

Mobile Communication for Development in Emerging Economies



Dr. Jakob Svensson

HumanIT

www.kau.se/humanit

www.twitter.com/Centre4HumanIT

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About HumanIT

A photograph of two young girls with blonde hair looking at a tablet device. The girl on the left is looking down at the screen, while the girl on the right is looking up and smiling. The background is dark, and the lighting is focused on the girls and the device.

HumanIT is a multidisciplinary research centre, exploring information and communication technologies (ICTs) with a particular focus on human and user perspectives of ICTs.

HumanIT draws on the competence of several departments at Karlstad University:

Computer Science, Information Systems, Law, Media and Communications Studies, Psychology, Service Research Centre, Working Life Science and Gender studies.

An abstract graphic showing a network of interconnected nodes and lines, resembling a web or a complex system. The lines are thin and light-colored, set against a dark background with a subtle grid pattern.

Co-operation & Projects

Cooperation (*inter alia*): Swedish Consumer Agency , ECC Sweden, The Compare Karlstad Foundation, Swedish Civil Contingencies Agency, National Defence College, Data Inspection Boards of Sweden and Schleswig-Holstein (Germany), Conference on Policies and Research in Identity Management (Norway), Gemalto, Nordea (Scandinavia), Hewlet Packard, Bristol Lab, IBM Research Zürich

Research projects (*inter alia*): FIDIS; PRIME; PrimeLife; U-PrIM; Cosmopolitanism in the margins; Expressiveness, social space and cultural citizenship; eParticipation and iCitizens; The mediatization of social belonging and relationships among mobile class fractions.

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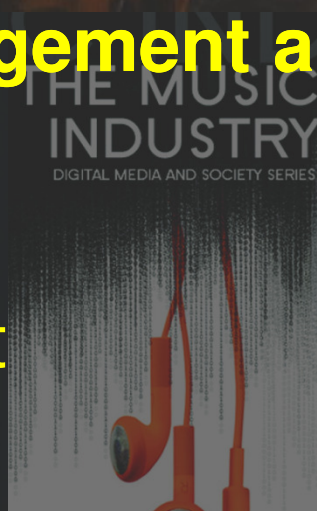
Today, the HumanIT research is focused around two main research profiles,

ICT for Development and Surveillance and Privacy in Information Society

Developing a third profile

ICT for Disaster Management and Crisis Communication

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A photograph showing three individuals, two women and one man, looking intently at a mobile phone held by one of the women. The woman on the right is wearing a vibrant, patterned headwrap and a matching top. The woman in the middle is wearing a white lace top. The man on the left is wearing a red and black shirt. The background is a plain, light-colored wall.

M4D

**Mobile Communication
for Development**



M4D 2010 in Kampala, Uganda

In co-operation with Makerere University





M4D2012

3rd International Conference On Mobile Communication For Development

[Home](#) [Submission](#) [Registration](#) [Venue](#) [Contact Us](#)

February 28-29, 2012 (New Delhi, India)



M4D 2012 New Delhi, India

✓ Gilla Du gillar detta.



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Web Foundation Workshop
Feb. 27, 2012

IDEAS PROJECT
by NOKIA

Nokia Apps4D Challenge



- Mobile-Democracy Workshop ^{New}
- The Conference
- Conference Chairs
- International Advisory Board
- International Program Committee
- Local Steering Committee
- Best Paper Award
- Call for Papers
- Visa Information

<http://www.m4d2012.com/>



Challenge progress

97 Ideas

1.12.2011

19.1.2012

TOP PARTICIPANTS



rishi Bains

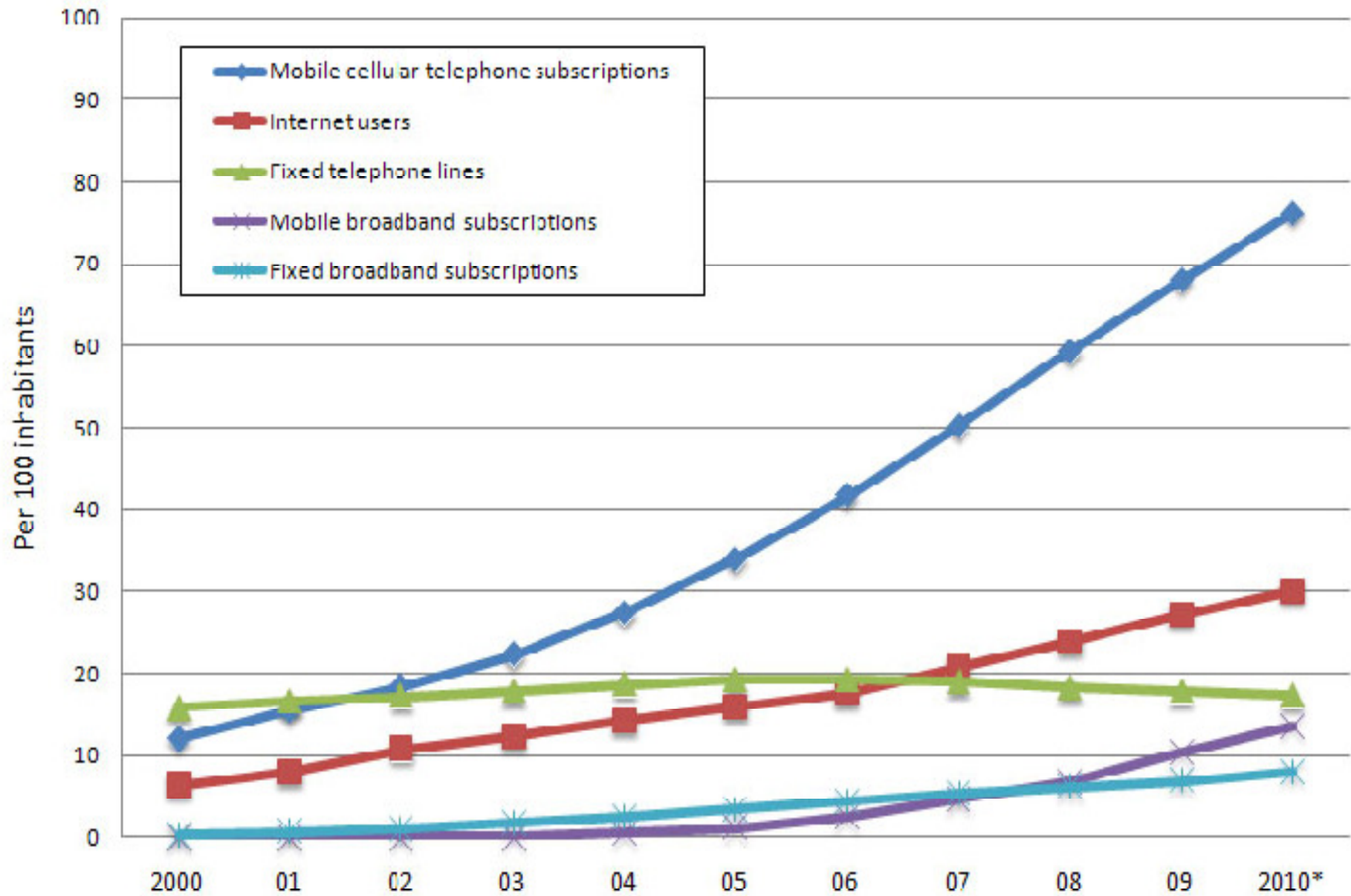
Member

c

What is M4D?



Global ICT development, 2000-2010



*Estimates

Source: ITU World Telecommunication /ICT Indicators database

Mobile Telephony



Over 5.3 billion connected by November 2010

80 % of world pop. access to mobile networks

200 000 SMS sent every second

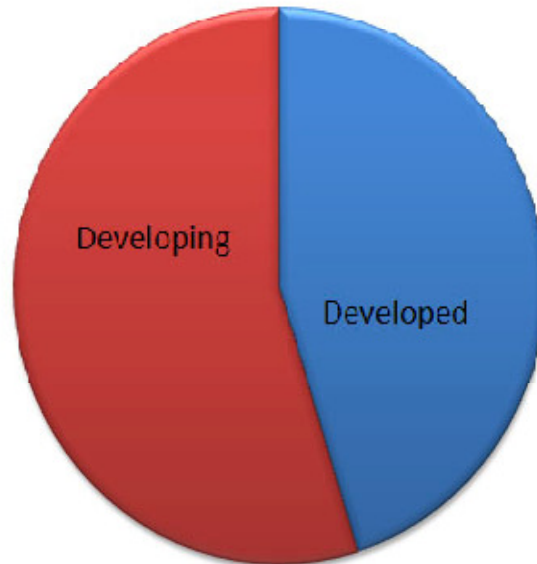
Mobile cellular subscriptions, by level of development

2000



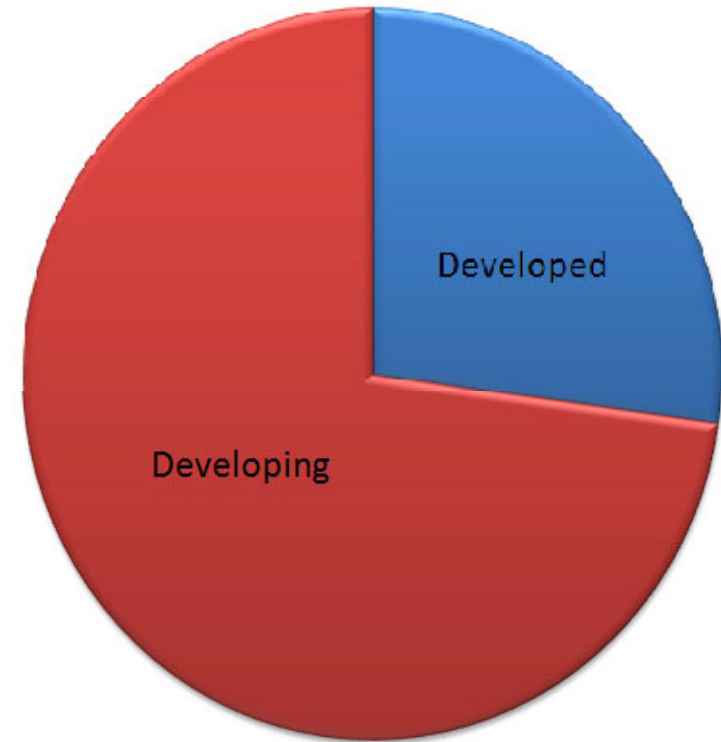
Total 719 million

2005



Total 2.2 billion

2010*



Total 5.3 billion

*Estimates
Source: ITU World Telecommunication/ICT
Indicators database

Emerging economies are dominating

73% of total mobile subscriptions are in emerging economies

68% penetration rate in emerging economies

Countries in development/ transition adopt mobile technology more rapidly

Mobile telephony is better distributed among income levels than fixed phones and Internet

Is used in inaccessible and rural regions (improving the livelihood there)

99% of Internet subscriptions in East Africa in June 2009 where from mobile phones

What is development?

**Improvements to social, human
and economic conditions**

- *Economic growth* (reducing transactional costs / increasing sales)
- *Empowerment* (learning / technical pride / community-communication)
- *Choice* (new associations- what to participate in)

Contested term (based in a polarized worldview)

Technological Determinism



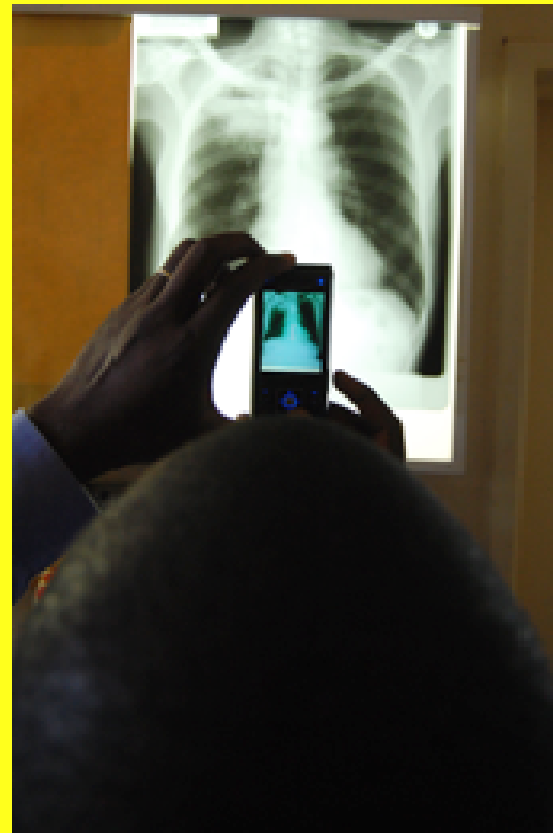
The impact that mobile phones have on the developing world is as revolutionary as roads, railways and ports, increasing social cohesion and releasing the entrepreneurial spirit that stimulates trade and creates jobs

Socio-Cultural Determinism



Technology in itself does not lead to social change; people decide how a particular technology will be used and, depending on the political and socio-economic environment in which they live, adapt it accordingly

mHealth/ teleMedicine

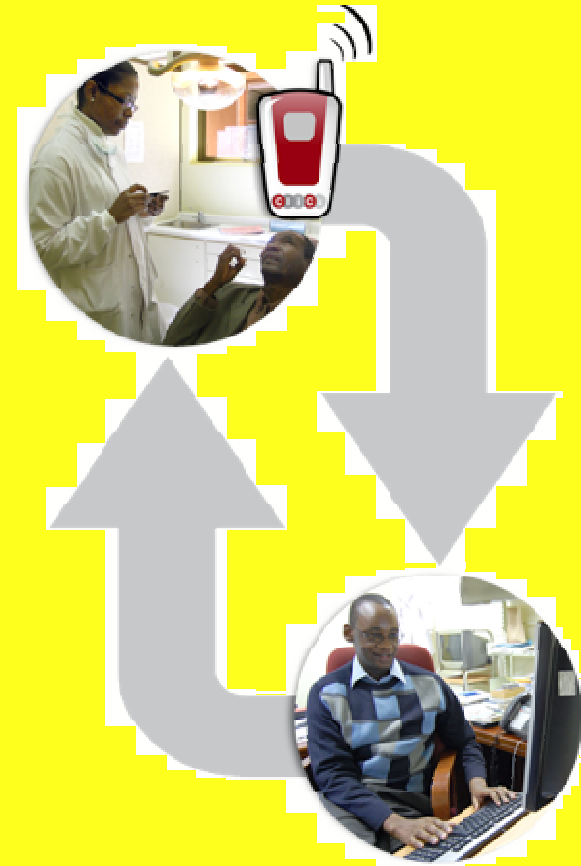


The Need

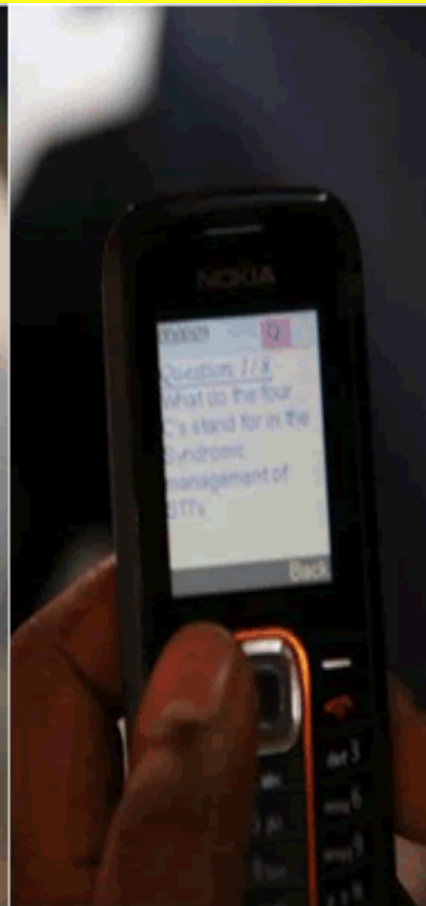
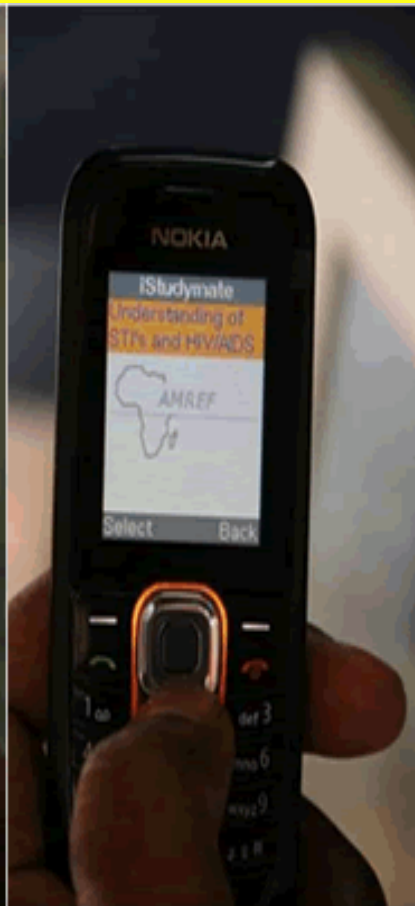
Dr. Phuthego is the **only Maxillofacial Surgeon in Botswana.**

The Solution

Remote diagnosis and consultation using smartphones.



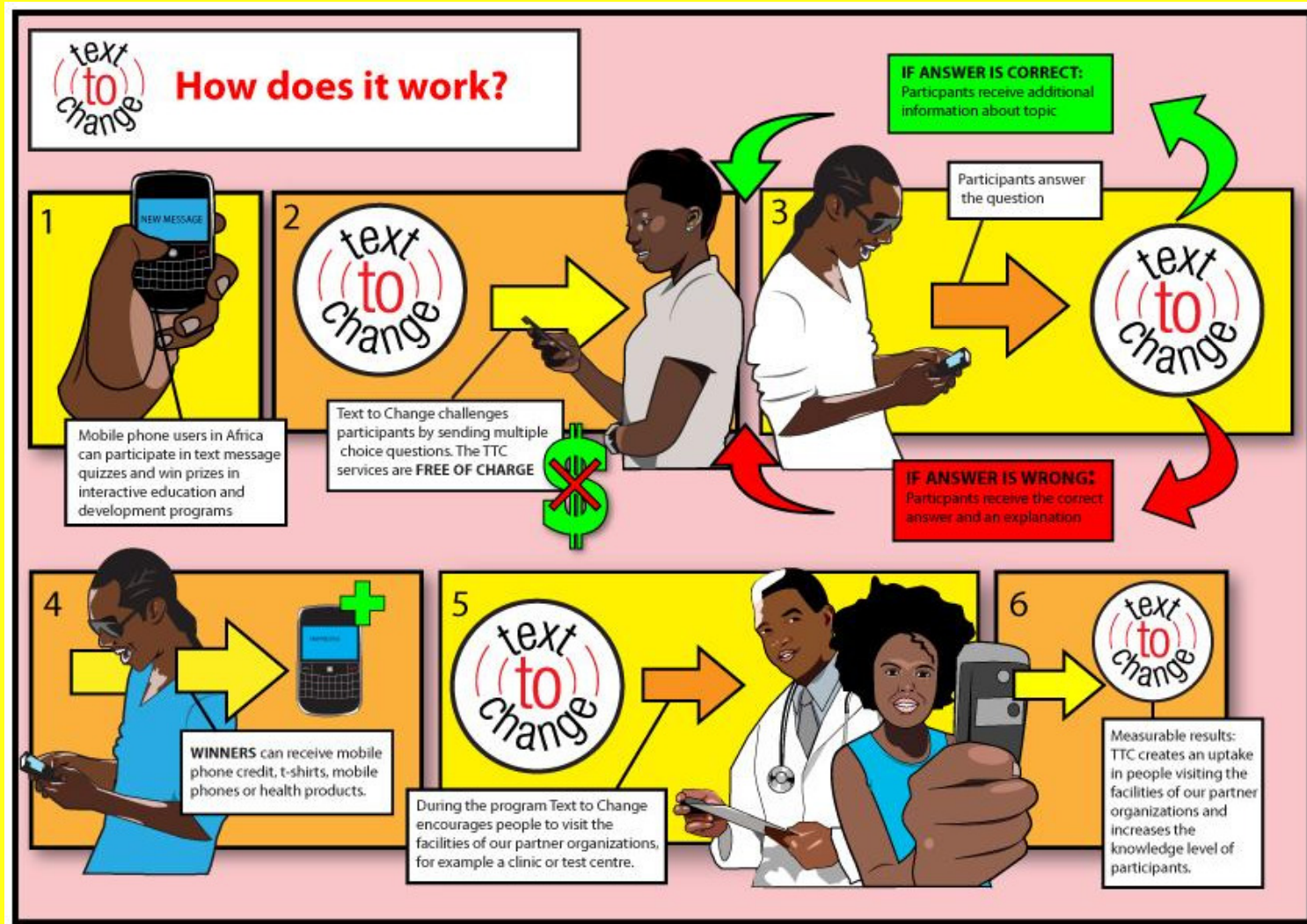




mAgriculture



mLearning





Mobile Money



mGovernance



The potential of mobile communication is evident

Good governance and increased transparency

Government services

Health care

Environment management

Rural development

Private sector development

Finance and insurance

Improved livelihoods

Citizen empowerment

Dispute resolution

It is our common responsibility (Academia, Private Sector, Civil Society, Governments, Development Partners) to turn this into reality

Challenges

Need for theory and method development (Need for a greater conceptual and methodological rigor in the conduct of research)

Techno-determinism (Context should not be forgotten)

Time for critical approaches

Time for co-innovation

Language challenges

Language Challenges

Designing for non-latin alphabets

Designing for non-literate communities

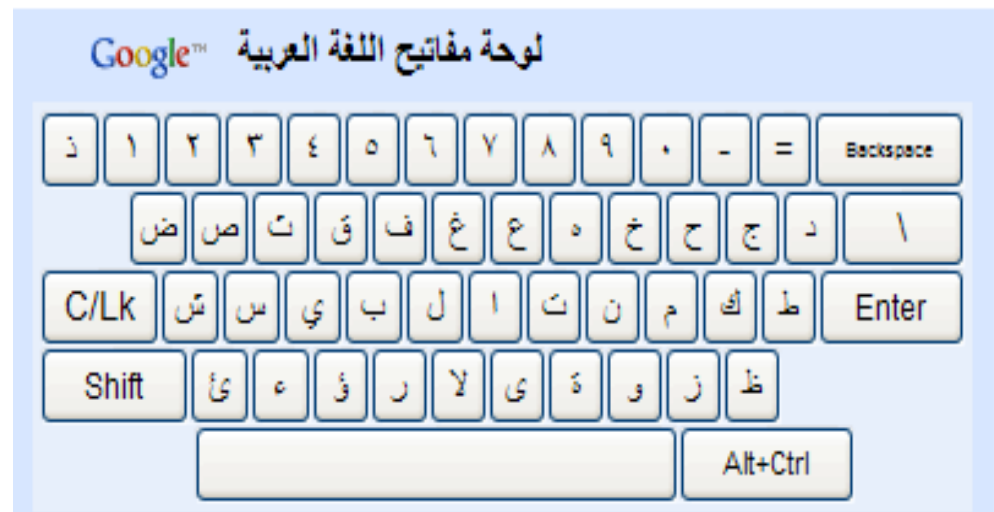
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Designing for non-latin alphabets



Virtual keyboards
for touchscreens



Designing for non-latin alphabets

The keys appearing on the screen are components of a software application that are programmed to map the corresponding character code based on the event triggered by the key

There are applications for Arabic, Japanese, Chinese – but not for all languages (Languages using ethiopian scripts are inter alia Amharic, Tigrigna, Guragegna, Agewigna)

አዲስ አበባ ሰኔ 15/93/ኢ.ዜ.አ/ -- ኢጣሊያ ለኢትዮጵያ የ375 ሚሊዮን ዶላር ዕዳ ስረዛ ለማድረግ መወሰኗን አዲስ አበባ የሚገኘው የአገሪቱ ኤምባሲ አስታወቀ። የኤምባሲው የፕሬስና ኢንፎርሜሽን አገልግሎት ዛሬ ለኢትዮጵያ ዜና አገልግሎት በላከው መግለጫ ኢጣሊያ ከፍተኛ የዕዳ ጫና ካለባቸው ድሃ አገሮች ላይ አራት ነጥብ አንድ ቢሊዮን ዶላር ያህል ለመስረዝ በወሰኑት መሰረት አትዮጵያም የኋዮሊ ተጠማ መሆናን

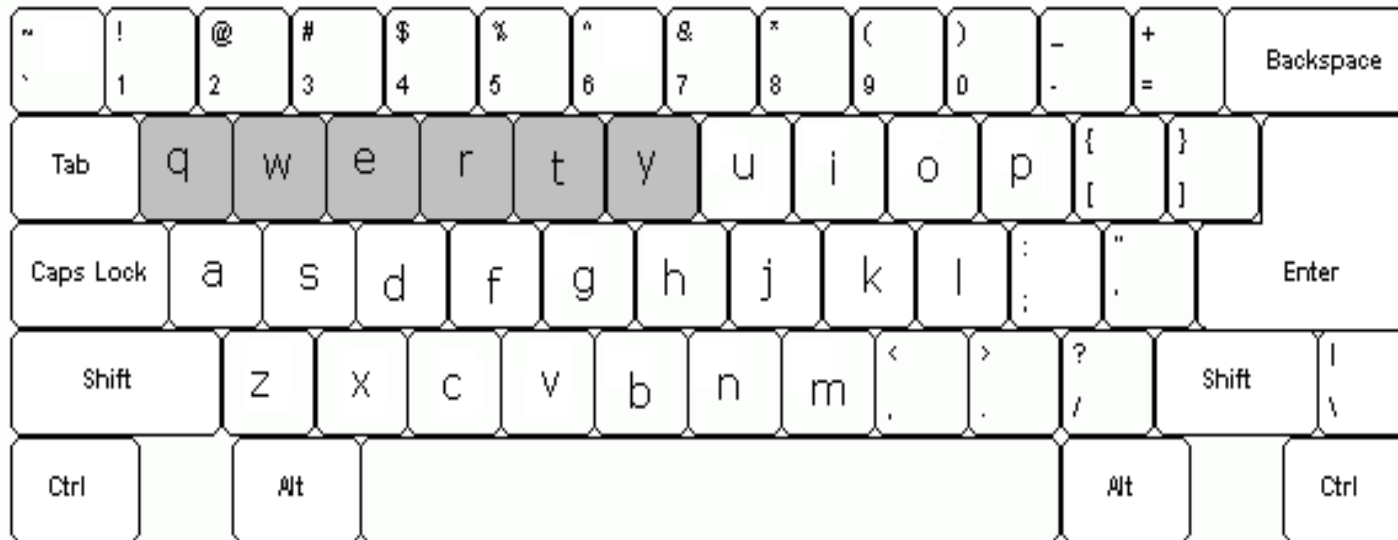
Designing for non-latin alphabets

One design problem is to determine layout – the goal high speed of text input (for expert users) – short visual scan time (for novice users)

The goal is to arrange letters so the statistical total travel distances is the shortest – the most frequent keys should be in the center and the frequently connected letters, in english t and h for example - should be close to each other.

Designing for non-latin alphabets

There are numerous studies of the QWERTY keyboard for latin alphabets but not so much for other alphabets (the number of characters in latin alphabet is relatively small compared to 340 in ethiopian script)



Designing for non-latin alphabets

Hence an need to study the usage of characters, their natural order, the specificities of the language that use the alphabet is important

A problem of access to smart phones and devices with touch screen application



TALKS

ጄሪል ዉዲን (Sheryl WuDunn): የ ዘመናችን ትልቁ ግፍ::

TEDGlobal 2010, Filmed Jul 2010; Posted Aug 2010



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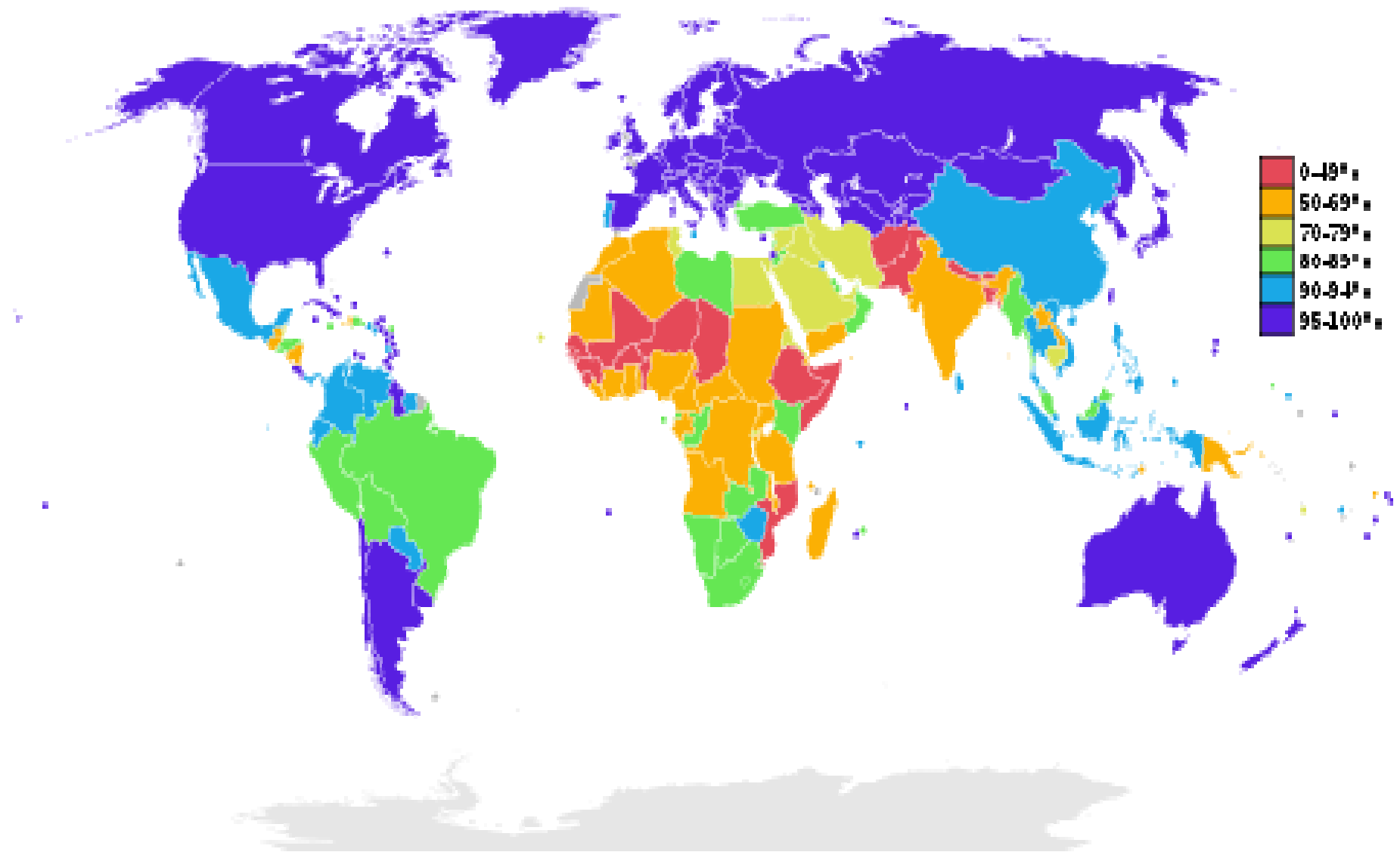


Janine Benyus
shares nature's
designs
German

Find talks in your language

Amharic

Designing for non-literate communities



Designing for non-literate communities

One billion non-literate people in the world (predominantly in emerging economies)

Importance to for governments, the private sector and development agencies to reach all people

Mobile telephony requires both reading and writing abilities as well as technological literacy (concept of menu-system and data entry)

Standard design working assumptions just do not apply

Designing for non-literate communities

Most people have some reading abilities (numbers, recognize words and symbols – help each other)

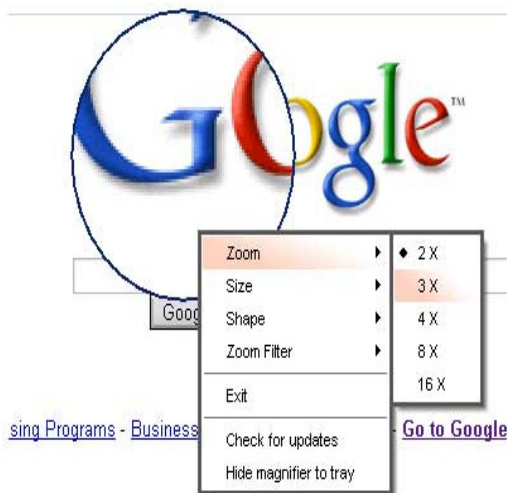
Visual icon-based user interfaces that in turn is supported by audio and voice prompts

The process of setting an alarm for example is guided by audio prompts as users step through each part of the task, the prompts also providing both visual and audio confirmation that the alarm has been set successfully

The use of spatial memory - people learn and remember the physical location of controls and their distinct appearance – learning a sequence of gestures – sequence of movements

Designing for non-literate communities

There are several assistive technologies that have been developed for web-browsing that can be modified and used for mobile interfaces such as for example screen readers, speech recognition, screen magnification



Challenges

Icon confusion (context and culture specific)



Challenges

Regional dialects and multilanguage societies

Keys that means different things in different contexts –
functional overload limits people to use spatial memory to learn
and use the system

Recommendations

Understand that basic computing concepts (menu) may not be known

Simplify functionality to the essentials to reduce cognitive load

Create simple navigation schemes to reduce cognitive load

Use iconic representation and voice assisted user-interfaces

Use spatial orientation and dedicated locations for functions

Touch screen devices are more spatially direct and thus earlier to learn

Involve users in the entire design process

Thank you for listening!



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