



WHO Call for Innovative Technologies to Address Key Health Problems in Low- and Middle-Income Countries

PRESENTED BY

ADHAM R ISMAIL, MS, MBA, PHD.

REGIONAL ADVISER,

HEALTH TECHNOLOGY AND BIOMEDICAL DEVICES (HMD),
DIVISION OF HEALTH SYSTEMS AND SERVICES DEVELOPMENT (DHS),
EASTERN MEDITERRANEAN REGIONAL OFFICE (EMRO)

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Introduction

- Any contemporary health system (HS) relies heavily on the contribution of health technologies (HT).
- HT equip health care providers with tools to perform their functions effectively and efficiently.
- Majority of the world's population is denied adequate, safe and reliable access to these tools.
- The world, and especially developing countries, needs innovations that
 - Focus on actual health needs, and
 - Accessible to the people who need them.



Developing Countries



- Developing countries comprise more than 80% of world's population but amount to only 13% of the global market for medical products.
- In Developing (LI and MI) countries, the disproportionate BOD experienced by the poor is compounded by the fact that he/she
 - Uses fewer health services, which are generally of a lower quality;
 - Pays high out-of-pocket expenses; and
 - Has less knowledge about the benefits of formal healthcare compared to the non-poor.
- This leads to low utilization and suboptimal health outcomes.
- HS in LI and MI countries are pluralistic, with many providers operating outside the regulatory framework.



Role of Innovation in HS Delivery

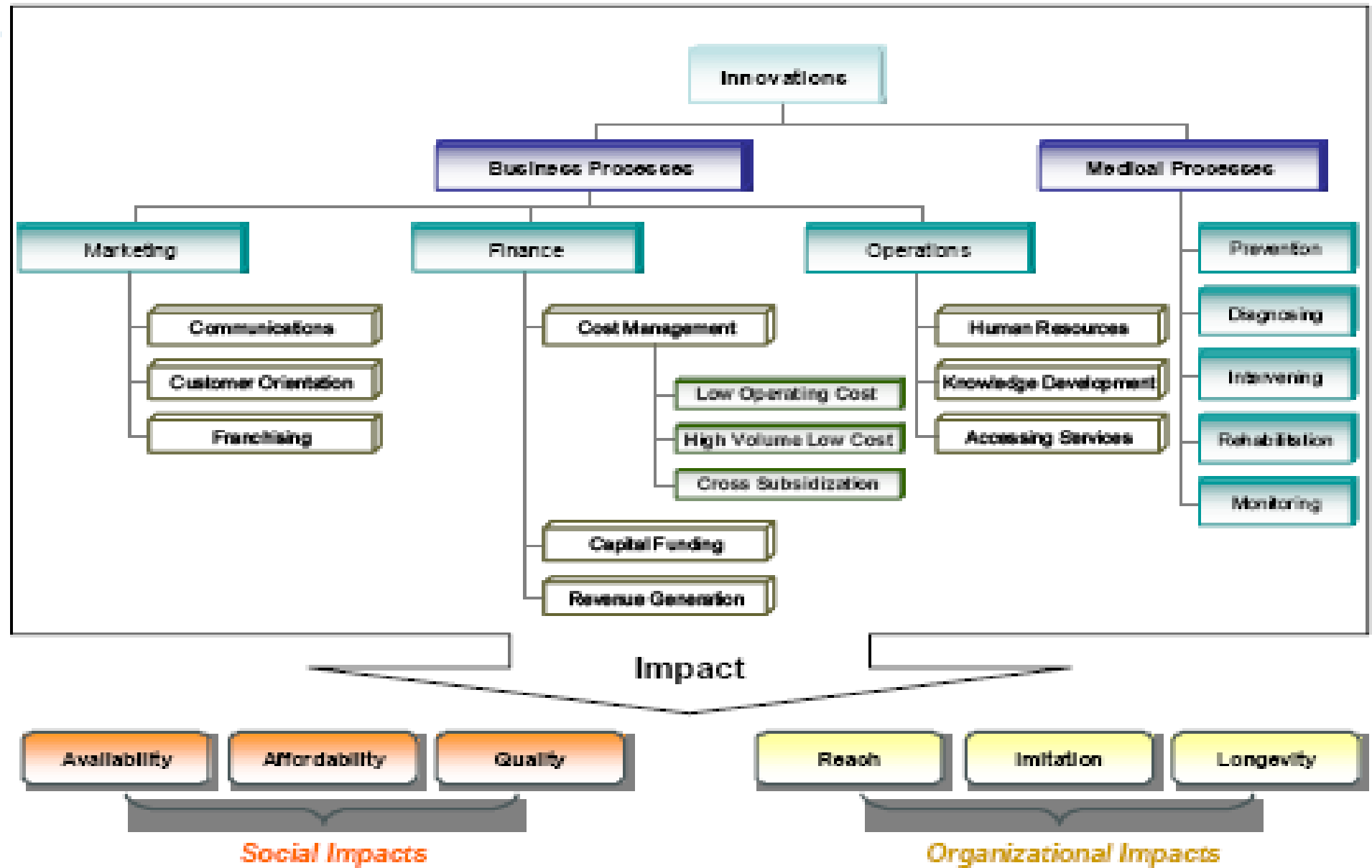
- The Advisory Committee on Measuring Innovation (ACMI) stressed the important role of innovation in all fields, including HS.
- In 2008, they defined Innovation as:

“The design, invention or development and/or implementation of new or altered products, services, processes, systems, organizational structures or business models for the purpose of creating new value for customers and financial returns for the firm”



HS Delivery Innovation Framework

(*Bhattacharyya et al., University of Toronto, 2008*)



Innovation in Business Processes: *Marketing Strategies*

Marketing Strategies		Innovations	Purpose
Communications	Mass promotion	<ul style="list-style-type: none"> • Mobile communication program • Flyers, logos, outreach 	<ul style="list-style-type: none"> • Increase awareness of the problem, possible solutions, and demand for services
	Public education	<ul style="list-style-type: none"> • Educating through events, mobile vans, schools 	
	Person-to-person	<ul style="list-style-type: none"> • Advertising via word-of-mouth referral system 	
Customer Orientation		<ul style="list-style-type: none"> • Products and services designed to enhance patient experience 	<ul style="list-style-type: none"> • Improve quality of care and increase number of customers
Franchising		<ul style="list-style-type: none"> • Strong brands that are associated with high-quality care and reliability 	<ul style="list-style-type: none"> • Increase demand for services and quality of care



Innovation in Business Processes: *Financing Strategies*

Financing Strategies		Innovations	Purpose
Cost management	Lower operating costs	<ul style="list-style-type: none"> • Lower costs obtained by simplifying medical services and efficient use of human resources, creating or sourcing cheaper materials 	<ul style="list-style-type: none"> • Increase affordability
	High volume, low cost	<ul style="list-style-type: none"> • High throughput, maximal use of infrastructure, reducing overhead costs 	
	Cross-subsidization	<ul style="list-style-type: none"> • Fees paid by paying clients subsidize free services for poor • Fee for service adapted to patients' ability to pay using a predefined sliding scale 	
Capital funding		<ul style="list-style-type: none"> • Funds are made available to the providers to provide health services for their local area 	<ul style="list-style-type: none"> • Improve quality, availability, and longevity
Revenue generation		<ul style="list-style-type: none"> • Alternative means to generate income to support health services 	<ul style="list-style-type: none"> • Maintain program sustainability (longevity)

Innovation in Business Processes: *Operating Strategies*

Operating Strategies		Innovations	Purpose
Human resource management	Training of laypersons	<ul style="list-style-type: none"> • Laypersons acquire skill sets that were exclusive to qualified medical practitioners 	<ul style="list-style-type: none"> • Reduce cost of operation • Increase staff availability • Empower local community, increase sustainability of program
	Use of paramedical staff	<ul style="list-style-type: none"> • Paramedical staff take on some of the tasks performed by physicians; creation of a new class of health care providers 	
	Improvement of staff quality	<ul style="list-style-type: none"> • Existing care providers are given more or better skills 	<ul style="list-style-type: none"> • Improve quality of care and availability
Knowledge development		<ul style="list-style-type: none"> • New technology is developed • Process is improved • Performance is measured 	<ul style="list-style-type: none"> • Improve efficiency, affordability, and quality of care
Facilitating access	Outreach	<ul style="list-style-type: none"> • Services are made available to rural areas via mobile camps and vans 	<ul style="list-style-type: none"> • Increase availability of services
	Telemedicine	<ul style="list-style-type: none"> • Services are made available to rural areas via Internet, audio- and video-conferencing kiosks 	
	Temporal access	<ul style="list-style-type: none"> • Services are offered around-the-clock • Opening hours are extended for specific groups 	

Innovation in Medical Processes

- They refer to changes in the way a given service is provided, either through a new protocol or use of a new treatment.
- Innovation can be made at any HCD stage; namely: *Prevention, Diagnosis, Treatment, Rehabilitation and Monitoring.*
- Numerous examples can demonstrate that innovation in medical processes is a Win-Win situation for enterprises and public health, especially in developing countries.



Innovative Technologies: *Practical Examples 1*

Innovation in Medical Processes, Prevention Stage:

- In India, a non-profit social enterprise developed a kit that allows lay health workers to screen for problems with visual acuity.
- The treatment can be made with inexpensive reading glasses (less than \$4).
- This new process makes it possible for staff with limited training to screen people door-to-door, thus greatly facilitating access to this service.
- Now they are operating in 13 countries, including: El Salvador, Guatemala, Bangladesh, Mexico, Ghana, and Sub-Saharan Africa.



Innovative Technologies: *Practical Examples 2*

Innovation in Medical Processes, Treatment Stage:

- Another vision company innovated a surgical procedure for cataracts that does not require sutures and that makes use of a mobile microscope.
- Accordingly, one surgeon can operate at two tables, side by side.
- This results in great reduction of costs (no expensive sutures and less space required) and increase in service volume (reducing time needed for a surgery).
- From April 2007 to March 2008, about 285,000 have undergone eye surgeries using this innovation.



Innovative Technologies: *Practical Examples 3*

Innovation in Medical Processes, Rehabilitation Stage:

- A company working on manufacturing prosthetics innovated a new affordable, hand-made prosthesis that is fitted using only a one-time intervention procedure that minimizes the need for follow-up.
- The prosthetic limb costs approximately \$35 with materials that can be locally found in any developing country (normally costs \$4,000 to \$8,000 in USA).
- Outreach camps to promote the product are present in many countries, including: Afghanistan, Bangladesh, Dominican Republic, Honduras, India, Indonesia, Malawi, Nigeria, Nepal, Kenya, Panama, Philippines, Papua New Guinea, Rwanda, Somalia, Trinidad, Vietnam, Zimbabwe, and Sudan.



To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science

Albert Einstein, 1921