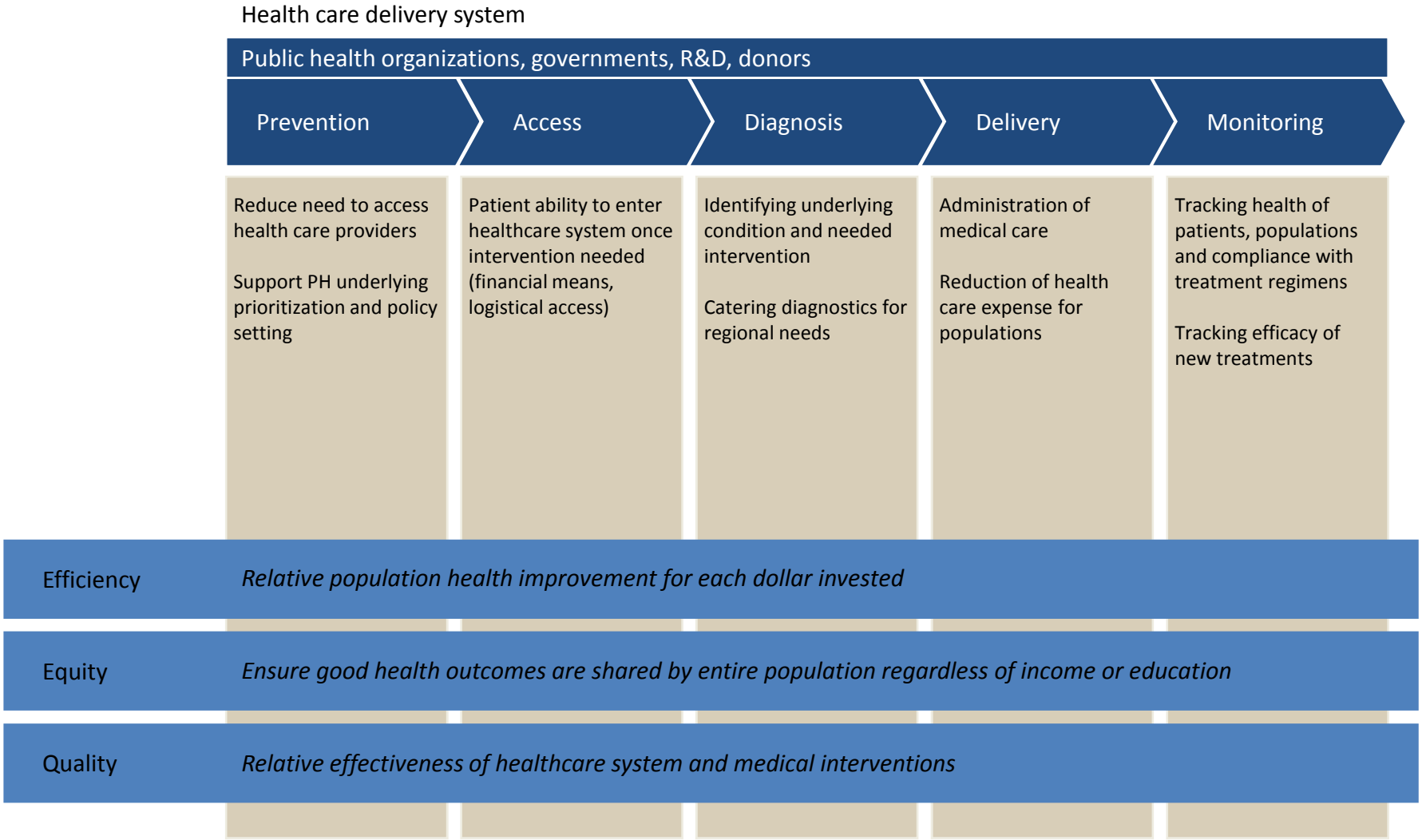
Health outcomes not tightly linked to income level



Variation in health outcomes highlights considerable room for improvement of inefficient and ineffective health systems

Source: WHO

Effective health care delivery captures the value of integration



Source: WHO

Critical gaps in developing country health system...

A few notable examples

Prevention

Poor awareness of and protection from health risks

- Lack of access to prophylactic interventions (e.g contraceptives, bed nets, vaccines)
- Lack of awareness around risky behavior (e.g. unprotected sex, using unsanitary water)

Access

Inability to access health system

- Inability for the poor to afford care
- Not enough health facilities, difficult to for remote rural poor to reach a skilled provider
- **Human resource crisis:** lack of trained health care providers

Diagnosis

Limited education, training, access to expertise, research for health care providers

Delivery

Providers lack resources

- Limited access to medicines, frequent stockouts, poor supply chain control
- Resource-poor healthcare facilities lack latest information, tools, and techniques

Monitoring

Lack of monitoring and surveillance

- Lack of epidemiologic information for policy- and decision-making, outbreak detection
- Lack of information on effectiveness of programs and interventions
- Non-compliance to drug regimens

In a 2000 WHO review of country health system performance, most Sub-Saharan African countries ranked in the bottom 50%

... reduce effectiveness of health interventions

Health care delivery system

Prevention

Lack of access to prophylactic interventions
- 61% of at-risk population has no access to insecticide treated nets
- 50-76% of service delivery points in five selected developing countries had out-of-stocks of oral contraceptives, injectables, and condoms

Environmental and behavioral factors negatively affect health outcomes
- 1.1B people lack access to safe water
- 2.6B people lack access to adequate sanitation facilities

Access

HR crisis:
- Africa is short ~1.5M health workers

Inequitable access to care
- In S. Africa, poorest are 2 hrs. from medical care; richest are 34 min. away
- In Global South, urban hospitals receive ~2/3 of gov't health budgets, serve 10-20% of people

Primary point of care at home/community
- In Global South, 70-90% illness managed at home

Financial barriers to accessing care
- In SS-Africa, 50% HC costs paid out-of-pocket
- 25% of SS-African countries would be unable to afford essential package of health services ($34/person/yr)

Diagnosis

Ineffective diagnosis techniques
- Labs detect only 5% of multi-drug-resistant TB cases
- 500M cases of fever mis-diagnosed as malaria each year

Inefficient diagnostic supply chain drives up cost
- Each time a diagnostic changes hands, cost increases $1
  - $1 HPV diagnostic costs patient $18 in China

Lack of medical training for care provider
- Practitioners often uninformed about current HC best practice

Delivery

Limited access to medicines
- Only 20% of those needing ARVs globally receive them
- 50% do not have regular access to anti-malarials
  - remaining 60-90% seek treatment from shops, street vendors
- ORT coverage is plateauing at 40% of world's children

Inefficient and under-resourced facilities lead to negative health outcomes
- 9% prenatal death in rural South Africa due to preventable delays in treatment

Monitoring

Non-compliance with drug regimens
- 13% of evaluable TB patients in South Africa non-compliant to drug regimen

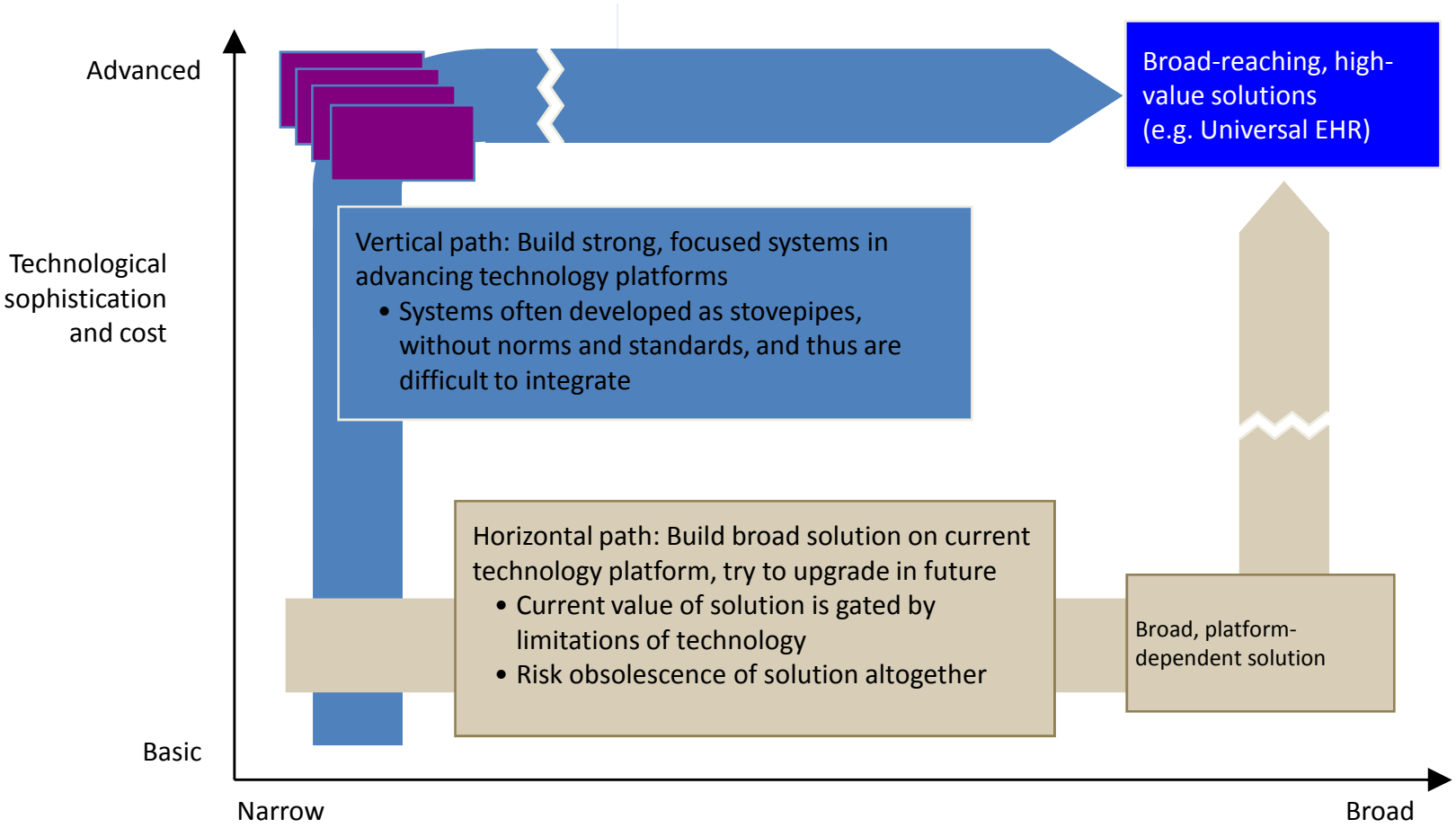
Substantial challenges tracking drug resistance
- Challenge to map new drug formulations to specific resistance geographies

Lack of information leads to inefficient funding
- Typically, only 25% of public funding goes to primary care, although main causes of illness and death are preventable and treatable at the primary care level

Source: WHO, World Bank, World Economic Forum

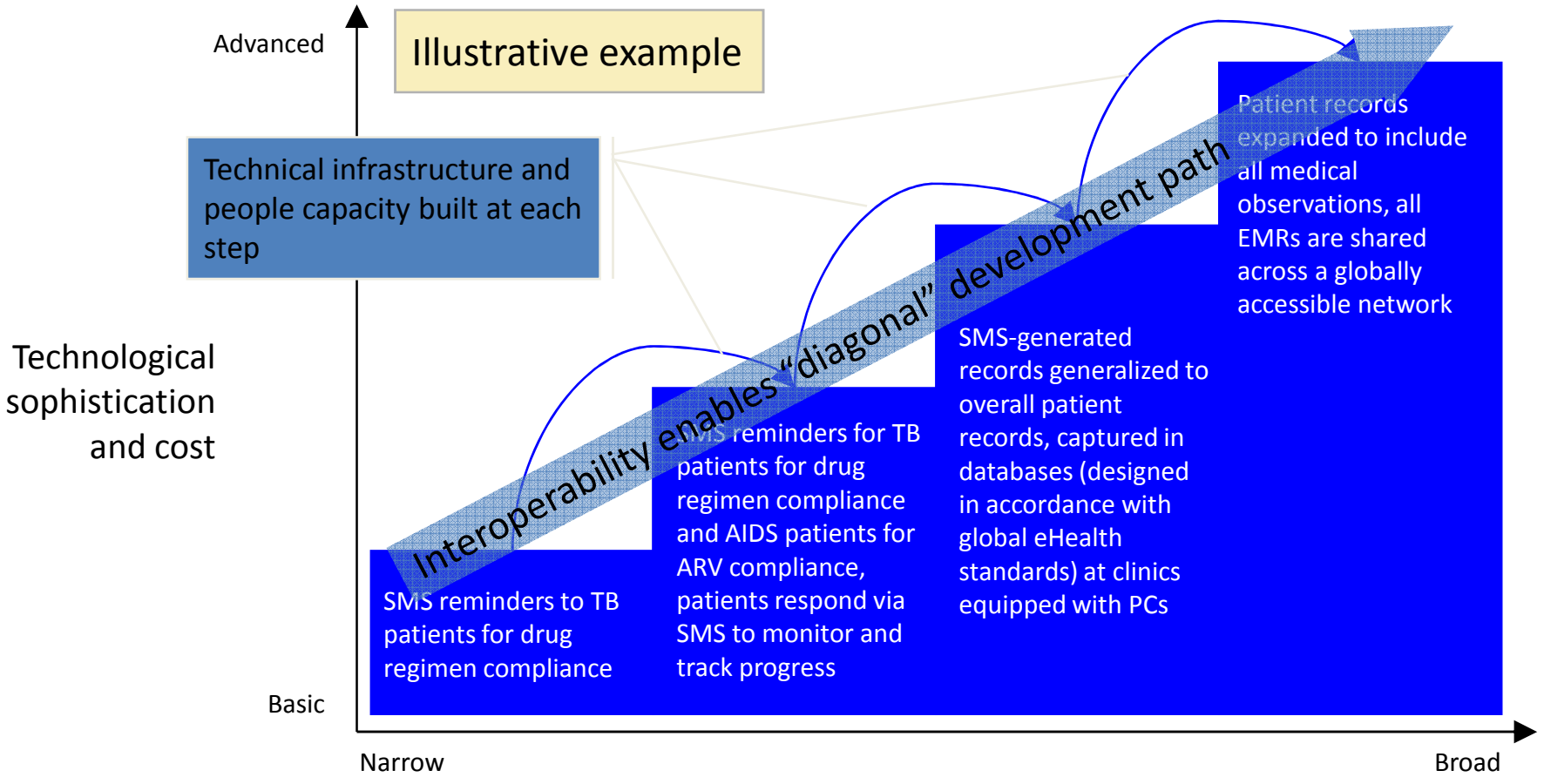
As Digital Health develops, danger of inefficient, costly pathways

"Vertical" and "horizontal" paths carry significant risks and shortfalls



Ideally countries will follow a diagonal & step-wise path

Interoperable systems allow iterative build to reach end goal



Digital Health efforts likely to continue to be disease-, geography- and point-of-care-focused – need communication and collaboration to unite efforts and ensure interoperability

Digital He@lth Initiative (DHI)

Partnership in Practice

INNOVATION & INVESTMENT

A CALL TO ACTION

"Ensuring universal access is critical to achieving the Millennium Development Goals of halting and beginning to reverse the spread of HIV among women, men and children by 2015. And it is a prerequisite or meeting most of the other Goals. We cannot win the fight for development if we do not stop the spread of HIV."

Ban Ki-moon, Secretary-General*, United Nations*

"In our mobile, interdependent, and interconnected world, threats arising from emerging and epidemic prone diseases affect all countries. They reinforce our need for shared responsibility and collective action in the face of universal vulnerability in sectors well beyond heath."

Margaret Chan, Director General, *World Health Organization*

"Nearly 10 million children under age five die every year of largely preventable diseases. Many of the main global killers of children – including malaria and diarrhoea – are sensitive to changes in temperature and rainfall, and could become more common if weather patterns change."

Ann Veneman, Executive Director, *UNICEF*

"Innovation is desperately needed to overcome funding constraints and provide more resources in a shorter period of time, while ensuring a better predictability of aid flows . . .and to elicit more and better R&D around global health".

Gordon Brown*,* Prime Minister, *United Kingdom* and **Bill Gates**, Chair, *Bill & Melinda Gates Foundation*

"Africa, today, has many innovations in the use of paraprofessionals and community workers. These more established approaches can be energized by new capabilities that harness the capabilities of new information and communication technologies. There is no reason why every worker cannot have access to ICT-based backup for diagnosis, treatment, monitoring and support."

Lincoln Chen*,* Chair*, China Medical Board & Global Health Workforce Alliance*.

Creating a Digital He@lth Dynamic

Technology for Equity

DHI Vision

To harness the full potential of information and communication technologies and digital user device technology to accelerate the achievement of the Millennium Development Goals (MDGs) for health and other key global health prioritiesand for health, and to provide leadership to and coordination of the range of effective and outcome-oriented initiatives working across the health for development spectrum under the guiding principle of “technology for equity”.

Creating Digital He@lth Dynamic

DHI Ten Point Mission

Mission

Working with:

- Healthcare professionals, establishments and international bodies
- Researchers, research establishments and research leadership groups
- Government and NGOs at national, regional and international level
- Relevant UN Agencies and bodies
- Industry and industry bodies

To:

1. *Define* priorities for actions while mapping the landscape in global digital health.
2. *Baseline* and set targets for significant improvement across the MDG health priority areas and beyond.
3. *Facilitate* the propagation of best practice through cross learning, sharing, knowledge management technologies and proactive action.
4. *Define*, *create* and *implement* an economic model which ensures that the programme is built on sustainable foundations, delivers globally and that progress is secured into the future.
5. *Create* political will through advocacy of national digital health coordinators at the highest level of cabinet for an “all government approach”.

Creating a Development Dynamic for Digital He@lth

DHI Ten Point Mission

Mission

Working with:

- Healthcare professionals, establishments and international bodies
- Researchers, research establishments and research leadership groups
- Government and NGOs at national, regional and international level
- Relevant UN Agencies and bodies
- Industry and industry bodies

To:

6. *Develop* a collective and multi-stakeholder "partnership platform" for digital health with indicators for measurement consistent with MDG 8 Target 18.
7. *Deliver* a series of concrete commitments and projects in digital health for MDG 8 Target 18 and, through strategic partnerships partners, identify the key enablers, particularly in the areas of infrastructure, R&D and standards; these enablers will secure success and take responsibility for ensuring the projects are sufficiently financed and urgently and delivered.
8. *"Cross- pollinate"* initiatives, particularly between the developed and developing world, building on lessons learned to accelerate progress towards equity of opportunity and service without reinventing the wheel.
9. *Develop* innovative finance mechanisms as they pertain to digital health.
10. *Advocate* and develop a global charter for digital health with relevant organizations and institutions.

Creating a Digital He@lth Dynamic

DHI DESIGN & IMPLEMENTATION: A+B=C

A – ***Health Cluster***

- Child Mortality and Maternal Health Module (2010 DHI Advisory Board Priority)
- HIV/AIDS and Other Infectious and Communicable Disease Module
- Diseases of Climate Change Module
- Neglected Tropical Diseases Module
- Health Systems and Services Module
- Chronic Disease Module

B – ***Technology Cluster***

- Mobile and Wireless Technology Module
- Internet and Search Technology Module
- Health Technology Module
- Pharmaceutical Module
- Food and Beverage Module
- Music and Media Module

C – ***Development Cluster***

- Millennium Development Goal Module
- Innovation Module
- Investment and Insurance Module
- Research & Development Module
- Targets and Timetable Module
- Global Partnerships for Development Module

Creating a Digital He@lth Dynamic

DHI Issues to be Addressed: *Technology Partners*

- *In what ways has the digital revolution impacted health and development in an affordable, replicable and scalable way? What are the challenges: do problems lie in devices, content, power, training, or institutional?*
- *What can healthcare learn from leapfrog ICT in other sectors?*
- *What emerging technologies can scale healthcare to rural and remote areas? How can the diversity of technological solutions currently employed be improved and guided towards developing more cohesive approaches?*
- *With an annual health budget of $25 per capita in some countries how is digital health already being made relevant and in what ways can we think out of the box for more affordable, scalable, and replicable interventions? How should new funds be spent and on what?*
- *For every dollar of investment in science and technology, what does the impact on healthcare look like? Is there a threshold that we have to reach?*
- *How do we measure impact?*
- *How big is the market for digital health in both developed and developing countries?*
- *Can emerging science and technology change the pandemic equation?*
- *If STI and ICT fall short of health sector needs, how can national policies and programmes be aligned for mutual investment and innovation?*
- *What is the potential impact of internet-based proposals including those for a Global Health Partnership Centre, a Global Health Exchange, and a Global Health Early Warning System?*

Creating a Digital He@lth Dynamic

DHI Issues to be Addressed: *Health Partners*

- *What are the roles and responsibilities of traditional and emerging actors in global health?*
- *What constituencies drive demand for technological solutions in the context of development, and how can we remain responsive and current while shaping the agenda?*
- *Who will set the new global health agenda?*
- *How do we arrive at a common definition of digital health and how can generic platform technologies enhance health and healthcare value chains by inviting new participants and actors?*
- *How can the promotion of STI and ICT in the health sector improve health outcomes in developing countries?*
- *What are some examples of STI and ICT invigorating prevention, addressing the shifting treatment burden, boosting fragile health systems, and confront emerging and epidemic-prone diseases?*
- *How do we transfer the most viable models for using STI and ICT from developing countries to developed countries which are more risk averse?*
- *WHO estimates Africa is short of 1.5 million health workers. What are the impacts of cell phones and laptops in the hands of every health worker have in the formal and informal workforce sectors? How can this be expanded and improved?*
- *How can knowledge and knowledge networks enhance the HIV scorecards, monitoring and evaluation, with better data sets and innovative search capabilities?*
- *Is a worldwide infrastructure to share and coordinate AIDS and infectious disease or chronic non-communicable disease R&D feasible?*

Creating a Digital He@lth Dynamic

DHI Issues to be Addressed: *Development Partners*

- *How can we engage the health, technology and development communities on common goals in order to provide a common language to address challenges and progress?*
- *How can the inter-linked development goals in health, education, enterprise, public administration & environment be leveraged via STI and ICT for pro-poor growth to create new markets?*
- *How can ICT bundle health with other services to reduce the overall cost of care?*
- *What is the role of innovative public-private partnerships and market forces in generating local & global responses, and how do these relate to Goal 8 Target 17 & 18?*
- *UNAIDS warns global funds of $20 billion annually will be needed by 2008 just to combat AIDS. How can innovative funding mechanisms be brought into play such as the new philanthropy, public private partnerships, advanced market commitments, and taxes on goods and services?*
- *Can innovative funding mechanisms translate to the world of digital health?*
- *What space exists for a framework for action to create a development dynamic in digital health?*
- *How can we engage non-traditional partners in the private sector towards meeting these goals?*
- *How can R&D efforts in overlapping MDG fields be aligned towards common goals without compromising the diversity of approaches?*
- *How can the notion of digital public goods be pursuing beyond the global public goods of knowledge, science and technology transfer and IPR-free drugs?*

Digital Health Partnership Space

Business Organizations:

Global Business Coalition on HIV/AIDS, Tuberculosis and Malaria (GBC), Global Alliance on Improved Nutrition (GAIN), Commonwealth Business Council (CBC), African Business Roundtable (ABR), International Business Leaders Forum (IBLF), Global Information Infrastructure Commission (GIIC), World Economic Forum (WEF), International Aids Vaccine Initiative (IAVI), mHealth Alliance

Foundation Organizations

Rockefeller Foundation, Wellcome Trust, Bill & Melinda Gates Foundation, Carso Institute for Health, United Nations Foundation, Vodafone Group Foundation, BBC World Service Trust, Mo Ibrahim Foundation, Aga Khan Foundation, Grameen Foundation, Clinton Global Initiaiative, Open Society Institute, MacArthur Foundation, Novartis Foundation for Sustainable Development

Private Sector Organizations

Alcatel-Lucent, BT, Telefonica, France Telecom, Verizon, Ericsson, Nokia, Motorola, Samsung, Qualcomm, Cisco, Google, Oracle, Microsoft, Intel, C-SAM, Sun Microsystems, Fujitsu, Sony, Lenovo, HP, Vodafone, Zain, Pfizer, Merck, Novartis, GSK, GE Healthcare, Nokia-Siemens, Siemens Health Systems, IBM Healthcare, Healthanywhere, IgeaCare, Proctor & Gambel, Johnson & Johnson, Pepsico, Coca Cola, Unilever, Kraft, Nestle, MTV, VH1, WPP, Grameen Solutions, Voxiva, KPBC

Academic Institutions and Civil Society

The Earth Institute at Columbia University, Columbia Institute for Tele-Information, Imperial College London, Harvard University, Oxford Health Alliance, Scientists Without Borders, IIT Mumbai, MIT, African Medical and Research Foundation (AMREF), *Help the Aged, CONGO, APC, One World, Panos, Overseas Development Institute, International Council for Caring Communities, CONCERN, Global Forum for Health Research, COHRED*

International Donors

Department for International Development (DFID), Swedish International Development Agency (SIDA), Canadian International Development Agency (CIDA), Swiss International Development Agency (DEZA), Norwegian International Aid Agency (NorAid), Japan International Aid Agency (JICA), Ireland Aid (IA), European Commission (EC)

International Organizations

World Health Organization (WHO), Global Health Workforce Alliance (GHWA), The Partnership for Maternal, New Born and Child Health (PMNCH), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), UNAIDS, United Nations Environmental Programme (UNEP), United Nations Development Programme (UNDP), World Food Programme (WFP), International Telecommunication Union (ITU), International Labour Organization (ILO), United Nations Office for Partnerships (UNOP), The Global Fund to Fight AIDS TB and Malaria (GFATM), GAVI Alliance, Organization for Economic Cooperation and Development (OECD), Commonwealth Secretariat, Commonwealth Telecommunication Organization (CTO), New African Partnership for Development (NEPAD), Development Bank of Southern Africa (DBSA), African Development Bank (AfDB), Asian Development Bank (ADB), Inter-American Development Bank (IDB) European Bank for Reconstruction and Development (EBRD), World Bank Group (WBG), International Finance Corporation (IFC)

Global Advocacy – 2010 Digital Health, Technology and Development Calendar of Events

- **January 25-30 - *Global Health Information Forum 2010*, Bangkok**
- **January 27-31 - *World Economic Forum*, Davos**
- **January 31-February 2 - *Assembly of the African Union "Information and Communication Technologies (ICT) in Africa: Challenges and Prospects for Development"*, Addis Ababa**
- **February 15-18 – *GSMA World Mobile Congress*, Barcelona**
- **March 8-10, *Transforming Healthcare with IT*, New Dehli**
- **March 22-26 - *World Urban Forum*, Rio de Janeiro**
- **March 29-30 – *Digital He@lth Initiative Advisory Board Meeting*, Geneva**
- **April 14-16 – *MEDeTEL*, Luxembourg**
- **April 17-18 – *Global Health and Innovation 2010 Summit*, Yale University, New Haven**
- **May 10-14 – *WSIS Forum 2010*, Geneva**
- **May 16-18 – *American Telemedicine Association 2010*, San Antonio**
- **May 16 – *Commonwealth Secretariat Ministerial on Health-related MDGs*, Geneva**
- **May 17-21 - *World Health Assembly*, Geneva**
- **May 24-June 4 – *World Telecommunication Development Conference*, Hyderbad**
- **June 6-8 – *Global Business Coalition Annual Conference 2010: Work Smarter & Women Deliver 2010*, Washington DC**
- **June 14-18 - *Global Health Council Annual Forum*, Washington DC**
- **June 21-22 – *"High-Level Workshop Session on Developing an Economic Model and Metrics for Digital Health"*, WHO HQ, Geneva**
- **June 26-27 - *G20 Summit*, Toronto**
- **June 28-July 3 - *ECOSOC Annual Ministerial Review on Gender*, New York**
- **July 11 – *Broadband Commissions for Digital Development* (Commissioner Symposium), Geneva**
- **July 8-11 - *5th International Carers Conference*, Leeds**
- **July – *African Union Summit*, Kampala**
- **September 18-19- *Connect for Life – Digital He@lth and the Millennium Development Goals 2010*, Harvard Club New York**
- **September 19 – *Broadband Commission for Digital Development, A 2010 Leadership Imperative*, Harvard Club New York**
- **September 20-22 – *2010 MDG Summit*, United Nations, New York**
- **September 22-24 – *Clinton Global Initiative*, New York**
- **October 4-22 - *ITU Plenipotentiary Conference*, Veracruz**
- **October 26-29 *TEDMED*, San Diego**
- **November 8-10 – *Global mHealth Alliance Annual Meeting*, Washington DC**
- **November 11-13, *G20 Summit*, Seoul**
- **November 16-19 – *First Global Symposium on Health Systems Research*, Montreux**

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Thank You