Empowering frontline early childhood workers through technology in India

▷ *India's government is using mobile technology to address stunting, anaemia and low birthweight.*
▷ *Software called ICDS-CAS helps to give information, organise frontline workers and track results.*
▷ *Already used by 120,000 frontline workers, the ICDS-CAS system is being rolled out across India.*

Mohini Kak
Senior Health Specialist
World Bank, New Delhi, India

Innovative technology can enable more effective and efficient service delivery, improve supervision and monitoring, and facilitate the use of data in decision making. India's use of mobile technology in POSHAN Abhiyaan, a government programme to combat malnutrition, offers lessons on how other programmes for children and families can put digital technology to effective use.

POSHAN Abhiyaan delivers services to young children, adolescent girls and women in the nutritionally critical first 1000 days of a child's life, from conception to 2 years. Implemented by the government's Ministry of Women and Child Development, through its Integrated Child Development Services (ICDS) programme, POSHAN Abhiyaan has three chief aims: to bring down stunting in children under 6 years old, anaemia among women aged 15–49, and the incidence of low birthweight.

ICDS employs 1.4 million community health workers, known as *Anganwadi* workers. Selected from the local community, their responsibilities include supplementary nutrition, immunisation, periodic health check-ups, and counselling through home visits.

The ICDS-CAS system

POSHAN Abhiyaan uses an innovative system called ICDS-CAS (Common Application Software), comprising a mobile app and web-based dashboard, to help *Anganwadi* workers to deliver services, and programme supervisors and officials to track performance and take informed decisions.

Scale-up began in March 2018, after testing in districts in seven states. The mobile app works offline, so *Anganwadi* workers can still enter data in their smartphone when beyond the reach of the mobile network, and it will be uploaded when they get back online; the app is multilingual and makes use of multimedia. The ICDS-CAS system offers benefits for beneficiaries, frontline workers and their supervisors and officials:

Beneficiaries: The system can be set up to send tailored SMS alerts to mothers-to-be and parents of young children, for example reminding them to bring their child to be immunised or informing them about community events.

Anganwadi workers: These frontline staff previously had to maintain 11 paper-based registers. All but one of those have been replaced by the ICDS-CAS application on a smartphone. In their app, the workers see eight modules: household management, home visit scheduler, daily nutrition, growth monitoring, take-home rations, due list, *Anganwadi* centre management and monthly progress report. These modules are designed to make the workers' job easier in a number of ways: data entered into the household management module, for example, auto-generates prompts in the home visit scheduler – making sure, say, that the worker knows that on this particular visit she should ask the mother how she is doing with breastfeeding.

Supervisors: Supervisors are responsible for overseeing groups of 20–25 *Anganwadi* workers, called sectors. In their version of the ICDS-CAS app, the supervisors see a checklist which allows them to identify how the individual workers are performing, and provides data to inform discussions at monthly sector meetings.

Officials: The mobile application feeds into a web-based dashboard that makes real-time information available on service delivery and the nutrition status of beneficiaries, enabling officials at block, district, state and national levels to monitor the programme's progress. This improves management and facilitates early identification of gaps for timely decision making and action.

'The system provides real-time information, enabling officials to monitor the programme's progress.'

How the application was rolled out

Step 1 Application design
The design drew upon a small mHealth (mobile health) randomised controlled trial, in the Saharsa District of Bihar, northern India, led by the Bill and Melinda Gates Foundation with partners CARE India and Dimagi. The pilot application was then customised to the requirements of the ICDS programme.

Step 2 Procurement and hiring
The procurement of mobile phones and the required support infrastructure (such as servers, cloud storage for data, etc.) was critical. Equally important was the hiring of technical workers to manage technical issues. Helpdesks, comprising one or two people, were required at the state, district and block levels.

Step 3 Training of workers
This was delivered in a cascade manner, starting with the training of master trainers who in turn coached *Anganwadi* workers. First-time users were allowed to learn and assimilate the technology at an easy pace. The central training agency also directly trained the ICDS supervisors, block and district officials, and helpdesk personnel.

Step 4 Using data for decision making
The roll-out is complete only once the *Anganwadi* worker starts using the application and ICDS officials start reviewing the dashboard to monitor progress.

The system quickly became accepted

A process evaluation of the ICDS-CAS system was carried out from September 2017 to February 2018 in the states of Madhya Pradesh and Bihar. Conducted by independent external evaluators – a team from the International Food Policy Research Institute, the University of California (San Francisco and Berkeley), and Neerman – supported by the Gates Foundation, it found that the system had quickly gained widespread acceptance: 'Within a month, phones were replacing registers,' said a state ICDS official.

The evaluation showed that 80% of the *Anganwadi* workers included in the study were using the application effectively every day; 94% of workers correctly identified the home visit scheduler, with over 80% correctly identifying the symbols signifying the timeliness of home visits. 'Earlier, I had to see the growth chart to know which child had lost weight, or in which group to include it. But now it is shown directly in the app,' said an worker in Madhya Pradesh.

The beneficiaries also attest to the positive impact of the programme in the last six months. A state ICDS official in Madhya Pradesh reported that the application had introduced a focus on quality: 'With this system, I get a complete dataset on the dashboard at one place which helps me prioritise the interventions to be made,' the official said.

FIGURE 1

Training on use of the ICDS-CAS software
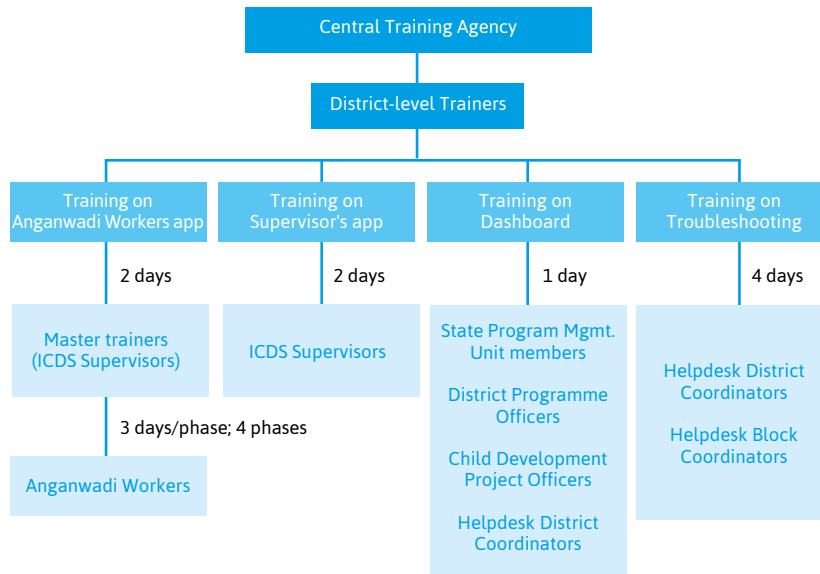
Lessons learned and the way ahead

Any programme rolled out on a record-breaking scale is bound to run into challenges. The need for improvements to the dashboard has been almost

constant since roll-out. The focus so far has mostly been on outcomes, but for practical follow-up the inclusion of service delivery indicators becomes important.

Planning and budgeting for infrastructure, both hardware and human resources, is critical for scaling up. Design changes are needed to make data access easier. A conscious effort also has to be made to create a culture of using data for decision making so that periodic reviews can be institutionalised. And for greater sustainability and scaling-up of the programme, it is important to transition it from externally financed grant support to direct on-budget support.

Today the ICDS-CAS system is being used by 120,000 *Anganwadi* workers, with plans to scale it up to all 1,400,000. Even at its current scale it is already one of the largest deployments of mobile technology in public health and nutrition programme delivery in the world. It is expected to cover all 36 states and union territories and 718 districts of India by 2022.

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NOTE

The ICDS-CAP app showing a home visit scheduler