



B24B: Useful, Affordable IT for the Poorest 4 billion

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Grand challenge

- Provide affordable, useful digital services to the 4 billion people on the planet earning less than \$1,500
 - Not a homogenous group, differences between urban and rural poor
 - IT is not the answer to development challenges, but it is a powerful tool



Benefits and applications

- Price discovery – rural farmers able to double incomes by discovering price of their crops in the capital city
- Exports to developed country markets
- Job creation (jobs like data entry that can be shifted to developing countries)
- E-health (health information, remote consultation using digital cameras, public health networks)
- Natural disaster -- early warning of floods, monsoons, etc.



Benefits and applications

- Reducing corruption from increased transparency (e.g. e-gov for transfer on land titles)
- Transfer of dollars from diaspora – networked diaspora as a development resource
- Coordination of transportation and distribution (e.g. crops to markets)
- Entertainment
- Developing country “communities of practice”
- Preservation and global sharing of local culture



Metrics for success

- Access metrics:
 - # of people with connectivity within walking distance
 - Affordability: less than a cup of coffee per day
 - Demonstration of sustainable business models (charity won't scale) – such as GrameenPhone, Internet cafes, El Salvadorian telecenters



Metrics for success

- Development metrics
 - Economic growth and job creation
 - # of people who cross the poverty line
 - Increased percentage of population with basic literacy
 - Reduced mortality and morbidity from diseases as a result of e-health
 - Increased access to clean water (as a result of monitoring)
 - Free flow of information – reduced ability of governments to control (supports democratization)



Technical challenges

- Ultra-low cost devices and systems (e.g. plastic displays)
- Codesign of devices and infrastructure (much simpler devices)
- HCI that supports low levels of literacy, multiple languages
- Power w.o. power grid (e.g. power harvesting, handcrank)



Technical challenges

- Radically simpler software and systems
- Easy creation of locally relevant information services
- Easy way for global participation
(Development@home – like SETI@Home)
- Low cost sensors
- More aggressive use of unlicensed spectrum or UWB (e.g. relax power restrictions)
- Longer-lives for devices



Social/organizational challenges

- Get IT firms to see B2B as a market, not a charity case
- Supportive developing country policies (no extortionate prices for leased lines)
- Support/incubate developing country entrepreneurs
- Technical community has feedback from real users through testbeds



Final thoughts

- Clearly not the grand challenge that will drive computer science BUT
- You'll want to tell your grandchildren you worked on this