

# Ensuring Responsible Outcomes from Technology

**Aaditeshwar Seth**

March 2020

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Seminar @ University of Oslo



**IIT DELHI**



# Ensuring responsible outcomes from technology: Key messages

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- *Ethics by design* approaches are useful but not sufficient. Ensuring responsible outcomes from technology requires careful management of the technology once it is deployed.
- An underlying ethical framework should be used to guide ICT projects on their objectives, design, and deployment management processes.
- The ethical framework is ultimately operationalized by ICT project teams, and therefore factors affecting the approaches adopted by the teams are important considerations too.

# The promise of technology...



## Asia Buzz: Revolution

How text messaging toppled Joseph Estrada  
By ERIC ELLIS



January 23, 2001

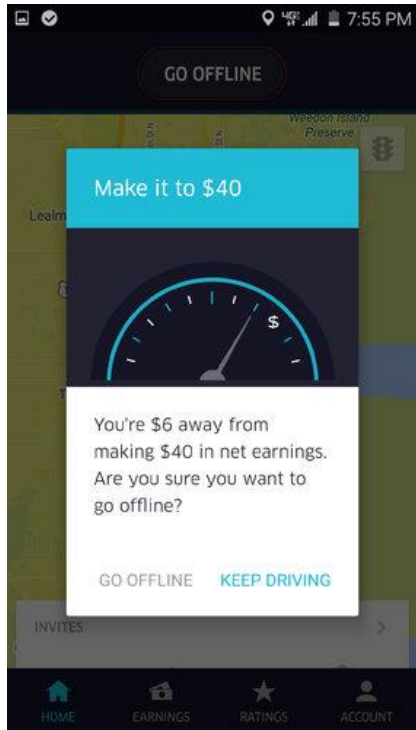
Web posted at 2:00 p.m. Hong Kong time, 11:00 a.m. EDT



W3C WORKSHOP  
ON THE ROLE OF MOBILE  
TECHNOLOGIES IN  
FOSTERING SOCIAL AND  
ECONOMIC DEVELOPMENT

1 - 2 April 2009  
Maputo, Mozambique

# But can we ensure responsible outcomes from technology?



## WHAT HAPPENS WHEN AN ALGORITHM CUTS YOUR HEALTH CARE

By [Colin Lecher](#) | [@colinlecher](#) | Mar 21, 2018, 9:00am EDT

Illustrations by [William Joel](#); Photography by [Amelia Holowaty Krales](#)

RIGHTS

## Of 42 'Hunger-Related' Deaths Since 2017, 25 'Linked to Aadhaar Issues'

**IMPACT** 02/16/2018 05:45 am ET

## In The Rush Toward A Cashless Society, The Poorest Are At Risk Of Further Exclusion

"Unless you're poor, it's hard to understand what it's like to be poor."

OPINION

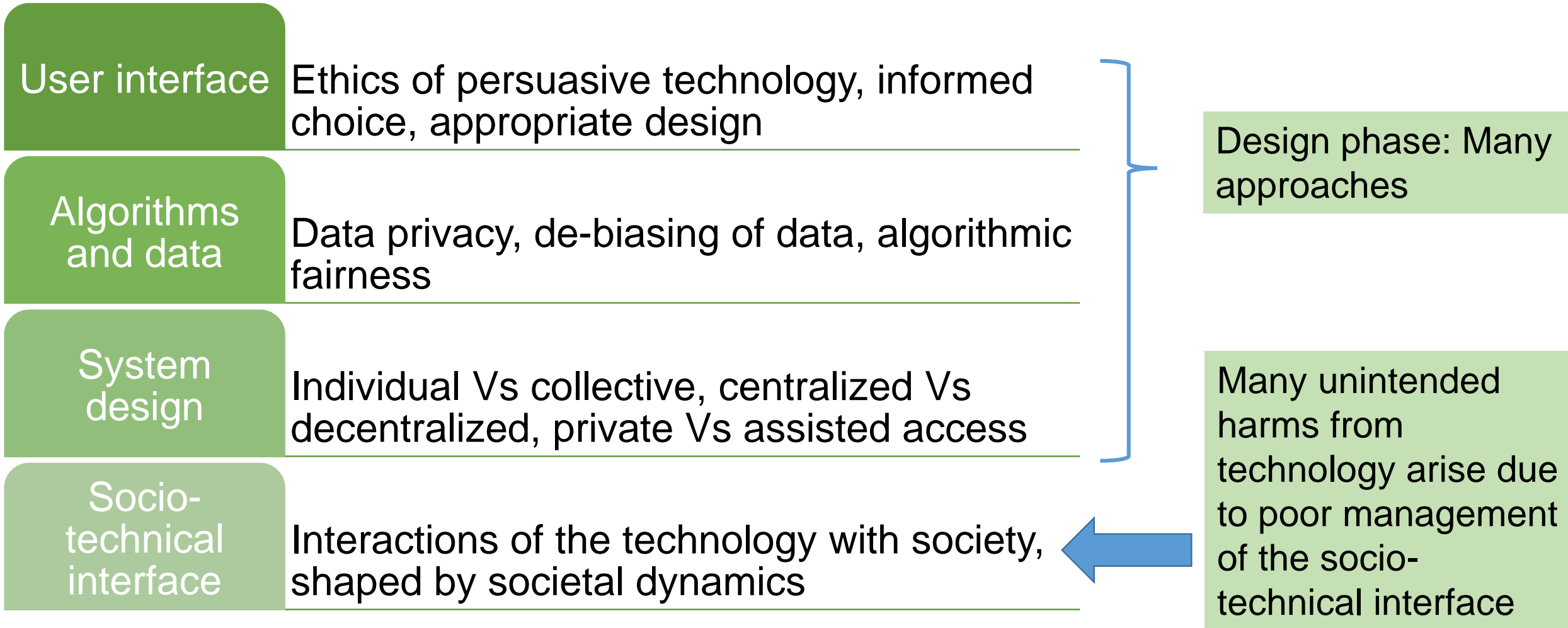
## Cambridge Analytica and the Secret Agenda of a Facebook Quiz

By [McKenzie Funk](#)

## WhatsApp struggling to control fake news in India, researchers say

Hindu nationalism and cheap mobile data driving spread of disinformation, BBC study says

# At least four layers at which to examine technology



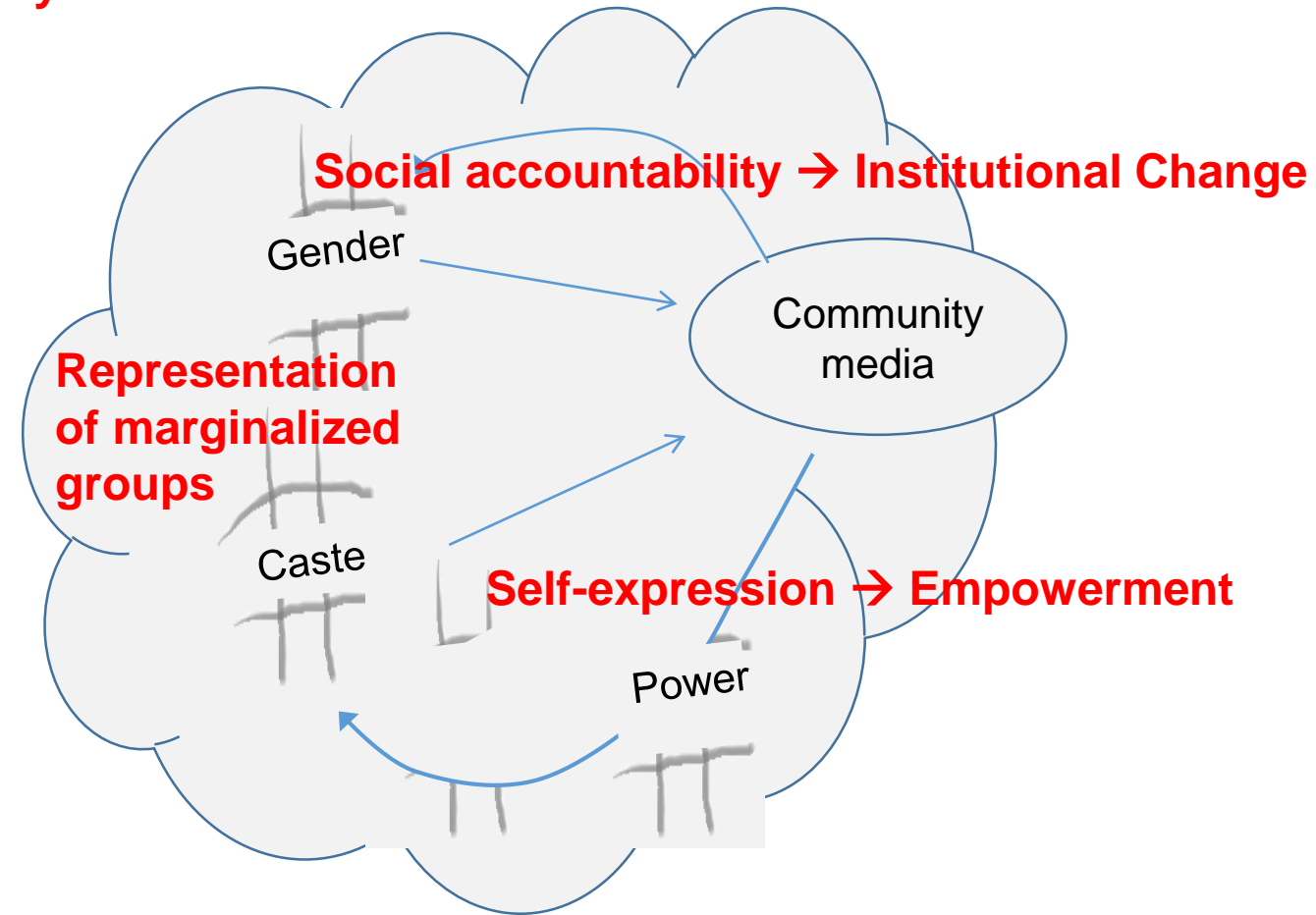
# We try to show this through a case study of a community media platform

## Variety of mechanisms

- Community radio
- Community video
- Wall newspapers



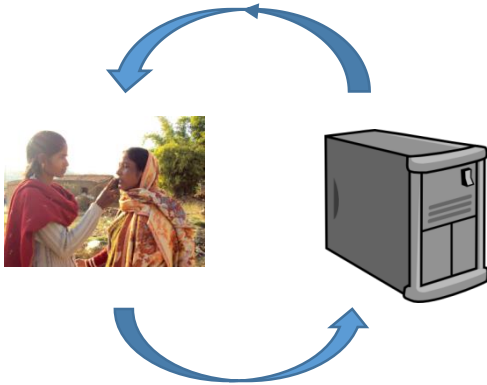
Locally relevant content → Awareness



Entertainment & culture → community building

# Mobile Vaani

## 1. Speak



Users speak and listen to contributions over an IVR platform

## 2. Moderate + Share



Content is moderated, then published on IVR, app, web

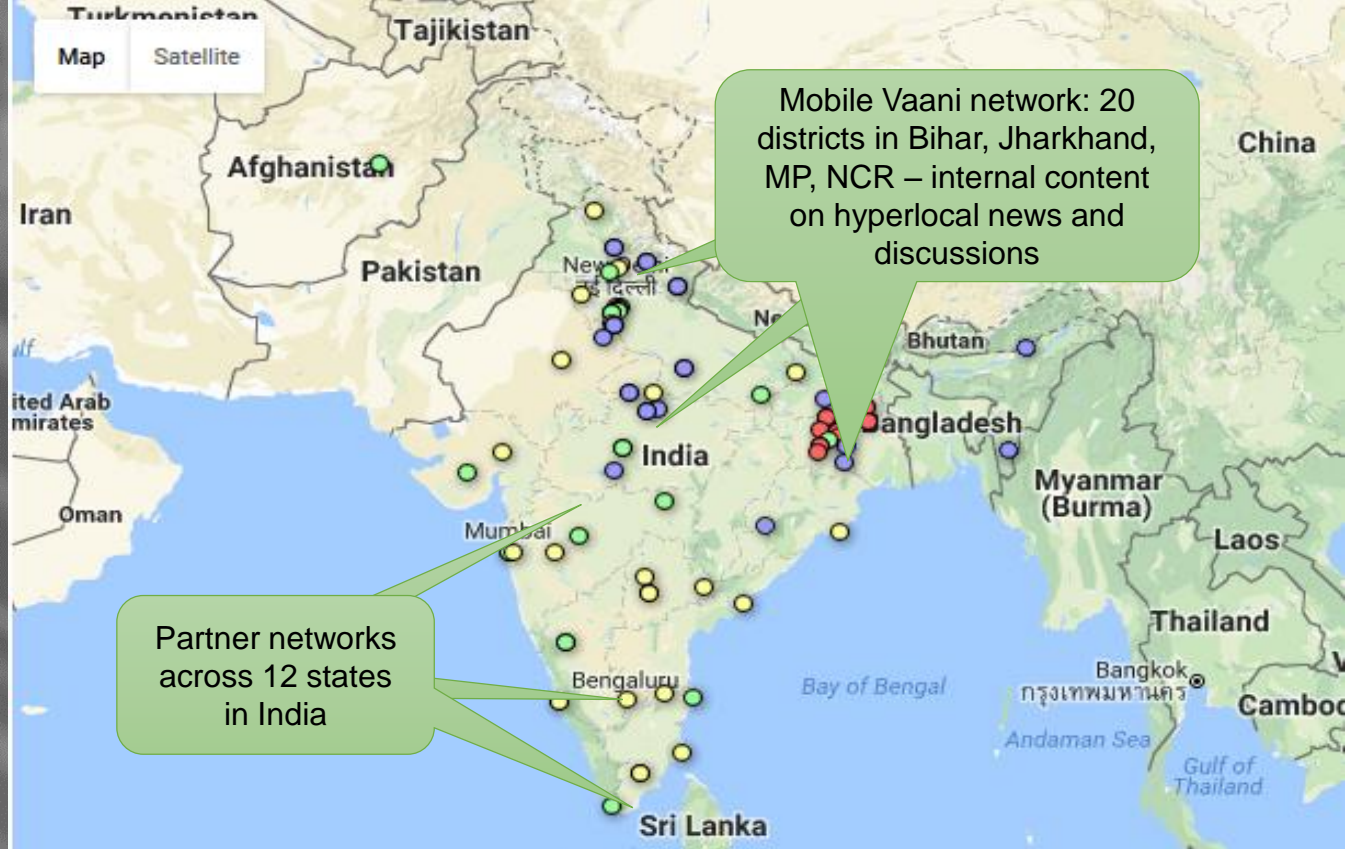
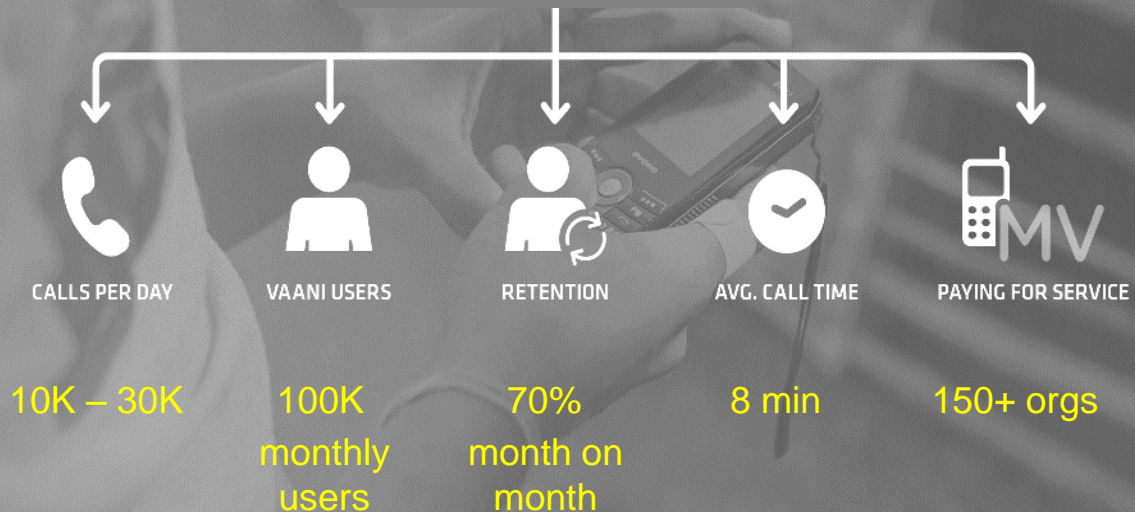
## 3. Connect to stakeholders



Inputs connected to government (local + other), NGO partners, social enterprise partners

# CURRENT TRACTION

Jan 2021

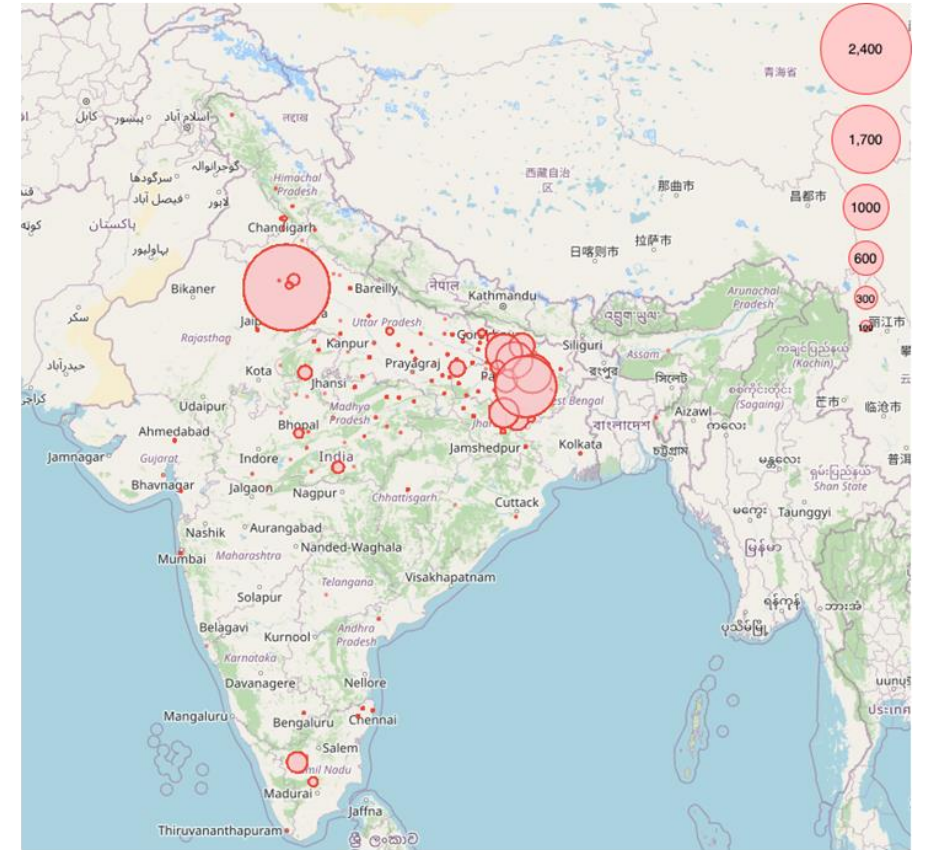
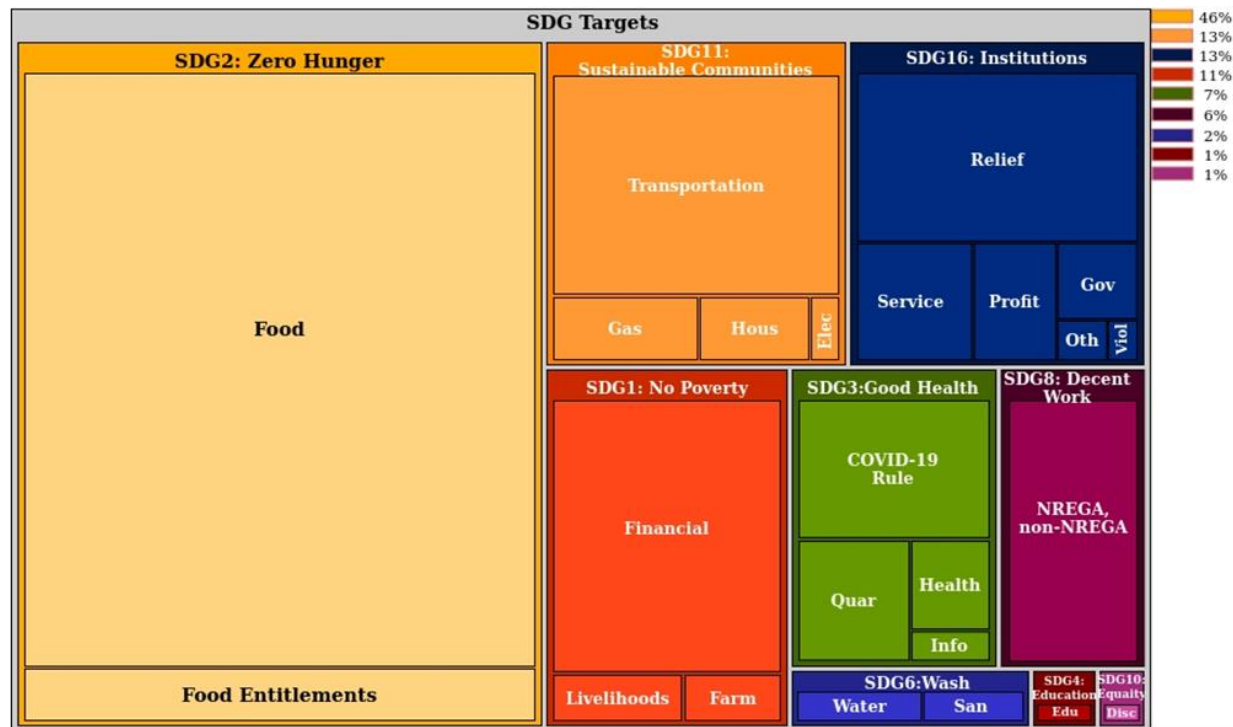


- Proven model, running since the last 7+ years. Also adapted and leveraged by 150+ organizations across the country
- Topics span local news, agriculture advisory, government schemes, rights and entitlements, health and nutrition, local culture, and social accountability
- Processes for structured feedback from users helps understand the pulse of the community and provide them with information that will be useful for them
- Not just an “online” platform but supported by a large network of 200+ community volunteers who leverage the platform for offline action



# Use of Mobile Vaani during the COVID-19 lockdown in India

**2M+** calls during the first 100-days alone of the COVID-19 lockdown in India. **18,000** voice reports. **800+** impact stories, almost all related to securing relief benefits for people who had remained excluded from social protection measures



Mira Johri, Sumeet Agarwal, Aman Khullar, Dinesh Chandra, Vijay Sai Pratap, Aaditeshwar Seth. *The First 100 Days: How Has COVID-19 Affected Poor and Vulnerable Groups in India?* Under review, 2020

# Processes to manage the socio-technical interface of Mobile Vaani

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**DEALING WITH ASPECTS LIKE...**

**NEEDS**

**PROCESSES LIKE...**

Existing social inequities and literacies

Creating technology and service literacy

# Creating technology and service literacy



Offline processes

Appropriation by the more skilled users



Representativeness along class, caste, and gender lines

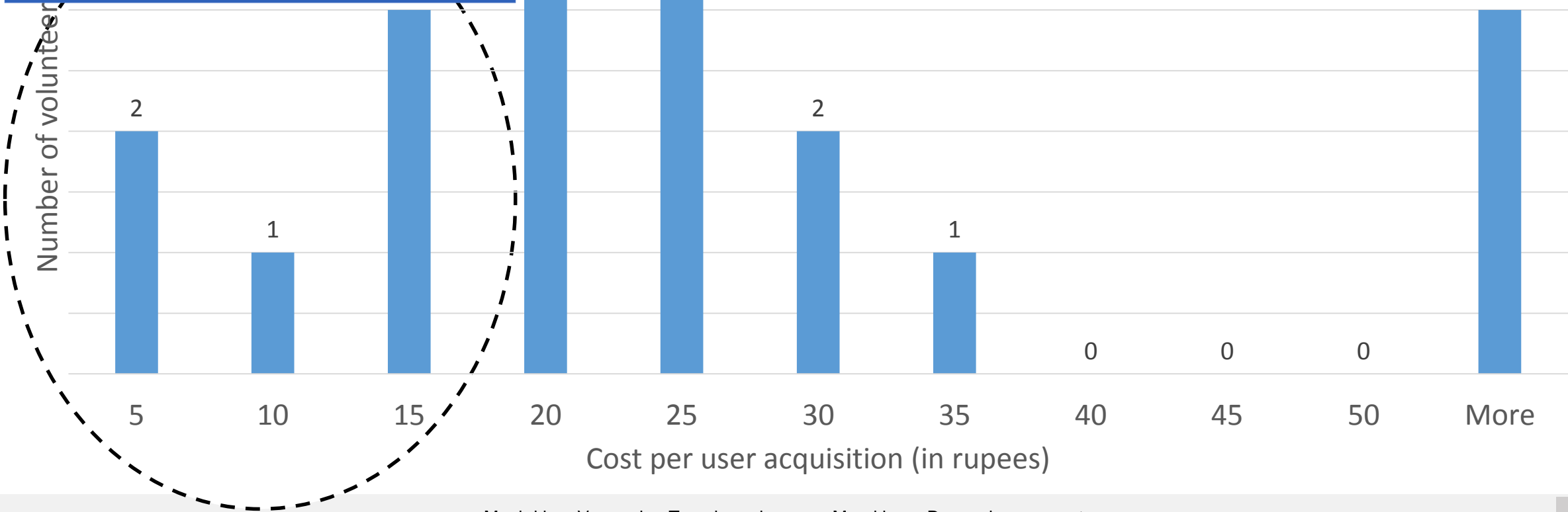


**NEEDS DELIBERATE EFFORT TO ENSURE THAT EXISTING INEQUITIES ARE NOT PERPETUATED**

# Creating technology and service literacy

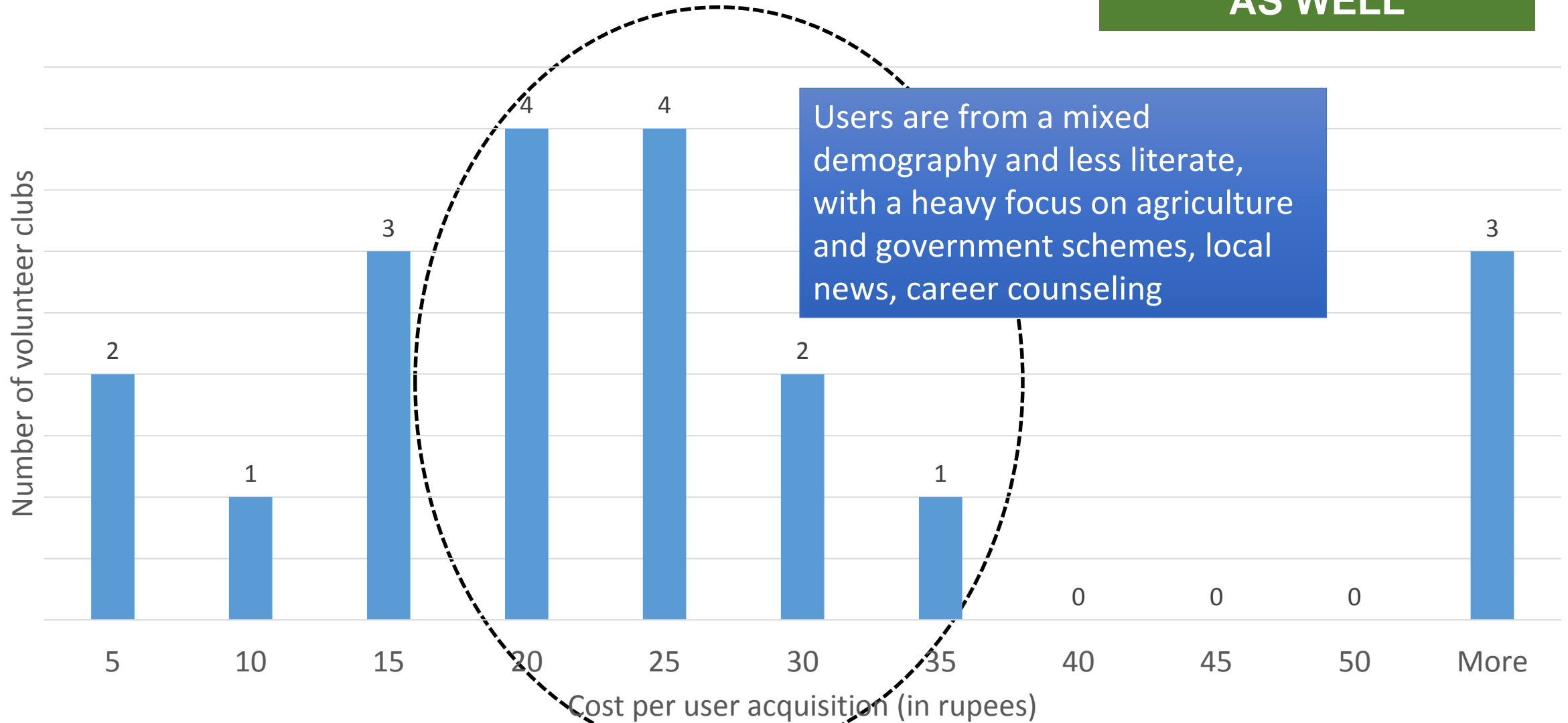
**COST IMPLICATIONS  
AS WELL**

Most users are at least high-school educated young men, interested in local news and jobs oriented programmes



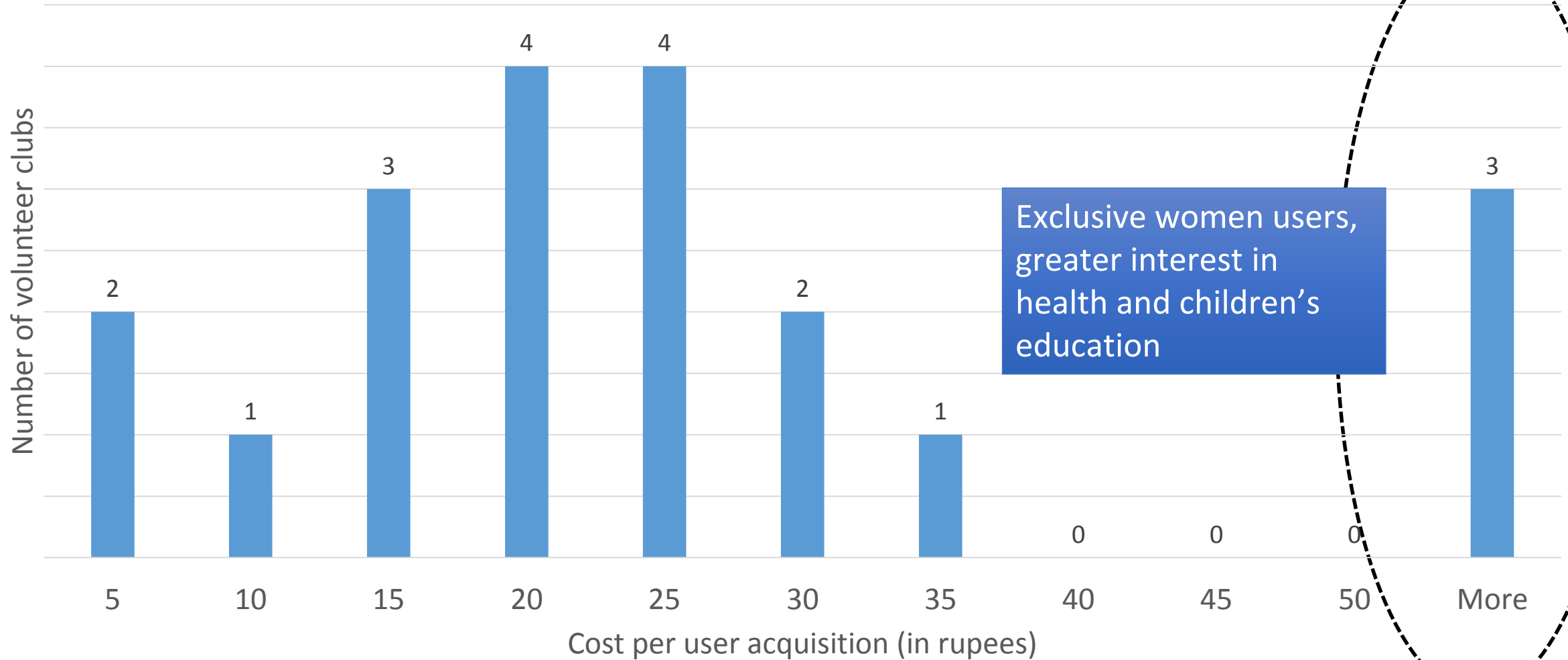
# Creating technology and service literacy

**COST IMPLICATIONS  
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# Creating technology and service literacy

**COST IMPLICATIONS  
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# Processes to manage the socio-technical interface of Mobile Vaani

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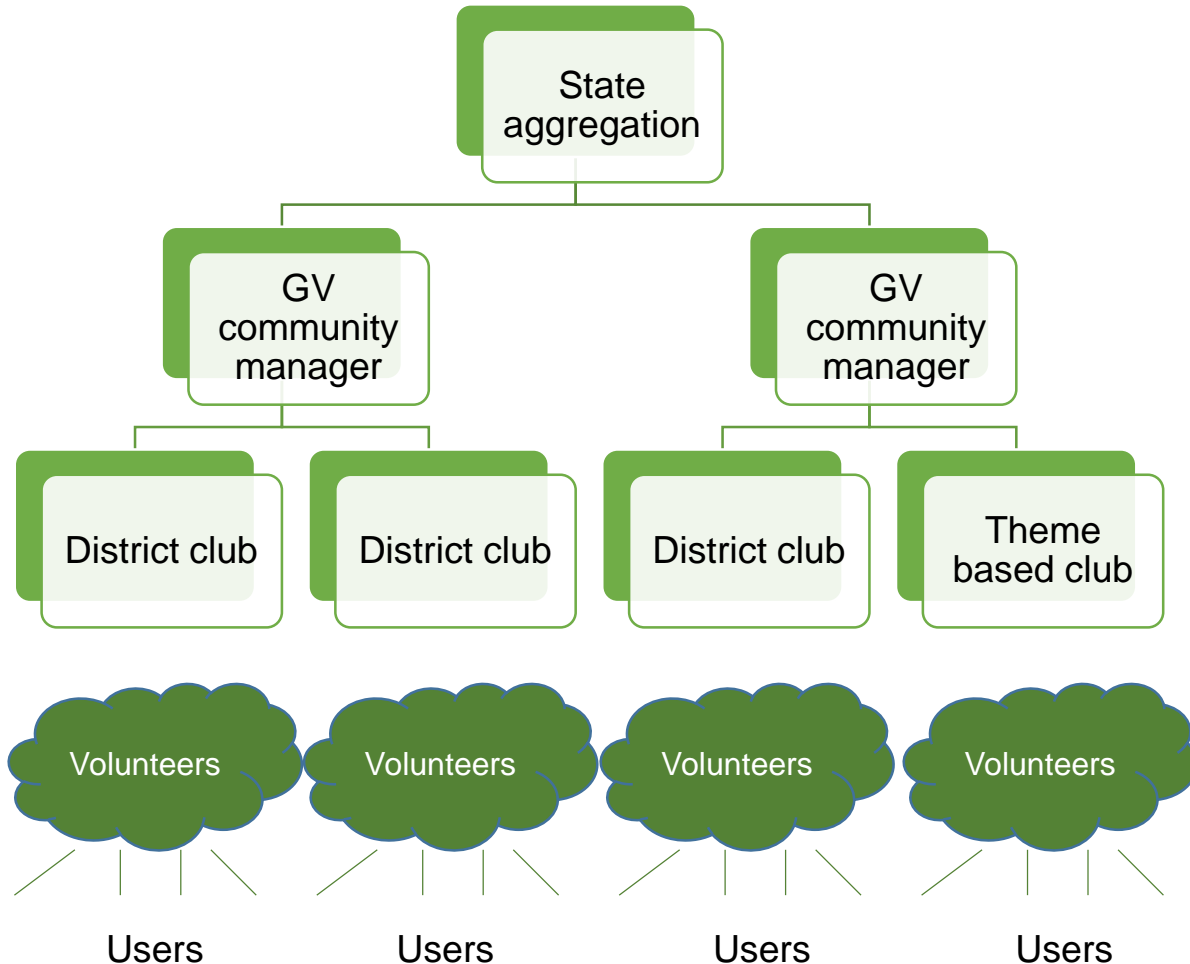
Remoteness between designers and users

Federated setup

Feedback processes

# Federated setup

## NEEDS CONTINUOUS LISTENING TO GUIDE DECENTRALIZATION IN THE DESIGN AND PROGRAMMING



Agriculture advisory in farmer dominated clubs

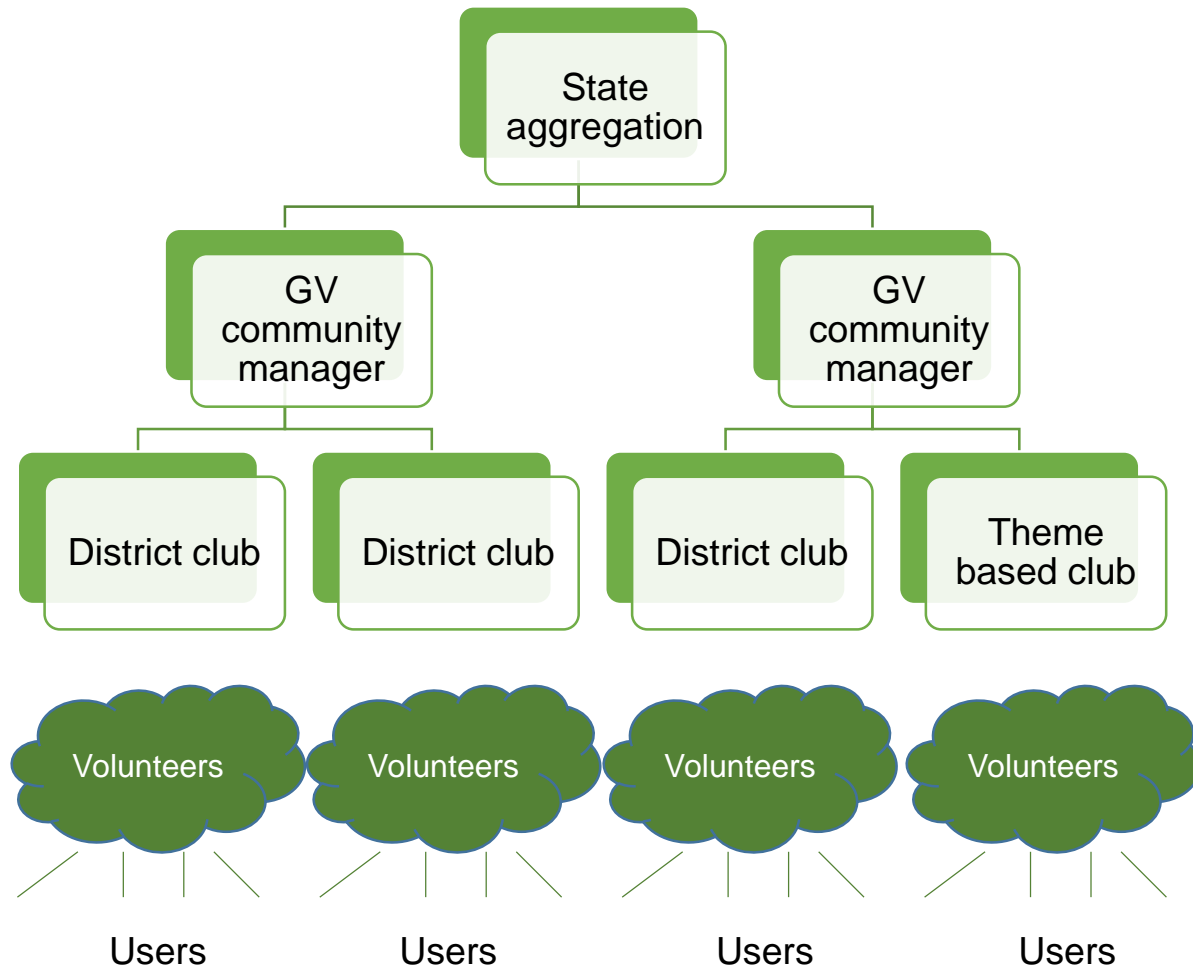
Career counselling programmes in youth dominated clubs

*Kamyab Didiyon ki Kahaniyan* and *Guru Mantra* in women clubs

Job advisory and support group counselling in channels for physically disabled users



# Federated setup



*Communitization of technology* achieved through decentralization

*Organizational control* preserved through standardized processes to maintain the federated setup

**CONSCIOUS CHOICE OF A DECENTRALIZED DESIGN TO ENABLE RELEVANT USE-CASES, YET WITH STANDARDIZED PROTOCOLS TO GOVERN USAGE**

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Remoteness between designers and users

Federated setup

Sustainability and internal accountability

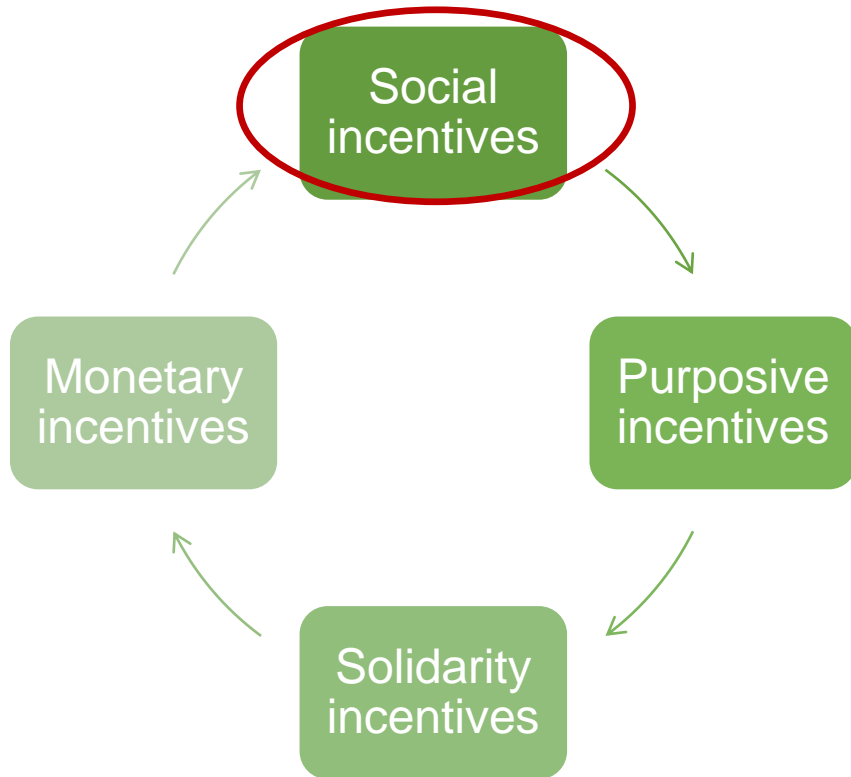
Feedback processes

Mix of social and monetary incentives

Signalling the character of the medium

# Mixed structure of incentives for the volunteers

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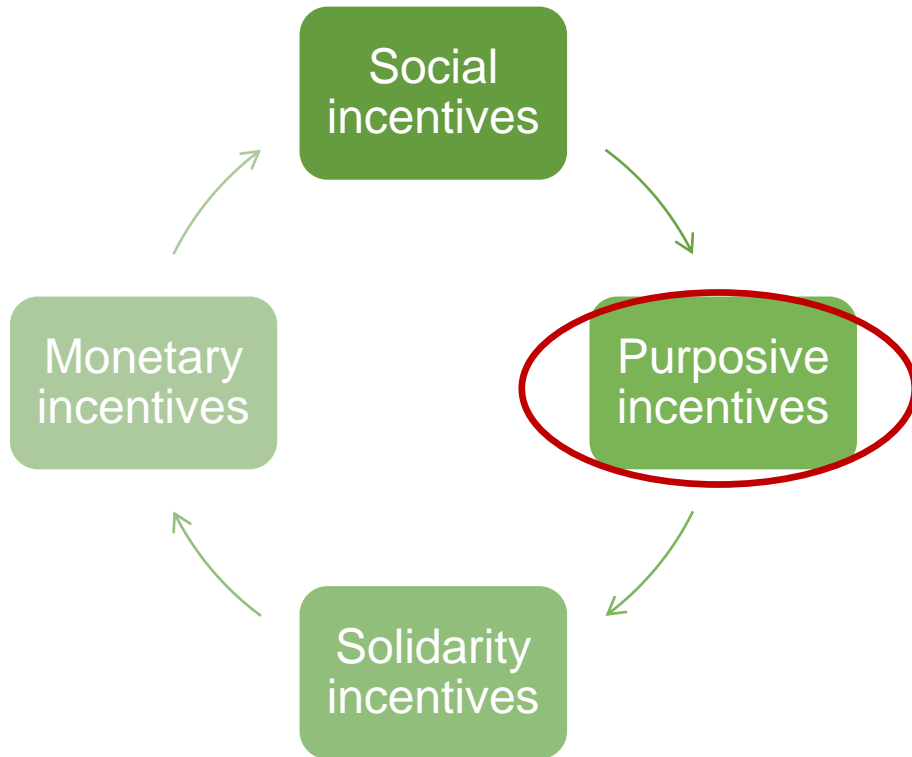


*“I don’t volunteer with MV for **money**, I don’t pay much attention to the payments, and they are such small amounts anyway. I work with MV for **social work and personal development**...”*

**– Male volunteer from Jamui, Bihar**

Olson, M (1965). The Logic of Collective Action

# Mixed structure of incentives for the volunteers

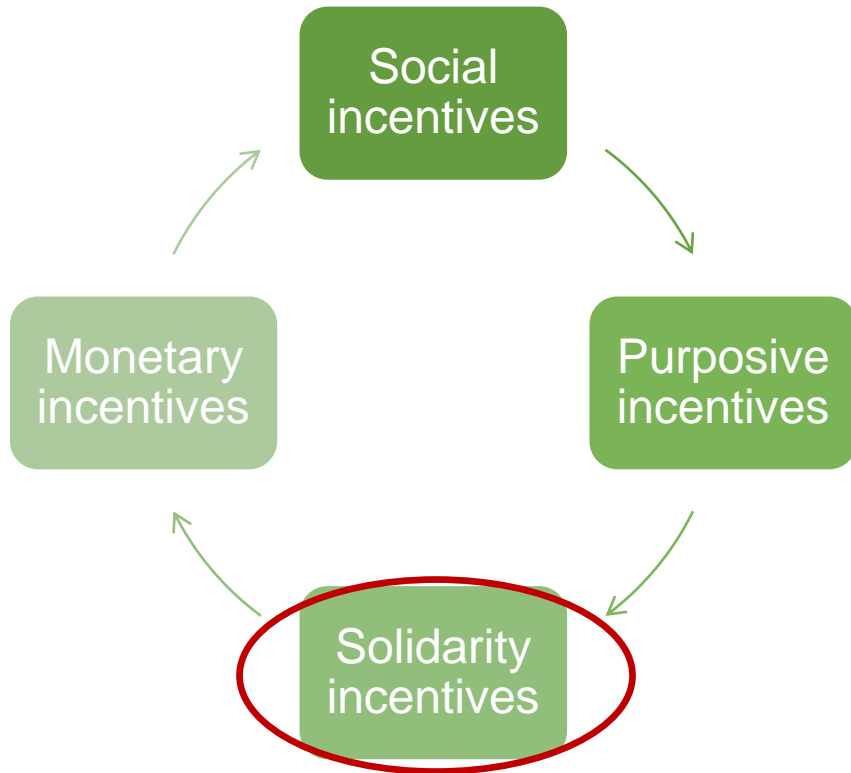


*“... MV has helped women like me, come out of our conservative households, **build our identity** as community reporters and stand for ourselves for finding solutions to our problems... Before listening to MV, my husband never allowed me to go out of the house to attend meetings, but ever since he started listening to MV he has encouraged me go for club meetings... he is positive that I’ll learn something constructive out of it...”*

**– Woman volunteer from Jharkhand**

Olson, M (1965). The Logic of Collective Action

# Mixed structure of incentives for the volunteers

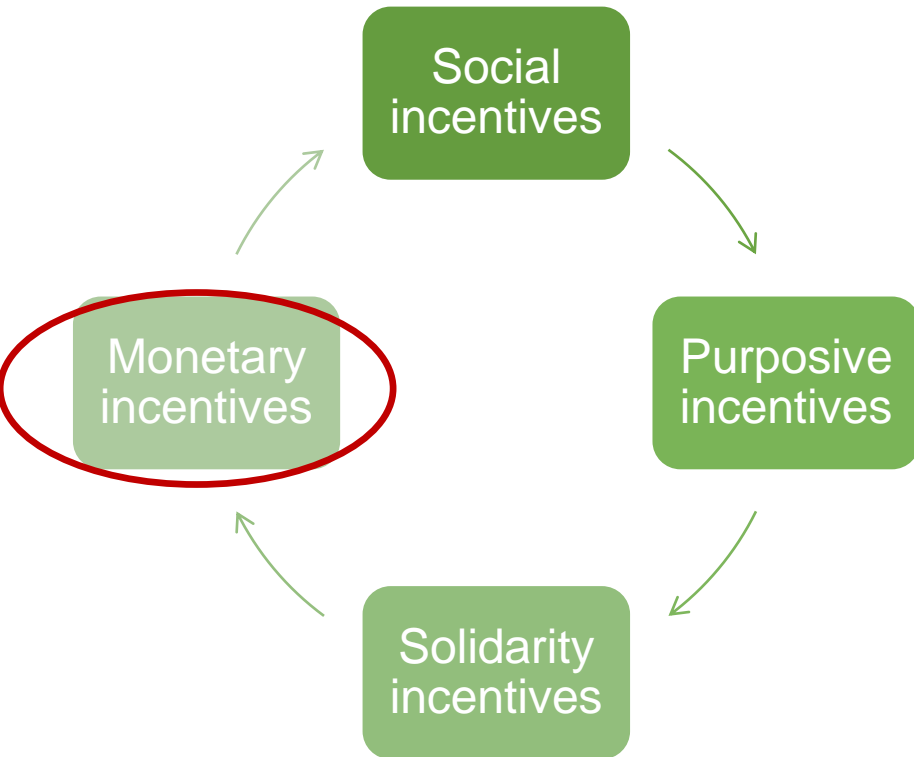


*“I like the concept of **clubs** because it gives us a sense of involvement. Working on the issues of our own area as a close collective gives us a sense of purpose. We have a local club leader, and we believe in future we can also become leaders of our clubs, so it gives us a motivation to keep working for the group...”*

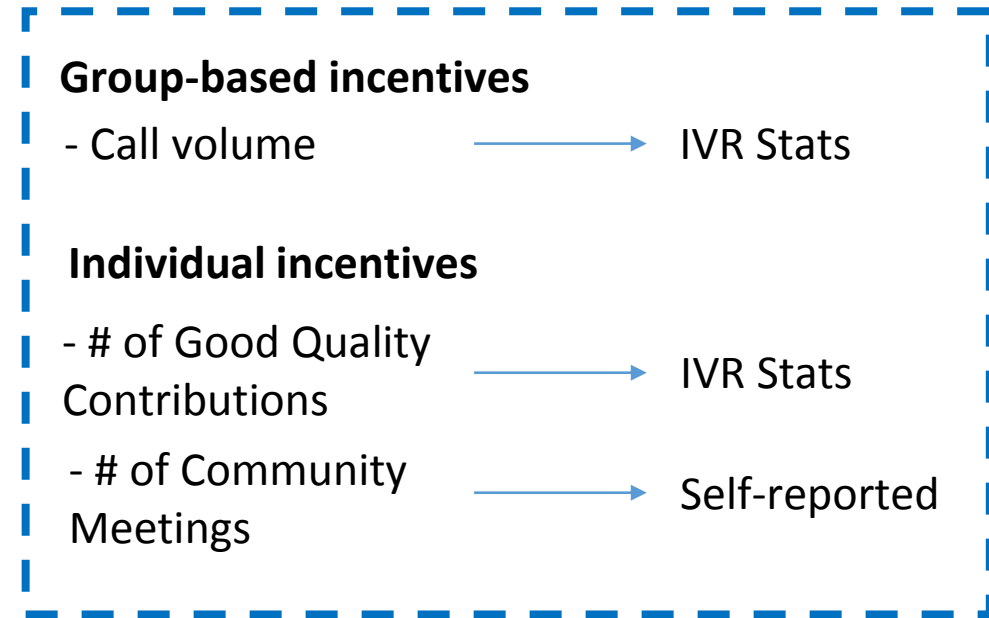
**- Woman Volunteer from Ranchi, Jharkhand**

Olson, M (1965). The Logic of Collective Action

# Mixed structure of incentives for the volunteers



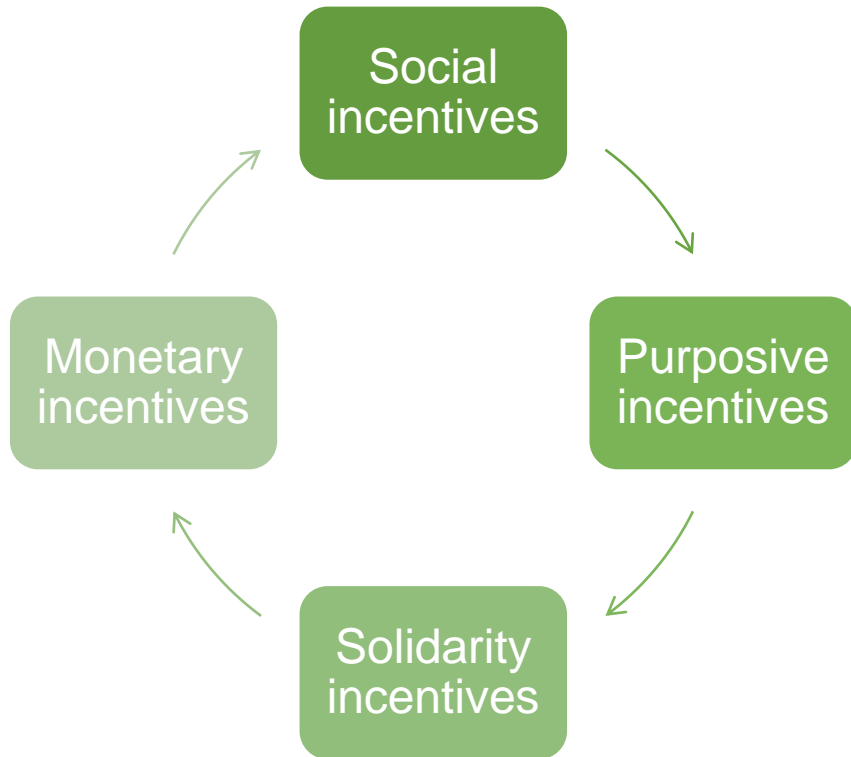
Olson, M (1965). The Logic of Collective Action



Intended to reinforce the signals to build strong collectives, not to free-ride, and to bring observability to all members about individual contributions

# Mixed structure of incentives for the volunteers

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- Near zero attrition of volunteers
- Mutual accountability
- Negligible monitoring required
- Clubs have become institutions in themselves

Olson, M (1965). The Logic of Collective Action

**CAREFUL MANAGEMENT TO FACILITATE  
MUTUAL RESPECT AMONG VOLUNTEERS**

# Signalling the character of the medium



	Strike update	Problems caused	Valid cause	Invalid cause	Request to Govt.	Request to para-teachers
Para-teachers	24%	7%	31%		37%	
Activists	10%	24%	20%	12%	31%	3%
Students		43%	4%	17%	34%	
Parents	4%	38%	9%	9%	38%	
Govt.						99%
<b>Overall</b>	<b>13%</b>	<b>22%</b>	<b>21%</b>	<b>8%</b>	<b>34%</b>	<b>1%</b>

<b>Mass Media</b>	<b>53%</b>	<b>17%</b>	<b>23%</b>		<b>5%</b>	
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Editorial policies to handle:

- Grievances on cyber-bullying
- Politically motivated content
- Verification of allegations
- Filter on tone of messages

Information completeness as an editorial principle

**GRIEVANCE RESPONSE AND STRONG SIGNALLING TO FACILITATE MUTUAL RESPECT AMONG USERS**



# Processes to manage the socio-technical interface of Mobile Vaani

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## DEALING WITH ASPECTS LIKE...

## NEEDS

## PROCESSES LIKE...

Existing social inequities and literacies

Creating technology and service literacy

Remoteness between designers and users

Federated setup

Sustainability and internal accountability

Feedback processes

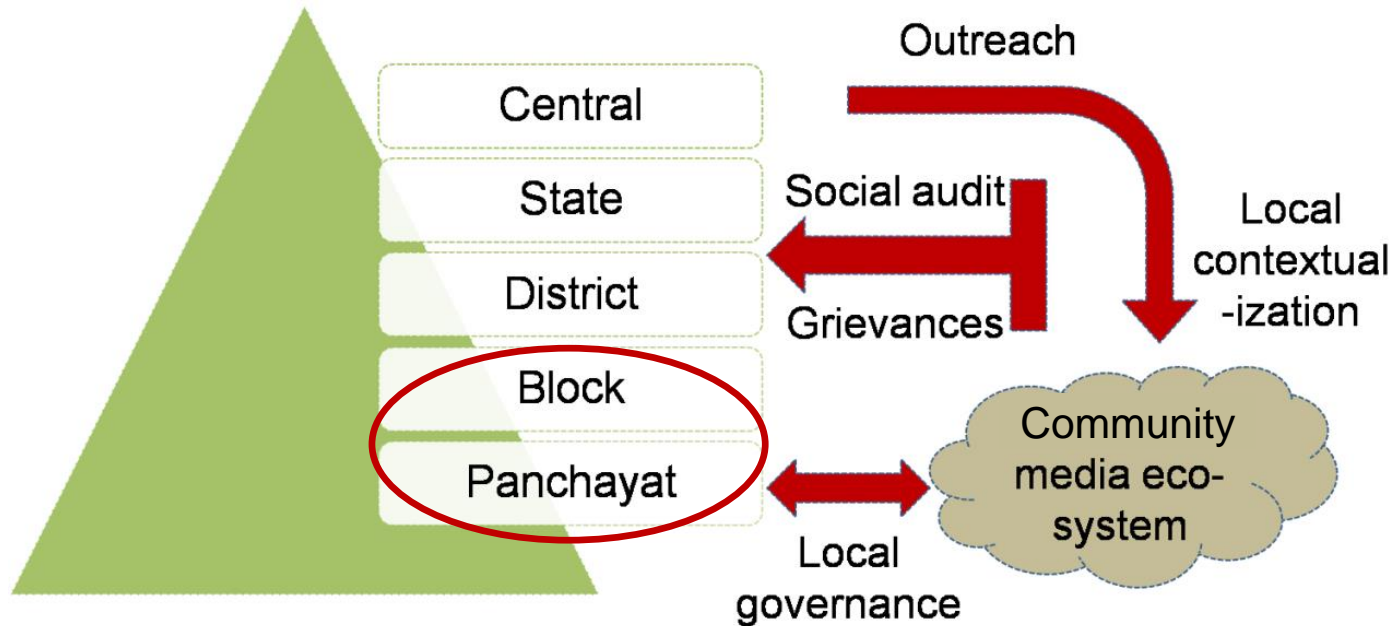
Social and institutional credibility

Mix of social and monetary incentives

Signalling the character of the medium

Offline partnerships

# Facilitating change through media



Fear of escalation and personal networks of volunteers can make things work at the local level

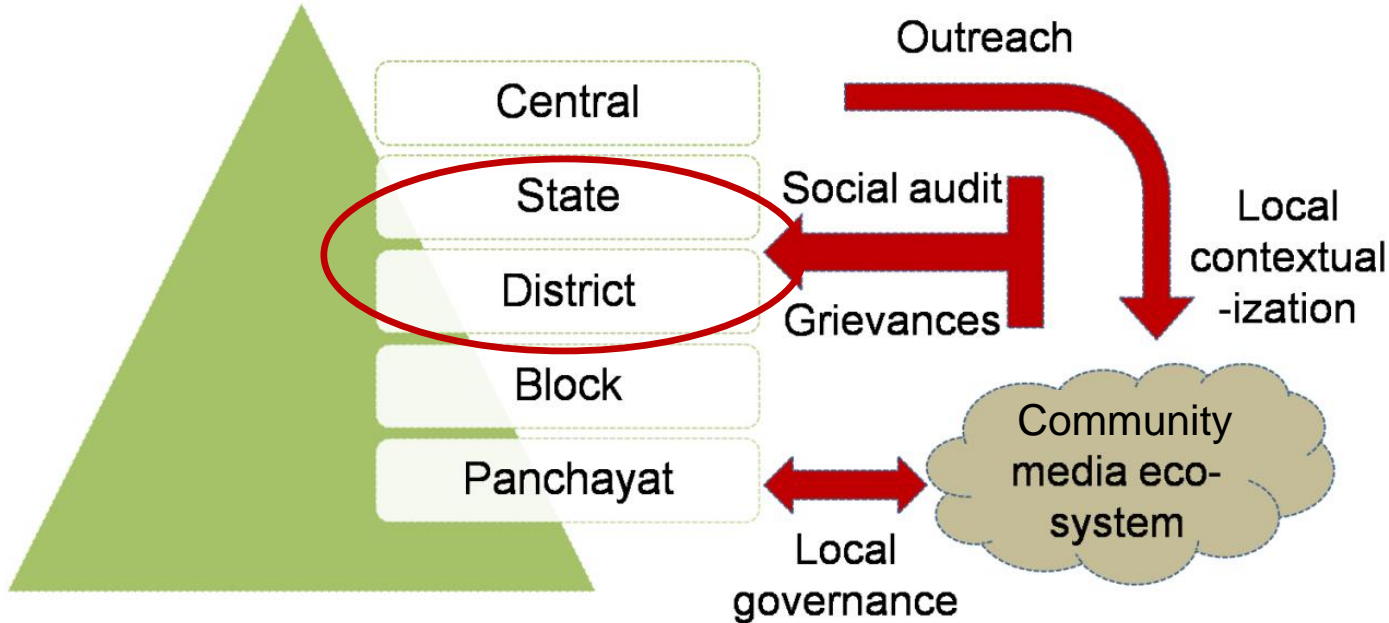
Can be formalized for scale-up:  
*Janta darbar, Jan Shakti Abhiyan, Escalation forwarding*

People reported on a few officials who were demanding bribes for UID enrollment. The site was visited by the block development officer and the officials were fined

A village ignored by health agencies was reported to have had 3 malaria deaths in the last one week. A mobile ambulance was immediately dispatched, with fumigation equipment and first aid

**NEEDS DELIBERATE EFFORT TO MENTOR THE VOLUNTEERS AND BUILD RELATIONSHIPS TO EFFECTIVELY USE THE TECHNOLOGY**

# Facilitating change through media



Partnerships with the government and other stakeholders can facilitate institutionalized links to improve citizen-government engagement

Authorized to collect grievances on the RSBY health insurance programme and channel them to RSBY mitras, provide publicly accessible reports to the government authorities

Citizen-based auditing of the cleaning status of waste dumping sites in Delhi. Review of disputes by the commissioner helped uncover several process flaws in the urban waste management system.

**NEEDS DELIBERATE EFFORT TO CREATE PARTNERSHIPS AND FACILITATE NEW USE-CASES TO EFFECTIVELY USE THE TECHNOLOGY**

# Processes to manage the socio-technical interface

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**DEALING WITH ASPECTS LIKE...**

**NEEDS**

**PROCESSES LIKE...**

Existing social inequities and literacies

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Remoteness between designers and users

Federated setup

Feedback processes

Sustainability of the technology

Mix of social and monetary incentives

Dynamic character of the medium

Social and institutional credibility

Offline partnerships

**IT IS COMPLEX!**

**WELL BEYOND THE TECHNOLOGY DESIGN**

**NEEDS CAREFUL MANAGEMENT, THE RIGHT SIGNALLING, COST DECISIONS, PARTNERSHIPS, CAPACITY BUILDING...**

# Let us compare with Facebook and other social media platforms

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## DEALING WITH ASPECTS LIKE...

## DOES !NEED

## PROCESSES LIKE...

Existing social inequities and literacies

Appropriation by more skilled users:  
The new gatekeepers

Remoteness between designers and users

Community standards are made by  
Facebook, not the communities. Imposed  
by AI

Sustainability and internal accountability

Inadequate management tools to evolve  
strong internal norms. Reddit is better

Social and institutional credibility

Little effort to translate communication  
into action

# Let us compare with Facebook and other social media platforms

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**DEALING WITH ASPECTS LIKE... DOES !NEED PROCESSES LIKE...**

Existing social inequities and literacies

Appropriation by more skilled users:  
The new gatekeepers

Remoteness between designers and users

Quality standards are made by  
Facebook, not the communities. Imposed

**- NOT TAKING STEPS TO RE-DESIGN THE PLATFORM APPROPRIATELY**

Sustainability and accountability

Leadership management: it took to evolve  
strong internal norms. Reddit is better

**- NOT GOING BEYOND TECHNOLOGY, TECHNOLOGY-SOLUTIONISM**

Social and institutional credibility

Little effort to translate communication  
into action

**- NO CLEAR GOAL OTHER THAN TO IMPROVE "BUSINESS METRICS" OR  
EVADE REGULATIONS**

# Processes to manage the socio-technical interface

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**User interface** Ethics of persuasive technology, informed consent, appropriate design

**Algorithms and data** Data privacy, de-biasing of data, algorithmic fairness

**System design** Individual Vs collective, centralized Vs decentralized, private Vs assisted access

**Socio-technological interface** Interactions of the technology with society, shaped by societal dynamics

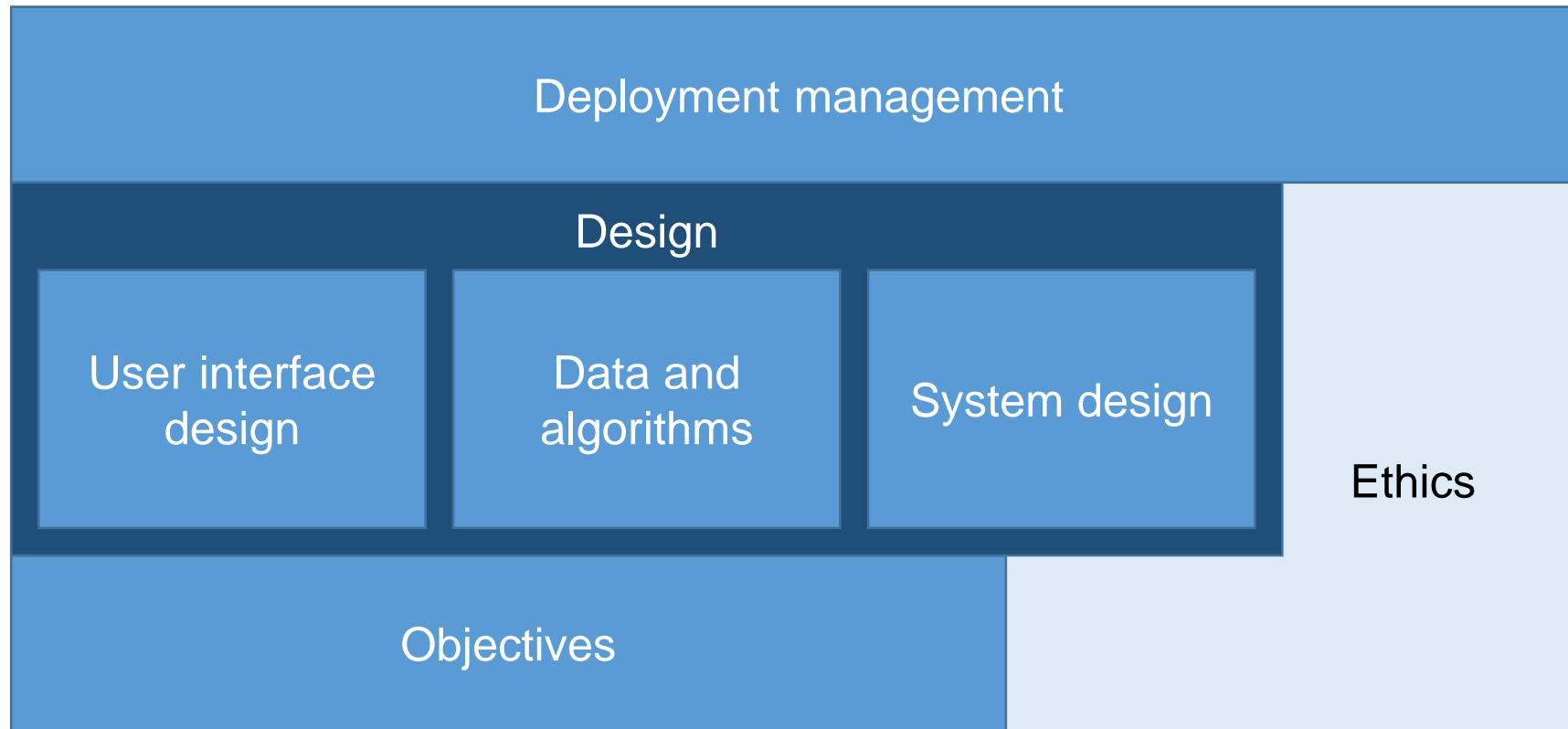
Society is too complex to have design alone be sufficient to ensure responsible outcomes.

Continuous management is needed.

What guiding principles can help build better processes to manage deployments?

# Ethical underpinnings in the design and management of ICT projects

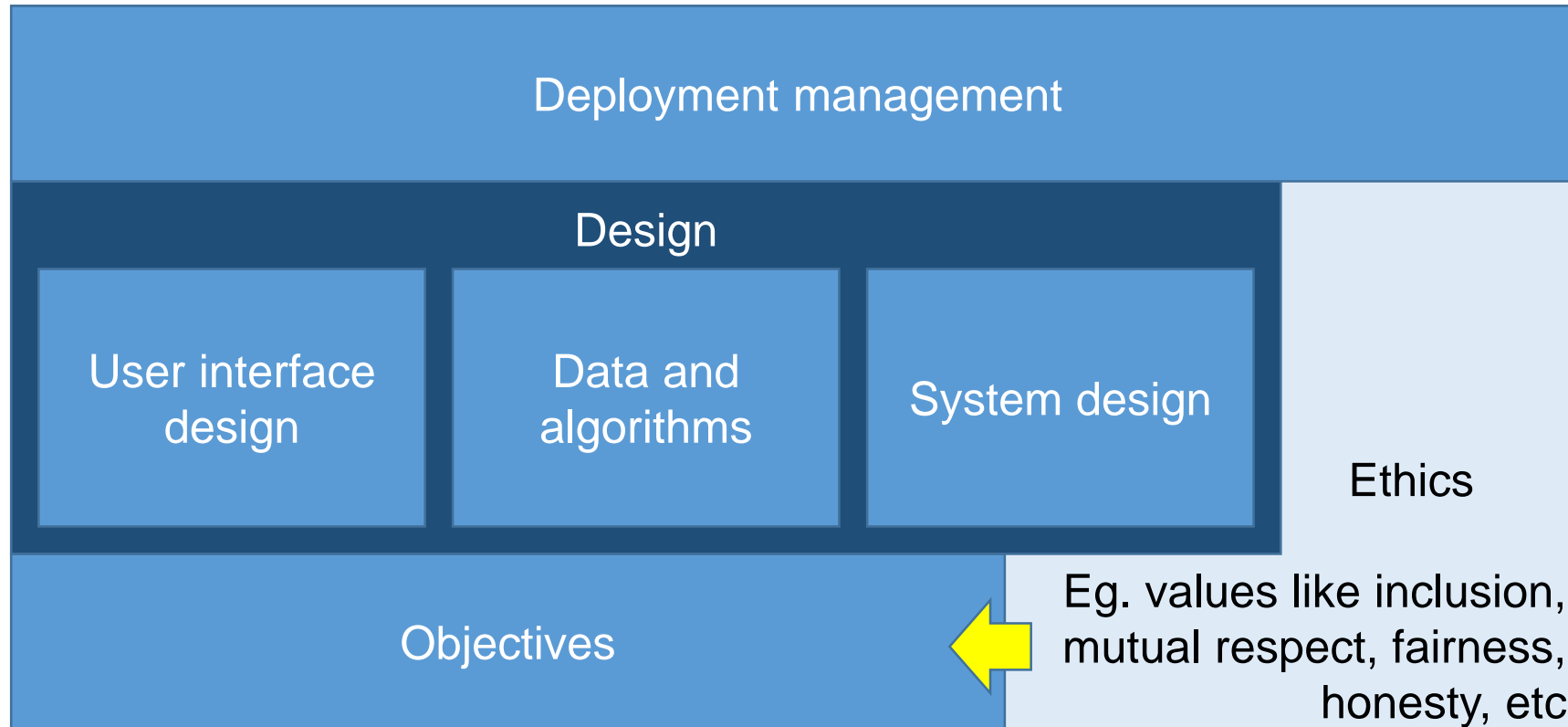
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**Rich history of diverse ethical systems to think about fairness, equality, power...**

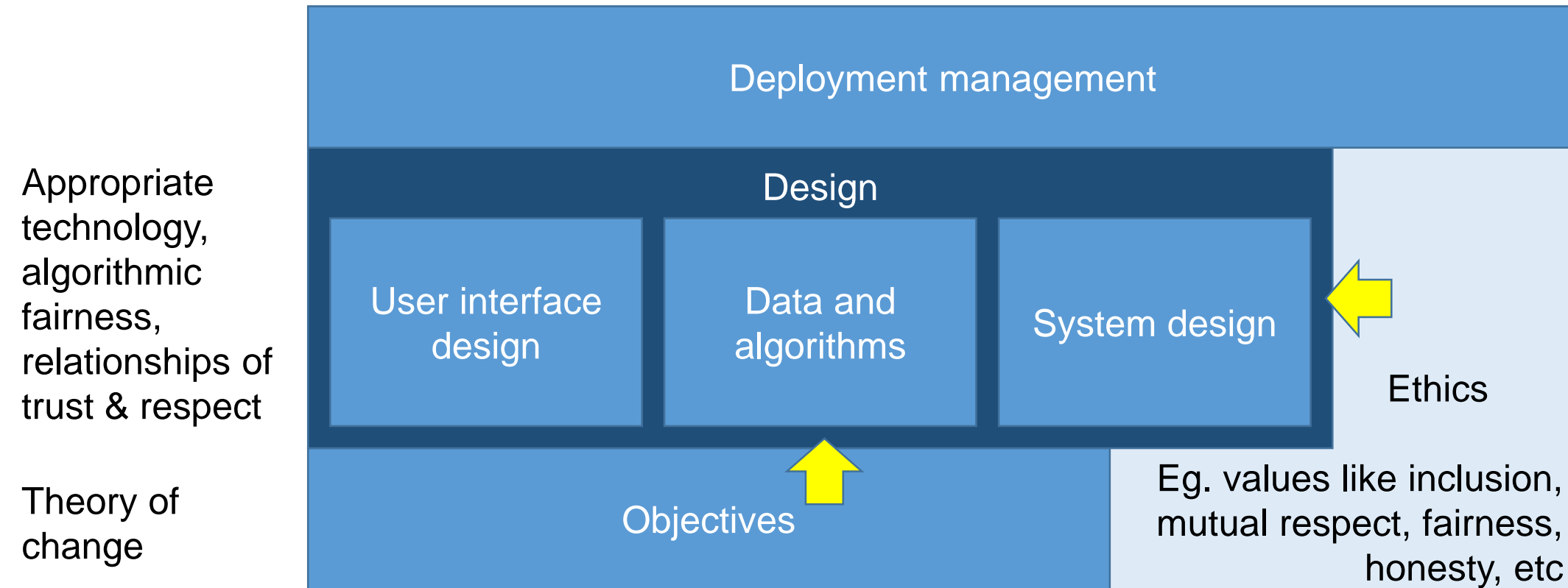


# Ethical underpinnings in the design and management of ICT projects



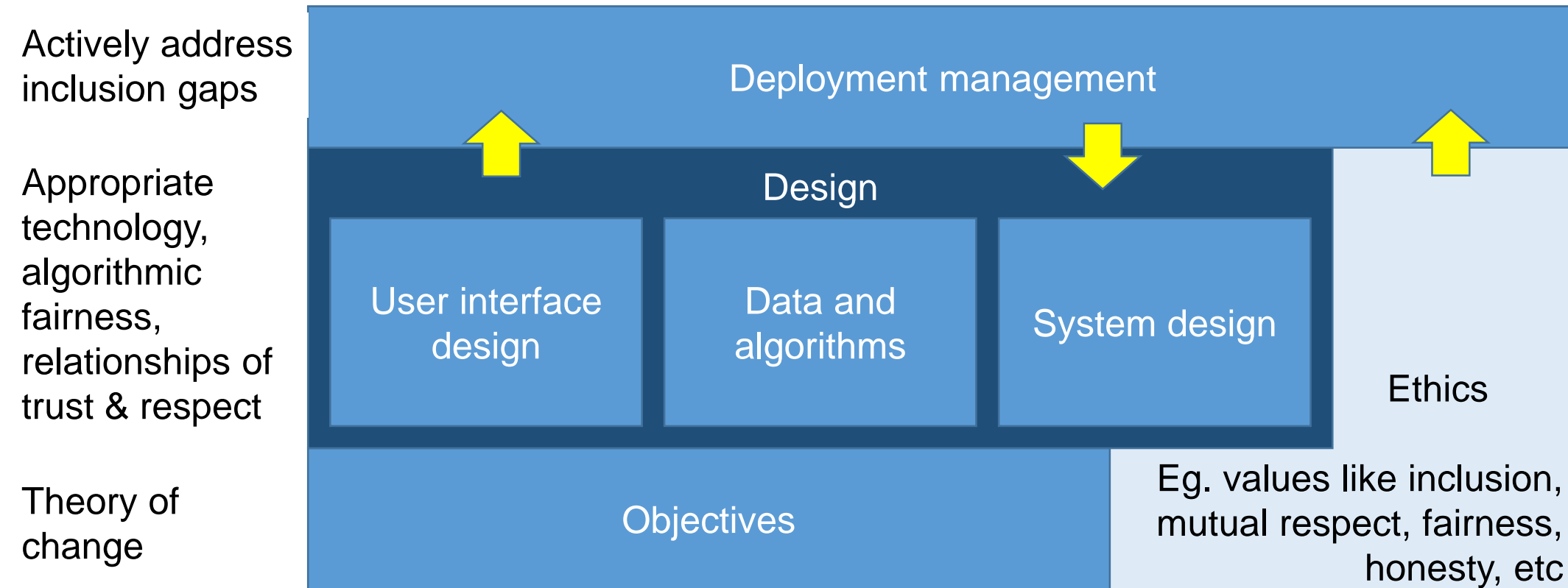
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# Ethical underpinnings in the design and management of ICT projects



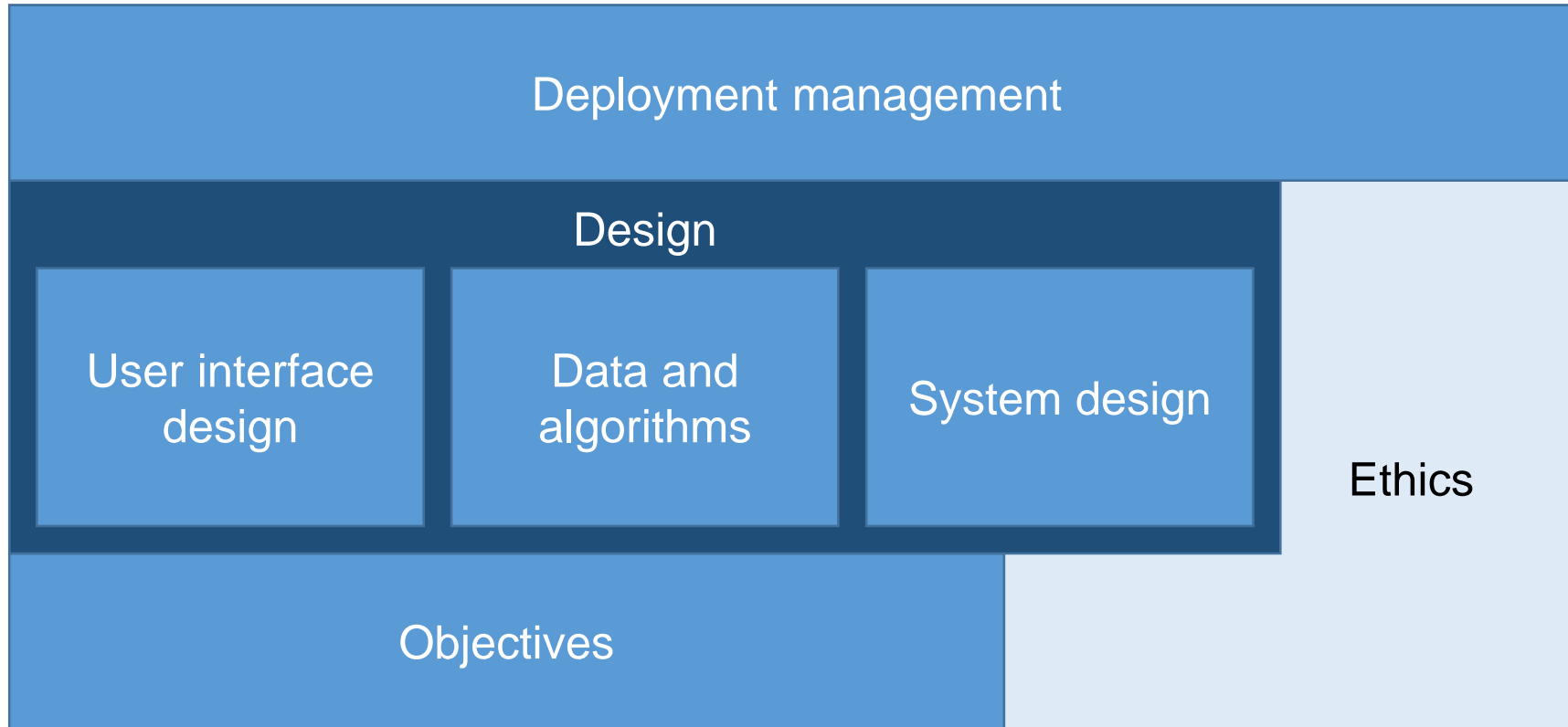
**Rich history of diverse ethical systems to think about fairness, equality, power...**

# Ethical underpinnings in the design and management of ICT projects



**Rich history of diverse ethical systems to think about fairness, equality, power...**

# Consistency test for adherence to a common ethical system



Aadhaar



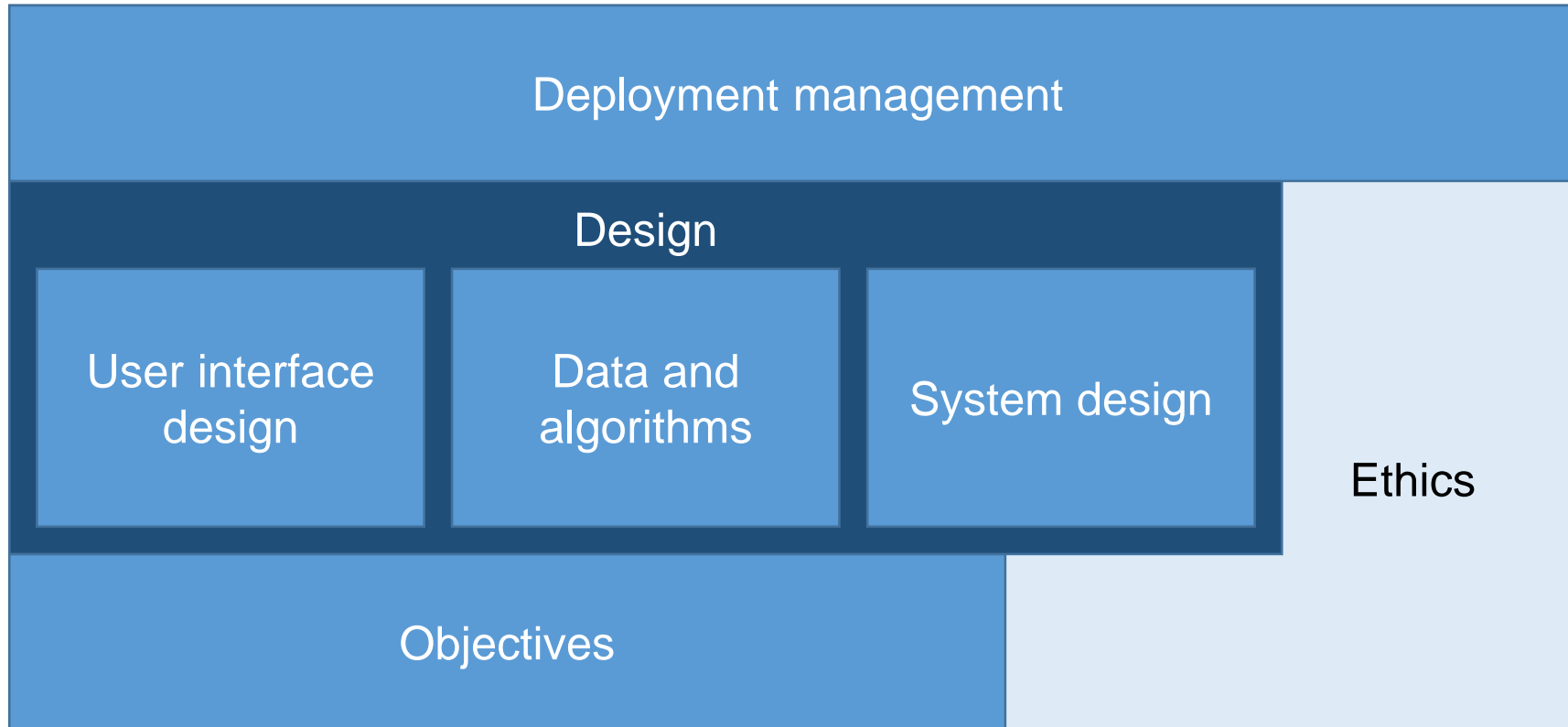
Facebook



Mobile Vaani

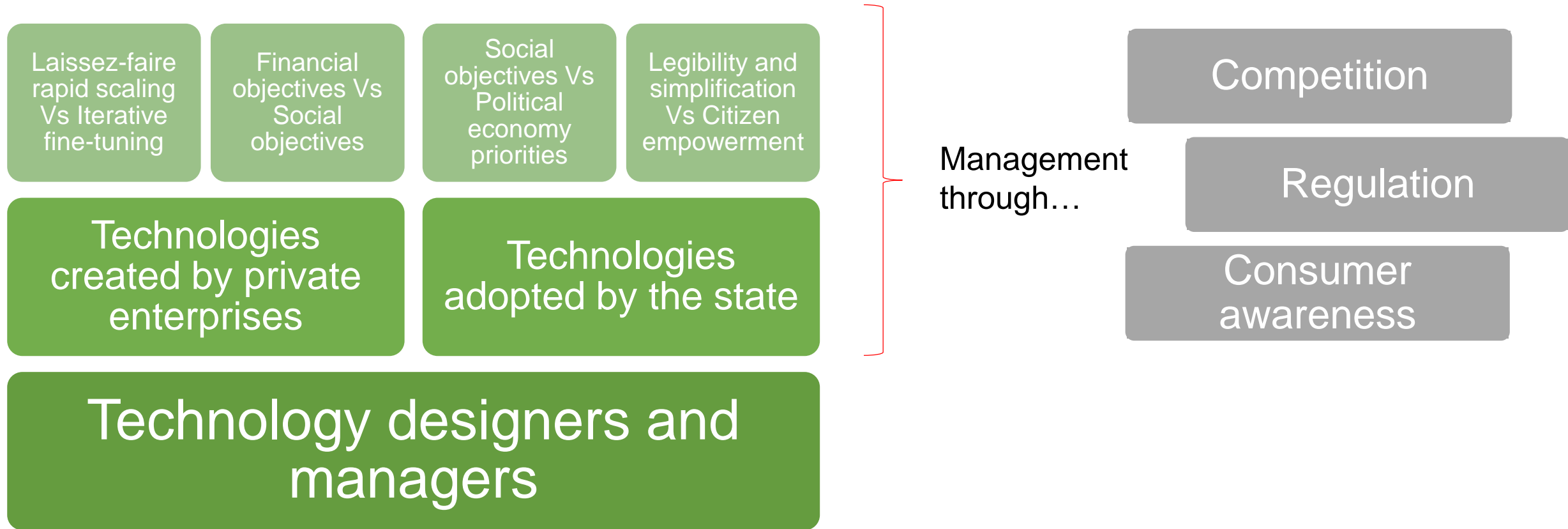
# Ensuring responsible outcomes from technology

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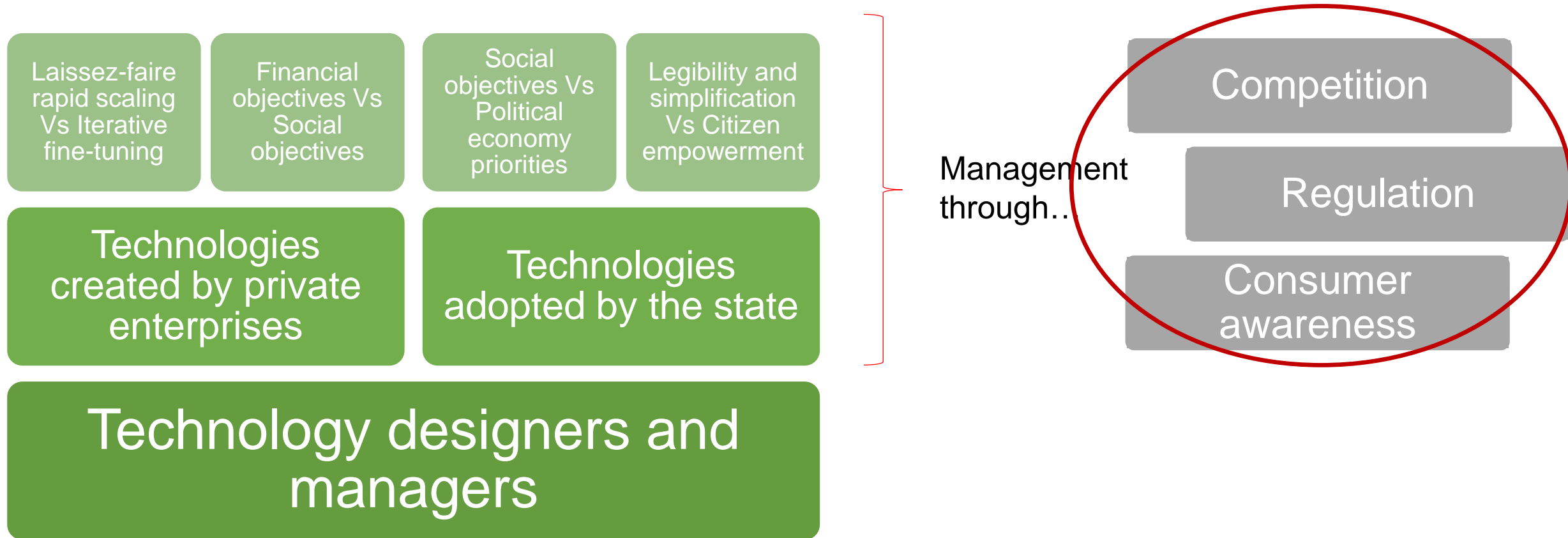


**How can we ensure that companies or governments building and managing these technologies, define and adhere to a consistent set of ethical principles?**

# How can we ensure that technologists pay attention to these layers?



# How can we ensure that technologists pay attention to these layers?



# Political economy behind policy making

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What can the media coverage of different policies tell us about the political economy around technology policy making?

Aadhaar

Digital India

Cashless economy

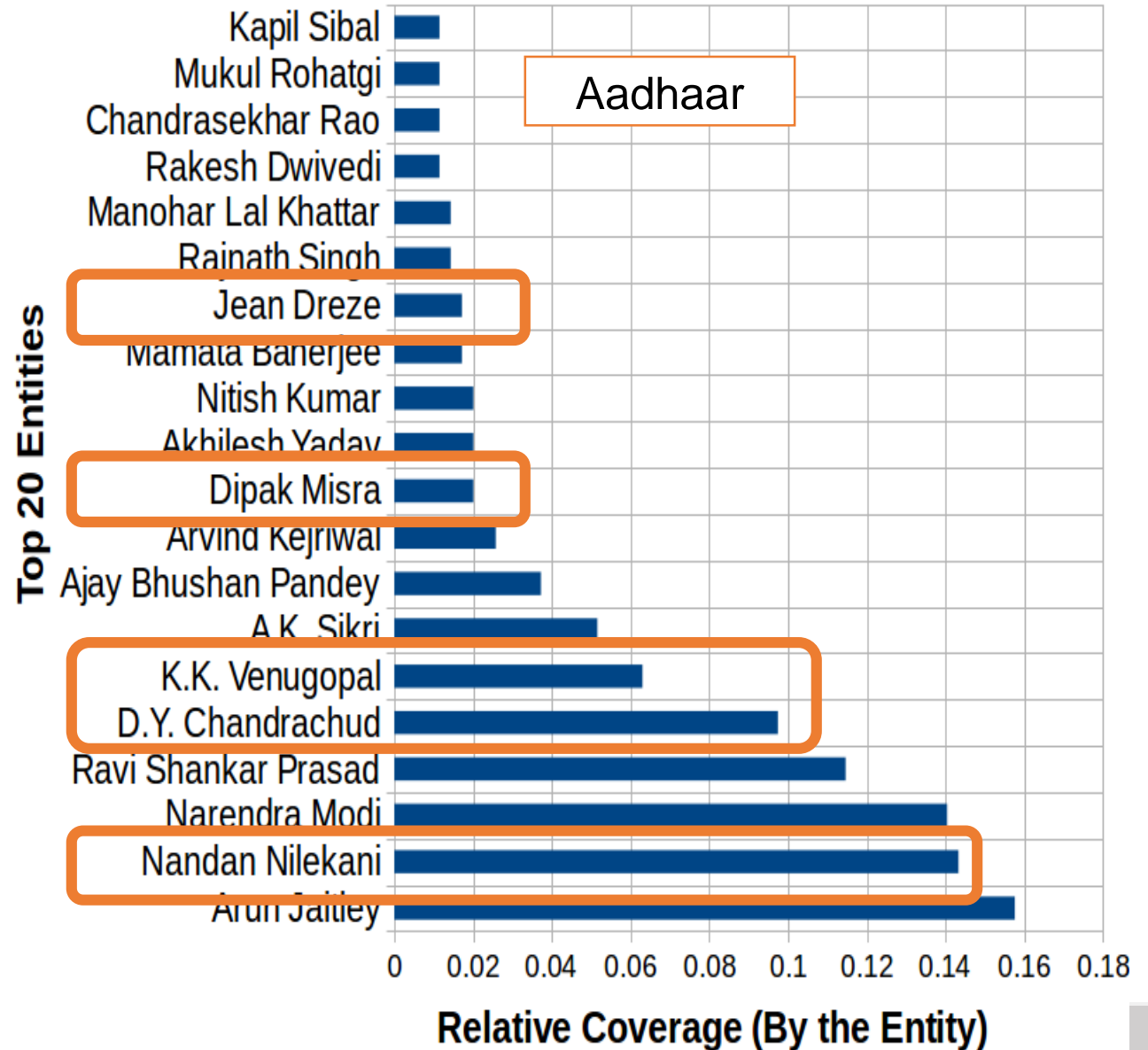
E-Governance



# Who is the most vocal, most featured in the mass media?

## Aadhaar

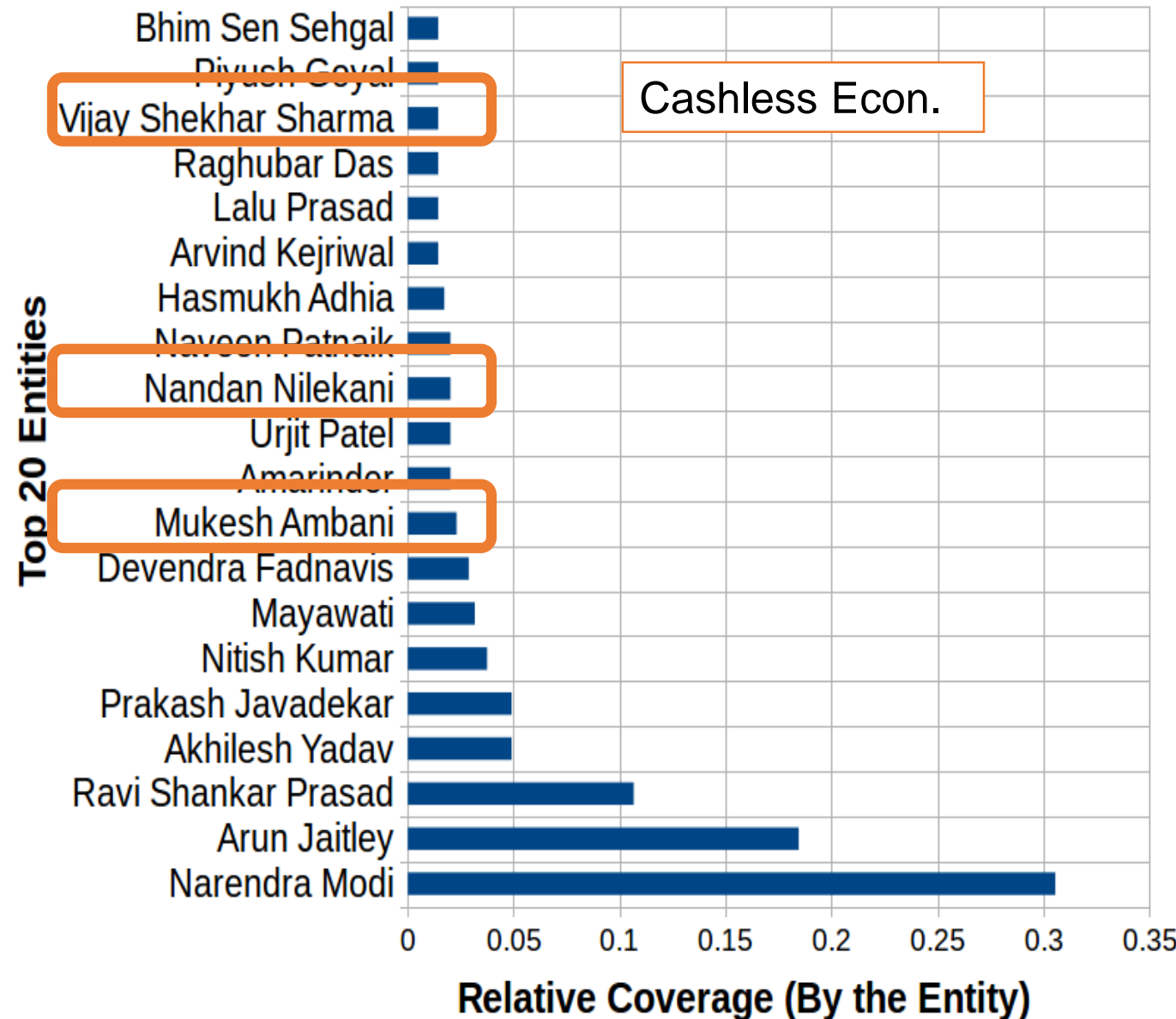
- Nandan Nilekani
- Judiciary members: K.K. Venugopal, D.Y. Chandrachud, Dipak Misra
- Academic/activist: Jean Dreze



# Who is the most vocal, most featured in the mass media?

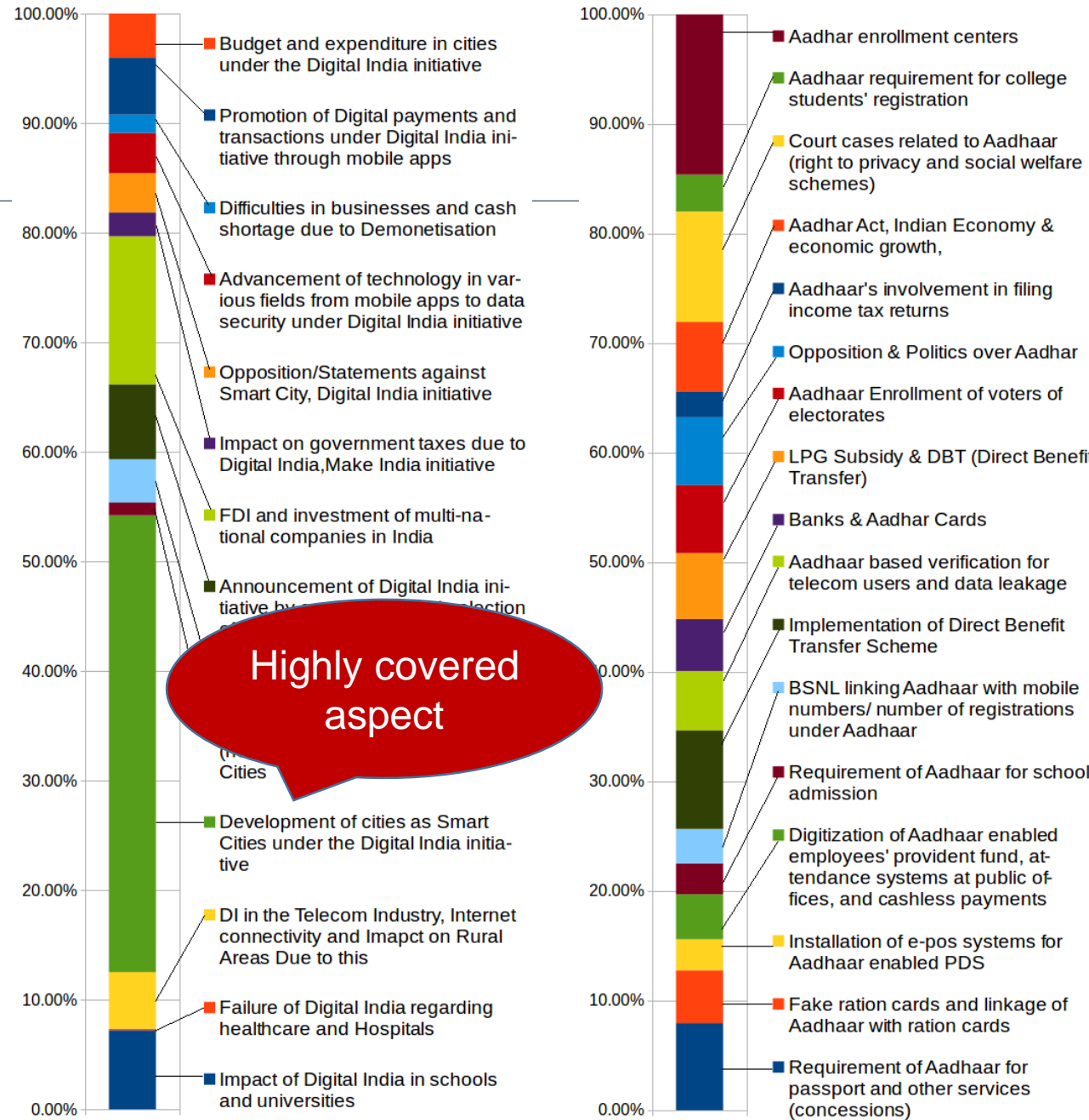
## Cashless Economy

- Corporate engaged people:  
Mukesh Ambani, Nandan Nilekani, Vijay Shekhar Sharma



# Which aspects are covered?

- Topmost coverage is given to **aspects related to the middle class, or state's rationale to encourage the schemes**
  - **Development of smart cities under Digital India initiative (42%)**, FDI of multinationals in India
  - **Aadhaar enrollment centers (17%)**, Court cases on privacy issues, LPG subsidy



# Which aspects are covered?

- Topmost coverage is given to **aspects related to the middle class, or state's rationale to encourage the schemes**
  - **Development of smart cities under Digital India initiative (42%)**, FDI of multinationals in India
  - **Aadhaar enrollment centers (17%)**, LPG subsidy
- Less coverage is given to **failures in the implementation and problems of the poor:**
  - **Absence of physical infrastructure in smart cities (1%)**, Digitization of land records
  - **E-PoS centers and problems with PDS (3%)**



# What do the power elite say?

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*"... its wider application in areas such as passport issuance, online identity*

*verification  
governments  
the country  
-- Na*

*"When  
of 10  
time.  
do it*

*to acquire a million customers a day,  
which is unheard of in the industry"*

*-- Mukesh Ambani*

*"The Narendra Modi  
government must guard*

**POLITICS CREATES A VEIL OF ASPIRATIONAL TECHNOLOGY**

**MASS MEDIA IS A PARTY TO PUTTING UP THIS VEIL**

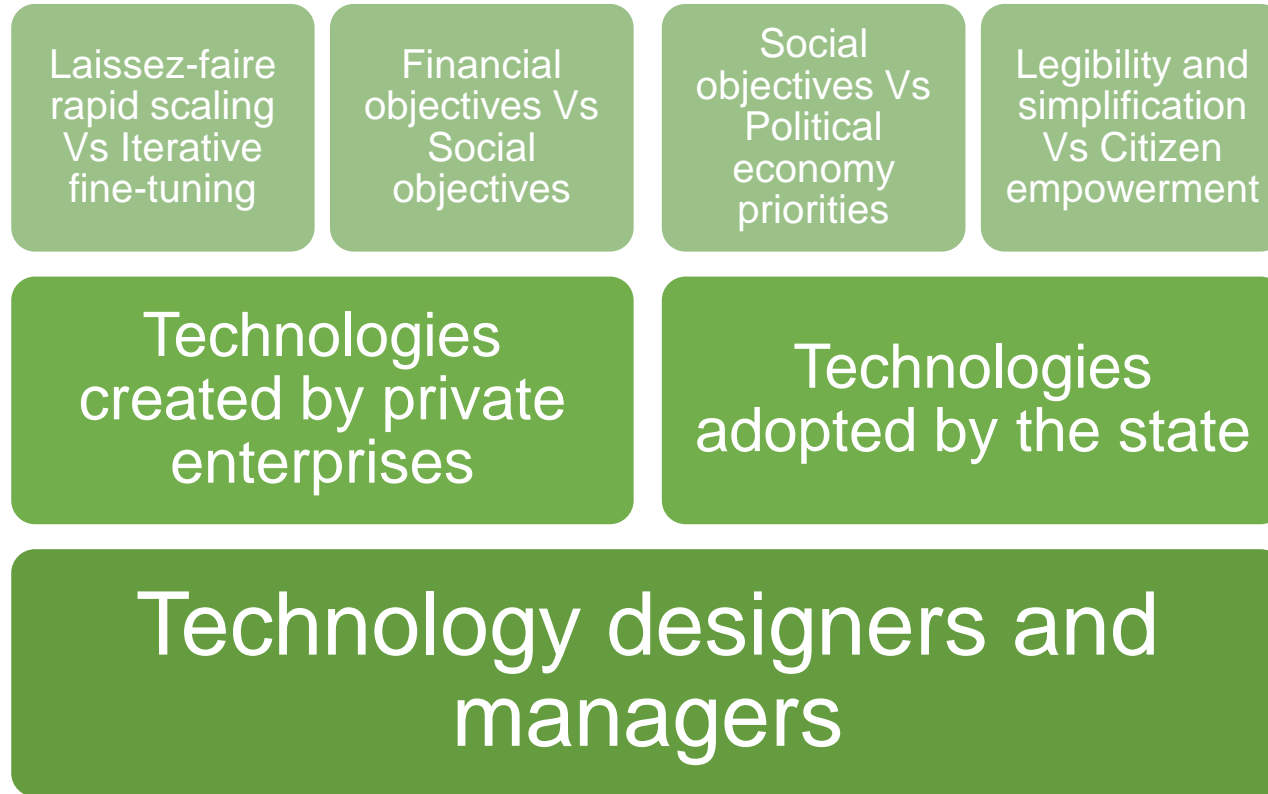
**WHILE STATE AND CAPITAL CLOSELY COOPERATE (MANY REASONS)**

**FOCUS ON RAPID SCALING OF TECHNOLOGY**

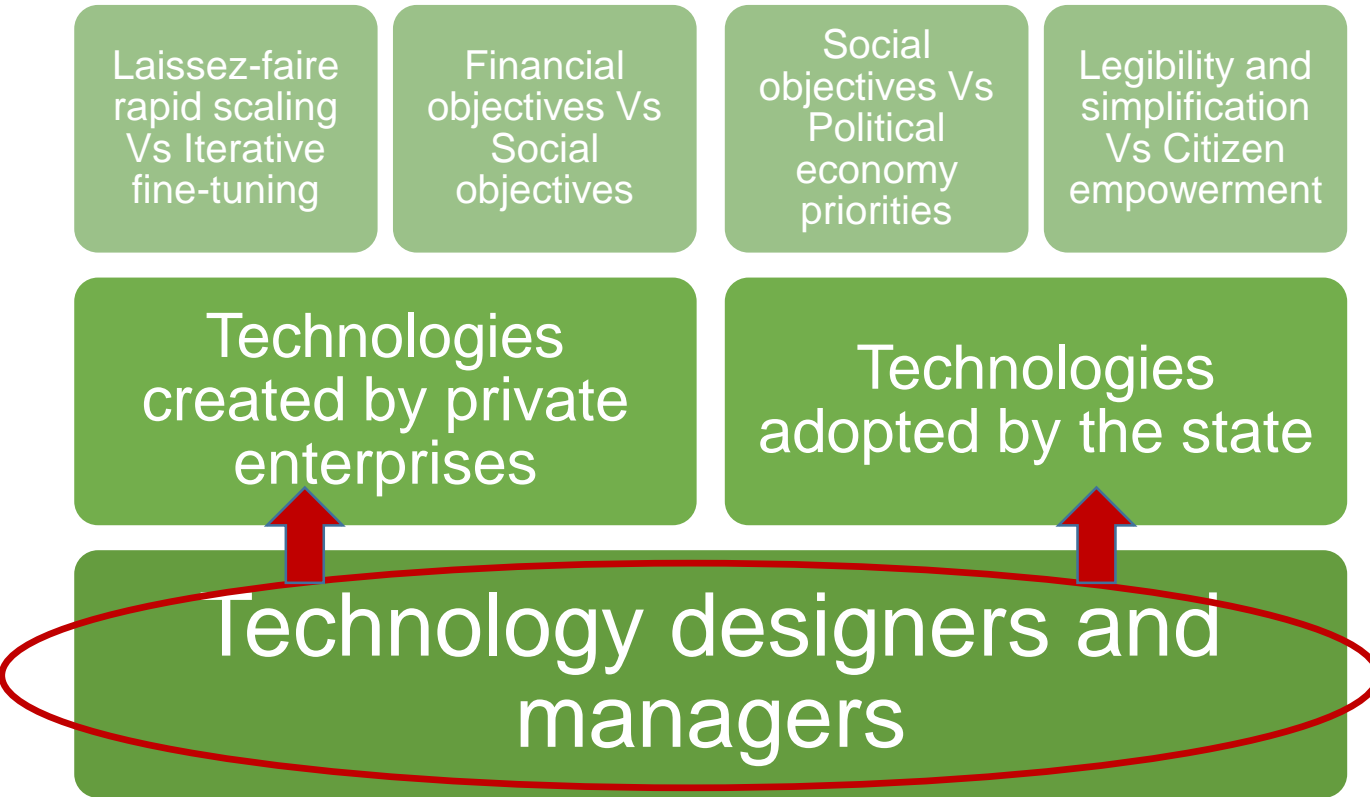
**PAYING INADEQUATE ATTENTION TO SOCIAL RESPONSIBILITY**

*-- Narendra Modi*

# How can we ensure that technologists pay attention to these layers?



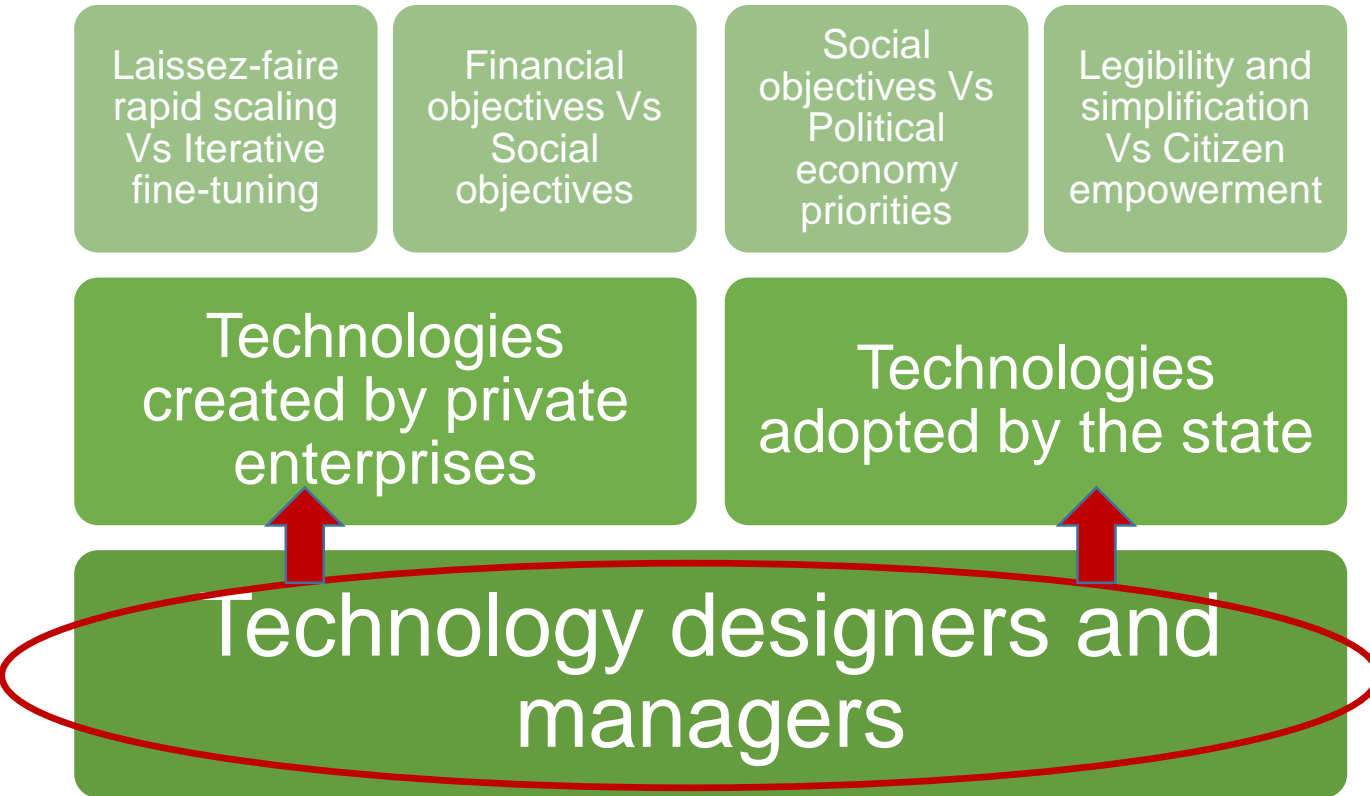
# Reasons for inconsistencies in the ethical systems of technologists



- Inadequate sharing of insights across cross-functional teams → differences in user familiarity, empathy, priorities
- Clarity in the organizational mandate, deliberate ambiguity or selective propaganda with workplace segregation
- Power relationships within and across teams
- Political ideology of different team members. Mentorship vs. self-learning. White-collar vs. blue-collar workers.

Can technology designers and managers ensure that their labour leads to responsible outcomes? That their output reduces inequities in society?

# Mechanisms to bring consistency



- Courses on the ethics of building information systems
- Co-determination in companies through worker representatives
- Lucas Plan, UK, 1976
- Bridge the gap between designers and users, to be able to manage the socio-technical interface better

Can technology designers and managers ensure that their labour leads to responsible outcomes? That their output reduces inequities in society?



## In summary...

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- Ethics forms a crucial foundation for thinking about ICT projects
- The socio-technical interface needs careful management. Design alone is not sufficient
- A lot is known on how to ensure that responsible outcomes arise from technology, but companies and states need to be held accountable to manage it
- One pathway is by empowering the technologists who design and manage computer-based information systems. Courses and curriculum. Networks of white-collar workers / blue-collar workers / and users. Bring change from within
- Also need to build checks and balances in the democratic regulatory framework to bring transparency and accountability in policy formulation (for technology)

Thanks for participating!

# References

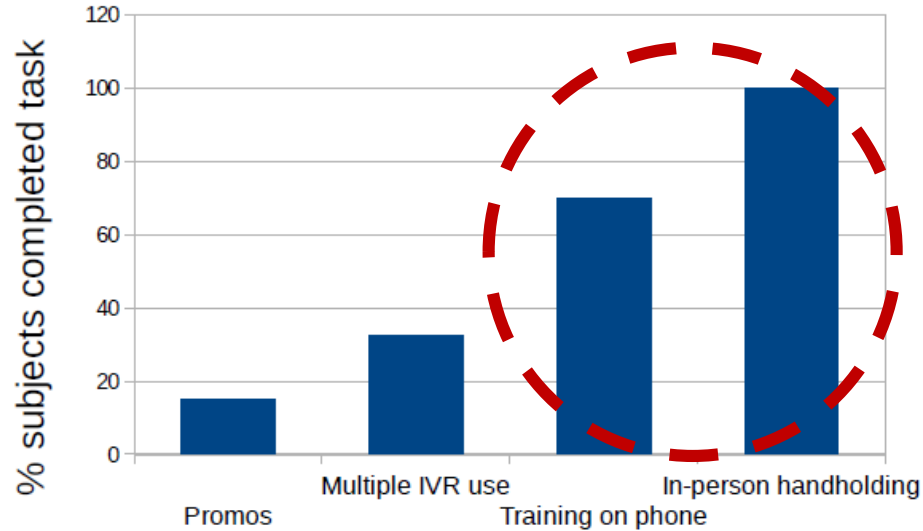
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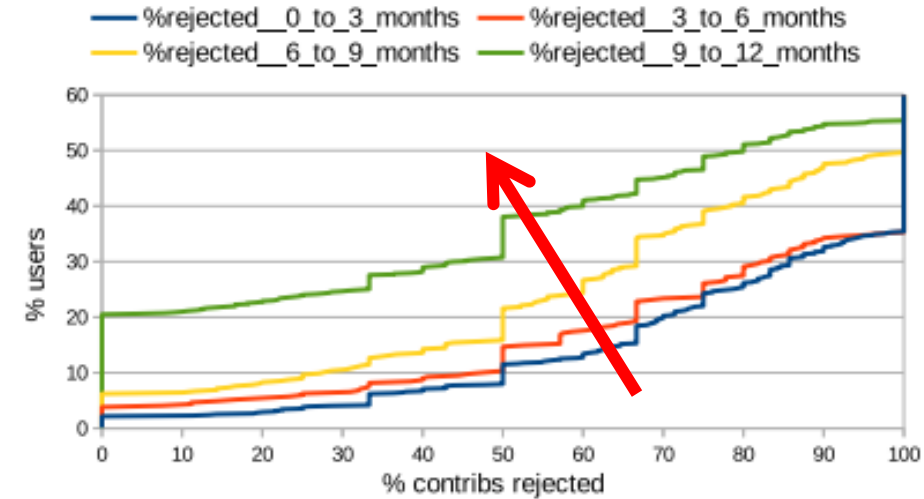
## Extra slides

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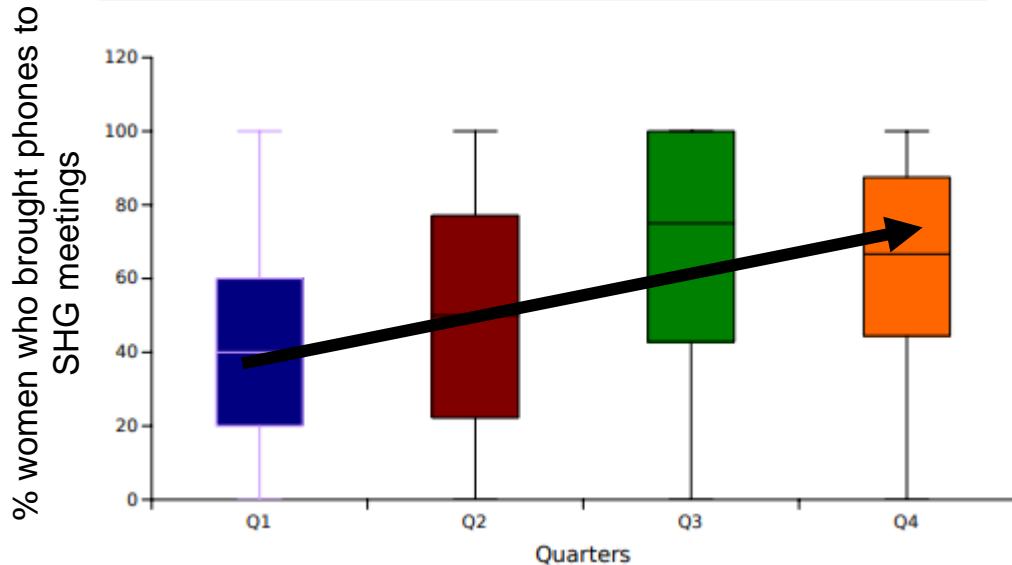
# Creating technology and service literacy



**In-person trainings most effective in helping people to successfully record a message on IVRS (Koradia, et al., 2013)**

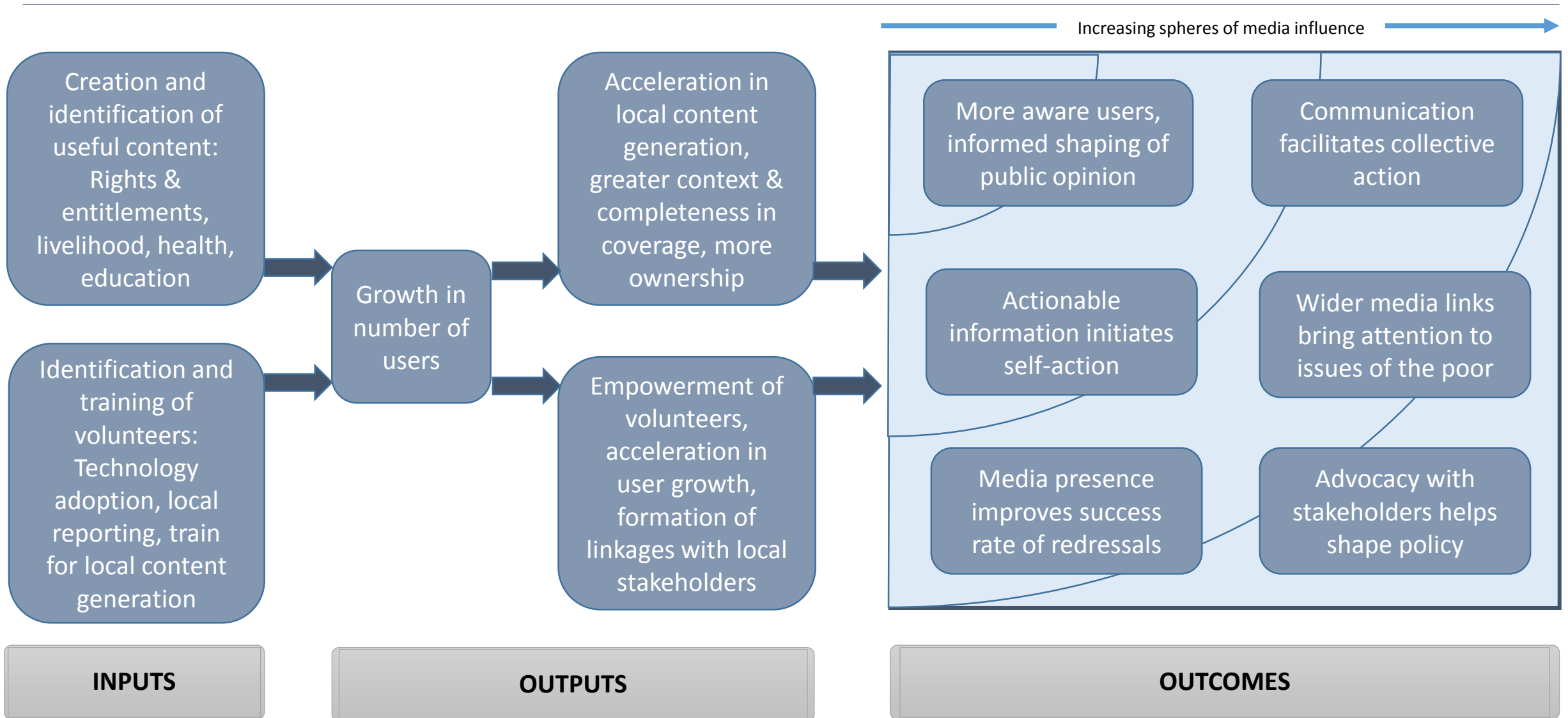


**People learned over time how to use the platform more effectively (Chakraborty, et al., 2019)**

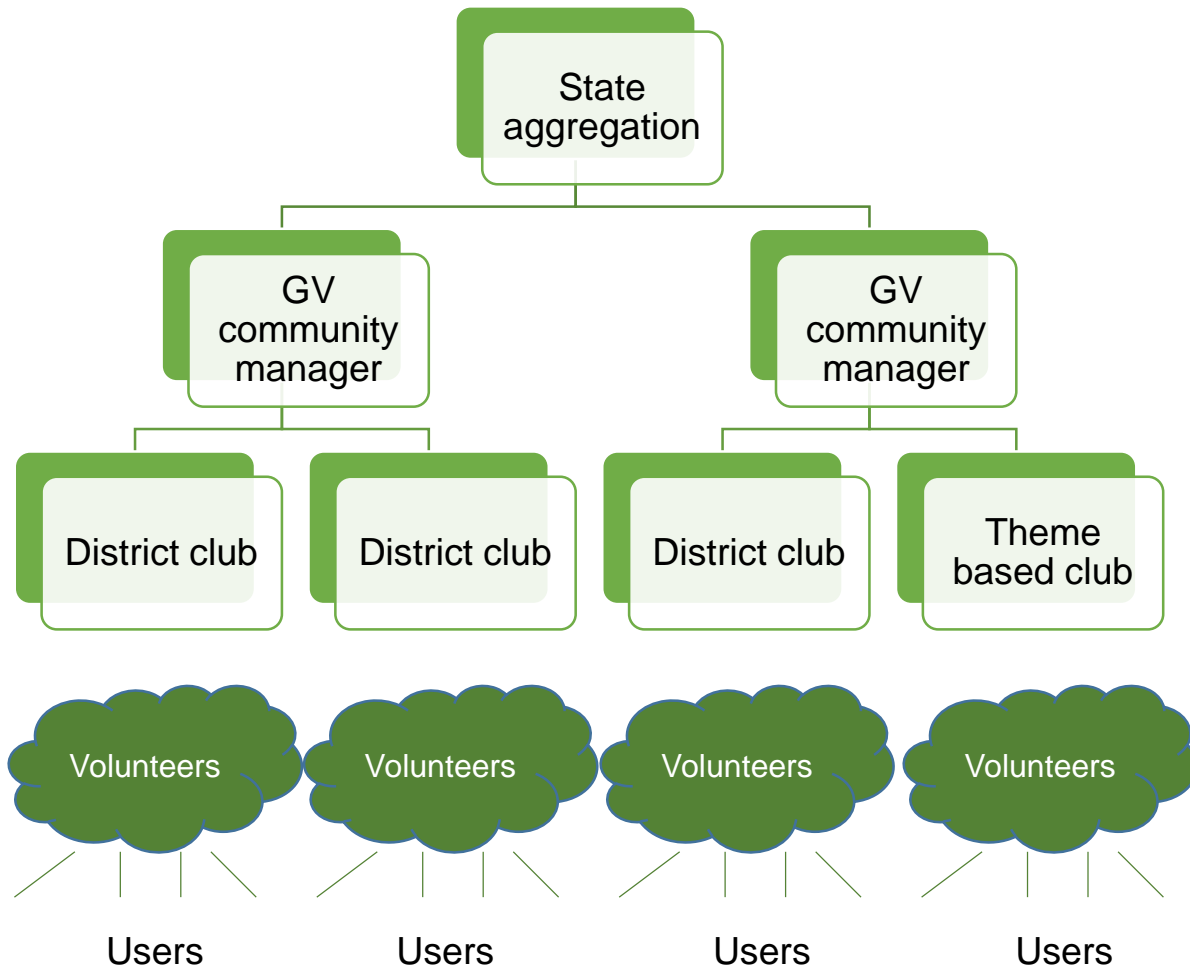


**Constant persuasion helped improve overall phone access and usage (Chakraborty, et al., 2019)**

# The theory of change for how and why Mobile Vaani works



# Federated setup



*In our region, a lot of people suffer from skin and lung cancer; birth defects; inability to carry pregnancy... The number of people suffering from tuberculosis is also increasing day by day. Hence, we decided to initiate a weekly health advisory on our club by partnering with community health workers and local doctors to discuss the preventive and curative measures of diseases like tuberculosis, malaria, diarrhoea, and also help people point to hospitals and clinics where they can seek treatment for cancer, issues of reproductive health and others ...”*

**- MV volunteer from Jharkhand**

# Signalling the character of the medium

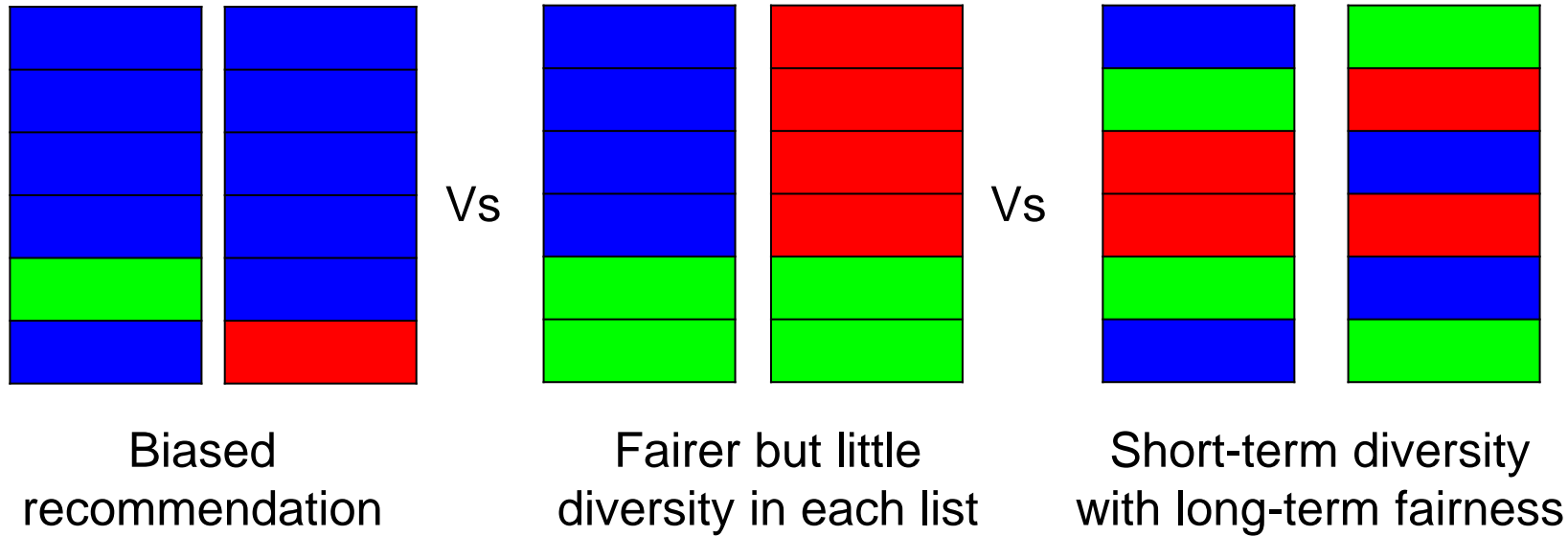
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*“... Mobile Vaani is like an ideal community media platform where people **represent themselves the way they want to**. They don't need an external news agency or a journalist to cover their issues on their behalf... it is the people who own and run the entire MV platform right from choosing the issue they want to base their discussion on, to composing a report, a message, a song or poetry... and recording it on the forum with a view to **encourage further discussion** within the community or make a dent in government administration or **giving mainstream media like our newspaper, material to base news reports on ...**”*

**– Caller from Jharkhand, working with a mainstream newspaper**

**CAREFUL MANAGEMENT TO FACILITATE  
MUTUAL RESPECT**

# Signalling the character of the medium



Platform managers can define fairness policies:

- Equal coverage to all aspects
- Max-min fairness with at least 5% coverage to each aspect

