

Designing Liberation Technologies

Terry Winograd, Scott Klemmer from the HCI Group in collaboration with faculty and students from Education, Political Science, Law, Medicine, and Design



- Designing Information and Computing Technologies in support of development and democracy around the world
- Associated projects include:

- Human rights information: the Virtual Tribunal in Cambodia
- Interfaces for agricultural information in India: Avaaj Otalo
- Mobile data collection for health workers in Malawi: SMSFrontline:Medic
- Designing mobile technologies for improving health access in Kenya: D.school course jointly with Univ. of Nairobi and Nokia Africa Research Center



A project in conjunction with the Liberation Technologies Program of the Center for Development, Democracy, and the Rule of Law (CDDRL) and the Hasso Plattner Institute of Design at Stanford (d.school).

[Registration](#)[Accommodation](#)[Scholarships](#)[Call for Papers](#)[Call for Sessions](#)[Call for Demos](#)[Become a Sponsor](#)[Become a Partner](#)[Get Involved](#)[Contact us](#)[Paper Submission](#)[Exhibitors](#)

Welcome to ICTD2010 – one of the most exciting ICT4D-related events of 2010.

We are delighted to announce that **GTZ on behalf of BMZ** will be one of the sponsors of ICTD2010

Submissions for papers in French and Spanish as well as all demos remain open until 30th April 2010.

The conference is the latest in the series of highly successful international ICTD conferences held in **Doha** (2009), **Bangalore** (2007) and **Berkeley** (2006). It aims to provide a forum for researchers, practitioners and all those with interests in the use of information and communication technologies in development practice to meet to discuss the latest research advances in the field.

Building on the success of its predecessors, ICTD2010 will combine two days of **plenary peer-reviewed paper sessions**, with two days of **workshops, panel sessions, discussion forums, demos and sessions** in both **French** and **Spanish**. A particular feature will be the opportunity that it will provide for participatory involvement from people from a diversity of backgrounds.

ICTD2010 is being hosted by the **UNESCO Chair in ICT4D** and the multidisciplinary ICT4D Research Centre at Royal Holloway, University of London's magnificent campus situated only 20 minutes from London's Heathrow airport.

Key Dates:

- » Registration opens 15th April 2010; early registration deadline 15th September 2010; registration will close on 30th November 2010
- » Calls for **Papers** and **Workshop Sessions** deadline was 2nd April 2010; decisions on acceptance should be available by 11th June 2010. Call for papers in both **French** and **Spanish** closes on 30th



Hosted by:



Sponsors:



Partners:





DEV Info

- Home
- Call for Papers
- Important Dates
- Location
- Organizers
- Program Committee
- Submission
- Technical Program

DEV 2010

The 1st Annual Symposium on Computing for Development (DEV) is being planned for December 17-18, 2010 in Royal Holloway, University of London, following the co-located 2010 ICTD Conference.

The DEV 2010 organization and program committees are delighted to invite you to submit your original and innovative work to the first ever DEV Conference. The ICTD 2010 organizers have graciously agreed to allow DEV 2010 to be co-located with the premiere ICTD 2010 conference. DEV 2010 is the annual conference on the applications, technologies, architectures, and protocols for computing in developing regions.

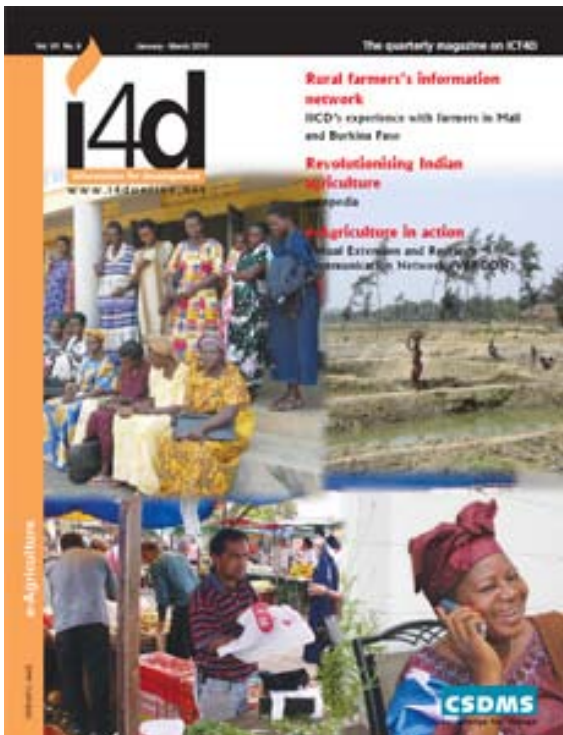


Important Dates

Paper Registration Deadline	July 3, 2010
Submission Deadline	July 10, 2010
Paper Acceptance	September 5, 2010
Final Version	October 5, 2010
Conference	December 17-18, 2010

Organizers

General Chair	Andrew Dearden	Sheffield Hallam University
PC Chairs	Tapan Parikh	UC Berkeley
	Lakshminarayanan Subramanian	NYU
Steering Committee	Saman Amarasinghe	MIT
	Gaetano Borriello	University of Washington
	Eric Brewer	UC Berkeley
	Deborah Estrin	UCLA
	Margaret Martonosi	Princeton
	Roni Rosenfeld	CMU



Change is a group at the University of Washington exploring how technology can improve the lives of underserved populations in the developing world.

UC Berkeley School of Information

UC BERKELEY ALUMNI NETWORK CONTACT US SUPPORT TEAM
 Home > Centers & Clinics > Information and Communication Technologies and Development (ICTD)

INFORMATION AND COMMUNICATION TECHNOLOGIES AND DEVELOPMENT (ICTD)



MIT

D-Lab

Development through Dialogue, Design & Dissemination

The Electronic Journal of Information Systems in Developing Countries

www.ejisd.org



香港城市大學
City University of Hong Kong



Program on Liberation Technology

CDDRL Program
January 2009-present

RESEARCHERS

Joshua Cohen (Co-Principal Investigator) - Professor of Political Science at Stanford University

Larry Diamond (Co-Principal Investigator) - Director, CDDRL, Senior Fellow at the Hoover Institution and the Freeman Spogli Institute

Terry Winograd (Co-Principal Investigator) - Professor of Computer Science, founding faculty member of the Hasso Plattner Institute of Design at Stanford University



March 11, 2010
Leveraging Familiar Technologies for Citizen Journalism, Education, and Healthcare in India

Bill Thies
Video available
Audio available



March 4, 2010
Inconvenient Truths

Rebecca MacKinnon
Video available
Audio available



February 4, 2010
The FCC's Open Internet Proceeding - Implications for Political Speech

Barbara van Schewick
Video available
Audio available



January 28, 2010
Liberation Through Interconnection

Megan Smith
Video available
Audio available



February 25, 2010
Ten Myths of Technology and Development



February 11, 2010
Technology for Developing Regions

Eric Brewer



November 19, 2009
The Impact of Technology Access on Protest Frequency in Authoritarian Regimes

Patrick Meier



November 12, 2009
Mobile Phones and Economic Development in Africa

Jenny Aker
Video available

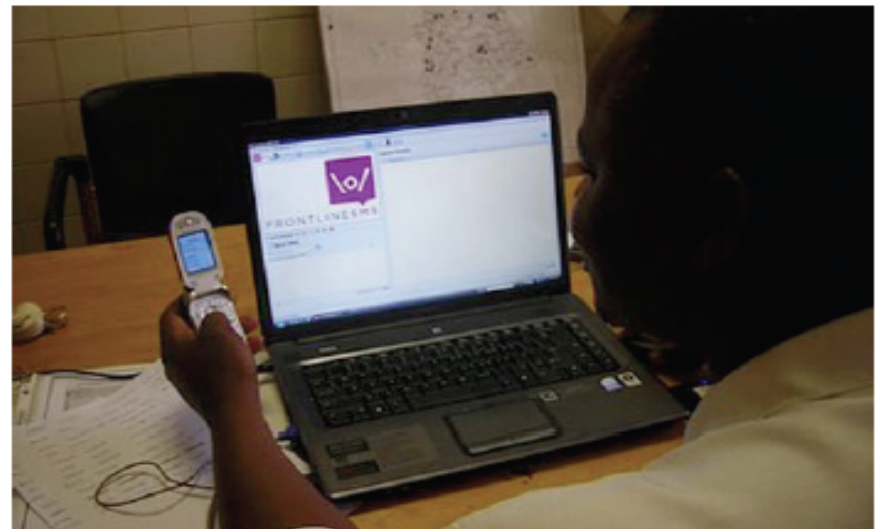
Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498



Designing Liberation Technologies is a new class being offered at the d.school in Spring Quarter to students interested in creative IT solutions to problems of economic development and provision of basic social services in the developing world.

The project focus for Spring 2010 will be on improving health services to underserved populations, looking particularly at mobile phone applications in developing countries. Cross-listed in computer science, political science, and law, Designing Liberation Technologies is taught



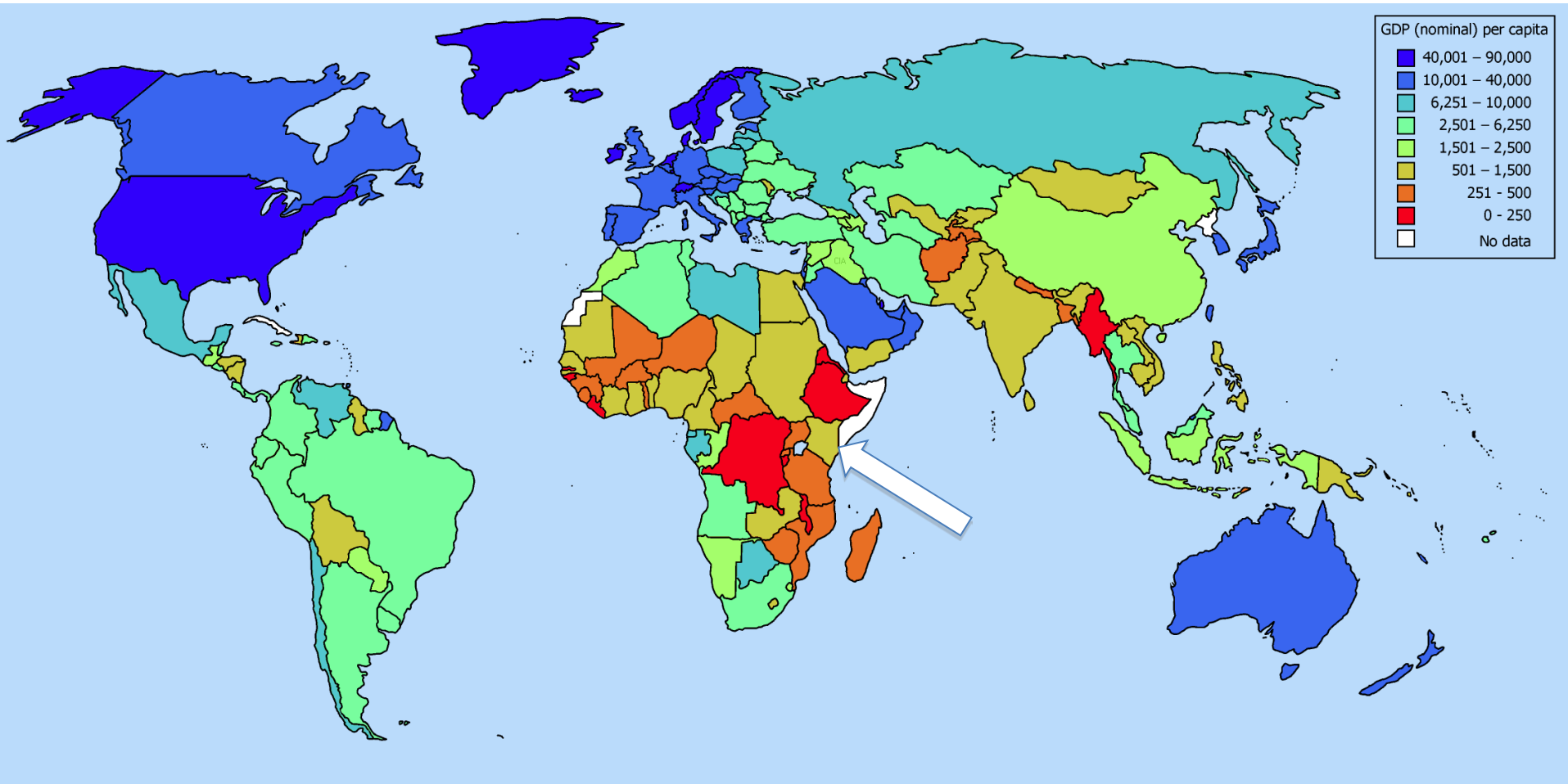


Designing Liberation Technologies – Spring 2010

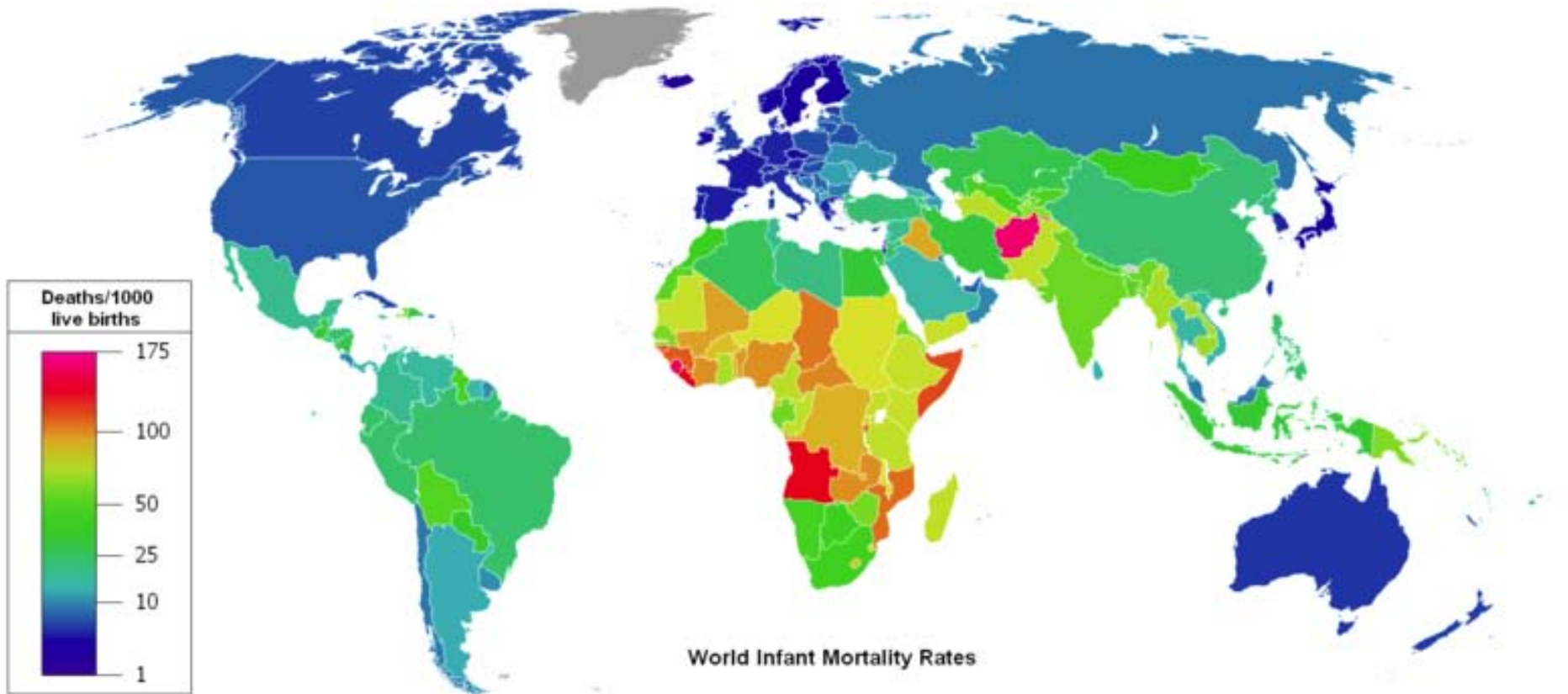
Computer Science 379L, Political Science 337T, Law 498

In a new Spring quarter course at the Stanford d.school, *Designing Liberation Technologies*, small interdisciplinary student teams will design new applications of mobile communication to improve access to health care in Kenya. The course is an experimental collaboration between Stanford, the University of Nairobi, and the Nokia Africa Research Center.

Per capita GNP



Global Infant Mortality



Source: Population Reference Bureau 2009

Computer Science University of Nairobi



University of Nairobi

Towards World Class Excellence

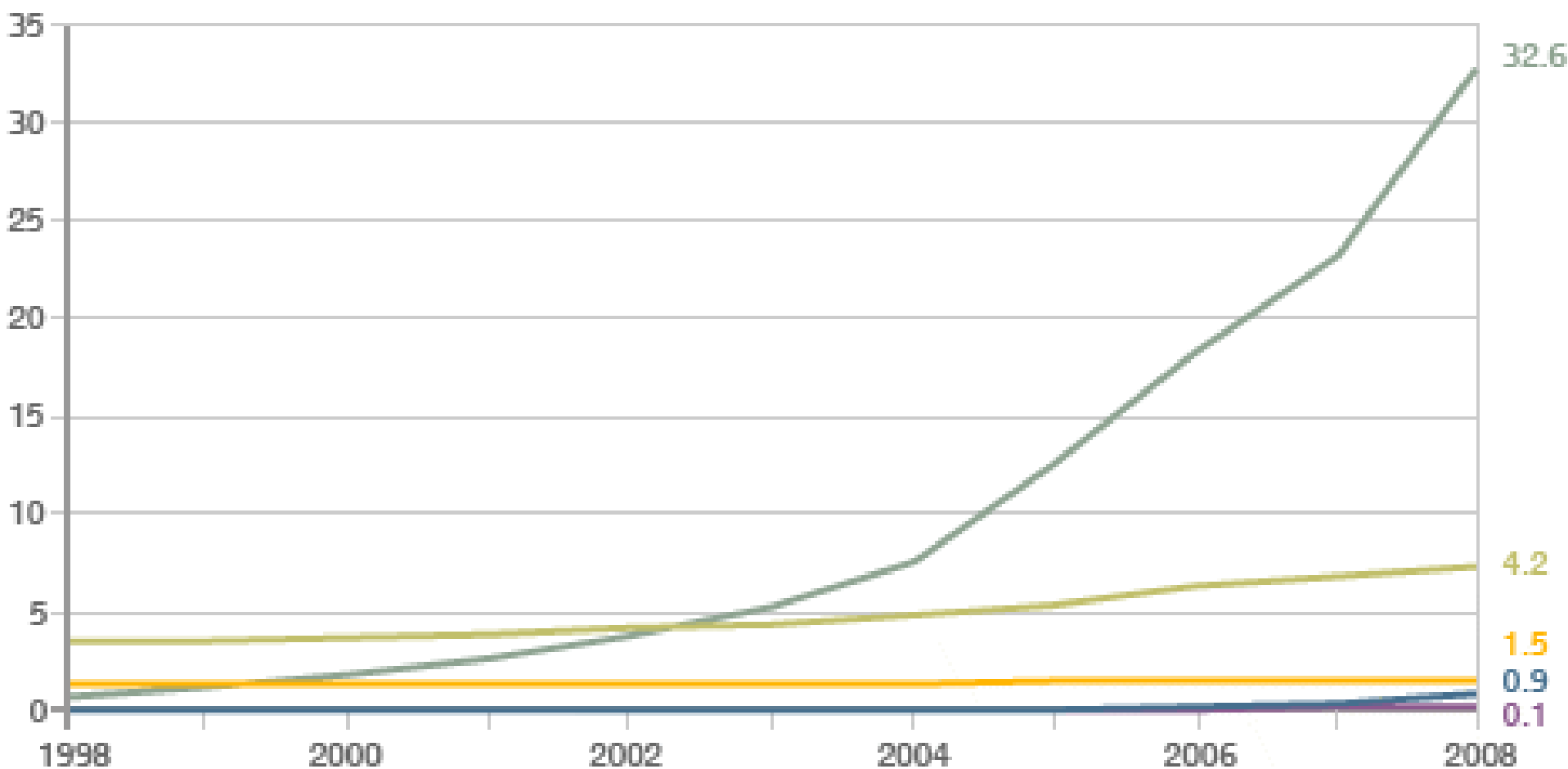


NOKIA
Connecting People

Communications growth in Africa

Per 100 inhabitants

Mobile cellular subscriptions Internet users Fixed telephone lines Mobile broadband subscribers Fixed broadband subscribers



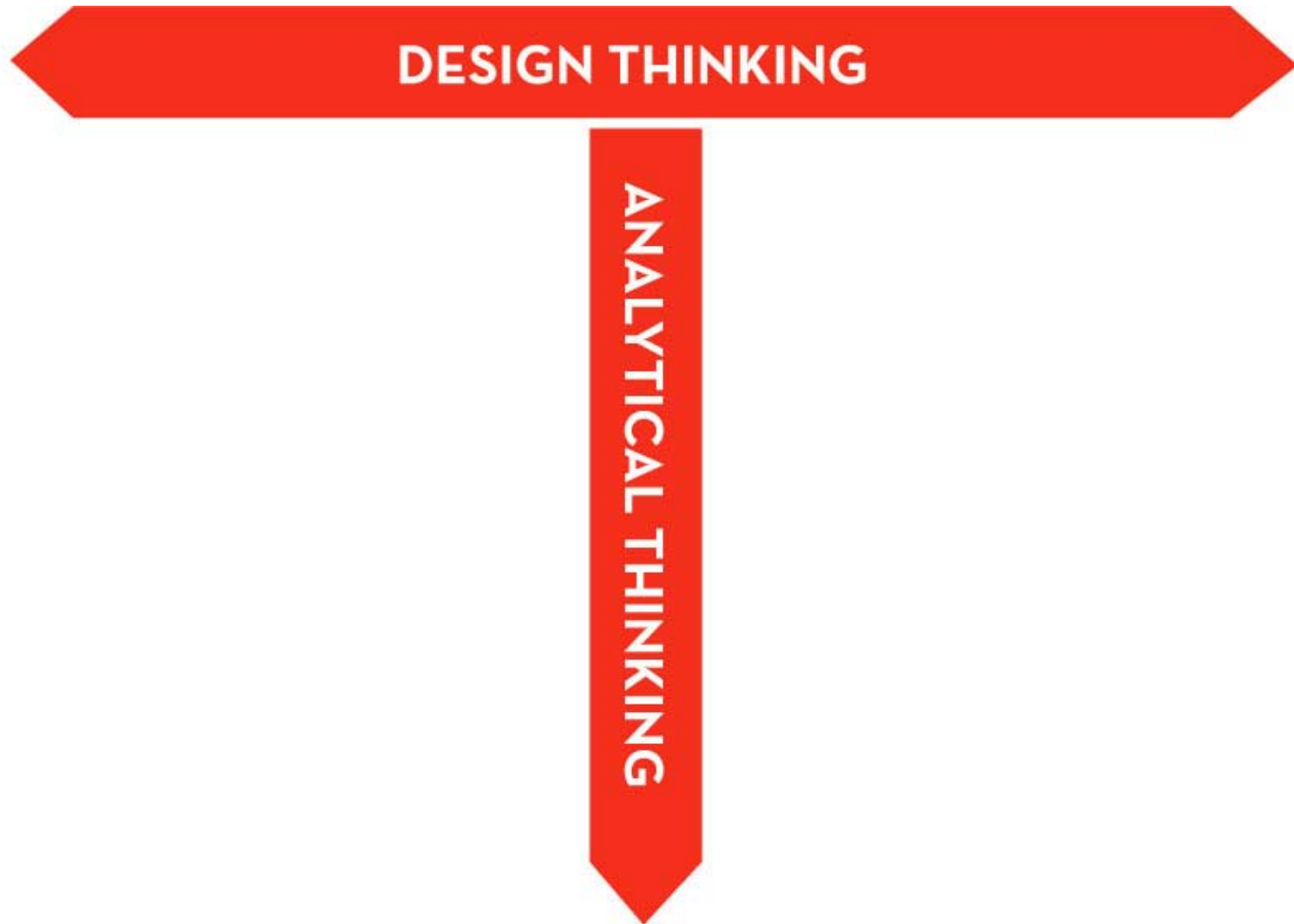
SOURCE: ITU World Telecommunications/ICT Indicators database

The first undersea fibre optic cable, Seacom, reached the East African Coast in July 2009



Design Thinking: Design from a Human Perspective





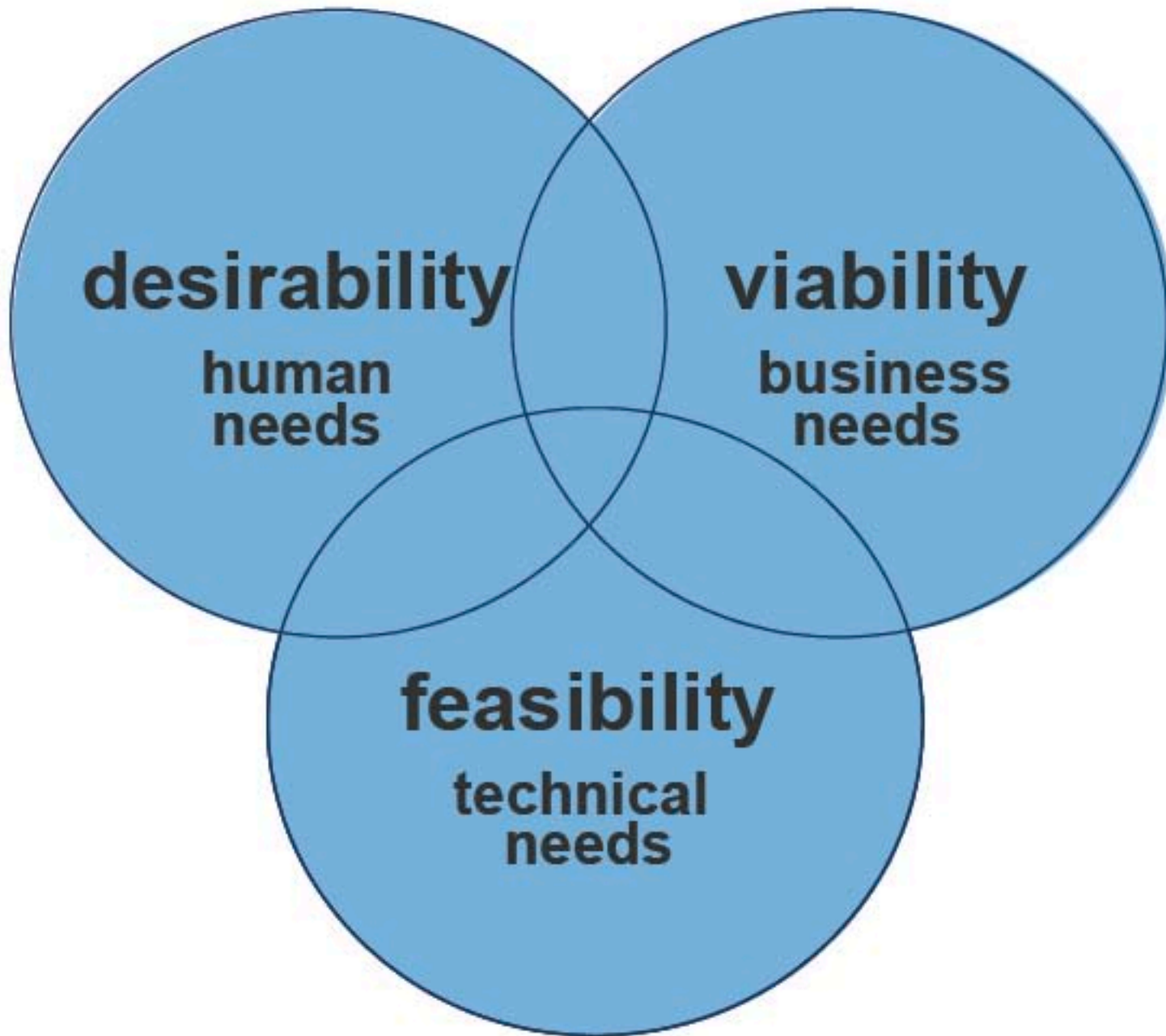
T-shaped people:
Building both kinds of muscles

Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498

- Biomedical Computation
- Business
- Business Administration
- Computer Science
- Environment and Resources
- Human Biology
- International Policy Studies
- Law
- Learning Design and Technology
- Mechanical Engineering
- Policy, Organization, and Leadership Studies
- Political Science
- Product Design
- Public Policy

Diversity of student backgrounds



desirability

**human
needs**

viability

**business
needs**

feasibility

**technical
needs**



Entrepreneurial Design for Extreme Affordability

Big Picture

Success Stories

Current Partners

Continuing Projects

Participate

In the US, an infant incubator costs twenty thousand dollars. A farm irrigation system costs a hundred thousand. An electric grid costs millions. But what if you could rethink the problem and provide the world's poor with incubators, water pumps, and electric lighting, each for under \$30? Now that would be Extreme Affordability.



Ignite – Solar Lighting for India

a high quality, inexpensive solar-rechargeable LED light.



Thousands of lights now being manufactured in India and distributed in Asia, Africa, and Central America

Embrace – Baby Incubator Nepal

Uses phase change material to provide even temperature for \$25

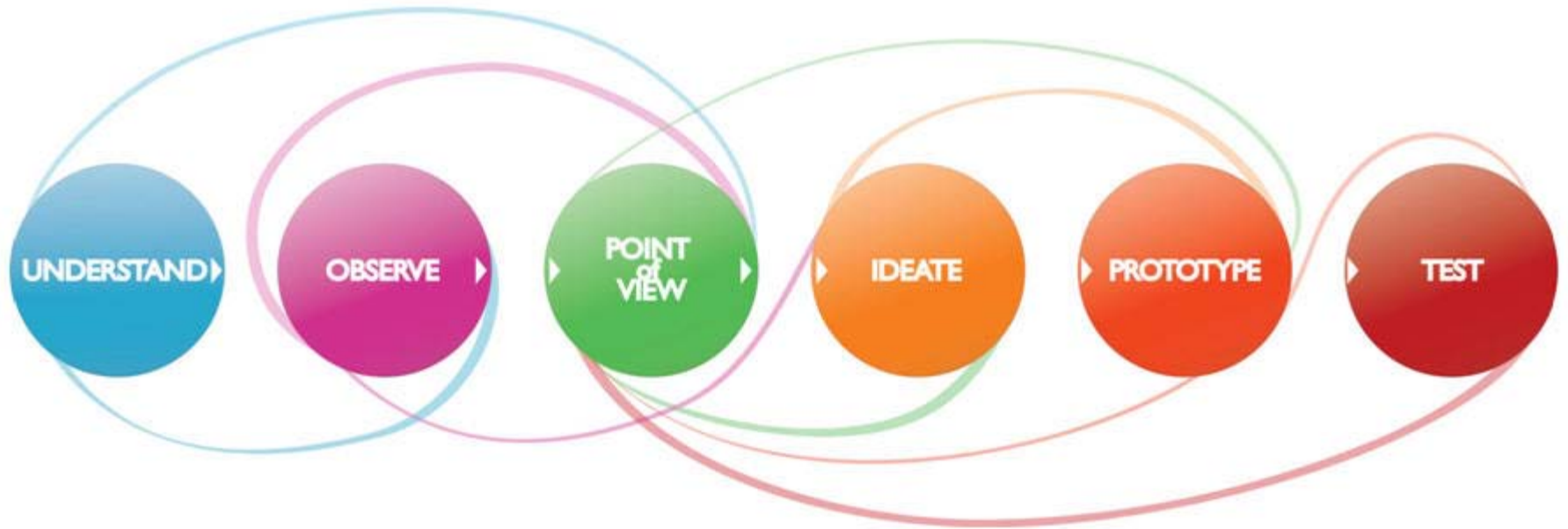
Established this year as a non-profit to develop the product.



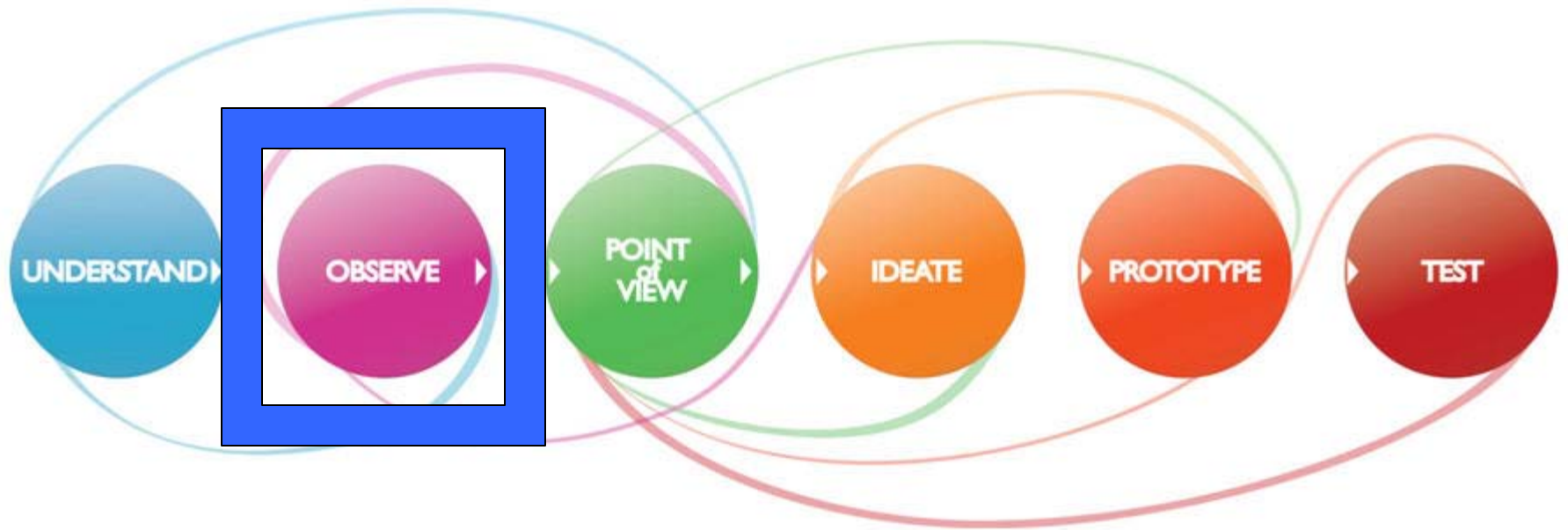
What is Design Thinking?

- Process
 - Methods for designing, which can be articulated and taught
- Orientation
 - An attitude that shapes your approach to the world you are designing in

Design Process



Design Process



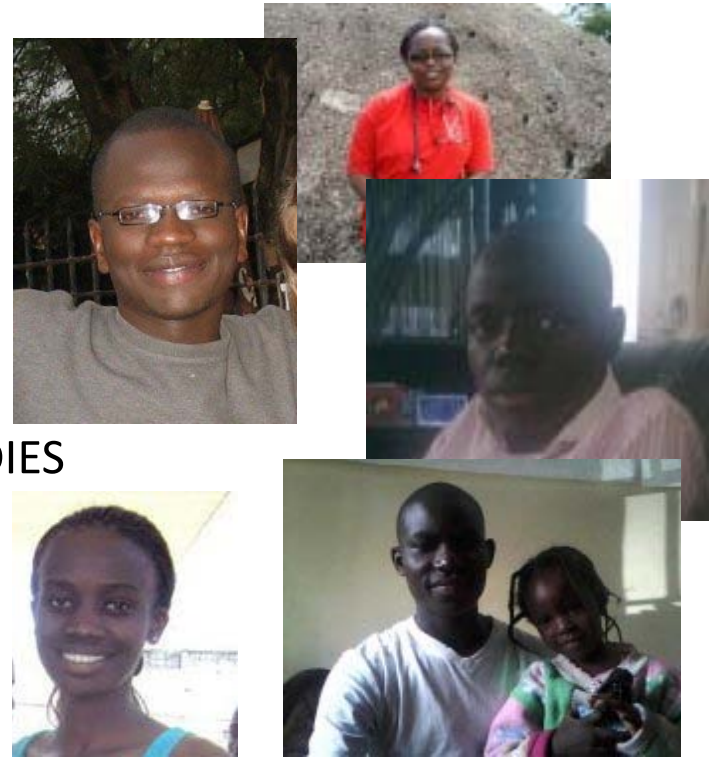
Needfinding in Myanmar (Adam French, d.school fellow)



Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498

- Students from Nairobi are serving as our students' eyes and ears for needfinding
- 27 students, 9 teams
- Each team went to different sites to study one kind of stakeholder
 - COMMUNITY (YOUTH&ELDERS)
 - COMMUNITY HEALTH WORKERS
 - COMMUNITY MOTHERS
 - DOCTOR - CLINICAL OFFICER
 - HOSPITAL MANAGEMENT
 - INSURANCE COMPANIES
 - MINISTRY OF HEALTH AND POLICY BODIES
 - NURSES
 - PHARMACIES



Question 2: What kind of services do you provide within the urban slum area?

Majengo-Pumwani

- HIV/AIDS counselling
- Immunization
- First aid
- Follow up of patients
- Conducting health talks or any form of health information.
- Referring sick patients to health centres
- Prevention of mother to child transmission (PMTCT)
- Teaching members on disease epidemics
- Mobilizing hygiene in the community
- Giving medication including ARVs
- Tracing patients who default medication

Thika Kiandutu

- Counselling HIV⁺ people
- Taking care of HIV/AIDS patients
- Investigating and dealing with rape cases, especially among girl, and girls with STIs
- Referring sick patients to health centres
- PMTCT

Kibera

CDC clinic

- Main objective is to find out what causes diseases
- Collect patients data at household level ...

*Surveys and
Questionnaires*

Esther M of Kiandutu Slum, Thika

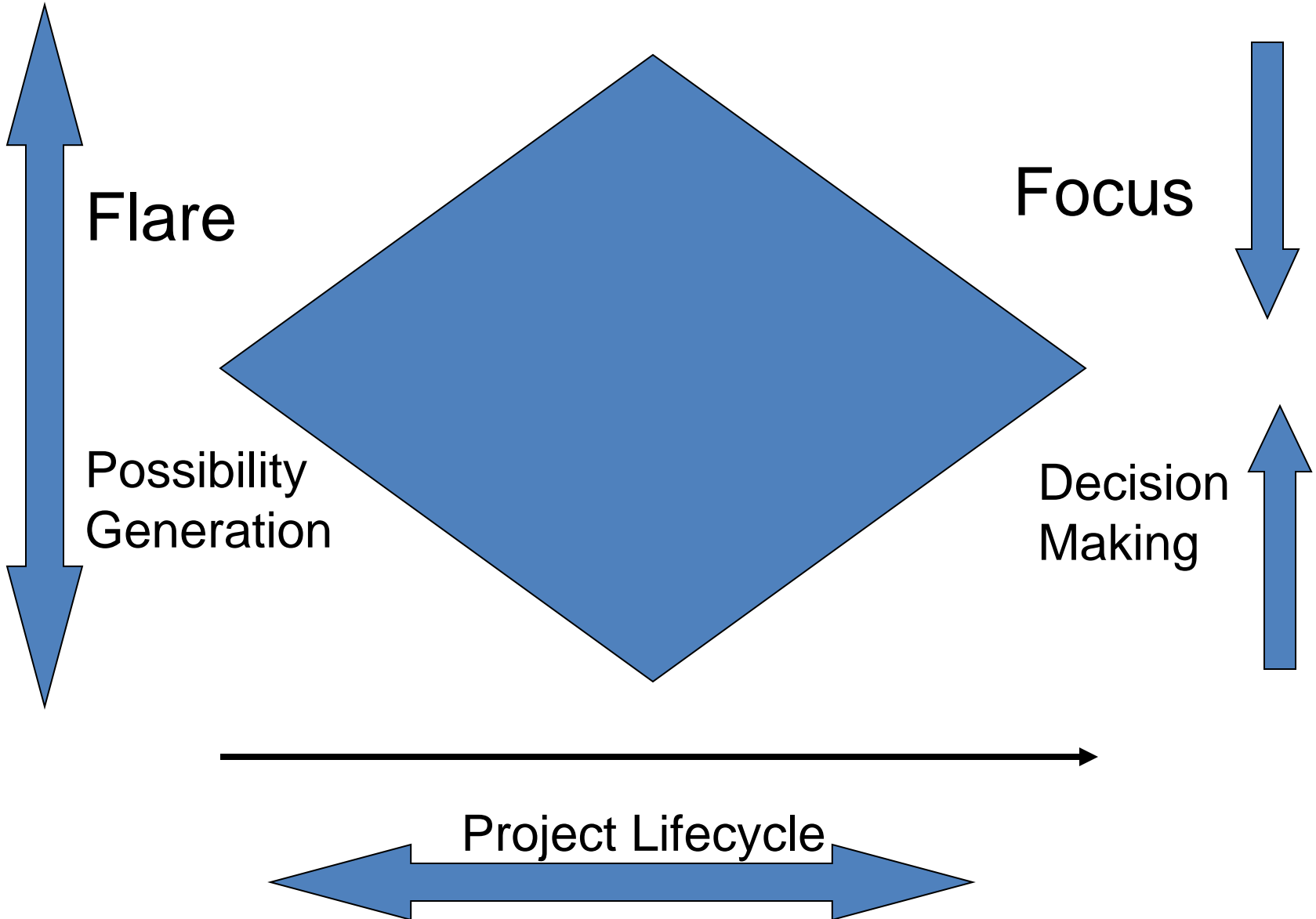
Esther, 47, is a jovial woman. She is a single parent and works with KENWA, an NGO based in the area. Asked why she became a CHW, she was hesitant and became suddenly sad. Esther discovered that her daughter was being raped by an uncle at the tender age of 2yrs old. This she discovered after she noticed wounds in her pubic areas as she was bathing her. She immediately rushed her daughter to hospital where she was diagnosed with an STI and the claim that someone had been raping her daughter. It was later at home that her relatives told her what had been happening when Esther left her daughter asleep to go to work. They had been keeping this information from her because of their fear of the man, who was a criminal (he died of AIDS two years later). The little girl was treated and was found to be HIV negative after being tested. She had lived a normal life for 9yrs only for the STI to erupt at the age of 11yrs. Esther took her daughter to Naidu hospital in Thika town where she was admitted. The hospital fee was very expensive, becoming unbearable for her. That is when she met Okoth, now a fellow CHW, who advised her to take her child to another cheaper hospital with equally good care. Her daughter is still under treatment but she is attending school (she is now in STD 6). The encounter with Okoth is what drove her to join the organization with which he works to help fellow community members, especially fellow HIV⁺ patients and has been a CHW since 2008.

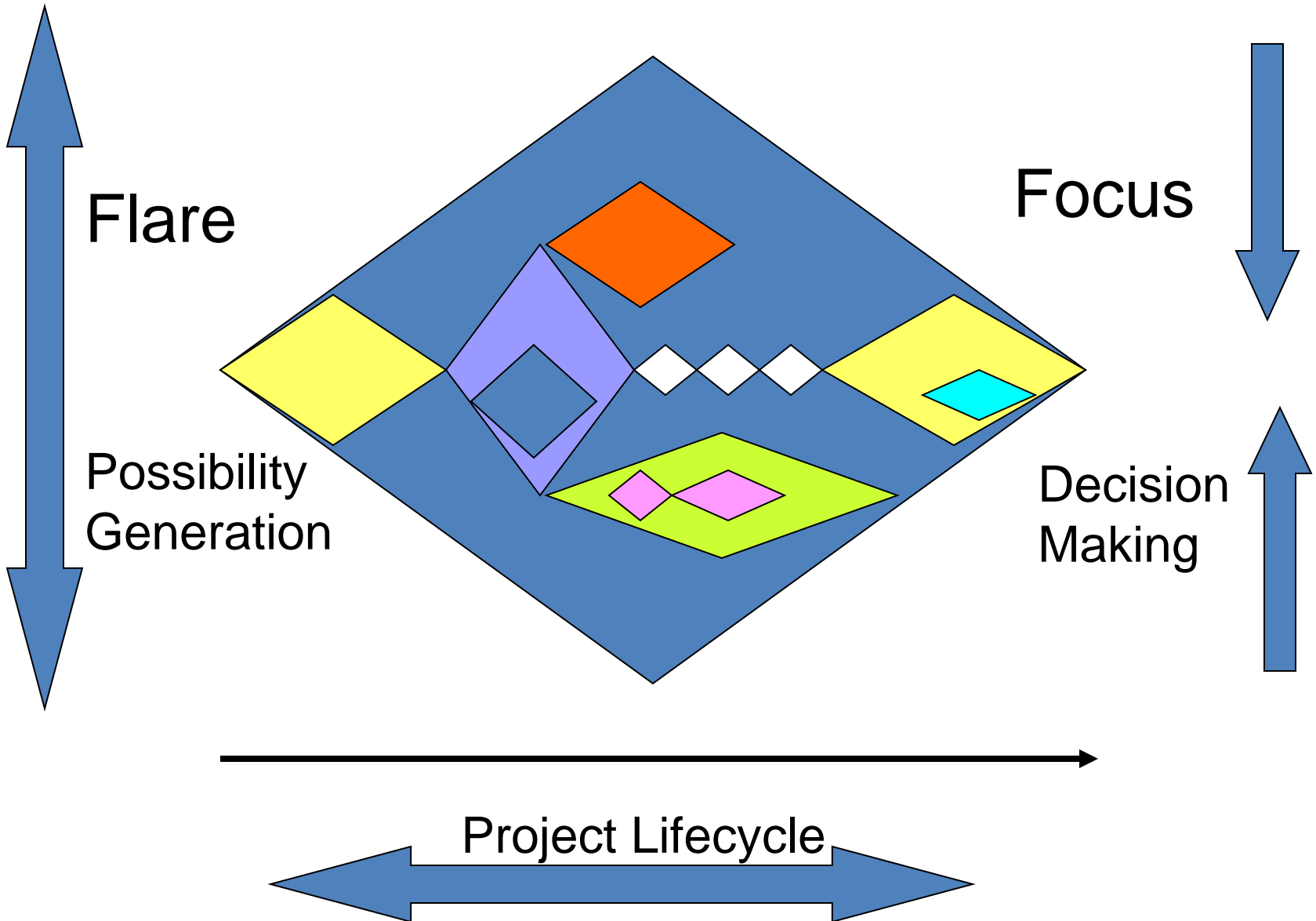
Esther is also HIV⁺. She is living very positively and is very healthy. She discovered her status while she was pregnant with her second child. She took the news positively and set out to live healthily and positively. She bore a healthy child, breastfed her but stopped after she got herpes of the breast. Her child was HIV negative and very healthy even attaining 10kgs at the age of 2yrs. She left her husband whom she had been living with in his family farm in Ndakaini, Thika district, after knowing her HIV status. That is when she went to Kiandutu where she had been doing small jobs and businesses around Thika. Esther is determined to live a long life giving her children the best she can to see them become successful and serving her community as a CHW....



*Photos
and
Video*









Discussion for: Community Health Workers

[Back to Stanford-UoNairobi-Nokia Design Project](#)

Discussion Board

Topic View

Start New Topic

[Reply to Topic](#)



Steven Opisa Most CHWs in this slums are middle age women who probably their highest level of education is High School...most dont speak english and the few who speak dont speak fluent english...but they are normally given basic fundamental training in healthcare through workshops organized by NGOs in those slums which help them carry out their work..and they have to well known members of the community in which they serve..Due to the enormous challenges they face, most of them are usually a frustrated lot since they work alot with those challenges and they are not paid..but there are some due to the passion they have in helping and serving their community have a sense of pride in their work.

In Kibera, there is a clinic called Tabitha which is funded and managed by CDC-the Centers for Disease and Control-where the CHWs are well educated and they speak fluent english. These CHWs are also well paid and good working environment and tools e.g they have PDAs which they use to collect patients data and do followup through a program installed on the device

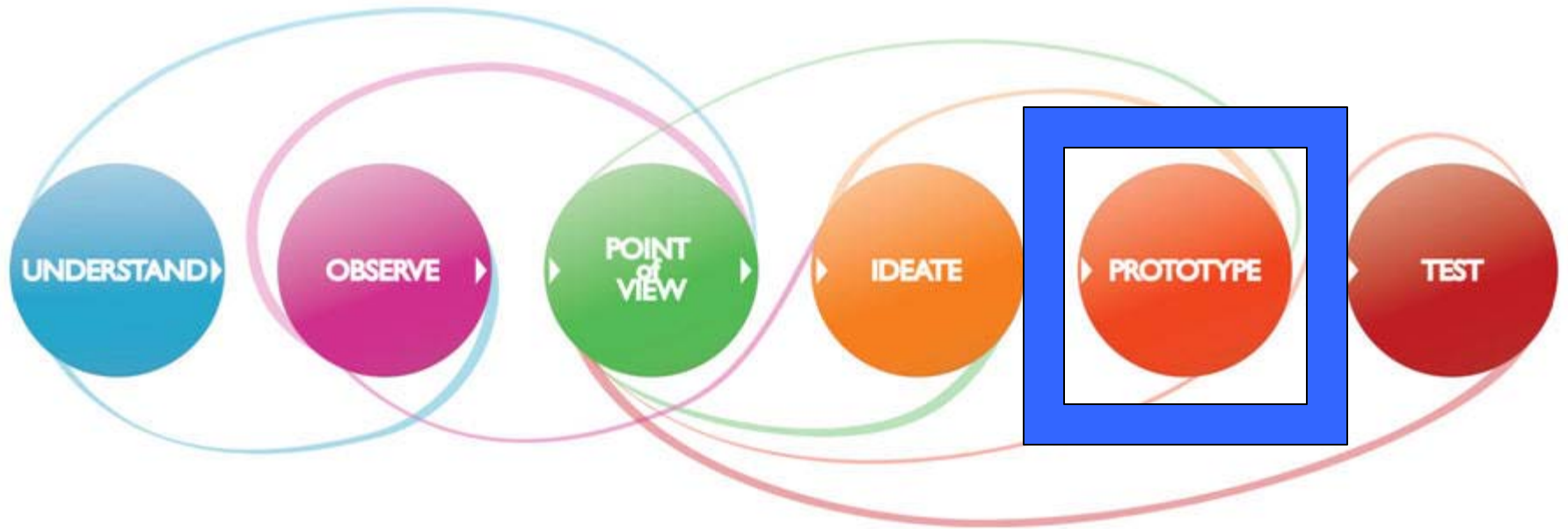
April 16 at 9:16am · [Mark as Irrelevant](#) · [Report](#) · [Delete Post](#)



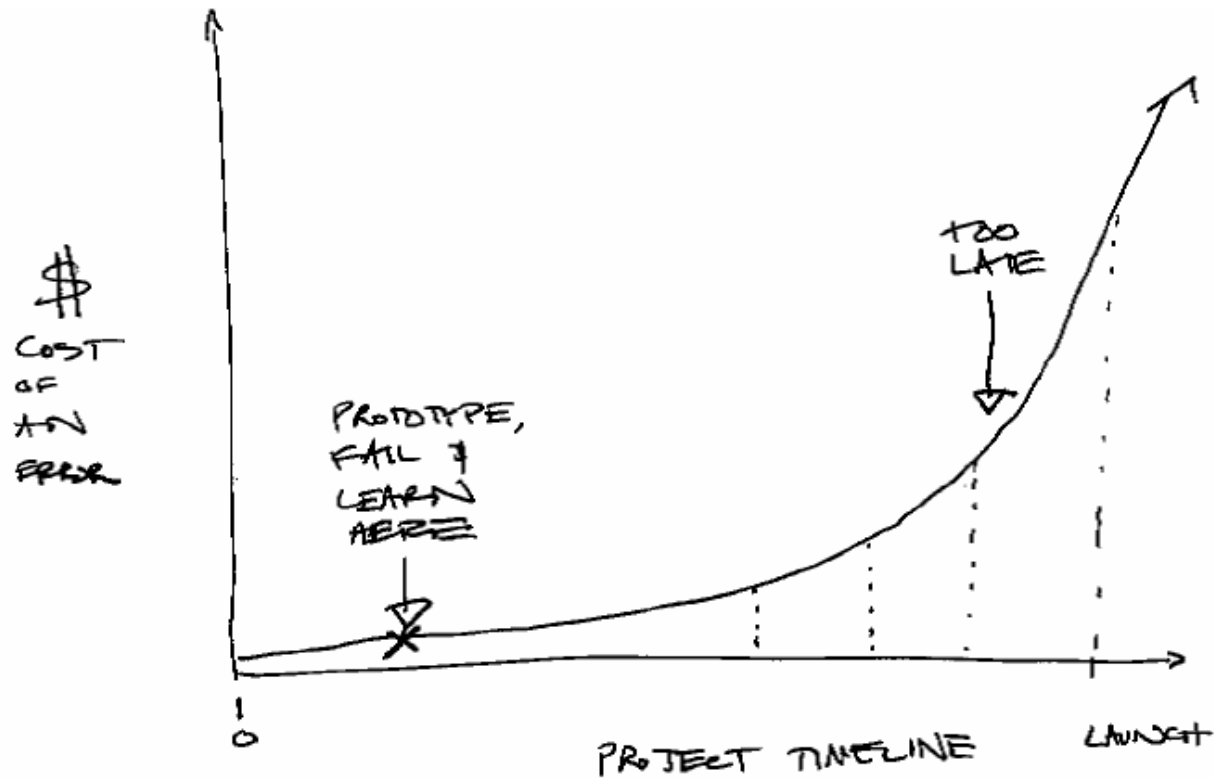
Amanda Cravens We had a few questions about Community Health Workers....

- Other than the Tabitha clinic, are the CHW affiliated to any hospital or clinic or NGO? Do they work at all with support from the other clinics?
- How are CHW organized?
- What supplies to CHW have access to (training materials, medical

Design Process

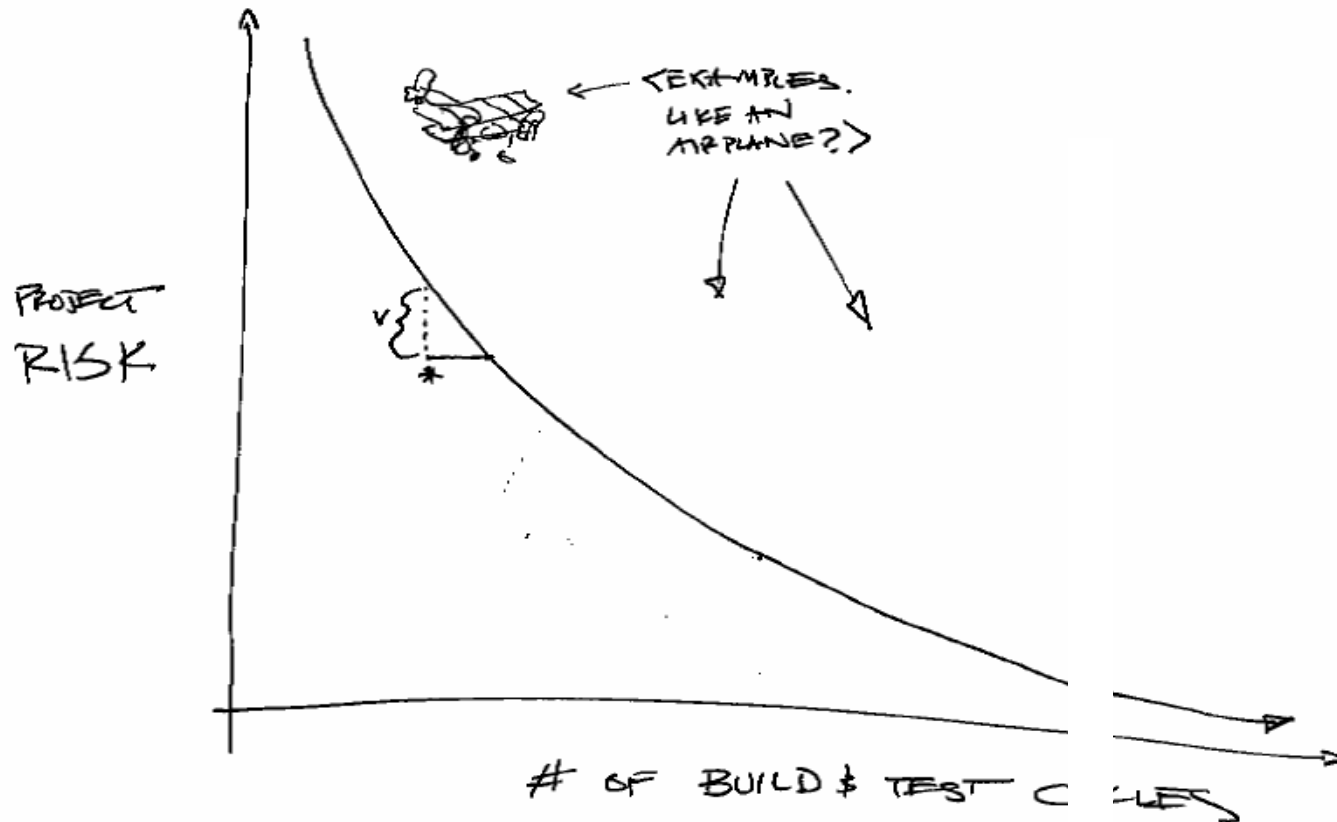


FAIL EARLY



- (Cost of failure vs. project time curve)

FAIL OFTEN

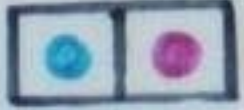


- Risk vs. iteration



iVend

Item	Price
Item 1	1.50
Item 2	2.00
Item 3	2.50
Item 4	3.00
Item 5	3.50
Item 6	4.00
Item 7	4.50
Item 8	5.00
Item 9	5.50
Item 10	6.00
Item 11	6.50
Item 12	7.00
Item 13	7.50
Item 14	8.00
Item 15	8.50
Item 16	9.00
Item 17	9.50
Item 18	10.00
Item 19	10.50
Item 20	11.00
Item 21	11.50
Item 22	12.00
Item 23	12.50
Item 24	13.00
Item 25	13.50
Item 26	14.00
Item 27	14.50
Item 28	15.00
Item 29	15.50
Item 30	16.00
Item 31	16.50
Item 32	17.00
Item 33	17.50
Item 34	18.00
Item 35	18.50
Item 36	19.00
Item 37	19.50
Item 38	20.00
Item 39	20.50
Item 40	21.00
Item 41	21.50
Item 42	22.00
Item 43	22.50
Item 44	23.00
Item 45	23.50
Item 46	24.00
Item 47	24.50
Item 48	25.00
Item 49	25.50
Item 50	26.00
Item 51	26.50
Item 52	27.00
Item 53	27.50
Item 54	28.00
Item 55	28.50
Item 56	29.00
Item 57	29.50
Item 58	30.00
Item 59	30.50
Item 60	31.00
Item 61	31.50
Item 62	32.00
Item 63	32.50
Item 64	33.00
Item 65	33.50
Item 66	34.00
Item 67	34.50
Item 68	35.00
Item 69	35.50
Item 70	36.00
Item 71	36.50
Item 72	37.00
Item 73	37.50
Item 74	38.00
Item 75	38.50
Item 76	39.00
Item 77	39.50
Item 78	40.00
Item 79	40.50
Item 80	41.00
Item 81	41.50
Item 82	42.00
Item 83	42.50
Item 84	43.00
Item 85	43.50
Item 86	44.00
Item 87	44.50
Item 88	45.00
Item 89	45.50
Item 90	46.00
Item 91	46.50
Item 92	47.00
Item 93	47.50
Item 94	48.00
Item 95	48.50
Item 96	49.00
Item 97	49.50
Item 98	50.00
Item 99	50.50
Item 100	51.00



Experience Prototyping



Figure 4: Bodystorming layouts for an airplane interior.

IDEO: Depaul Health Center



Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498

Areas for Prototyping

(as of yesterday – first prototypes to come next Monday)

- **Waiting times in clinics**
- **Mutual insurance groups**
- **Sensitive personal health questions**
- **Making mobile application development easy**
- **Health info for expectant mothers**
- **Mobile phone health protocols for community health workers**

Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498

What will we count as success?

- Learning experience for the students
- Creating links with University of Nairobi
- Developing a working model for distant design through partnership
- Planting the seeds of projects that can thrive

Designing Liberation Technologies – Spring 2010

Computer Science 379L, Political Science 337T, Law 498

With thanks to....

- Jussi Impio and Nokia Research
- Peter Waigango and the staff at the University of Nairobi
- Larry Diamond and the Center for Development, Democracy, and the Rule of Law
- All the d.school staff
- Lucky Gunasekara, Akshay Kothari, and all the coaches and experts who are helping with the course
- The crew of amazing students at Stanford and Nairobi