Digitisation

The Problem

Digital inclusion has been the priority of Government of India and in pursuance of the same various efforts have been taken by the Government's ambitious Digital India programme like BharatNet Digi Locker, eSign Framework, National Scholarship Portal e-Hospital etc. National Optical Fibre Network (NOFN) is an important component of Digital India mission which seeks to digitally empower the citizens. A fully operational NOFN has the potential of bringing significant changes in lives of rural citizens. Another component which is crucial for the attainment of objectives of Digital India Mission is Aadhaar. Aadhaar is instrumental in empowering common man and their digital inclusion.

The tele density, which was 12.98 as on March 2006, has reached to 92.89 as on March 2018. With 252 million Internet users, India ranks third worldwide in terms of sheer total of people connected to the internet. Mobile broadband penetration is 16.8 percent. However, the fixed broadband penetration in India is 1.4 percent.
National Optical Fibre Network (NOFN), an ambitious initiative to trigger broadband revolution in rural India, is creating a robust middle network infrastructure layer to connect gram panchayats of the country through broadband connectivity. NOFN has been planned with an investment of INR 21,000 crore to connect 2,50,000-gram panchayats with a speed of 100 Mbps. It was established to enable key services like e-governance, education, health, banking and agriculture in rural regions of the country.

There are several challenges in the deployment of NOFN namely there is lack of accountability and delays in decision-making because of excessive emphasis on cost controls, resulting in poor implementation. There were delays with respect to timelines, increase in expenditure, Unavailability of affordable devices, Lack of available content, limited affordability etc.

Another ambitious program which the Government rolled out is Aadhaar program, one of its stated aims is to streamline the implementation of all current and future anti-poverty programs. One such welfare scheme where Aadhaar was mandatory from 2017 is Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). MGNREGA promises to provide 100 days of wage employment to at least one member of the estimated 150 million rural households across India. However, there are various implementation and service delivery issues since its inception. Targeted at covering 42 percent of India's total rural population living below the poverty line, the scheme has grown many folds since with government budget expenditure increasing from Rs. 35,711 crores in 2012 to Rs. 45,303 crores in 2016. Currently, the scheme has more than 2.5 crore registered workers.

Over the years MGNREGA has failed to live up to its full potential due to alleged corruption, logistical failures and administrative faults. Numerous cases of money being siphoned off via "ghost beneficiaries" and duplicates were identified as a source of massive monetary leakage. In 2008, the government mandated the opening of bank accounts so wages could be directly transferred to the beneficiaries' accounts.

This study examines the costs and benefits of 2 interventions. First, connecting rural households to NOFN and second, linking the last group of unconnected MGNREGA workers to the Aadhaar scheme.

Solutions

Interventions	BCR	Benefits (INR crores)	Costs (INR crores)
Providing the NOFN connectivity from gram panchayat (GP) to household (HH) level using wired infrastructure	7	69,707	10,179
Linking the last section of the unconnected MGNREGA population to Aadhaar	11	504	47

Total costs and total benefits discounted at 5%

The full paper by **Ritu Srivastava & Eshita Mukherjee** of Digital Empowerment Foundation is available on www.appriorities.com/digitisation

Connecting the last section of the unconnected households via NOFN

The Problem
The progress in the NOFN has been slow in Andhra Pradesh connecting just 601 GPs out of 12918 GPs in the state.

NOFN program has been under the scanner due to delay in timeline and the quality of its services. Various telecom analyst and social scientists have criticized the program and suggested their recommendations to improve the program.

The Solution
The proposed intervention seeks to finalise the NOFN to connect remaining Gram Panchayats and facilitate accessibility to NOFN for rural households.

Costs
There are four categories of cost associated with this intervention 1) cost of connecting the remaining GPs and ongoing maintenance; 2) cost to connect remaining households and ongoing maintenance; 3) upgrading the data centre cost to connect institutions (such as public health centre (PHC), schools, government agencies, etc) and 4) costs of accessing broadband services.
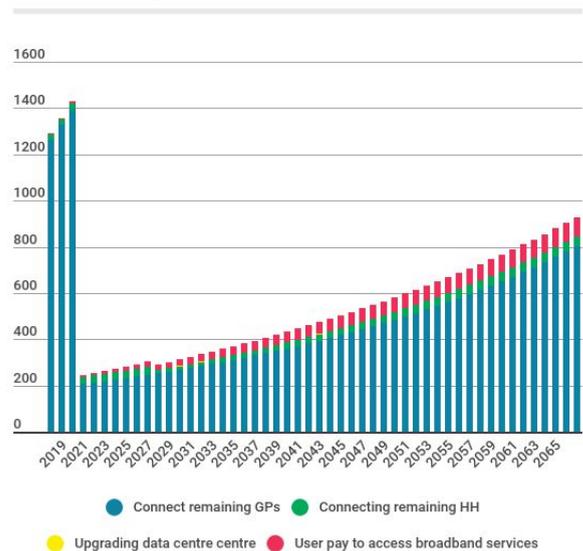
The total cost at a 5% discount rate is Rs. 10,179 crores.

Benefits
It is estimated that broadband penetration in rural Andhra Pradesh will increase to 38 per 100 rural households by 2067. Due to the falling share of rural population in the state, this will contribute to a statewide increase in penetration of 23 per 100 households.

Costs by year for proposal to finalise the National Optical Fibre Network

Costs in crore rupees per year. Source: Authors calculations.

The World Bank estimates that 10 percent increase in broadband penetration will lead to 1.38 percent increase in GDP growth on average for low/middle income countries. It is estimated that estimate there would be annual boosts to GSDP arising from the pathway of fixed broadband growth across the

entire state attributable to the NOFN. After three years the boost to GSDP is small, measured at only 0.02%. By 2035 the boost is 0.1%, by 2050 the boost is 0.2%, and by 2067 it is 0.3%.

The incremental boost to GSDP is Rs. 112 crores by 2020, Rs. 2708 crore by 2035 and Rs. 23,925 crores by 2067. In GDSP per capita terms, the corresponding values are Rs. 20, 453 and 4329. Total benefits until 2067 equal 69,707 crores at a 5% discount rate.

Linking the last section of the unconnected MGNREGA population to Aadhaar

The Problem
MGNREGA programme has been under scanner for various implementation and service delivery issues from the beginning. The programme has been criticized for alleged corruption, logistical failures and faulty administrative practices. Numerous cases of money being siphoned off via "ghost beneficiaries" and duplicates were identified as source of massive monetary leakages.

This set the scene for the government to combine information and communication technology (ICT) with various anti-poverty strategies to ensure better implementation and reduction in leakages.

Currently, there are 80 lakhs active MGNREGA workers in Andhra Pradesh, and 79 lakhs have an Aadhaar number (but only 65 lakhs use it with DBT).

The Solution
One of the stated aims of the government for rolling out Aadhaar was to streamline the implementation of the current and future poverty eradication and various other social sector programs. Aadhaar has already been established and implemented in various government schemes.

The intervention proposes transition from cash payment of MGNREGA wages to payment to the beneficiaries' bank/post office account linked to Aadhaar. Although 99 percent of the active MGNREGA beneficiaries have Aadhaar numbers only 82 percent receive their payments in their respective bank accounts. This intervention targets the last one percent of the population who are not linked to Aadhaar and those who are linked to Aadhaar but not linked to DBT for year 2017-18.

Costs
There are three categories of costs associated with this intervention. The first is bringing the remaining one percent of workers or approximately one lakh beneficiaries, under the Aadhaar scheme. The second component of costs is linking new Aadhaar account-holders to DBT, so they receive payments directly in their bank accounts. Further there is a recurring cost towards procuring biometric devices, its maintenance and connectivity etc.

The total cost of the intervention is Rs. 47 crores over a period of 15 years at a 5% discount rate.

Last section of the unconnected MGNREGA population to Aadhaar

● 1 lakh MGNREGA workers without Aadhaar number
● 14 lakh MGNREGA workers with Aadhaar number not using it with DBT
● 65 lakh MGNREGA workers with Aadhaar number using it with DBT

Source: Authors paper

Benefits
Cutting down leakages is the key benefit of Aadhaar. The study estimates gain from reduction in two types of leakages a) leakages due to duplicity in the system b)leakages due to deception.

Gain from reduced leakages for total active MNREGS workers to be provided DBT (19%) is INR 57 crores. The study escalates this number at the real growth in MNREGA wages over the last 10 years, or 3.2%. Assuming a 15-year time horizon this leads to total benefits of Rs. 504 crores assuming 5 percent discount rate.