

Social innovation with impact

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“Not another mobile app”
an alternative title for this talk

Defining terms and approach

- Innovation is the doing of new things and the doing of old things better
 - It is inherently risky
 - Behavior in the face of risk can be influenced by risk-mitigation measures → moral hazard
 - Easy to take risks with other people's money
 - Risky activities are best done by those with skin in the game
- Normal innovation (i.e., what falls outside the scope of social innovation) is best done using private capital (skin in the game)
 - State intervention should prioritize removal/reduction of barriers to innovative activity, including limits on rewards for risk taking
 - If the outcomes of innovation are seen as yielding significant positive externalities, the state should support innovators who have some skin in the game

Defining terms and approach

- Social innovation is what is unlikely to take place, but is desirable for social reasons
 - One obvious reason is the difficulty of capturing the rewards of innovation → public goods will not be supplied by the market
 - Non-rivalrous (one person's use does not detract from another's)
 - Non-excludable (not feasible to prevent non-paying customers from using good/service)
 - But solutions exist
 - Bundling of public and private goods
 - Conjoint markets where a service/product is given away free, but revenue is earned from what is produced in the former (e.g., Google search)
- Justification exists for funding of social innovation by governments or by philanthropists

Example: Assistive technologies leveraging smartphones for persons with disabilities (PWDs)

- In Nepal, Ford Foundation grant was used to conduct research, develop assistive technologies for PWDs through a hackathon, and make policy recommendations to state and private decision makers (2017-19)
- Similar work is underway in India and Sri Lanka (2019-2021)

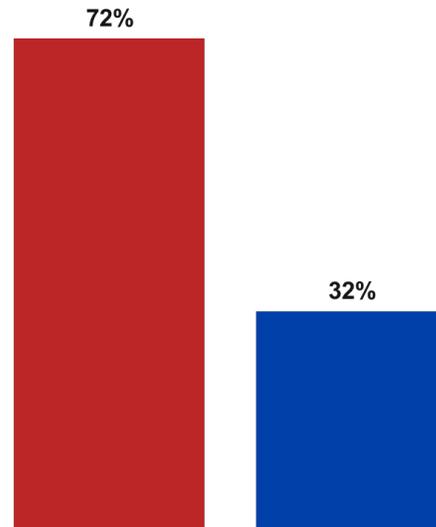


PWD (speech & hearing) testing a smartphone app developed at a hackathon in Kathmandu, 2018

Rationale for social innovation: ICT use among Nepali PWDs < Nepalis

Mobile phone ownership (% of 15-65 population/ % of 15-65 mobile phone own PWD population)

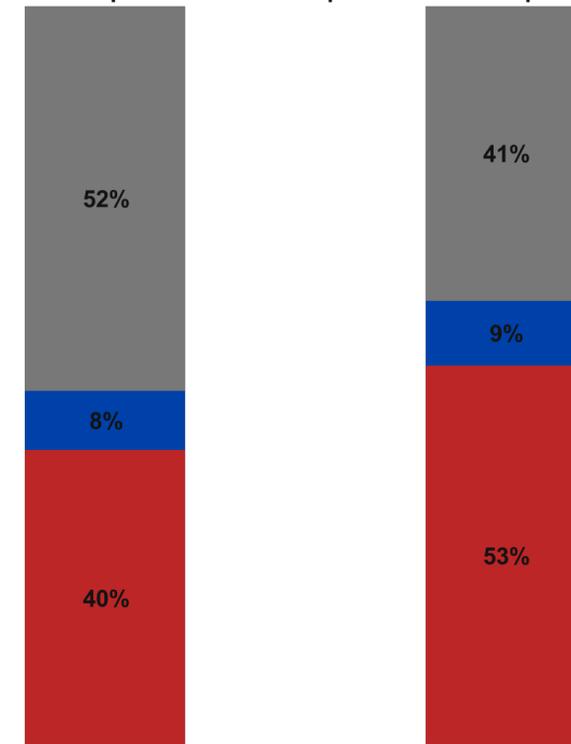
■ Nepal ■ Nepal PWD



Of the 72% general population using mobiles, 52% had smartphones

Type of mobile phone owned (% of all aged 15-65 mobile owners/% of 15-65 mobile own PWD population)

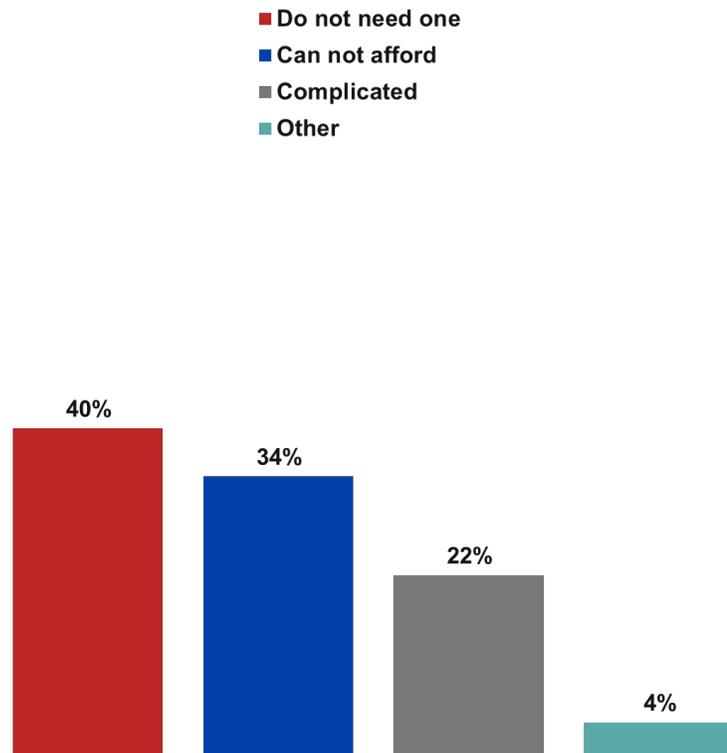
■ Basic phone ■ Feature phone ■ Smart phone



Of the 32% PWD population, only 41% had smartphones

When asked why no data-capable phone, answer of 40% was “no need” → no apps of value to PWDs

Reason for not having smart/touch phone (% of aged 15-65 Basic and feature phone owned PWD population)



While the Nepali PWDs were poorer and less educated than the general population, the main reason was “no need,” not “cannot afford” → it may be implied that they were unaware of the possibilities of smartphone-centric assistive technologies or such technologies did not exist

Two-stage hackathon to develop assistive tech

- Consultations with Disability Organizations
- 10 teams from leading computer science programs were selected for pre-hackathon
- Provided info on problems faced by PWDs and with mentors and connected on Whatsapp groups
- Encouraged to spend 4 weeks developing prototypes & getting ready
- Five teams participated in two-day hackathon



Mero Sathi app being tested at School for Deaf, three hours away from Kathmandu

Outcome of the hackathon

Criteria used in selecting top two

- Uniqueness/innovation
- Impact (does it solve a difficult problem)
- Feasibility (is it easy/possible to execute)
- Reach (how many people will this help?)
- Maturity (is the solution ready to be used)
- Affordability

Outcome

- Nepal Telecommunication Authority (NTA) agreed to fund “Mero Sathi” and “Bahasa Buddy” for further development, but not much happened due to personnel changes at NTA, lack of clarity re IP, students graduating, etc.
- Winning teams shared their knowledge at Disrupt Asia 2018 in Colombo
- Several of the colleges have created funds to develop assistive technologies as part of their undergraduate programs

What was learned?

- Scaling is critically important
 - Ideally, private investors would be brought in
 - If state funds, iron-clad commitments useful
- Attention has to be paid to clear expectations re intellectual property
- In the case of Nepal, the quantitative and qualitative research came AFTER the hackathon, due to funding constraints; would have been better if all the research had been completed before the hackathons
 - Without a deep understanding of context and constraints, hackathons that seek to produce implementable innovations are likely to yield solutions that are limited in scope; innovations that do not require changes in systems are inherently limited in scope

In the next stage (India and Sri Lanka)

- Research preceded the hackathon (yet to be held)
- Efforts made to line up impact investors and IP rules made clear upfront
- Example of a broad-impact hybrid assistive technology solution (not yet developed) specific to large buildings that PWDs have difficulty navigating independently: based on research of the actions of a blind PWD in Delhi Metro

Blind PWDs were selective in disclosing impairment, even in situations where help was needed

- Prateek walked through a busy metro station with his white cane folded in his pocket. It was not evident he was blind, except for the fact that he bumped into a lot of people on the way in. At the security screen, the guards noticed the folded white cane and asked whether he needed assistance to board the train.
- At this point, Prateek admitted his disability and accepted the offer to be escorted to the designated carriage with reserved space for persons with disabilities. He had been guided with a hand on his elbow and helped into the correct carriage. The escort informed the driver that a disabled person was on board who intends to alight at Connaught Circle. Prateek was met and escorted to the exit, at which point the white cane had been again folded and put away. Prateek continued his journey, no longer overtly disabled.

Outline of a possible superior solution conditional on building owner integrating app with backend

The solution

. . . a more streamlined system whereby beacons mounted within the stations would guide PWDs to their destinations through instructions displayed on their smartphones. The instructions would be tailored to the individual disability and destination, one pathway suggested for a visually impaired PWD and another for one in a wheelchair. If one wanted to go the toilet before or after boarding a train that guidance too could be provided. The indoor system could possibly be integrated with ride-hailing and map apps in a second phase to help PWDs continue their journeys seamlessly.

Why it is superior

Prateek would not have to advertise his disability as he independently navigates the stations and the train using tactile pathways and designated carriages, though the system would have to know. Unlike today, no Metro employee would be holding his elbow, signaling he is a PWD. The technologically more sophisticated system would serve his needs better than the system it will hopefully replace.

Different pathways for scaling social innovation for impact: Integrate with larger system

- Persuade public authorities (possibly required to make reasonable accommodations for PWDs) to incorporate the solution into their system
 - Has to be integrated because apps would need real-time info updates
 - Beacons have to be maintained
 - Perennial problem of service and maintenance of app will be solved
 - Organizations serving PWDs can educate potential users about the system

Different pathways for scaling social innovation for impact: Find a private investor

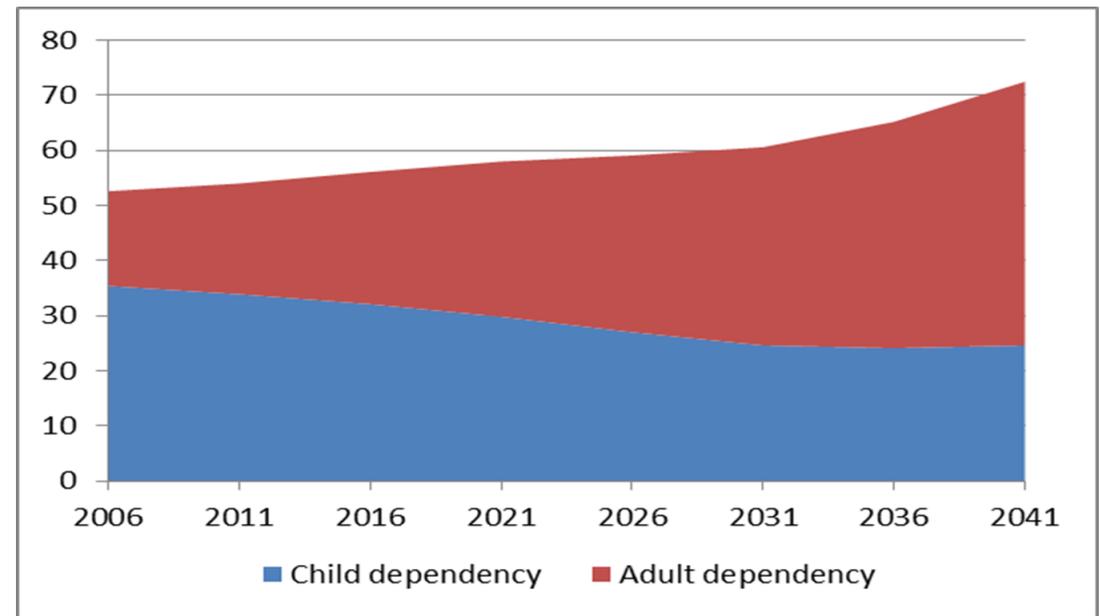
- If the social innovation has broader application, such as PWD → aged, normal angel/venture capital route may work
- If it has broader social applications (e.g., Nepal's Bhasa Buddy which was designed for speech & hearing impaired PWDs, but which can be used in general literacy programs), impact investors who are content with lower returns/none are needed

Different pathways for scaling social innovation for impact: State support

- Certain innovations require complementary actions
 - E.g., an app providing interpretation services for speech & hearing impaired PWDs requires a public WiFi system in the hospital so they can connect to centralized sign-language interpretation services (Govt or Hospital has to act)
 - If interpretation is to be provided by a family member, discounted data packages may be required (telecom companies have to act, possibly directed)
 - If interpretation is provided through crowd-sourcing (e.g., “Be My Eyes”), overall data prices must be reasonable (or targeted discounts provided)
- Direct state support in the form of scaling-up money and/or regular support

Growing old before getting rich . . .

- Increasing number of elderly persons (including many who are disabled) will have to be supported by a decreasing working population
- In addition to urgent need to strengthen safety net, **issues of independent living and loneliness will have to be addressed**



Source: Dr W. Indralal de Silva

Significant market potential

- The growing elderly population will include many with forms of disability
- Issues of social isolation, difficulty in navigating public spaces, etc. are common
- Some of the elderly (or their children) will have significant purchasing power
- Safety net funds may also be used for assistive technology

Features of assistive technologies designed for PWDs

- Google's Live Transcribe was designed by a speech and hearing impaired scientist, with help from Gallaudet University experts, to help PWDs
- But it can be used in everyday life
- Also, potentially useful in addressing law's delays in Sri Lanka caused by lack of competent stenographers



Law's delays in Sri Lanka: More pending cases in 2019 than in 2018 (except Court of Appeal & Children's Magistrate Court)

Court	No. of Cases Brought forward from Year 2017	No. of Cases Filed in 2018	No. of Cases Concluded in 2018	No. of Pending cases as at 31. 12.2018
Supreme Court	4,033	1,877	1,579	4,331
Court of Appeal	4,923	1,473	2,345	4,051
Civil Appeal High Court	5,914	3,188	2,841	6,261
Commercial High Court	6,093	1,716	1,499	6,310
High Courts (Criminal)	17,449	12,900	11,966	18,383
Special High Court Trial at Bar		3		3
District Court	196,745	77,654	58,544	215,855
Magistrate's Court	460,933	897,357	839,084	519,206
Children Magistrate's Court	1,280	213	273	1,220
Total	697,370	996,381	918,131	775,620

For social innovation to have impact . . .

- It must be based on a realistic understanding of the actual problems that are to be solved, the specific context, and the institutional constraints
- While it is tempting to seek social innovations that are independent of the systems in place or will serve as workarounds, only a few such innovations will be effective
- Scalability and sustainability are important, and may be achieved in multiple ways including
 - State support
 - Impact investing
 - Normal investing