Mobile and digital health for ageing populations

Alex Ross, Director

Kanagawa World Seminar Mobile Health
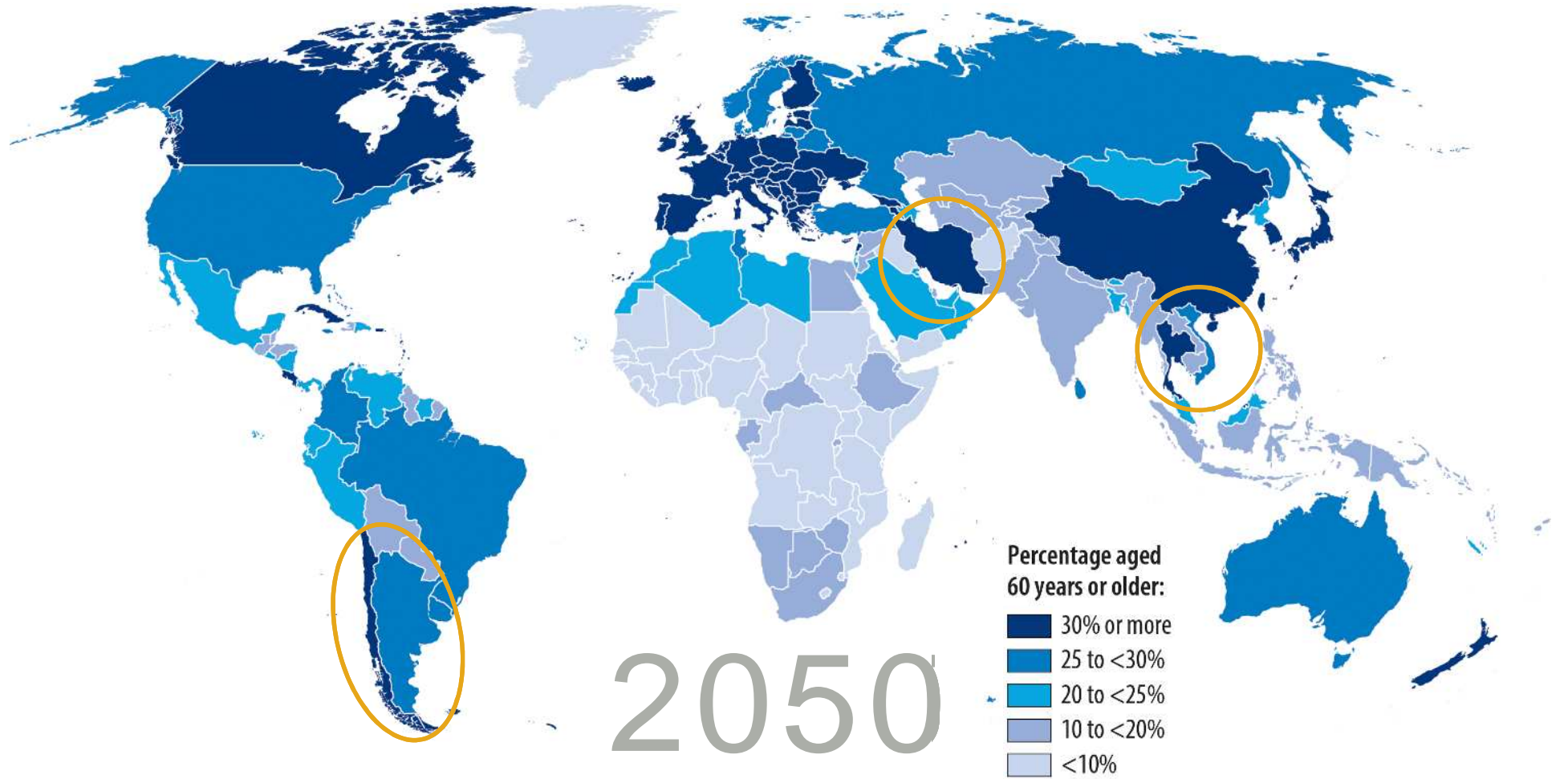25 March 2016

Healthy Ageing

Ageing...

...is <u>much</u> more than just the risk of dying

The question for longevity based societies will be about maintaining quality of life and dignity to the end of life

It *is* about the world we want when <u>we</u> are old

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Percentage aged 60 years or older:

- 30% or more
- 25 to <30%
- 20 to <25%
- 10 to <20%
- <10%

2050

Building societies for older ages
Building societies for <u>all</u> ages

Equity   Autonomy   Dignity

Rapid ageing

- Rapid growth, especially in LMIC
  – Over 75 population
- Understanding functional and cognitive decline
  – Co-morbidities, risk factors, dementia
  – Opportunities to delay, prevent, manage
- Social conditions, inclusion, participation
- UHC and health systems
- Community-based systems to support non-institutionalization
- Integrated health – social delivery systems
  – Ageing and disability communities

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4 biggest causes of disability

Dementia

ARTHRITIS
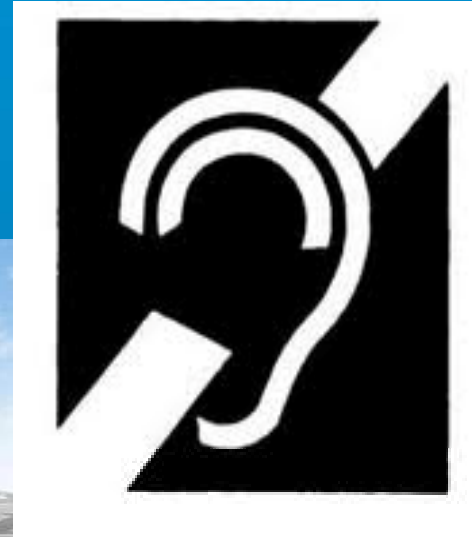
FACTORS DRIVING LTC NEEDS FOR TECHNOLOGY SUPPORT

- Health status by age; compressing morbidity (DALY profile)

- Causes of disease, NCD risk factors

- Hypertension, obesity, tobacco use,

- Functional and cognitive decline

- Limitations in ADLs

- Pain, sleep duration, living arrangements of elderly

- Life satisfaction

The goal:

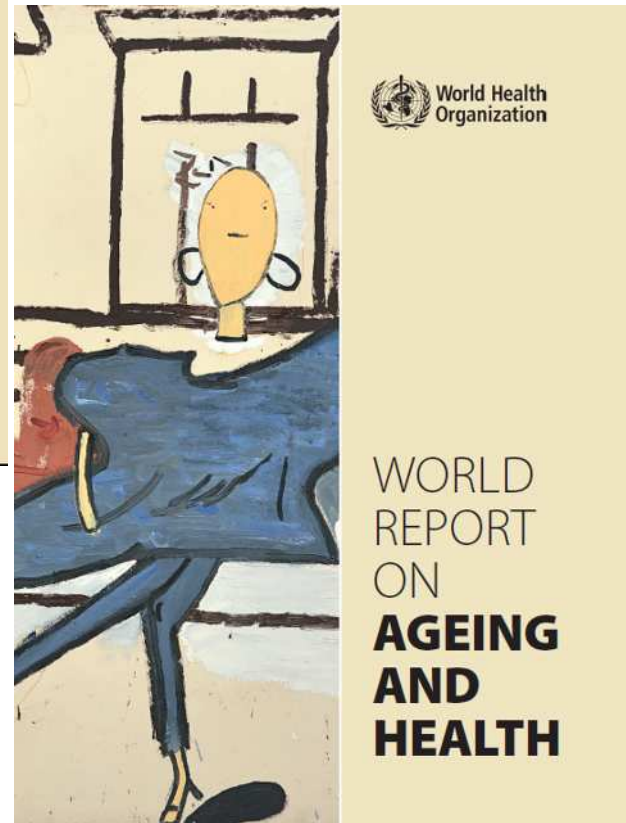## maximize functional ability

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要旨

**高齢化と
健康に
関する**
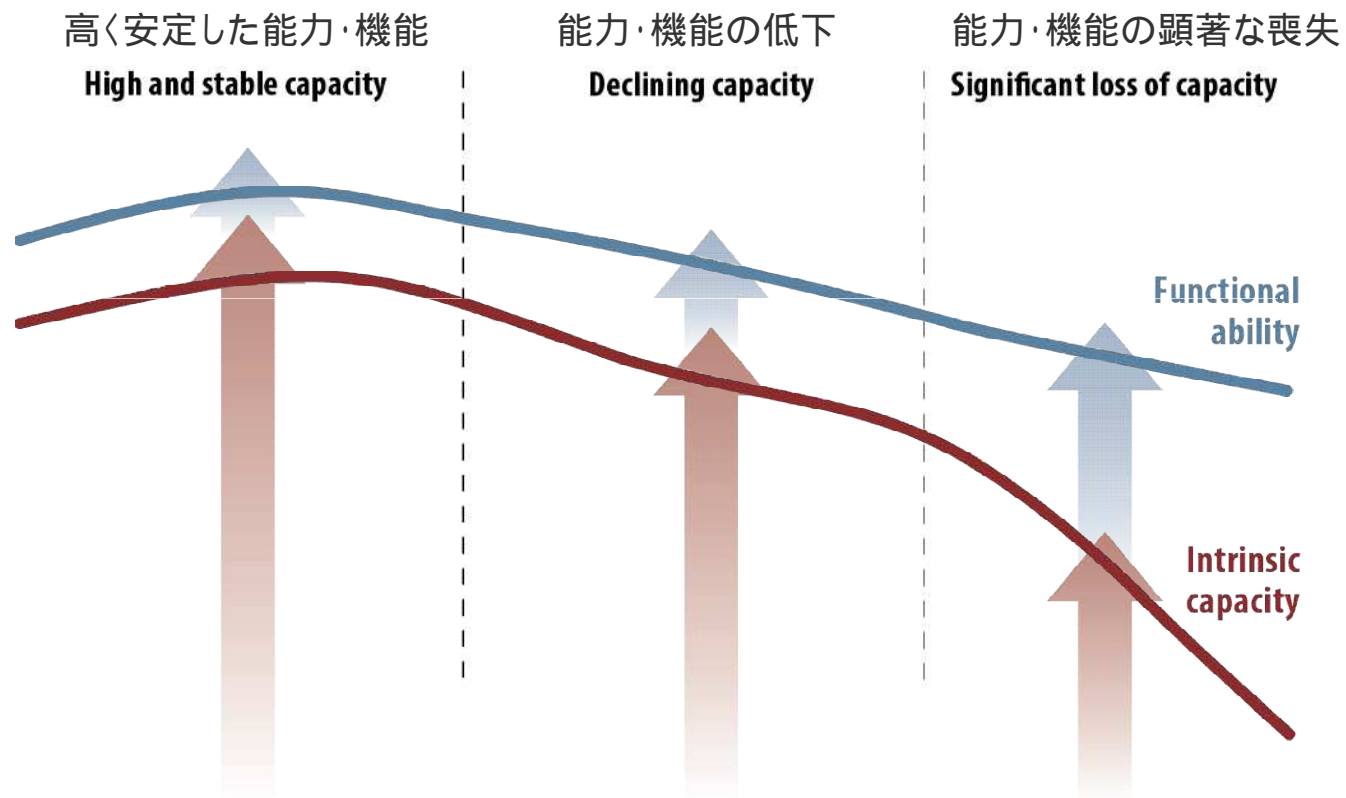ワールド・
レポート

World Health Organization

WORLD
REPORT
ON
**AGEING
AND
HEALTH**

Healthy Ageing

developing and maintaining the functional ability that enables wellbeing in older age

Healthy Ageing

wellbeing

functional capacity

Public Health Framework

High and stable capacity | Declining capacity | Significant loss of capacity

Functional ability

Intrinsic capacity

Responding to the needs

Health Issues Treatment:
- Cancer
- Cardiovascular
- Respiratory
- Diabetes
- Organ Failure
- Blindness
- Hearing
- Dementia

Health Issues Prevention
- Tobacco use
- Diet
- Physical exercise
- Alcohol
- Bone health
- Diabetes
- Occupational
- Environmental
- Cognitive
- Oral health

Heath care system
- **eHealth**
- Mobility assistance
- Respite care for mental health care givers
- IT

Social/Community
Loneliness
Trust
Social cohesion
Housing
Green spaces
Accessibilty
Mobility
Early warning
Employment
Training

Integrate home, hospital, and nursing facilities

Avoid institutionalization

Inter-generational housing/communities
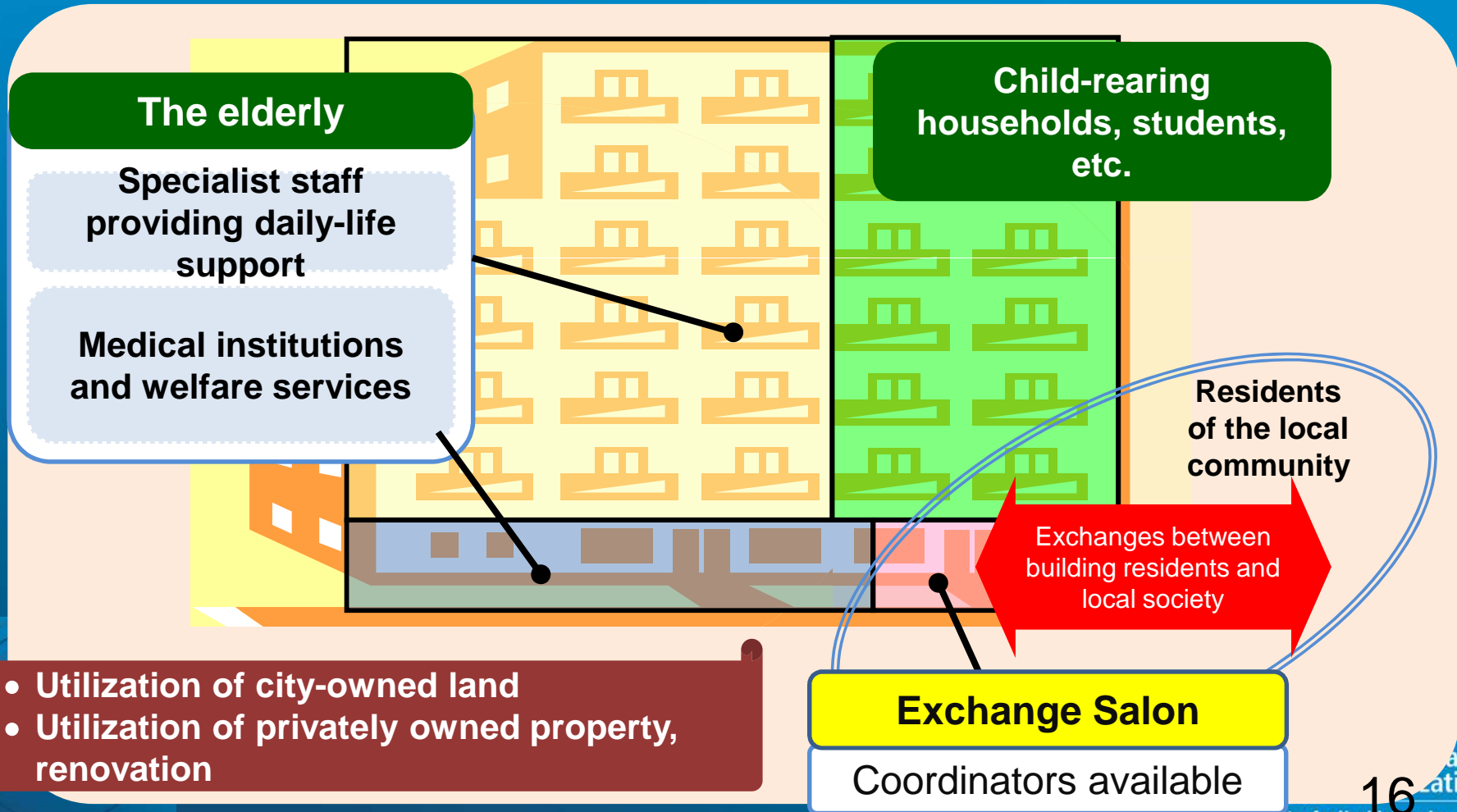
Equity

Social, economic, governance

Innovation

- Technological, social
- Frugal, equity, affordability, adaptability
- Priorities
- Health system enablers
- **Bringing to scale**
  - cohesive policies, financing, health and social workforce, assessment of needs and effectiveness, regulation, design of delivery systems
  - engagement of communities and individuals, and solutions that lie at the intersections of disciplines, sectors, and countries.
- Facilitating/promoting innovation

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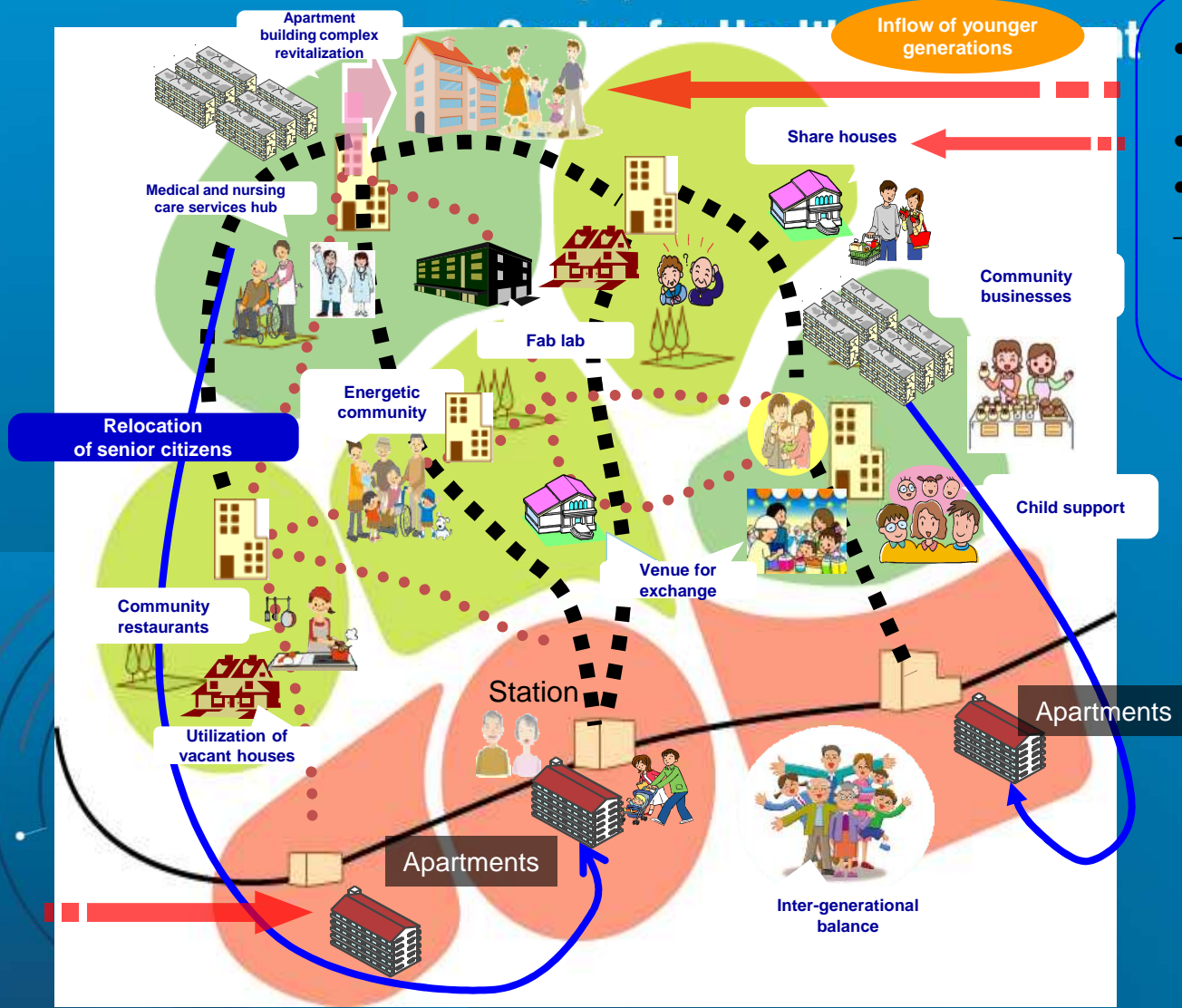Centre for Health Development

"FutureCity"Yokohama

Deepening of independently initiated exchanges between numerous generations
→ Apartment complexes whose residents mutually support each others' lives

The elderly

Specialist staff providing daily-life support

Medical institutions and welfare services

Child-rearing households, students, etc.

Residents of the local community

Exchanges between building residents and local society

- **Utilization of city-owned land**
- **Utilization of privately owned property, renovation**

Exchange Salon

Coordinators available

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"FutureCity"Yokohama

- Residents from many different generations
- Increased independence
- Deepening of exchanges
→ Community planning through local citizen participation

Apartment building complex revitalization

Inflow of younger generations

Share houses

Medical and nursing care services hub

Community businesses

Fab lab

Relocation of senior citizens

Energetic community

Child support

Venue for exchange

Community restaurants

Station

Apartments

Apartments

Utilization of vacant houses

Inter-generational balance

Large-scale apartment building complexes

Detached houses

Mixed commercial-residential districts

Transportation Network

Rail

Key bus lines

Demand-responsive transport

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ICT Applications for Seniors

ICT application sectors in innovation for seniors

Home Electronics

- Smart home
- (supportive housing)
- Sensors by bed occupancy and nightlight
- Home safety alerts and GPS
- OASIS (open architecture for sensor)
- Remote for single living sensors
- Environmental controls
- Cooker safety
- Home treatment

Healthcare

- Telehealth (e-health) Health information management
- Telecare
- Robot care
- Service innovation in hospital
- E-carte
- Client monitoring system

Life Innovation

- E-inclusion
- Ambient assisted living online shopping
- Net reservations with touch panel
- E-banking and e-payment
- ICT ethics for aging
- TV-seniority and programs for the elderly
- Social alarms
- Social communication technologies
- Senior net talking
- Easy call, easy mobile & easy PC

Source: Toshio Obi, Presentation at the ADBI conference, 18 October, 2011, Tokyo.

Assistive Health Technology (AHT)
Knowledge & Science on Assistive Health Products (AHP)
Eyeglasses to supportive robots

GATE

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Heath technologies for ageing population

Should be:

- Safe
- Effective
- Quality
- Affordable
- Available
- Appropriate
- Accessible
- Acceptable

Considerations:

- **Adaptable**
- **Durable**
- **Replicable**
- **Scalable**
- **Simple**
- **Sustainable**
- **Equitable**
- **Responsive**
- **Increase compliance**
- **Literate**

Principles

- Respond to the needs of people (observed and surveyed) (acceptability)
- Priorities epidemiologically guided
- Health and governance system variations
- Durability and meeting environmental conditions
- Health technology assessment/resource allocation
- Focus on monitoring and evaluation to track effectiveness and efficacy

Ecosystem of Patient-Centered Technologies
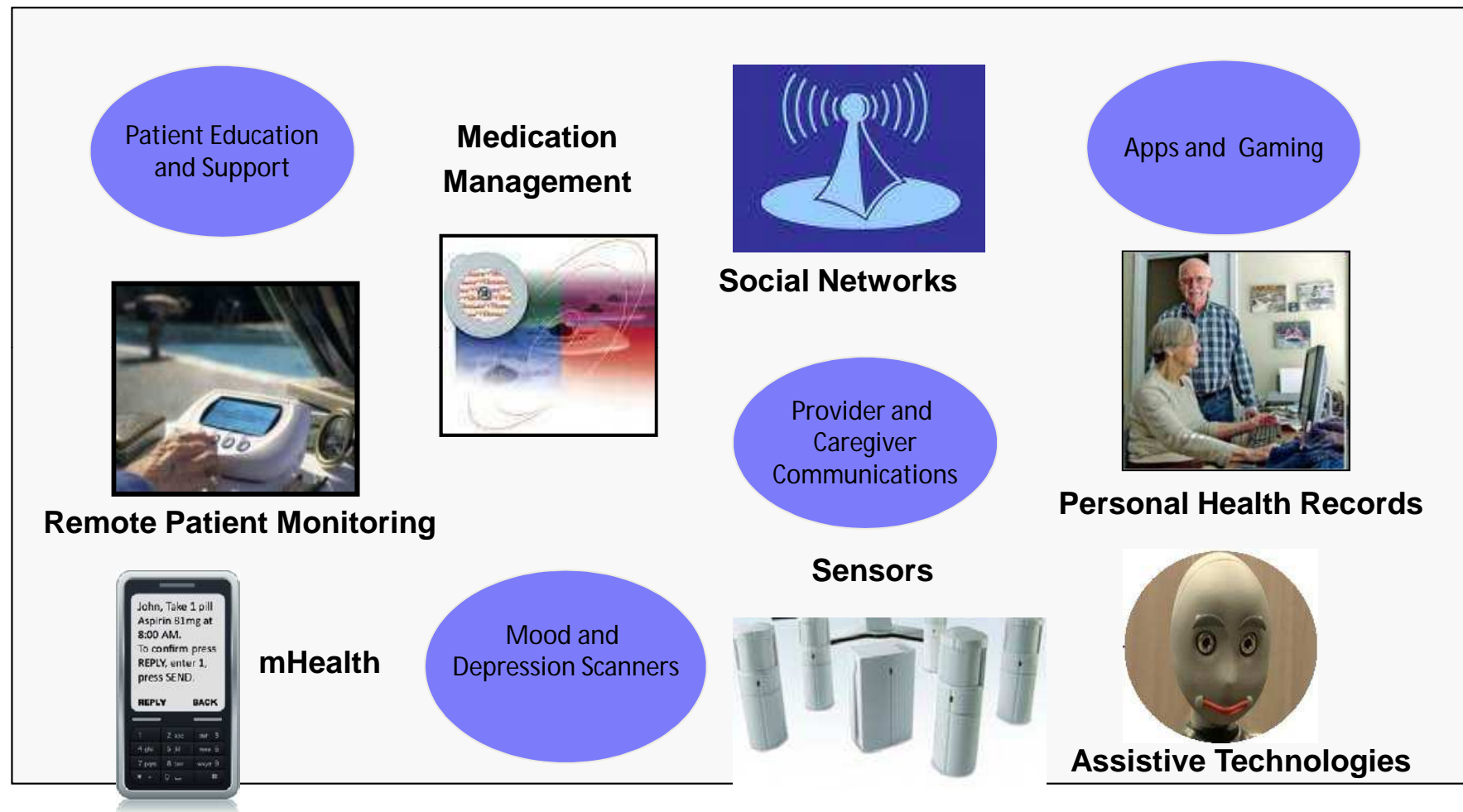
Technological and digital divide

- Health and digital literacy
- High tech – low tech: affordability
- Access to services
- Adaptation to local needs, resource endowment (such as labor supply), and cultural setting are important
- Culture: family support
- Usability: seeing, hearing, using, cognitive

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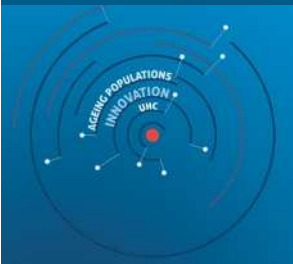
We must address three key barriers to the development of care technologies

1 User-focused development

- Some technologies do not currently address the priorities of people with dementia
- Developers need to work closely with users

2 Robust, independent evaluation

- Too few robust trials of current technologies
- Essential to give care systems the confidence to implement new technologies

3 Clear reimbursement criteria

- Most care systems have not set out criteria.
- Would give manufacturers the confidence to invest in development

Care technology assessment processes, mirroring the the health technology assessments that already exist in many countries, could address points 2 and 3

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Barriers to Effective Evaluation of Tech-Enabled Programs

- Lack of resources
- Digital divide
- Limited technology uptake and acceptance
- Rapid change in technology
- Lack of interoperability
- Privacy concerns
- Limitations of traditional evaluation designs and methods: measures, just-in-time, analytics

The enablers I

- Ethnography
  - Usability testing; health literacy
- Regulation: harmonization, framework, definition, conformity
- "Seed to scale"
  - Originality vs adaptation
  - Leverage existing programmes
- Health system: UHC
  - Human resources
  - Financing
  - Organization
  - Quality
- Multi-stakeholder
  - Government, academia, industry, NGOs, health workers, foundations,...

The enablers II

- ## Understanding longevity and epidemiology
  - Alter the curve: understanding and influencing trajectories of ageing
  - Life span vs. health span: Live longer, but health?
  - Wellbeing and happiness

- ## Economics: social investment; returns on investment; scenarios predicting productivity, tax contributions, pension, health and social cost tradeoffs with gains; rethinking the workplace; pricing; incentives; government-individual share of responsibilities?

- ## Coherent policy
  - Ageing + eligibility + HTA and regulation + financing + integration with health and social services
  - Hubs and partnerships
  - Reorienting health and social service systems; decentralization; HRH and coimmunity organizations
  - Inclusiveness, social cohesiveness, strengthening the community
  - Managing competition – resource limits
  - Social capital

- ## Prioritization -- HTA

- ## Evaluation

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Evaluation Goals for Technology-Enabled Solutions

- Improved health, well-being and Quality of Life
- Appropriate uptake of effective programs
- Improved access: geographic, economic, cultural
- Reduced costs
- Enhanced communication
- Improved workforce efficiency
- More efficient use of resources
- Influence public policy

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Frugal innovations for ageing populations

- Low cost smart phones – easy to see and use
- A solar powered hearing aid
- Low cost vision solutions (including cataract)
- Assistive solutions: streamlined availability and maintenance
- The cane, with sensors
- GIS and sensors: cognitive decline
- Utility companies – homes – early warning
- Social innovation (e.g. housing, Tyze, etc)
  - Older persons associations
- Senior centers = social participation, meals, self care

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WHO and WKC Role

- **Research on UHC, Innovation, Ageing**
  - **Ensure equity**
- **Promote innovations and cutting edge issues.**
  - **Marry epidemiology, forecasting and situation analysis with government and industry responses**
    - **ICT one key strategy and opportunity**
    - **Rapidly changing environment**
    - **Health systems+NCDs**
    - **Policy and programme coherence:**
      - **ageing, disability, NCD and health, health technologies + coverage and benefits, regulation, finance, evaluation, applied ressearch, qualiity assurance, community engagment = sustainability**

- **Norms, standards, capacity**

WKC/WHO and ICT for Ageing Populations

Build supportive :

- Evidence for effectiveness
- New, responsive innovation cycle: inclusive
  - Reverse and disruptive innovations to <u>meet needs</u>
  - Address barriers and build partnerships
  - Policy development
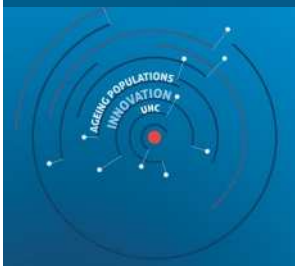
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Our Mission 使命:

To research and foster innovative solutions and translate them into policies and actions to achieve sustainable universal health coverage, in particular for ageing populations.

UHC

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KEY WHO REPORTS

http://www.who.int/en

and

http://www.who.int/kobe_centre/en/

Questions ?

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WHO
(WHO   )

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Thank you.

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