Working paper

Integrated Performance Management System

Intervention Design

IDinsight

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Integrated Performance Management System: Intervention Design

Prepared for Department of Social Welfare & Directorate of Integrated Child Development Services, Government of Bihar, and Bihar Technical Assistance Support Team.

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Abbreviations

3ie	International Initiative for Impact Evaluation
AWC	*Anganwadi* Centre
BMGF	Bill and Melinda Gates Foundation
B-TAST	Bihar Technical Assistance and Support Team
CRM	Customer Relations Management
DSW	Department of Social Welfare
GoB	Government of Bihar
ICDS	Integrated Child Development Services
IGC	The International Growth Centre
IPMS	Integrated Performance Management System
IVRS	Interactive Voice Response System
MPR	Monthly Progress Report
PT	Project Team
SNP	Supplementary Nutrition Programme
TAG	Technical Advisory Group
THR	Take Home Ration
VHSND	Village Health Sanitation and Nutrition Day

Acknowledgments

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[1] See Appendix 1 for a detailed list of PT and TAG members.

Executive Summary

The Integrated Performance Management System (IPMS) is an initiative of Bihar's Directorate of Integrated Child Development Services. It is a technology-intensive data collection and disemmination system for improving the performance of frontline workers of ICDS. The primary purpose of this report is to detail the program's design and basic technical specifications to guide the Department of Social Welfare, ICDS and B-TAST in implementing IPMS. Our recommendations are based on field obervations and interviews with stakeholders.

ICDS expends significant resources on achieving its targets of ameliorated child development, but poor programmeimplementation likely reduces its impact. ICDS leadership lacks reliable, verifiable information about the quality of service delivery on an ongoing and granular level. Consequently, the directorate is unable to penalise poor performers and incentivise quality work. IPMS is designed to address these shortcomings.

This document focuses on the design of three of IPMS' four components: (1) frontline worker (Sevika) self-reporting; (2) supervisor monitoring; and (3) community grievance redressal and feedback. The first two components provide the existing ICDS hierarchy with mobile phones to facilitate systematic and accurate reporting of on-ground performance. The IPMS technology platform aggregates this data and allows it to be presented in easily interpretable web-based reports to facilitate appropriate action by ICDS officials. The third component empowers community members both to report on service delivery and to receive information on ICDS performance via a dedicated and free call centre service. Cutting across these components is a series of performance-based actions to effectively manage ICDS employees.

Governments and organizations in other settings have had a mixed experience using technology-based solutions to improve service delivery. Therefore, it will be crucial to monitor the scheme in its initial rollout, to allow scope for modification and stem any negatve externalities. This is thus a preliminary document to help initiate thinking about the rollout plan, which may differ from these suggestions. Once the IPMS design is finalised, IDinsight will conduct a randomised evaluation of the system on behalf of ICDS and BTAST, in order to determine whether it should be scaled up across Bihar.

By prioritising data collection and transparency, and systematising rewards and penalties, IPMS has the potential to significantly improve the implementation of ICDS and the welfare of children and mothers across Bihar.

Chapter 1. Background on ICDS and IPMS

Bihar has one of the higest rates of childhood undernutrition in India, with 56% of its children falling below the required weight for their height[2]. Recognizing the strong links between childhood nutrition, education, and later-life outcomes, the Government of India (GoI) launched the Integrated Child Development Services (ICDS) in 1975, to improve childhood education and nutrition. Despite the significant investments made by the GoI and Government of Bihar (GoB) into ICDS over the past several decades, the programmehas been unable to produce the desired improvements in children's nutrition and education in Bihar. In light of this situation, the GoB's Department of Social Welfare (DSW) has launched the Integrated Performance Management System (IPMS), an initiative designed to improve the implementation of ICDS Bihar, by collecting and appropriately acting upon high quality data on frontline worker performance.

This section provides an overview of the ICDS status quo, introduces IPMS as a solution to some of the problems currently faced, and concludes with an outline of the rest of this report.

Integrated Child Development Services status quo performance

The primary responsibility for addressing early childhood health and education falls to Bihar's ICDS, a branch of the DSW. As per ICDS' website, one of the key objectives for the organisation is "to improve the nutritional and health status of children in the age group 0-6 years".[3]

The Supplementary Nutrition Programme (SNP), one of ICDS's largest initiatives, uses a network of *Anganwadi* centres (AWCs) to provide hot meals to attendant children. It also offers "take home ration" (THR) of uncooked rice and lentils to pregnant women, lactating mothers, and children between six months to three years of age. GoI and GoB have committed more than Rs. 1100 crore (about USD 200 million) annually to the program.[4] Yet despite the magnitude of the financial commitment, SNP implementation is lacklustre. Over half of SNP funds fail to reach the intended beneficiaries, resulting in a heavy annual loss.[5] Furthermore, Sevikas and Sahaiykas are both present at the AWC only 40% of the days, and both are absent 25% of the time.[6]

The above examples are indicative of ICDS' supply and demand-side challenges. On the supply side, poorly enforced accountability channels obstruct improvement. Frontline workers responsible for ICDS service provision, are largely autonomous and the official accountability structure shown in Figure 1 below is not consistently enforced. There is a dearth of reliable data

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[2] Purnima Menon, Anjor Bhaskar, and Anil Deolalikar, *Comparisons of Hunger across States: India State Hunger Index* (Intl Food Policy Research Institute, n.d.), http://www.ifpri.org/sites/default/files/publications/ishi08.pdf.

[3] ICDS Bihar, "About ICDS: Introduction," *Integrated Child Development Services: Government of Bihar*, accessed April 7, 2014, http://icdsbih.gov.in/AboutUs.aspx?GL=2&PL=1.

[4] Ronald Abraham and Andrew Fraker, "Bihar's Malnutrition Crisis and Potential Solutions," *Ideas for India*, May 24, 2013, http://www.ideasforindia.in/article.aspx?article_id=144.

[5] Andrew Fraker, Ronald Abraham, and Neil Buddy Shah, "Quantitative Assessment: Beneficiary Nutritional Status and Performance of ICDS Supplementary Nutrition Programme in Bihar," accessed April 7, 2014, http://www.theigc.org/publications/working-paper/quantitative-assessment-beneficiary-nutritional-status-and-performance.

[6] *Ibid.*

on the performance of ICDS employees, and there are at best weak incentives for supervisors to hold those reporting to them accountable.

On the demand-side, beneficiaries are either unaware of or indifferent to their entitlements, or unable to hold the ICDS officials accountable for service delivery. This is probably because Sevikas are often closely connected to powerful local leaders and have discretionary power in handpicking beneficiaries. In addition, rural beneficiaries may not recognise the consequences of poor nutrition, as they may not be fully aware of the negative consequences of poor childhood nutrition.

Integrated Performance Management System to improve ICDS

Many of the supply and demand-side failings of ICDS highlighted above can be addressed through an improved and robust performance management system. The Integrated Performance Management System (IPMS) provides a technology-based platform that enables both ICDS officials ("top-down") and community members ("bottom-up") to monitor and facilitate the work of frontline workers through frequent and high-quality performance data.

Figure 1: ICDS administrative structure

State level
ICDS Directorate, DSW, GoB
District level
District Programme Officer (DPO) - 38
Block/project level
Child Development Project Officer (CDPO) - 544
Sub-project level
Lady Supervisor (LS) - one per 25 AWCs
Village level
Sevika and Sahayika ("helper") for each AWC - 91,000
Beneficiaries
40 toddlers (6-36 months) + 40 children (3-6 years) + 8 pregnant mothers + 8 lactating mothers per AWC

IPMS was approved by the Bihar Government in October 2013 to be rolled out in four districts.[7]As phrased in its founding document, IPMS has the following objectives:

- *Drive the ICDS programme sharply towards nutrition and health outcomes:* Support the frontline worker by reducing her workload and use data to guide the programme management hierarchy in supporting the Sevika to remain focused on actions that yield desired nutrition and health outcomes.
- *Maximise accountability within ICDS in the implementation of Supplementary Nutrition Programme (SNP) and other key functions*: Establish monitoring mechanisms that would engender an environment where frontline workers carry out their roles and responsibilities efficiently and leakages are minimised. Involve community along with ICDS supervisory staff to create accountability.[8]

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[7] The four districts are Madhubani, Supaul, Araria, and Kishanganj.
[8] IPMS Project Team, "IPMS Concept Note," February 2014.

To achieve the above objectives, IPMS consists of four components:

1. *Sevika self-reporting:* Sevikas report their daily activities at the AWC and track the activities of participating children via a mobile device.
2. *LS / CDPO Monitoring ("top-down" monitoring):* LS' and CDPOs collect regular and verifiable data on AWC performance and beneficiary health via smartphone.
3. *Community grievance redressal and feedback ("bottom-up" monitoring):* Beneficiaries and community members register and track their grievances and feedback via call centre.
4. *Sevika-beneficiary interactions:* Sevikas track home visits to pregnant women and lactating mothers, and beneficiary health, using basic mobile phones.

Enhanced data collection is only useful if it is actionable and accessible to decision-makers and community members. An online dashboard will generate interactive, easy-to-use and analytically rich digital reports to facilitate appropriate action by policymakers and beneficiaries to improve frontline worker performance.

This report highlights the first three components of IPMS: Sevika self-reporting, LS/CDPO monitoring, and community grievance redressal and feedback. The fourth component – Sevika-beneficiary interactions – has already been fully designed through a pilot in Saharsa, Bihar and is not discussed in this document.

Purpose and structure of this report

The primary purpose of this report is to describe the design and basic technical specifications of IPMS, so it can serve as an implementation resource for DSW, ICDS, and BTAST.[9] This document will serve as an initial roadmap for the IPMS interventions, but should be considered a living document that will be refined as piloting of IPMS begins. This report is organised as follows:

Chapter 2 reviews the relevant literature on performance management and monitoring systems to improve public service delivery. Chapter 3 and 0 detail the top-down and bottom-up approaches, respectively. Chapter 5 outlines guiding principles for how the IPMS platform should present information in order to ensure transparency and dissemination of data, and Chapter 6 offers recommendations on how the data should be used to manage and improve the performance of ICDS staff. Chapter 7 provides concluding thoughts. Extensive technical notes are provided in the Appendices.

Throughout the document, we hope to answer the following key questions for DSW and ICDS in order to guide the design and implementation of IPMS:

1. **Information**: What information should be collected to enable improved service delivery? How can this information be made accurate and verifiable?
2. **Reports:** What information will be disseminated to each stakeholder, with what frequency, and through what medium? What are the guiding principles behind the construction of a data reporting system?
3. **Actions**: What actions should ICDS take based on the information generated by IPMS, and maximise improvement?

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[9] Note that the core purpose of this document is *not* to detail the conceptual arguments for why IPMS will address the shortcomings of ICDS performance management, though portions of the report do touch on this. An in-depth examination of the theory of change and theoretical arguments for why IPMS will improve ICDS is beyond the scope of the present report.

4. **Technical operational requirements**: What technical specifications should be included in IPMS and what selection criteria should be used to choose the technology partner?

This report is based on extensive qualitative research and inputs and experience of the IPMS Project Team. We conducted a literature review of similar interventions to ensure no key factors are overlooked and to get a good understanding of what works and does not work. Secondl, we conducted interviews with key government stakeholders at all levels, including senior DSW officials and frontline workers; community members; and technical experts to guide our recommendations for the operational and functional details of IPMS. Finally, we observed technology-based monitoring pilots and operational call centres to understand ground-level operations. A list of our interviews and observations is listed in Appendix 2.

Chapter 2. Literature review

A review of technology-based performance management and monitoring initiatives suggests that service delivery can be improved with appropriate rewards and punishments.[10] Moreover, the review also indicates that previous performance management efforts often failed when they did not account for the complex accountability relationships between government officials, frontline workers, politicians, and community members.

The literature demonstrates three broad trends: (1) the potential for mobile data collection tools to improve data quality; (2) the need for systematic incentives to act on the data generated; and (3) the potential for informing frontline workers and community members of frontline worker performance to improve service delivery.

Mobile devices accompanied by effective verification mechanisms, can enhance government's knowledge of programme implementation. Mobile technology has expanded possibilities for rapid and high quality data collection. A meta-analysis of recent studies concludes that mobile technology has boosted both quality and quantity of field data: "[the] use of mobile technology can potentially enhance the capacity of CHWs [Community Health Workers] to take on new and challenging tasks, particularly collecting complete, timely and accurate health data for field-based research and providing health care services in the field with fewer errors and higher adherence to protocols."[11]

High-quality performance data is necessary, but insufficient to improve service delivery. A complimenting incentive struture is necessary. Extensive literature suggests that incentives – both financial and non-monetary rewards, and punitive incentives – must be provided if improved data collection is to lead to improved service delivery. For example, a field trial in Zambia demonstrated that non-financial incentives like community recognition for excellence, resulted in improved community worker performance, while there was no effect of financial rewards.[12] This also compares to a study in Orissa, where CHWs were largely motivated by "the desire to gain social recognition."[13]

Community involvement in monitoring efforts has also yielded positive effects. A study that compared head-to-head the effect of top-down monitoring, community oversight ("bottom-up monitoring") and a package of both found that it was the combined package that most successfully reduced leakage in village funds.[14] A study in Uganda also concluded similarly.[15] Even in India, a study in rural Maharashtra found suggestive evidence that when the local community was involved in gauging the performance of health workers, health workers'

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[10] A detailed summary of past programmes is listed in Appendix 3.

[11] Rebecca Braun et al., "Community Health Workers and Mobile Technology: A Systematic Review of the Literature," *PLoS ONE* 8, no. 6 (June 12, 2013): e65772, doi:10.1371/journal.pone.0065772.

[12] Nava Ashraf, Oriana Bandiera, and B. Kelsey Jack, *No Margin, No Mission? A Field Experiment on Incentives for Pro-Social Tasks*, SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, February 1, 2012), http://papers.ssrn.com/abstract=2013825.

[13] Saji Saraswathy Gopalan, Satyanarayan Mohanty, and Ashis Das, "Assessing Community Health Workers' Performance Motivation: A Mixed-Methods Approach on India's Accredited Social Health Activists (ASHA) Programme," *BMJ Open* 2, no. 5 (2012), http://bmjopen.bmj.com/content/2/5/e001557.short.

[14] Olken, *Monitoring Corruption*.

[15] Martina Björkman and Jakob Svensson, "Power to the People: Evidence from a Randomised Field Experiment on Community-Based Monitoring in Uganda," *The Quarterly Journal of Economics* 124, no. 2 (2009): 735–69.

performance improved, contributing to better community health indicators.[16]

Beyond community involvement, self-reports can also result in improved employee performance. Literature also evidences that employees use data collected to modify their own actions. A programme in Tanzania found that reminding CHWs of their own overdue visits via SMS before advising supervisors of their poor performance reduced the occurrence of overdue visits by 85%.[17]

Learning from previous interventions, IPMS will combine verifiable data collection, appropriate incentives and data dissemination. The initiative will use the technology platform to strengthen accountability channels by providing high quality and regular data on frontline worker performance. An experimental impact evaluation of IPMS will determine whether such a system can improve accountability and implementation of ICDS, and, in turn, nutrition outcomes in rural Bihar.

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[16] Darshana Patel, Parmesh Shah, and Moutushi Islam, *Impact of Social Accountability Mechanisms on Achieving Service Delivery and Health Development Outcomes in Satara District, Maharashtra, India* (The World Bank, November 1, 2009), http://documents.worldbank.org/curated/en/2009/11/16203395/impact-social-accountability-mechanisms-achieving-service-delivery-health-development-outcomes-satara-district-maharashtra-india.
[17] Brian DeRenzi et al., "Improving Community Health Worker Performance through Automated SMS," in *Proceedings of the Fifth International Conference on Information and Communication Technologies and Development* (ACM, 2012), 25–34, http://dl.acm.org/citation.cfm?id=2160677.

Chapter 3. Top-down monitoring

IPMS' "top-down monitoring" intervention adopts a two-tiered approach to improve the quality and frequency of data on frontline worker performance: First, senior officials (LS' and CDPOs) will monitor the performance of frontline workers using smartphones; and second, frontline workers will report their own performance using phones. This chapter discusses both of these components and concludes by suggesting a technology vendor management plan: selection criteria, an implementation plan, and payment policy.

LS/CDPO monitoring

As shown in Figure 1, ICDS has an extensive reporting structure. Sevikas' performance is supervised by Lady Supervisors (LS'). Each LS monitors approximately 25 AWCs, and is required to visit all of them each month. Around five LS', in turn, report to a Child Development Project Officer (CDPO), who is expected to oversee all the AWCs in a block and prepare quarterly, half-yearly and yearly Monthly Progress Reports. The CDPO answers to the District Programme Officer (DPO), who is managed by the Directorate of ICDS.

Despite such a hierarchy, monitoring and supervision is irregular. Our quantitative assessment found that only 21% of Sevikas had been visited by a CDPO in a quarter, and LS' conducted less than half of their required visits.[18] Our interviews and field visits reveal three major areas of improvement:

- Monitoring by LS' and CDPOs was not happening as directed.
- The data collected was not verifiable.
- Action was not taken on the basis of the data collected.

These issues are addressed by the IPMS in the following manner:

1. Smartphones for LS' and CDPOs: Android-based smartphones containing an intuitive and multilingual survey will be provided. This can improve the frequency and quality of monitoring and boost LS' and CDPOs ability to contribute real-time information.

2. User-Friendly, time-stamped Surveys: The surveys should be short and record key questions such as whether a centre was open, hot meals were served, and preschool activities were conducted, along with the nutritional status of randomly sampled beneficiaries. These surveys will have tamper-proof time and date stamps, GPS tags, and will include photographs of the AWC, thus making it difficult for LS' and CDPOs to record fake monitoring visits. These features also make the data collected verifiable.

3. Accessible IPMS Server for Data Storage and Dissemination: The survey data will be stored centrally on an IPMS server and will automatically generate reports for senior ICDS officials to identify bottlenecks in the functioning of the AWC system. A separate web-based application will facilitate LS' and CDPOs' ability to review their own performance as well as that of AWCs

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[18] Andrew Fraker, Ronald Abraham, and Neil Buddy Shah, "Quantitative Assessment: Beneficiary Nutritional Status and Performance of ICDS Supplementary Nutrition Programme in Bihar," accessed April 7, 2014, http://www.theigc.org/publications/working-paper/quantitative-assessment-beneficiary-nutritional-status-and-performance.

within their respective catchment areas. See Appendix 4 for a comprehensive list of technical specifications.

Sevika self-reporting

In addition to better monitoring, service delivery can be improved by empowering Sevikas to better understand and track their own performance. We recommend the provision of feature phones to Sevikas, that allow them to track their performance and act as an additional data source in case of disputes between Sevikas and LS'.

The reporting functionality of these feature phones will be similar to that of LS/CDPO monitoring and is detailed in Appendix 6. The phones will be preloaded with a simple questionnaire about the day-to-day activities at the AWC,[19] featuring questions on staff and student attendance, including timestamps and photographs. As with the LS/CDPO monitoring application, data collected will be transmitted in real-time and can then be used to generate reports to prompt appropriate actions by supervising ICDS officials.

Vendor management

IPMS will outsource the task of application development to a qualified vendor. Given the crucial role that the vendor plays in the implementation of this scheme, we suggest a competitive vendor selection process that heavily weights demonstrated ability to create a user-friendly and intuitive system over other factors.

Selection criteria

The vendor should be selected based on its demonstrated skills and experience developing high-quality, user-friendly mobile applications for use in the social sector. The vendor should be prepared to collaborate with vendors selected for other tasks, including the call centre.

Implementation plan

A detailed implementation plan should chart the timeline of all activities required to roll out this component: procurement of phones, SIM cards, and airtime plans; software development; setup of the IPMS server and reporting patters; and troubleshooting mechanisms. We emphasise the importance of training and monitoring at each level to ensure programmatic success. The final implementation strategy will be determined by the vendor, BTAST, and ICDS.[20]

Payment policy

Payment should be offered in tranches to incentivise active participation in all steps, not just software development. The payment policy should be output-oriented. For example, the vendor could receive partial compensation on the basis of response from the application users. See Appendix 8 for more details.

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[19] Data regarding Sevikas' other functions, such as home visits and THR delivery, will be received using the Sevika-beneficiary interaction application.
[20] See Appendix 7 for a recommended implementation plan, and Appendix 8 for a proposed payment plan.

Chapter 4. Bottom-up monitoring

It is critical to maintain channels of accountability between the Sevikas and beneficiaries. Increasing accountability within the formal bureaucratic structure is just one approach to improving service delivery, and may have potential shortcomings (such as LS' and Sevikas colluding). Thus, IPMS will have a "bottom-up monitoring" component to cement communication lines between beneficiaries and ICDS officials via a call centre, using two mechanisms:

- Informing beneficiaries of their rights and entitlements under ICDS
- Affording beneficiaries the ability to report AWC performance and lodge complaints in a data-driven complaint resolution system.

The chapter discusses these aforementioned mechanisms, followed by an overview of the technical specifications of the call centre and a vendor management plan.

Information collection: performance and complaints

The ICDS' grievance redressal system is in need of upgradation and improvements. According to Dr. Chandani, Additional Director of ICDS Bihar, a short-staffed grievance resolution team in Patna is presently unable to address the quantity of complaints received by mail, phone, and other state-level grievance redressal offices. Instead, grievances are forwarded to the respective District Magistrates, who have many other priorities and are often unable to address the complaints. In addition, field interviews suggest that many beneficiaries either do not know how to or are afraid to lodge complaints about ICDS performance.

The IPMS call centre can help ICDS capture the pent-up demand for communication lines, and understand service delivery by taking advantage of reasonable phone coverage in Bihar:[21] The call centre will collect AWC performance information from beneficiaries, and complaints from beneficiaries and ICDS officials. When asked, call centre agents can also provide callers with information about their AWCs.

The call-centre provides an efficient means to enable ICDS officials to address complaints, via a user-friendly tracking system. Once a grievance is received in the IPMS database, an officer will be assigned and asked to submit a report on the enquiry. The system will remind the officer several times to ensure timely reporting. Once the report is received, the complainant will be contacted to know whether she is satisfied before closing the complaint. If the complaint is not closed, the process of escalation may continue as per Appendix 11. If the chain of escalation ends, senior officers should close the complaint on the basis of written agreement by related beneficiaries or officers.

As suggested by the Project Team, a "grievance dashboard," hosted on a local server but accessible online through IPMS, could let beneficiaries, civil society organizations and ICDS officials track and update grievances online.[22]

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[21] In India, 63.2% of households have access to a phone. See BBC, "India Census: Half of Homes Have Phones but No Toilets," *BBC News: India*, March 14, 2012, http://www.bbc.co.uk/news/world-asia-india-17362837.
[22] See Appendix 9 for a detailed task list.

Information calls to beneficiaries

The ICDS can achieve improved service delivery, by increased community pressure for the supply of services. Increased community awareness is therefore essential. Presently, ICDS places posters at AWCs to inform beneficiaries of their entitlements. Yet during spot-checks, we found that posters were often absent from AWCs,[23] and even when they were displayed, they often failed to reflect all information that should be disseminated to beneficiaries. It is thus unlikely that all information reaches those who need it. A call centre-based campaign will complement existing efforts to increase awareness of entitlements among beneficiaries.

The call centre can function in two ways:

1. *Live operator:* Beneficiaries receive an SMS with a phone number they can call to inquire about their entitlements. Their call is immediately connected to an agent who answers queries.
2. *Pre-recorded sound bites:* Based on the caller's query type (determined via IVRS), the caller receives a pre-recorded message with an initial response. The caller can then opt to speak with an agent if her query remains unresolved.

While call flows are limited, we recommend that IPMS use option 1, to best tailor responses to beneficiaries' needs. As flow increases, staffing constraints may necessitate moving to option 2. Training and staffing will play a pivotal role in establishing the early reputation and continued efficacy of the call centre. We recommend the following measures to ensure maximum information distribution:

1. Comprehensive training should be carefully mapped. Refresher courses should be offered as necessary with the help of state-level ICDS officers.
2. Call centre agents should be dedicated to conducting outbound calls to provide information to registered beneficiaries about their rights and entitlements.
3. Repetitive reminders can also be set using automated outbound calls. For example, the system can send reminders to beneficiaries to collect their THR every month. By randomly selecting at least three beneficiaries per village to receive a call, it may be possible that other beneficiaries come to know through word-of-mouth. If so, the system could augment the number of beneficiaries who exercise their rights and entitlements.

Specifications of the call centre

Successful implementation requires careful thought about both human resources and software. Staff at the call centre must speak a diverse array of Bihar's local languages and dialects to reflect the diverse linguistic background of potential beneficiaries. The centre should be based in Patna, and should be exclusively dedicated to IPMS.

The centre's software should be designed to efficiently utilise staff resources. Abhishek Arnav, Project Manager for the Rural Development Department's flagship monitoring programme, "e-shakti," suggested that the centre incorporate an Interactive Voice Response System (IVRS), coupled with an Automated Call Distribution (ACD) system, to automatically channel calls to the appropriate operator according to language selection and the reason for the call. The

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[23] Sevikas claimed the posters had deteriorated, or that there was not enough space.

software should record audio for quality control purposes, and function on a Virtual Private Network.[24] Finally, it should have the capability to make calls, receive calls, and output reports.

Next, the centre should respect the financial constraints of beneficiaries by utilizing a "missed call system."[25] This system requires beneficiaries to register by dialling a central number, after which the software will send a confirmation and automatically return the beneficiary's call. Because the caller – and not the recipient – pays for airtime, IPMS will foot the costs. Our research suggests that a missed-call system is more cost-effective than a toll-free number.

A primary advantage of the call centre system is its ability to streamline data flows. Experts recommend developing dedicated Customer Relations Management (CRM) software to assist in this process. CRM software categorises data from beneficiaries and government officials; makes calls and sends emails and SMS messages; and integrates with other IPMS databases, smoothing the functioning of the call centre. Further, the centre should have a performance management system that manages the workload of the agents according to their performance and appropriately manages the number of operators as per the call traffic.[26, 27]

Vendor management
Based on our discussions with the Secretary of DSW and the PT, we highlight some guiding principles for the vendor selection of bottom-up monitoring.

Selection criteria
The success of IPMS relies on selecting a highly skilled and experienced vendor. The vendor should have experience in developing similar user-friendly call centre platforms such as CRMs, IVRS, ACDs, and Computer Telephony Integration. Further, the vendor should be willing to collaborate with other vendors selected for IPMS to help create an integrated IPMS platform. ICDS should prioritise selection based on demonstrated ability to create a user-friendly call centre platform that generates actionable data.

Implementation Plan[28]
Successful implementation requires advance planning to coordinate the many moving pieces related to the call centre. The vendor, in consultation with the ICDS, should prepare a detailed plan that covers hiring and training call centre staff, developing the required software and hardware systems, integration with the IPMS dashboard, and procuring and marketing the phone number.

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[24] One expert recommended the use of a Virtual Private Network(VPN) to facilitate operators' online data access without permitting them to access outside websites.
[25] We also considered the option of a toll-free number, but a missed call system is much cheaper.
[26] North American Quitline Consortium (2010). *Call Centre Metrics: Fundamentals of Call Centre Staffing and Technologies*. Retrieved from
http://c.ymcdn.com/sites/www.naquitline.org/resource/resmgr/issue_papers/callcentermetricspaperstaffi.pdf
[27] See Appendix 10 for detailed technical specifications, as discussed with PT. Also, see Appendix 13 for infrastructural specifications of the call centre.
[28] See Appendix 14 for a detailed implementation plan.

Payment policy[29]

This payment policy is aimed at treating the vendor as a potential collaborator and stakeholder. Based on conversations with field experts,[30] we recommend a "pay for performance" policy, with a monitoring system for fraudulent calls and complaints.

The government will directly cover the costs (fixed and operational). However, the vendor will be incentivised for successful call centre functioning, with a bonus above the cost of infrastructure and pre-established operational costs. It should be defined by the number of grievances solved over time, number of successful outbound calls, ability to attract inbound calls, and number of unique registered beneficiaries. In addition, the payment could be contingent on a third-party evaluation.

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[29] The payment policy is further detailed in Appendix 12.
[30] GlodyneTechnoserve Ltd., CSM Technologies, and SERCO.

Chapter 5: Reporting, transparency, and open data

Once data collection is improved, ICDS will have an abundance of information on AWC, Sevika, LS and CDPO performance in Bihar. Making that evidence actionable entails building effective reporting and information dissemination measures. IPMS incorporates four reporting channels:

(1) IPMS online dashboard;
(2) Outbound calls to beneficiaries and community members;
(3) Supervisory mobile applications for LS' and CDPOs;
(4) Email summaries to CDPOs and other senior officers about block/district performance.

This chapter elaborates on the first channel. The second is covered in the previous chapter. The third channel – supervisory mobile applications for LS' and CDPOs – is a simple web-based application that displays performance reports generated by IPMS dashboard; it is currently being piloted in Saharsa, Bihar. The fourth option – email summaries – can be incorporated into the IPMS dashboard by automatically sending appropriate reports to concerned ICDS officials.

IPMS dashboard

The dashboard is IPMS' central platform for user queries. It will cater to ICDS and DSW officials, as well as the general public and civil society organizations. Reports can be generated either by the user using a real-time online report generating platform, or emailed manually to another recipient.

Technical features

The PT recommends that the following technical features be included in the dashboard:

- *Customisation of reports:* The dashboard will include built-in templates and a query builder for more complex reports.
- *Security:* The dashboard should allow public access to aggregate data, but require user authentication for sensitive information.
- *Appearance:* The dashboard should be easy and attractive to use.
- *Editing recorded data:* Only administrators should have access to raw data, provided in a read-only format. No user should be able to edit the raw data.
- *Multi-format support:* The dashboard should output reports in standard formats, such as PDF, csv, xls, doc, etc.
- *Compatibility:* The dashboard should facilitate comparison of data from various sources – call centre, ICDS officials, and others –by geographic area.
- *Data availability:* Different types of users should have different access restrictions. For example, the LS – a junior officer – should only be able to view a subset of information available to the more senior CDPO.

- *Presentation:* The dashboard should present collected indicators in tables, graphs, time trends, and color-coded maps.[31] Figure 2 provides one possibility.
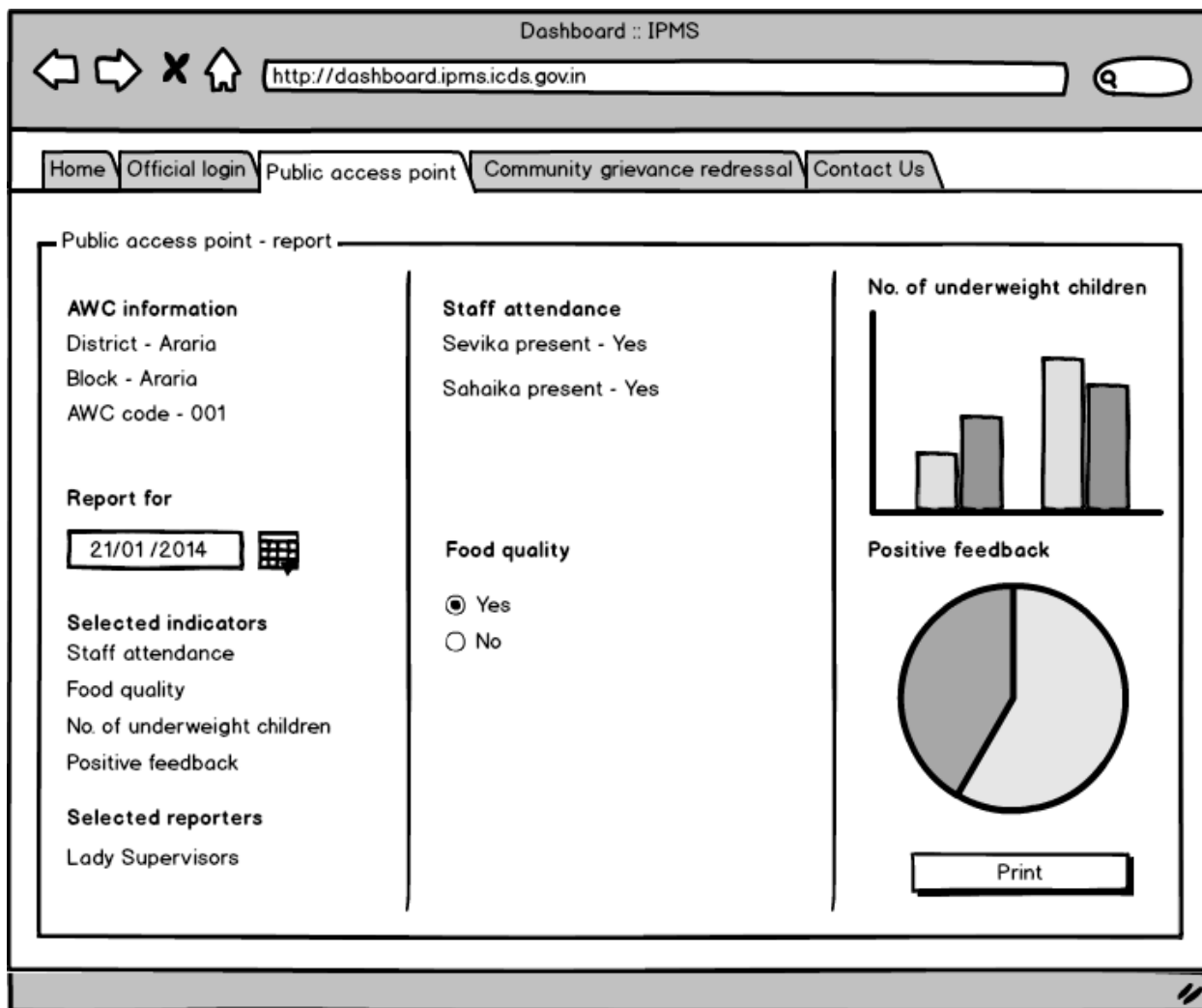

Figure 2. Sample report generated by the IPMS dashboard

User experience

We recommend a clear, efficient presentation of data, aimed at simplifying user experience. The site map of the recommended interface is described below and diagrammed in Figure 3. Appendix 16 diagrams the potential user interface of tabs 1-3.

1. *Home:* Presents a slideshow of statewide data in maps and graphs.
2. *Official login:* User-authenticated tab provides detailed information to officials regarding AWC performance. Officials can download premade reports and also generate custom reports.

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[31] See Appendix 16 for examples. This document only focuses on the monitoring aspect of IPMS. However, the IPMS dashboard will also display information on nutritional indicators such as malnourished children and mothers, pregnant and lactating mothers registered in the AWC, etc.

3. *Public access point:* Offers a query builder for basic AWC performance data.
4. *Community grievance redressal:* This tab serves two purposes. First, ICDS officials can track and upgrade the status of a grievance and download call centre reports using a secure login. Second, members of the public can track their own complaints using unique ticket numbers. The call centre vendor should develop this page.
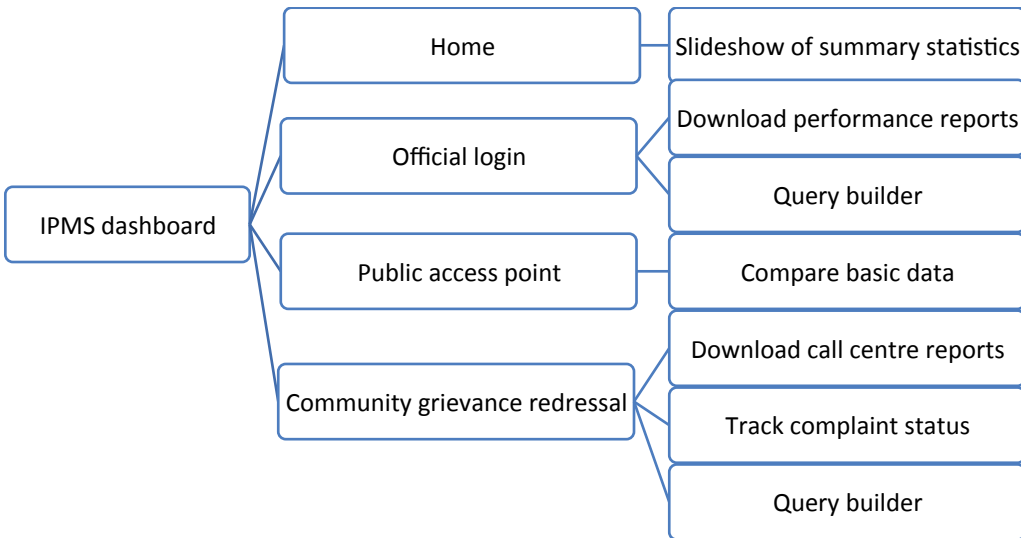

Figure 3. IPMS dashboard site map

Chapter 6. Triggers and actions to act on IPMS-generated data

IPMS will result in the collection and dissemination of hitherto unprecedented amounts of data. A mechanism to complete the loop, from evidence to action, is therefore required and hinges on timely and adequate data collection. However, data collection is insufficient to change outcomes, if unaccompanied by any action regarding that data. Accordingly, service augmentation must be rewarded and the lack of it must be penalised. This chapter details a structure to assign rewards and punishments (actions) based on the myriad data collected through IPMS (triggers). Together, we call this a triggers and actions framework.

Score-Based Standardised Incentives

An incentive system linked to IPMS needs standardised awards and punishments, constant improvements, defined evaluative metrics, automated actions, historical data use, and honest and participatory incentive structures.

Accordingly, the triggers and actions framework will contain the following:

3. *Point system:* A point system is proposed to generate standardised criteria for awards and punishments. Such a system enables automated actions, and simplifies decision-making, as there will be a pre-defined set of actions based on the points that each person receives. It also creates a level playing field for evaluating worker performance and guarantees that any pre-existing status quo will not be worsened.
4. *Absolute and relative thresholds:* Absolute thresholds specify a minimum standard of quality that every worker is required to uphold. Those scoring below the required minimum will be penalised. In addition, constant improvement must also be incentivised and a relative thresholds based on a percentile system is used to compare employee performance.
5. *Top down, bottom-up and self-reporting components:* Just like the key components of IPMS, the point system works best if it incorporates points assigned to top-down, bottom-up and employee assessments. Accordingly, the triggers and action framework will incorporate all three data sources – LS, Sevika and beneficiaries – to ensure that the system is both honest (cross-verify reports) and participatory. Past submissions of the worker will also be evaluated, to track and incentivise rapid improvements.

Example – Triggers and Actions for Sevikas

The triggers and actions framework is explained here using a fictitious framework that can be set up for Sevikas. This general framework can also be applied to all other levels of employees. Note this example is purely for explanation purposes and is not an actual proposal. The final point system and action-set should be based on consultations with all relevant stakeholders at DSW and ICDS.

Assume each Sevika begins with 100 points. Thirty points each are allocated for data from top-down monitoring, bottom-up monitoring, and Sevika-self-reports. The final 10 points are allocated based on an average of the past reports. The distribution of points from the different data sources can be as detailed below.

Top down: 30 points are assigned for LS monitoring reports in the beginning of the quarter. LS' must make three quarterly visits, assessing the Sevika for 10 points each visit. Points are allocated on the basis of a standardised form filled by each LS on their mobile application. An example of how the ten points can be allocated based on variety of performance metrics is listed in Appendix 18 In case the Sevika received less than 3 visits in a quarter, she is awarded a full 10 points for those visits.

Bottom up: Another 30 points are assigned for beneficiary reports. For each negative report from a beneficiary, the call centre will try to determine the accuracy of the same using LS monitoring data and Sevika Self-Reporing data. If it seems that the call is genuine, then the Sevika loses one point for each such call. No more than 5 negative points can be added on one day and each unique phone number can only complain once a quarter. Call centres will also contact beneficiaries each week and solicit feedback, which can also be used towards determining negative points, if any.

Employee reports and improvement: Sevikas' own reporting data using SSR and SBI is also assigned 30 points. Non-submission of a report on one day leads to a negative point. If the report is only partially submitted, half a point is deducted. To accommodate for any technological glitches or other problems that are beyond the Sevika's control, negative points will only kick in after 10 days of non-submission.

Finally, to promote steady learning and improvement, 10 points are awarded to the Sevika based on her average of previous quarterly reports. This ensures that previous performance remains part of institutional memory, albeit a low proportion of the overall score.

Rewards and punitive actions on the absolute scale will be as per the following:
- If a Sevika gets between 0-20 points, she will be issued a show cause notice
- If she gets between 20.1-50 points, she will get a letter of warning.

Rewards and punitive action based on relative scores can be based on the table below.

Table 1. Score tally to judge appropriate action

Percentile	Administrative Level	Periodicity	Action
0 to 5	Block	Quarterly	Letter of warning from DPO
5.1 to 10	Block	Quarterly	Letter of warning from CDPO
90 to 94.9	Block	Quarterly	Letter of appreciation from CDPO
95 to 100	Block	Quarterly	Letter of appreciation from DPO
98-100	Block	Annually	Sevika of the Block Awards
95 to 97.9	District	Quarterly	Certificate of Distinction by DPO
98 to 100	District	Quarterly	Sevika of The Quarter Award
99 to 100	District	Annually	Honoured at Independence Day at District Function
99.9 to 100	State	Annually	Honoured at Independence Day at State Function

Chapter 7. Conclusion

The ICDS' extensive coverage, mandate and institutional framework, are a good leverage to comprehensively address Bihar's child health and nutritional indicators. However, the system faces demand and supply issues that likely lower its impact. Poor employee monitoring, inadequate Sevika-benificiary relationships, and inefficient grievance redressal systems, all contribute towards supply and demand gaps. In addition, the ICDS is also in need of improving its accountability framework between employees, supervisors and beneficiaries. Studies from around the world, have demonstrated the role of technology-reliant monitoring systems, in improving accountability and augmented service delivery.

The IPMS is envisioned as an intervention aimed towards collection of accurate data to address the ICDS' supply and demand related shortcomings. The key components of IPMS – top down monitoring, bottom-up monitoring, Sevika self-reporting and Sevika beneficiary interactions, are capable of generating large volumes of data. This system of triangulation between data sources also ensures that data is accurate and nuanced. Online dashboards and other reporting mechanism will facilitate managerial decision making by Block, District, and State officials.

Any large-scale data collection effort, if not accompanied with the correct incentives can lead to its eventual disuse. The system of triggers and automated actions discussed in this report is therefore important for the success of IPMS.

Finally, the complex nature of this intervention calls for a systematic and rigorous evaluation to understand both the impact of IPMS on nutrition and ICDS performance and the underlying mechansisms that led to the impact (or the lack thereof). Ideally, each of the components of IPMS will be evaluated separately to identify which components are more effective than others.

IPMS can revolutionise the way Bihar seeks to ensure accountability and improve nutritional goals. There are therefore endless administrative solutions that can spring from IPMS that are applicable to similar systems elsewhere both within and beyond nutrition delivery. We hope that this design document provides the appropriate stepping stone to achieve this vision, and guides implementers in achieveing IPMS' goals.

Appendices

Appendix 1.   Office order for the formation of PT and TAG

Rajit Punhani (IAS)
Secretary, Social Welfare Department

6254
20/11/2013

OFFICE ORDER

Ref: Dated: November 18, 2013

Subject: Formation of a Project Team for Integrated Performance Management System (IPMS)

The Government of Bihar has approved the implementation of an Integrated Performance Management System (IPMS) under the DFID supported SWASTH programme for ICDS. In order to complete the assignment within a given timeframe, a Project Team is being constituted under the Chairmanship of the Senior Administrative Officer, NMU, Saksham for rolling out the project. Other members of the Project Team would be:
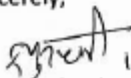
1. Director Nutrition – BTAST
2. IT & MIS Expert - BTAST
3. Ms Richa Verma (IDinsight)
4. Mr Anup Kumar (BMGF – E & Y)
5. Mr Ram Krishna (CARE IFHI Project)

Secretarial support to the team will be provided by Saksham / NMU.

It is expected that the group will be able to support rollout of the project based on the concept note by BTAST shared with members.

Minutes of all meetings and progress report should be submitted to the office on a fortnightly basis.

Sincerely,

Rajit Punhani   15/11/13

Note: Mr. Devaji Patil joined as the Director, Nutrition (B-TAST) and Mr. Praween Jha joined as the IT & MIS Expert (B-TAST).

Rajit Punhani (IAS)
Secretary, Social Welfare Department

6253
20|11|20 13

OFFICE ORDER

Ref: Dated: November 18, 2013

Subject: Formation of a Technical Advisory Group (TAG) for monitoring progress of Integrated Performance Management System (IPMS)
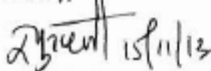
The Government of Bihar has approved the implementation of an integrated Performance Management System (IPMS) under the DFID supported SWASTH programme for ICDS. In order to complete the assignment within a given timeframe, a Technical Advisory Group (TAG) is being constituted under the Chairmanship of the Secretary, Social Welfare Department. Other members of the TAG would be:

1. Director, ICDS, Government of Bihar
2. Sri Manoj Chaudhuri, Procurement Officer, ICDS, Government of Bihar
3. Mr Prakash Kumar, Team Leader, BTAST
4. Mr Abdul Rahim (e-Governance and Policy Expert BTAST)
5. Mr Ronald Joseph Abraham (IDinsight)
6. Mr Debarshi Bhattacharya (BMGF)
7. Mr Indrajit Chaudhuri (CARE IFHI Project)
8. Mr Sanjiv Shanker (BPSM)

Secretarial support to the TAG will be provided by Sandeep Srivastava, BTAST.

It is expected that the group will meet at least once in a month.

Sincerely,

15|11|13

Rajit Punhani

22

Appendix 2.   Interviews and observations by IDinsight

1. **Stakeholder interviews:** The team spoke to the following stakeholders:
    a. Secretary, DSW, GoB
    b. Director, ICDS, GoB
    c. Senior Administrative Officer, SSUPSW
    d. Additional Director, ICDS, GoB
    e. CDPOs, Lady Supervisors, *Sevikas* and *Sahaikas*
    f. Beneficiaries and non-beneficiaries

2. **Technical expert interviews:** We spoke with numerous experts from both the fields of development and technology to seek guidance while finalising the operational and functional details of IPMS.
    a. Development experts – We had several interactions with the members of Project Team of IPMS and experts from CARE, BMGF, and DIMAGI. We also met with the Secretary of Urban Development Department, GoB and gathered his views on several issues. Apart from these, we consulted the following development experts:
        i. IPMS Project Team
        ii. IPMS Technical Advisory Group
        iii. S Siddhartha, Secretary, Urban Development Department, GoB
        iv. Dr.Chandani, Additional Director, ICDS, GoB
        v. Anjana Kaul, Consultant with BMGF
    b. Technology experts – To inform the technical feasibility of various suggestions, we spoke with experts from several technology-based initiatives – call centres, mobile application development, IVRS based solutions, cloud management, etc. They are:
        i. Aaditeshwar Seth, Gram Vaani (community mobilisation)
        ii. Arjun Sinha Roy, netCORE
        iii. Nikhil Singh, netCORE
        iv. Vinay Singh, GlodyneTechnoserve Ltd.
        v. Abhishek Arnav, GlodyneTechnoserve Ltd.
        vi. Sanjeev Shankar, Software Education and Research Pvt. Ltd.
        vii. Ashwini Kumar, Project Manager, CSM Technologies Ltd.
        viii. Shashi Bhushan, SERCO
        ix. Matt Thesis, DIMAGI
        x. Stella Luk, DIMAGI
        xi. Rishad Gambhir, DIMAGI

3. **Observations:** IDinsight observed technology-based monitoring pilots in Bihar along with a few running call centres as a part of the background research:
    a. Monitoring through smart phones by LS in Nalanda district.
    b. Monitoring and self-reporting using smart phones by LS and Sevikas in Jehanabad district.
    c. Facilitation of Sevika's work using feature phones and supervision by LS in Saharsa district.
    d. Call centre for e-Shakti initiative by Rural Development Department, GoB.
    e. Call centre run for various programmes by SERCO Ltd.

Appendix 3.   Past programme summary

Our literature review identified several incentive-based and technology-based social programmes to improve service delivery. All programmes are summarised here.

Source	Theme	Intervention	Findings
Impact of Social Accountability Mechanisms on Achieving Service Delivery and Health Development Outcomes In Satara, Maharashtra, India[32]	Impact of community participation (bottom-up monitoring) in improving public health service delivery and health indicators	The intervention was based in Satara, Maharashtra, where community scorecards for local health workers were introduced in the micro-planning process.	The intervention had a positive impact on the behaviour and culture among beneficiaries, service providers and local government bodies and was effective in improving local health indicators.
Teacher Performance Pay: Experimental Evidence from India[33]	Impact of incentivising teachers on student performance measured by test scores	In rural primary schools of Andhra Pradesh, teachers were incentivised with a bonus if the test scores of their respective children improved. There were two types of incentives: group and individual. A few treatment school teachers received bonus as per the average school-level improvements in test scores while others received bonus on the basis of average test scores of the students taught by a specific teacher.	Findings included: 1. Individual incentive schools always outperform the group incentive schools. 2. The teacher incentive programme was three times as cost effective as additional school inputs. 3. There was no evidence of any adverse consequences of the programme.

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[32] Darshana Patel, Parmesh Shah, and Moutushi Islam, *Impact of Social Accountability Mechanisms on Achieving Service Delivery and Health Development Outcomes in Satara District, Maharashtra, India* (The World Bank, November 1, 2009), http://documents.worldbank.org/curated/en/2009/11/16203395/impact-social-accountability-mechanisms-achieving-service-delivery-health-development-outcomes-satara-district-maharashtra-india.

[33] Karthik Muralidharan and Venkatesh Sundararaman, *Teacher Performance Pay: Experimental Evidence from India* (National Bureau of Economic Research, 2009), http://www.nber.org/papers/w15323.

Power to the people: Evidence from a Randomised Field Experiment on Community based Monitoring in Uganda[34]	Impact of community participation and bottom-up monitoring can lead to improved health outcomes	Fifty communities in nine districts of Uganda were involved in strengthening community monitoring with respect to state health service provision through two rounds of village meetings.	Treatment communities were more involved in monitoring the service provider and the health workers appear to exert more efforts to serve the community better. The paper suggests that bottom-up monitoring can impact service delivery when top-down monitoring is failing. However, longer term impact, spillover and cost-benefit are not evaluated by the authors.
A case of IVRS-based Daily Monitoring System in UP[35]	Impact of IVRS (top-down monitoring) in improving service delivery of mid-day meal scheme	Headmasters of schools in UP are required to report functioning with respect to mid-day meal scheme using an IVRS system.	There is no incentive for the headmaster to report correct data. The data collected in real time is not being used. The impact assessment of the programme hasn't been done but the programme has been considered to be ineffective.
Monitoring Corruption: Evidence from a field	Impact of top-down monitoring and bottom-up	In 608 villages of Indonesia, audit was done to check	The study shows that both top-down and bottom-up

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[34] Martina Björkman and Jakob Svensson, "Power to the People: Evidence from a Randomised Field Experiment on Community-Based Monitoring in Uganda," *The Quarterly Journal of Economics* 124, no. 2 (2009): 735–69.
[35] Pathak, *A Case-Study of Interactive Voice Response System Based Daily Monitoring System in Uttar Pradesh* (Accountability Initiative, Centre for Policy Research, 2012).

experiment in Indonesia[36]	monitoring in reducing corruption	mishandling of funds as well as inviting community for village meetings to discuss funds management.	monitoring were effective in reducing leakage of funds.
Improving Community Health Worker Performance Through Automated SMS[37]	Impact of escalation based reminder system on performance of community health workers	An RCT to test the impact of escalating reminder system to the supervisor was tested to impact community health workers' performance.	There were two main findings: (1) Escalating reminder system has a significant increase in CHW's performance. (2) Escalation to the supervisor is important, only reminders to CHW is not so helpful.
Improving Standards of Care with Mobile Applications in Tanzania[38]	Designing a mobile application that facilitates the work of a community health worker	A CommCare application was developed for CHWs in Tanzania using "Rapid Iterative Development Methodology" which involves developing an application using inputs directly from the end-users and piloting several times in the field.	(1) Simplicity of the application is quintessential (2) It is impossible to see all the implementation bottlenecks and issues beforehand and hence, rapid iterations are important. (3) Sometimes the most important feedback is received from the most basic users.
No margin, No Mission? A Field Experiment on	The effect of financial and non-financial rewards on health	The experiment was based in Lusaka, Zambia and agents	The study showed that non-financial incentives are more

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[36] Brian DeRenzi et al., "Improving Community Health Worker Performance through Automated SMS," in *Proceedings of the Fifth International Conference on Information and Communication Technologies and Development* (ACM, 2012), 25–34, http://dl.acm.org/citation.cfm?id=2160677.

[37] Ibid.

[38] Molly Bogan et al., *Improving Standards of Care with Mobile Applications in Tanzania* (W3C, 2009), http://dev.d-tree.org/samba/Papers%20and%20Presentations/Papers/commcare/Improving%20standards%20of%20care%20with%20mobile%20applications%20in%20Tanzania%20-%20D-tree.pdf.

Incentives for Pro-Social Tasks[39]	sector organisation agents	working in health sector organisations to sell condoms were given different incentives – financial and non-financial.	effective than financial rewards as they leverage intrinsic motivation. Also, the responses to both types of incentives are stronger when their relative value is higher. However, two things to think about are: (1) the potential of financial rewards to have a substantial impact on earnings might be low as there are many income sources available to agents. (2) Since the task has a strong social element, financial rewards might crowd out intrinsic motivation
IDinsight Field Study	Lady Supervisors monitoring through smartphones	The experiment is based in Jehanabad, Bihar, and all the Lady Supervisors were given a phone to report their daily working through a phone. The phone is GPS-enabled, photo-enabled, and data is received in real time.	(1) Lady Supervisors in Bihar are comfortable using mobile technology to submit their reports (2) Counting number of children from photographs using a counting software is not accurate and misreports the data
IDinsight Field Study	Lady Supervisors monitoring through smartphones	In Nalanda, Bihar, the District Magistrate used smart phones that submits only	(1) Application should be simple (2) Regular follow-up action makes

[39] Nava Ashraf, Oriana Bandiera, and B. Kelsey Jack, *No Margin, No Mission? A Field Experiment on Incentives for Pro-Social Tasks*, SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, February 1, 2012), http://papers.ssrn.com/abstract=2013825.

		quintessential data to verify whether they are visiting their respective AWCs.	monitoring effective
IDinsight Field Study	Facilitation of work for frontline workers	In Saharsa, Bihar, frontline workers' work being facilitated using a feature phone based mobile application that guides her through her work and gives the LS a report through a browser based application.	Frontline workers are motivated to use phones to improve their service delivery and can deliver well with ample training.
Documentation of Best Practice: SMS based Monitoring System[40]	Monitoring of ten development programmes using simple SMS system	Bihar wide monitoring programme that requires the Block Development Officers to send simple coded SMS. These SMS are decoded at the server and the database is updated regarding performance of respective blocks.	The simpler the idea, the better it is to implement. Even though there are no impact assessment studies, the major implementation hurdle is to ensure that the data is coded well otherwise the data would be inaccurate. Also, the data received through SMS cannot be verified.

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[40] OneWorld Foundation India, *ICT FACILITATED ACCESS TO INFORMATION INNOVATIONS*, n.d., http://access2info.asia/sms_based_based_monitoring_system.pdf.

Appendix 4.   Technical specifications for LS/CDPO monitoring

This appendix details out the broad technical specifications for LS/CDPO monitoring under IPMS as per the PT.[41]

Airtime and SIM specification		
Category	Main requirement	Justification
SIM	GSM 3G connectivity 64-bit SIM cards to be given by the airtime provider	To ensure that there is good connectivity
Airtime	ICDS should subscribe to a plan that transfers at least 60 MB[42] of data every month. Hence, the ICDS can subscribe to the minimum 2G plan	To ensure that the expenditure is low on data traffic as ICDS is paying data charges
Airtime	Limited access to a few webpages, as requested by ICDS	To limit data misuse
Phone specifications		
Category	High-level requirement	Justification
OS - Android	Supports Android 2.3 (Gingerbread) or later	To afford a low-budget phone
GSM frequency	Supports at least one SIM with GSM frequency 900, 1800, 850, and any other frequency prevalent in India	To ensure phone can be used in India
Processor	1 GHz and above	To ensure uninterrupted functioning of the application
Interface	Touch-based input with minimum screen size 4 inches	To ensure ease-of-use for LS and CDPOs
Connectivity	2G, 3G, Bluetooth, Wi-Fi, EDGE	To have good connectivity
RAM and ROM	256 MB RAM and 512 MB ROM	To ensure that the processor is supportive
Memory	Internal memory of 2 GB; Expandable memory at least 8GB	To store data locally

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[41] The structure for all the technical specifications has been adopted from ICANN, "Request for Proposal- Contact Center Services Provider" (ICANN, June 10, 2011), http://archive.icann.org/en/topics/new-gtlds/rfp-asc-10jun11-en.pdf.

[42] A photograph from a basic Android phone is 200 KB, and a phone will have to transfer three photos daily. Therefore, in a month, it will transfer 18000KB = 18 MB. Along with photographs, there will be other data sources as well. By tripling the above data we get 54 MB of data.

Battery	Li-Ion, 2000 mAh	To have sufficient battery life
GPS	GPS functionality even without the SIM	To have location access
Camera	Secondary camera of 3 MP and above	To capture decent photographs
Form	Bar	For ease-of-use
Other features	Built-in email, web browser support	To ensure access to web based application
Resolution	480 X 800 pixels	To view content well
Suggestions	Micromax Canvas A72 Viva (Or any phone with given features under Rs. 6000)	N.A.
Software specifications		
Category	High level requirement	Justification
General	The application shall be accessible through an Android mobile phone application, deployed on user's mobile phones	N.A.
General	The application should auto-update once the updates are released	To mitigate technical glitches
General	Offline Android-based application	To access the application without connectivity
General	The application should be adjustable to various screen sizes, Android versions, various processors, etc.	To ensure compatibility with various phone types
Safety	The application shall be accessible only after verification of credentials (username and password)	To prevent unauthorised use
Security	Data should be encrypted while being transferred over the internet with Transport Layer Security	To transfer data safely
Security	The data should be encrypted while being stored locally on the phone	To store data safely
Security	The admin should have the capability to disable users when	To protect the application from

	required	misuse
Connectivity	The application should work in offline mode/slow internet connection, and should upload the data when it gets connectivity	To transfer data when possible
Connectivity	Mobile application should clear the picture stored in local database after transmission to the server and receipt of acknowledgement	To properly use the local space
Audit	The application should record an unedited audit trail of all the transactions happening through the application. Such data should be stored encrypted locally on the device	To check transactions in future, if needed
Audit	The system should also send reports on a timely basis to the main IPMS server	For reporting purposes
Features	The application should be made in Unicode	To make the application multilingual
Features	The application should support languages such as Hindi and English	To make the application multilingual
Features	Various functions, forms, screens, sub modules, and other information that should be accessible to users, only as per the authorised roles permissible as per guidelines and policies of the DSW	To restrict access to various features/forms of the application
Features	Every form should have unique code of the format <LS CODE, AWC CODE, DATE>	To make the data unique
Features	Mobile application should access the camera and GPS of phone through its own code	To simplify application
Features	Application shall have the ability to capture and upload photographs with GPS coordinates, time stamp and AWC code	Not needed

Features	LS/CDPO should be able to view her own performance on real time basis	To check work progress
Features	Application should suggest a list of AWCs for visits to LS'/CDPOs	To make a task list for LS'/CDPOs
Features	Application should push notifications about the non-complying AWCs	To remind Sevikas about their tasks
Features	Application should allow LS/CDPO to see list of grievances with that particular AWCs during the field visit	To ensure proper grievance redressal
Features	The application should be equipped with text-to-speech functionality	For reading out questions
Features	The application should be able to use standard Google keypad to input data in English and Hindi	To ensure all android phones have the same keypad
Features	The survey form of the application should make extensive use of radio buttons, check boxes, and other features avoiding keypad input to the maximum	For ease-of-use
Field staff app	A separate app for the field staff to be developed, which keeps a log of technical issues to be solved by a field staff and should have features as above	For technical support staff so that technical issues are addressed to as soon as possible
Training module		
Category	High level requirement	Justification
OS - Android	Supports v4.1 (Jelly Bean) and onwards	To afford a low-budget phone
GSM frequency	Supports at least one SIM with GSM frequency 900, 1800, 850, and any other frequency prevalent in India	To ensure phone can be used in India
Processor	1 GHz and above	To ensure uninterrupted functioning of the application
Interface	Touch based input with minimum	To ensure ease-of-use for LS and

	screen size 7 inches	CDPOs
Connectivity	2G, 3G (via a dongle), Bluetooth, Wi-Fi, EDGE	To have good connectivity
RAM	1 GB	To ensure that the processor is supportive
Memory	Internal memory of 4 GB; Expandable memory up to 8GB at least	To store data stored locally
Battery	Li-Po, 2800 mAh	To have sufficient power backup
GPS	GPS functionality even without the SIM	To have location access
Camera	Secondary camera of 0.3 MP and above; primary camera VGA and above	To capture decent photographs
Form	Bar	For ease-of-use
Other features	Built-in email, web browser support	To ensure access to web based application
Resolution	480 X 800 pixels and above	To view content well
Voice calling	Supported	N.A.
Suggestions	Lenovo Idea Tab A1000, HCL ME Connect 2G 2.0 (Or any tablet with given features under Rs. 6500)	
Category	High level requirement	Justification
LS and CDPO	Once the SIM cards are deployed by the vendor, the LS' and CDPOs should be involved in extensive training exercise	To ensure fluent use of phones and the application
LS and CDPO	Training should also involve giving details about IPMS, penalties and rewards based on the "Triggers and Actions" section of this document, and troubleshooting using the technical field staff	To make sure that users know about the incentives and how to quickly do away with technical glitches
Technical field staff	The vendor should also train the field staff for troubleshooting	To keep up the phones and devices technically

	various foreseen problems related to mobile phones, SIM issues, and other matters	

Appendix 5. Information collected under LS/CDPO monitoring

As per PT's recommendations, and Form V and VI of ICDS, IPMS will collect data on the following components of AWC functions using LS/CDPO monitoring application:

Centre open	Special day-based schemes:
Staff present	1. BachpanDiwas (children's day)
No. of total kids and adolescent girls	2. Take Home Ration day
No. of registered kids and adolescent girls	3. Village Health Sanitation and Nutrition day (VHSND)
Proper AWC board	4. Concentrated nutrition and health education day
AWC functioning for a given day	
Supplementary Nutrition Programme	
Infrastructure of the AWC	
Registers maintenance	Social audit
Vaccinations	SABLA scheme
Height and weight of a few selected beneficiaries	Indira Gandhi MatratvaSahyogYojna (mother support scheme)

Appendix 6. Technical specifications for Sevika self-reporting

		Airtime and SIM specification	
#	Category	High level requirement	Justification
1.	SIM	GSM 3G connectivity 64 bit SIM cards to be given by the airtime provider	To ensure that there is good connectivity all throughout
2.	Airtime	The airtime provider must offer 3G connectivity. ICDS (or SAKSHAM) should subscribe to a plan that transfers at least 60 MB[43] of data every month. Hence, ICDS (or SAKSHAM) can subscribe to the minimum 2G plan, since the data isn't too much.	To ensure that the expenditure is low on data traffic as ICDS is paying data charges.
3.	Airtime	Limited access to a few webpages, as requested by ICDS	To limit data misuse.
		Phone specifications	
#	Category	High level requirement	Justification
1.	OS	Android/Java (under Rs. 3500) that can be updated regularly	To afford a low budget phone
2.	GSM frequency	Supports at least one SIM with GSM frequency 900, 1800, 850, and any other frequency prevalent in India	To ensure phone can be used in India.
3.	Screen size	Minimum screen size of 3 inches	To ensure ease-of-use for LS and CDPOs
4.	Interface	Supports reasonable graphics and user can input in multiple languages	To ensure ease-of-use for LS and CDPOs
5.	Connectivity	2G, 3G, Bluetooth, Wi-Fi, EDGE	To have good connectivity
6.	RAM and ROM	256 MB RAM and 512 MB ROM	To prevent lags in phone processing
7.	Memory	Internal memory of 2 GB; Expandable memory up to 8GB at least	To store data stored locally
8.	Battery	Li-Ion, 1300 mAh	To have sufficient power

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[43] A photograph from a basic Android phone should be of 200 KB, a phone will have to transfer 3 photos daily. Therefore, in a month, it will transfer photographs of 18000KB = 17.58 MB. Along with photographs, there will be other data sources as well. By tripling the above data we get 52.74 MB of data.

			backup
9.	GPS	GPS functionality even without the SIM	To have uninterrupted location access
10.	Camera	Secondary camera of 2 MP and above; Primary camera (if there) of VGA and above	To capture decent photographs
11.	Form	Bar	For ease-of-use
12.	Other features	In-built email, web browser support	To ensure access to web based application
Software specifications			
#	Category	High level requirement	Justification
1.	General	The application shall be accessible through an android/java mobile phone application, deployed on user's mobile phones	Not needed
2.	General	The application should auto-update once the updates are released	To limit technical glitches
3.	General	The application should not be browser based, it should be offline application	To access the application offline without connectivity
4.	General	The application should be adjustable to various screen sizes, Android versions, various processors, etc.	To ensure adaptability for various phone types
5.	Safety	The application shall be accessible only after verification of credentials (Username & Password) of user on their registered mobile phone only	To prevent unauthorised use
6.	Security	Data should be encrypted while being transferred over the internet with Transport Layer Security.	To transfer data safely
7.	Security	The data should be encrypted while being stored locally on the phone.	To store data safely
8.	Security	The admin should have the capability to disable users as required, based on failure to login.	To protect the application from misuse

9.	Connectivity	The application should work perfectly in the offline mode/slow internet connection, and should upload the data as it gets connectivity	To transfer data however possible
10.	Connectivity	Mobile application should clear the picture stored in their local database after transmitting the same to the server and receiving an acknowledgement for the same.	To properly use the local space
11.	Audit	The application should record an unedited audit trail of all the transactions happening through the application. Such data should be stored encrypted locally on the device.	To check transactions in future, if needed.
12.	Audit	The system should send timely reports to the main IPMS server.	For reporting purposes
13.	Features	The application should be made in UNICODE.	To make the application multi-lingual
14.	Features	The application should support languages such as Hindi and English	Same as above
15.	Features	Various functions, forms, screens, sub modules, information etc. should be accessible to users, only as per the authorised roles permissible as per guidelines and policies of the DoSW	To restrict access to various features/forms of the application
16.	Features	Every form should have unique code of the format < AWC CODE, DATE>	To make the data unique
17.	Features	Mobile application should access the camera and GPS of phone through its own code.	To simplify application
18.	Features	Application shall have the ability to capture and upload photographs with GPS coordinates, time stamp and AWC code. These data should feature on the picture once it is displayed on the IPMS dashboard.	Not needed
19.	Features	Sevika should be able to view their own performance on real time basis.	To check their work progress

#	Category	High level requirement	Justification
20.	Features	The application should be equipped with text-to-speech functionality.	For reading out questions
21.	Features	The application should be able to use standard google keypad to input values in English and Hindi.	The application should be able to use standard Google keypad to input values in English and Hindi.
22.	Features	The survey form of the application should make extensive use of radio buttons, check boxes, etc. avoiding keypad input to the maximum.	The survey form of the application should make extensive use of radio buttons, check boxes, etc. avoiding keypad input to the maximum.
22	Field staff app	Technical staff employed for hand-holding LS and CDPO will also support Sevikas for any phone related issues that they may face.	A separate app for the field staff to be developed, which keeps a log of the problems. The application should share the same features as point 1 to 15 of this sub-section. This application will only record data regarding issues solved by a field staff.
		Training module	
#	Category	High level requirement	Justification
1.	Sevika	Once the SIM cards are deployed by the vendor, the Sevikas should be involved in extensive training exercise	To ensure fluent use of phones and the application
2.	Sevika	Training should also involve giving details about IPMS, penalties and rewards based on the "Triggers and Action" section of this document, and troubleshooting using the technical field staff.	To make sure that users know about the incentives and how to quickly do away with technical glitches

Appendix 7. Implementation plan for top-down monitoring

Activity Description	Timeline (T – date of signing the contract)
Collect the data: • Database of all LS/CDPO phone numbers and mapping them to their respective AWCs	T+1 months
Preparation: • Developing the top-down monitoring app, as per the needs of ICDS • Developing the technical field staff application • Developing the Sevika self-reporting app, as per the specifications by ICDS	T+2
Dashboard synchronization: • The vendor needs to send data to the IPMS database so that the report is generated assimilating data from various sources.	T+2.5
Rollout (SAKSHAM): • Procurement of mobile phones • Procurement of Airtime plans and SIM cards • Procurement of tablets for technical staff *Rollout (Vendor):* • Field testing of the application	T+3
Training: • Training of the LS' and CDPOs to usethe application • Training of technical field staff to handle mobile and application troubleshooting • Training of the Sevikasto use the application	T+3 onwards
Maintenance: • The application should be regularly updated as per the needs specified by the ICDS directorate • Maintenance of the tables/mobile phones to be handled by the vendor.	N.A.

Appendix 8.   Payment policy for top-downmonitoring

To make sure that the vendor does his job optimally, the payment can be made as follows:

Activity Description	Payment tranches
Collect the data: • Database of all LS/CDPO phone numbers and mapping them to their respective AWCs	Advance = 20%
Preparation : • Developing the top-down monitoring app, as per the needs of ICDS • Developing the technical field staff application • Developing the Sevika self-reporting app, as per the specifications by ICDS	
Dashboard synchronization: • The vendor needs send data to the IPMS database so that the report is generated assimilating data from various sources.	
Roll out (SAKSHAM): • Procurement of mobile phones • Procurement of Airtime plans and SIM cards • Procurement of tablets for technical staff *Roll out (Vendor):* • Field testing of the application	Payment on bills = 30%
Training: • Training of the LS' and CDPOs to use the application (Only 10% LS' and CDPOs complain about the software after the first month) • Training of technical field staff to handle mobile and application troubleshooting (only 10% technical field staff complain about lack of knowledge to troubleshoot after the first month) • Training of the Sevikasto use the application (only 10% Sevikas complain about the software after the first month)	After training reports submitted and feedback from trainees = 10%
Maintenance: • The application should be regularly updated as per the needs specified by the ICDS directorate • Maintenance of the tables/mobile phones to be handled by the vendor from time to time (Not more than 10% people complain about their phones in a month)	After feedback from users = Remaining 40% over next two years.

Appendix 9.   Detailed task list for the call centre Data collection

The call centre will carry out the following data collection tasks under bottom-up monitoring:

1. Information regarding AWC performance

The call centre is required to collect feedback from beneficiaries about the AWC performance and inform beneficiaries about AWC performance. In this regard, the call centre is required to do the following four things:

(a) Make manual outbound calls to randomly selected beneficiaries and seek feedback about the day to day functioning of the *Anganwadi* worker.

(b) As a part of any inbound call, seek information about the AWC performance.

(c) Moreover, a beneficiary can also make a call to the call centre just to collect information about their respective AWC.

(d) As a part of any inbound call, ask beneficiary if she would like to know her AWC's performance.

2. Register grievance related to ICDS

To register grievances related to ICDS, the call centre needs to do the following:

(a) Develop a CRM system that registers the complaint meticulously and escalates an issue as required. The system should also schedule reminder calls for the call centre agents to remind ICDS officials about updating the grievance status.

(b) Update the grievance database even if the data is collected from other sources – written, web-based, emails, etc. And follow up on all grievances using the call centre only.

(c) Once an officer updates the status as closed, the call centre should check with the beneficiary and re-open the complaint with a higher level of escalation.

Data analysis, reporting and presentation

1. Data integration

Mainly, two important data sets are collected from community: AWC performance data and grievances. AWC performance data collected from community will be merged with other AWC performance data collected through Sevikas, Lady Supervisors, and CDPOs. Grievance database will be maintained by the call centre, but the data will be accessible to ICDS officials as well.

2. Data analysis and reports

The call centre will be required to make two monthly reports for the ICDS officials:

(a) Grievance analysis report – this report will be sent to officers at all levels. Officers will get reports pertaining to their catchment area. For example, a CDPO will get the grievance report for his block while the ICDS director will get the report for the entire state. The report should at least specify the number and nature of grievances registered, closed, and reopened.

(b) Centre operations report – this report will give details about call inflow, call outflow, IVR use, automated calls made, average clean down time, average handle time, calls missed, monthly call traffic, etc.

More details about what should be included in these reports is included in the functional requirements under the next section.

3. Data presentation

The call centre agent will be required to maintain a database of grievances that can be tracked/updated on an online portal by authorised personnel. Community members can also view their grievances online at this portal. The data for AWC performance will be presented on the main IPMS dashboard with other data related to AWC performance.

Appendix 10. Technical specifications for bottom-upmonitoring

Application Synchronisation and development		
Category	High level requirement	Justification
API	The vendor should have an API which allows two-way flow of data in real time with internet with restricted access so that the call centre will have access to only a part of the data, as decided by their instruction manual given by ICDS, and further, the implementation vendor will make sure that data flows in a particular format, the call centre vendor (if different) needs to have compliance, in consultation with Project Team.	API will help to establish the link between the call centre and the main IPMS server and will allow ICDS to compare the judgments of CDPO, LS, Sevika, and community regarding AWC performance
API	This API will also send limited attributes of AWCs to the IPMS application such that data can be used to form reports, at a specified frequency	
IPMS application accessibility	The Customer Relations Management (CRM) application shall allow authorised call centre agents to access various functions, forms, screens, sub modules, information etc. related to the data collected using IPMS as per the authorizations and user roles permissible as per guidelines and policies of the DSW	To limit access to IPMS information
General	There should be a single sign on (SSO) capability for the call centre operators, separate point for authenticated access and for customizable calling scripts and data capture	To have operator-based secure sign in
General	The CRM should be completely web-based to facilitate integration	To have real-time information capture at server
General	Cross-browser compatibility (Internet Explorer, Firefox, Safari, etc.)	-
General	ICDS should (1) receive complaints (2) process complaints (3) upload complaints (4)	-

	act on escalated complaints (5) forward complaints and (8) monitor functioning of the call centre	
General	Application should support bilingual content, necessarily through Unicode	To have multilingual support
General	Application should have a facility to set up the following masters: 1. AWC Master 2. Service Type Master 3. Complaint Type Master 4. User Master 5. Officer/action user master 6. Masters to define resolution types and codes	To sort the data by various types (or masters)
Grievance management tool		
Category	High level requirement	
Grievance redressal	Application should allow configuring various parameters such as: - 1. Set Escalation Days 2. Defining Complaint Level 3. Complaint Closure Settings 4. Set Service Level Agreements (SLAs)	-
Grievance redressal	Business rules can be defined for escalations, as well as transmission of reports	-
Grievance redressal	Auto archival settings will also be required	-
Grievance redressal	Ability to generate unique ticket numbers	To open a complaint
Grievance redressal	System is able to close (per ICDS rules) a unique ticket number	To close a complaint
Grievance redressal	Auto grievance completion date generated based on grievance type with configurable work schedule and authorised sign in	To process a complaint
Grievance redressal	Linking of multiple interactions or grievances related to a person as one	Organisation of data
Grievance redressal	Grievance opening with multi task assignments simultaneously and within multiple ICDS stakeholders	To process a complaint
Grievance redressal	Application can readily calculate First Call Resolution rates via automated collection and	To ensure proper call answer

	reporting of as an out of-the-box report feature	
Workflow	Supports workflows and follow-up activities with indicated timeline	To process a complaint
Integration	Pulls beneficiaries related data from the IPMS database as needed	-
Integration	Ability to update contact information of various beneficiaries and ICDS stakeholders	-
Usability	Call logging facility to be available	For routing the calls well
Usability	Standardised drop down menus: call reasons, pending reasons, enforcement of required fields, etc. for various call agents with option to specify	For proper data entry
Usability	One-page view of participant contact history after the call ends	-
Usability	On screen real-time search of the following: grievances, ICDS authorities, etc.	-
Usability	Application should have facility to allow users to reopen the closed complaints over voice calls	-
Contact History	Prior beneficiary and ICDS official records, phone contacts, and email contacts are available to the agent (for open grievances and previous complaints)	-
Queues	Provides queues to prioritise and route grievances using an IVR system	To make sure calls are not missed
Escalation	Call centre agents are manually required to escalate grievances as per the rules specified by the ICDS (the escalation rules are attached as Appendix 11)	So that the complaint is looked into in a timely manner
Time-Frames	ICDS officials have the ability to attach running notes to a ticket	-
Electronic Storage	Allow attachment of documents to grievances or interactions up to 25 MB	-

Electronic Storage	Stores e-mails or other electronic documents associated with a specific grievance	For quick reference
Security	Beneficiary contact information can only be updated by authorised personnel	To prevent information loss
Reporting	Provide reporting such as number of grievances open, number of grievances closed, average time grievances were open, number of grievances escalated, etc. under the operations report	-
Reporting	Call centre manager to track grievance SLAs and ensure its clauses are not being missed	To ensure work is being done as planned
Integration	Ability to integrate with other systems existing in ICDS	To make sure there is one grievance database

Knowledge base tool		
Category	High level requirement	Justification
General	Web based internal knowledge base for quick agent access to be maintained	
Usability	Allows the call centre to know and house important information – ICDS guidelines, ICDS objectives, etc	Call centre operators are fully aware of ICDS
Usability	Information to be stored under various grievance categories defined by ICDS	Sorting information
Usability	Robust search functionality within the CRM	Information can be accessed anytime
Real-Time Updates	Allow for real-time update of information and guidelines by the call centre manager	Data is always up-to-date and secure
Update	Hard copy of guidelines to be made available in the call centre within a week of new updates. ICDS person to be in contact with the call centre agent	Call centre is always updated
Language Support	Supports multiple languages in the content of the knowledge base	Multi-lingual support for agents
Document Import	CSV, PDF, XLS, Word, JPEG, etc.	Document support
Document Export	PDF, Excel, etc.	Document support

Voice communication tool		
Category	High level requirement	
Telephony Circuits	Inbound circuits - the CRM application shall have a complaint registration form along with AWC information dissemination. The complaint database should be accessible to ICDS as well. This component will capture • Grievances of beneficiaries • Feedback provided by beneficiary: appreciation and areas of improvement The call centre can also take care of technical support that Sevikas/LS/CDPOs are called.	-
Telephony Circuits	Outbound circuits – the following will be done under this component: • Information dissemination about AWC performance and rights to beneficiaries • Seeking limited information about performance of AWC *A dedicated team from ICDS will be required to train the call centre agents and update them on the rules and regulations regarding ICDS for proper information dissemination.*	-
Call traffic management	The call centre should run from 10 AM to 6 PM. The number of operators should be managed as per the different traffic requirements	Appropriately staffed call centre
IVR	Configurable broadcasting messages for the IVR to be played as a call is received	To ensure call routing to designated agent
IVR	The IVR will also give the caller to choose a type of action – complaint, information, feedback, etc. and an option to choose native language	To ensure call routing to designated agent
Automatic Call Distributor (ACD) & agent phones	If agent not available, calculate and play an estimated caller wait time and queue the call	To make sure people know how much to wait and they don't hang up

Automatic Call Distributor (ACD) & agent phones	Plays a specific message if wait time is above a certain threshold	-
Computer Telephony Integration (CTI)	Capture data input from caller (e.g. phone number for screen pop as appropriate)	The data is correct and is duly filled
Internal Routing	Routes the call to agent when agent becomes available, in times of high traffic and on the basis of language selection	To ensure proper matching of agent and caller
External Routing	Routes the call to outside people – ICDS official, if the call centre is unable to provide necessary information	-
Automatic Call Distributor (ACD) & agent phones	Ability to place a caller on hold for only a specified time period just to seek information from manager	-
Transfer	Ability to transfer a call (warm transfer)	-
Transfer	Ability to transfer a call (cold transfer)	-
Call logging	Ability to view the call logs related to a particular complaint at one place and shall be able to identify the opening and the closure call for a complaint	Ensuring all call history related to a particular caller is maintained at one place
Call logging	The calls made to the ICDS officials in regard of a complaint should be recorded under the trail of the complaint	Ensuring all call history related to a particular caller is maintained at one place
Reporting	Provide reporting such as inbound calls per hour, handling time by hour, call transfers by hour, dropped calls, etc. with the operations report.	Performance of the call centre can be reviewed
Email / SMS tool		
Category	High level requirement	Justification
Usability	Allows the application to send emails/SMS to concerned authorities as grievance is recorded	Call centre should send a follow up email for every grievance to all the officers and maintain an unedited record of the same for
Usability	ICDS officials can confirm their status via an SMS/email	

Integration	A trail of such emails and SMS should be logged with the specific ticket number	verification purposes.
Reporting	Email/SMS – sent and received – should be reported to ICDS with the operations report	
	Data recording tool	
Category	High level requirement	Justification
Recording (Call)	Quality monitoring/compliance recording system must integrate with automatic call distributor and agent desktop (recording agent desktop activities) to record a call	To sync the call recordings with call logs and email clients
Recording (Email)	Quality monitoring/compliance recording system must integrate with email solution and agent desktop (recording agent desktop activities) to record emails sent for random checks	
Recording (Call)	Ability to ask permission from caller to record the call before the call is transferred to a call centre agent	To comply with Consent-To-Record legislation
Recording (Call)	Ability to reference call recording as necessary	-
Quality Monitoring	Ability to access call quality evaluation form from a specific location to check the agent performance	-
Quality Monitoring	Call data server access with the ICDS	For checking call quality
Reporting	Call quality evaluation summaries to be presented to ICDS on monthly basis under the operations report	Monthly reporting
Timeline	Data to be recorded for at least past three months	For evaluation and archive purposes.
	Workforce management tool	
Category	High level requirement	Justification
Forecasting	Ability to use historical call data available in order to accurately forecast call volume, handle time, and staff management according to these parameters	-
Scheduling	Ability to identify and lock in capacity required to meet service-level targets efficiently. The call centre should staff appropriately for high call traffic hours	-
Scheduling	Ability to schedule information	-

	dissemination calls and reminders calls in a timely manner so that grievance redressal is not impacted	
Real-Time Adherence	Schedule optimization - ability to adjust schedules to mitigate last minute shifts in demand or capacity, and therefore, maintain the work flow	-
Reporting	CRM allows for user-definable reports for seeing workflow of the call centre	To adjust operators' time optimally
Reporting	Operations report should report on adherence to the schedule and call traffic management data	-
Grievance viewing tool		
Category	High level requirement	Justification
Usability	An open/protected portal should be provided by the vendor to see the grievances online	To facilitate public tracking of complaints
Usability	ICDS stakeholders can also update the status of the grievance by logging into this protected platform	-
Usability	A beneficiary can track her grievance via the portal	-
Usability	Application should have facility to allow users (ICDS officials, agents, beneficiaries)to reopen the closed complaints	-
Reporting	Operations report should also indicate how many people used the portal to track and update grievances	To see the work flow of the portal

Appendix 11. Escalation matrix for complaints

ICDS recognises three major types of complaints related to ICDS:[44]

(a) **Complaint against officers for poor service delivery –** A complaint against an officer is referred to the next higher officer in the chain. The higher officer should be of a different catchment area and needs to check the situation within seven to fifteen days and is liable to report to the call centre and update the status of the complaint. If the senior officer doesn't look into the matter, the complaint directly escalates to next senior officer with a show cause notice issued to the officer who failed to look into the matter. Every fifteen days, escalation of the complaint will happen.

Once the complaint status is updated by an officer as closed, the complainant will be contacted and will be asked to either finally close the complaint or re-open it in case he/she is not satisfied. In case the complaint is re-opened, it will automatically escalate to the next higher officer.

(b) **Complaint regarding corruption –**any complaint that talks about corruption – mainly embezzlement of funds, inappropriate ration, etc. – will be referred to the District Magistrate's (DM) office. The DM office will be required to send an enquiry team – as per existing ICDS rules – to check the status of the situation and respond to the call centre within 20 days of informing the DM office. As suggested by senior ICDS officials, this enquiry team can comprise of district level officers under Department of Social Welfare other than that of ICDS. In case the DM office is not looking into the matter after several reminders, complaint will be escalated to ICDS Directorate. Constant reminders will be sent to the Directorate officers. Non-fulfilment of duties will be reported to the Secretary directly periodically.

(c) **Hiring / firing complaints –**such complaints will be directly referred to the officers at the ICDS directorate. DPOs and other senior ICDS officials will be required to look into such complaints and respond within fifteen days of informing the officer. In case the DPO doesn't fulfil his duty, he will be issued a show cause notice and the complaint will be escalated to ICDS Directorate in Patna. Constant reminders will be sent to the Directorate officers. Non-fulfilment of duties will be reported to the Secretary directly periodically.

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[44] As discussed with Dr. Chandani and Mr. Vinod at ICDS.

Appendix 12.   Payment policy for the call centre vendor

The vendor should be based using an output based approach, as it is foreseen as a potential collaborator. To calculate payment, ICDS can use this formula:

Call centre payment = Fixed payment + Operational payment

Fixed payment = One time infrastructure setup + IVRS set up + software development + ACD set up + related costs

Operational payment = Cost of calls + cost of IVRS + cost of recording audio tapes + salaries + other operational costs + performance bonus of the call centre vendor.

Performance bonus will be contingent on number of grievances solved, number of unique beneficiary registered, total number of incoming calls. Other parameters, as decided by ICDS, can also be helpful in determining the performance bonus of the vendor such that output is high.

Appendix 13.   Infrastructural specifications for call centre

Category	Component	Details
Hardware	Computers and related instruments	Computer, headphones, and hardware for around fifty call centre agents and two managers. Sufficient buffer should be kept.
Hardware	Physical infrastructure	Desks, chairs, lockers, and office supplies for 50 call centre agents and two managers. Call centre should have proper security to only allow employees.
Hardware	PRI lines	Two PRI lines required for a 50-desk call centre.[45]
Hardware	Local/cloud server	A cloud server based in India is recommended. However, the vendor should have the freedom to host data in a secure server.
Software	CRM	A secured CRM dedicated to IPMS is recommended.
Software	IVR	An IVR service with automated call distribution is recommended.
Staffing	Call centre manager	Two call centre mangers – one over 25 agents – with at least 3 years of experience in managing call centre and proficient in doing daily quality checks.
Staffing	Call centre agents	Fifty call centre agents – having previous call centre experience, at least an undergraduate, proficient in vernacular languages, and a good mix of males and females.
Staffing	Technical assistant	Two technical assistants to troubleshoot problems on the go, as they arise. The assistants should also help managers in daily quality management.

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[45] *Airtel PRI Line Plans|*. (n.d.). Retrieved from http://priline.in/

Appendix 14. Implementation plan for call centre vendor

Activity Description	Timeline (T – date of signing the contract)
Collect the data: • Database of all the contact information for beneficiaries as enumerated by Sevikas • Database of LS/CDPO/District authorities contact details	T+1
Preparation : • Developing the CRM as per the requirements • Building an API so as to facilitate real-time data transfer between different other databases • Hardware procurement: PRI lines, IVR, missed call number, etc. • Hiring of call centre professionals#	T+3
Dashboard synchronization: • The vendor needs to have a grievance redressal dashboard that can be accessed by authorised officials and public to know the status of a grievance. • The vendor should also provide transfer AWC performance data to the main IPMS dashboard for comparison purposes.	T+3.5
Rollout: • Procurement of a missed call number • Marketing the phone number, putting posters in every AWC, giving promotional calls to beneficiaries, etc. • Following up on the grievances and making sure that they are being redressed. • Timely reporting of the call centre activities • Sending reports for the complaints received	T+4
Maintenance: • The application should be regularly updated as per the needs specified by the ICDS directorate • Hardware maintenance as per the need	N.A.

#*Call centre personnel specification:*
The call centre agents should have more females than males (around 30 females and 20 males). The call centre staff should speak Bihar's languages – Bhojpuri, Magghi, Methali, and Hindi. It is important that they be trained well to speak about ICDS rules, guidelines and regulations. Periodic staff trainings with ICDS officials should be organised by the vendor after the initial training is done.

Appendix 15.   Monitoring indicators to be displayed on the dashboard

The IPMS dashboard will have two types of indicators – monitoring- and nutrition-based.

Monitoring indicators	
Centre open	Special day-based schemes:
Staff present	1. BachpanDiwas (children's day)
No. of total kids and adolescent girls	2. Take Home Ration day
No. of registered kids and adolescent girls	3. Village Health Sanitation and Nutrition day (VHSND)
Proper AWC board	4. Concentrated nutrition and health education day
AWC functioning for a given day	
Supplementary Nutrition Programme	
Infrastructure of the AWC	Indira Gandhi MatratvaSahyogYojna (mother support scheme)
Registers maintenance	Social audit
Vaccinations	SABLA scheme
Positive feedback by beneficiaries	Grievances registered by beneficiaries

Appendix 16.   Mock-upsdepicting IPMS dashboard

This appendix shows mock-ups for various screens of the dashboard.

1. Home page – IPMS dashboard: The home page displays a few summary statistics, Minister's address, link to the public access point, and the official login.
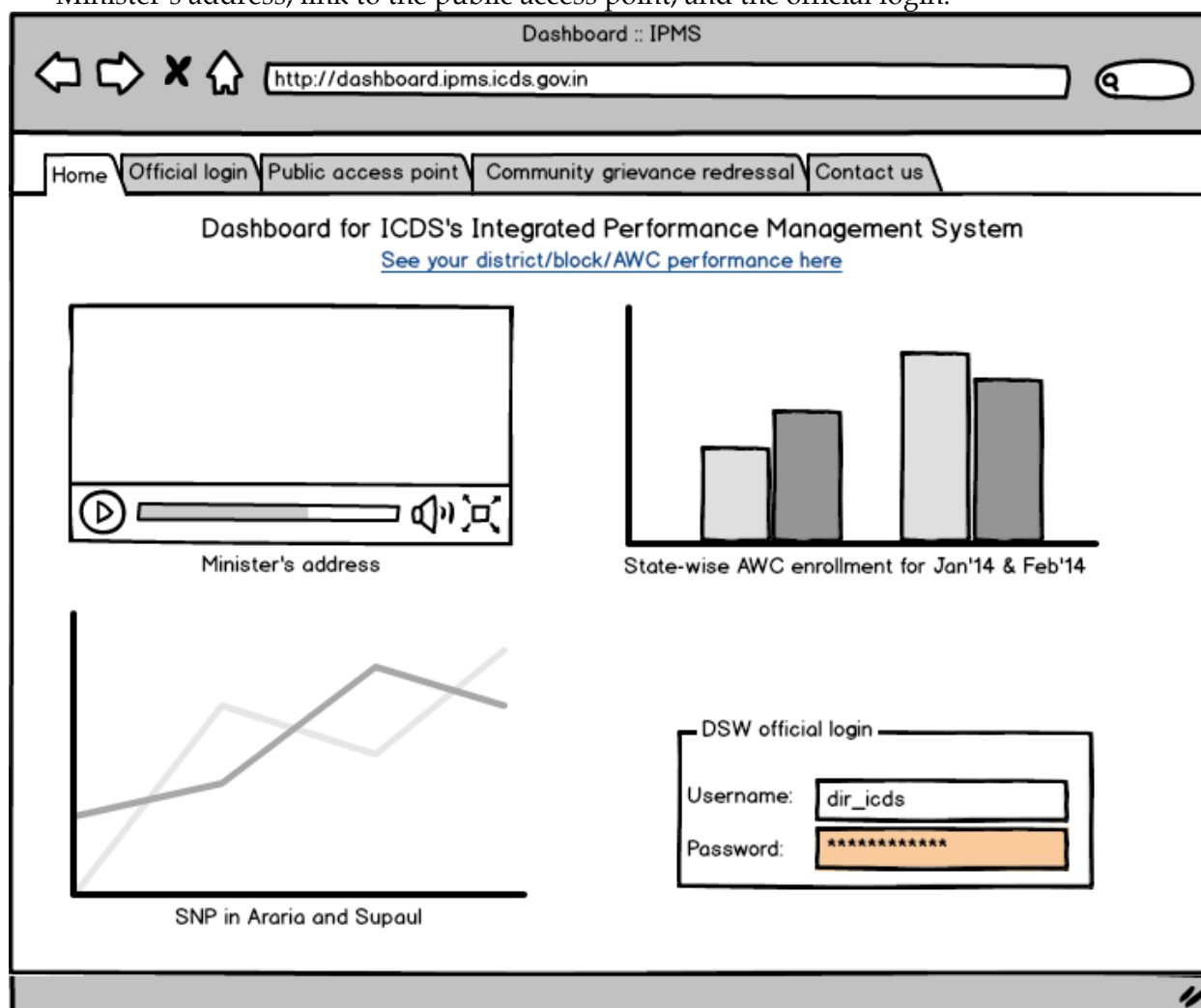
2. Official login page
   a. Screen 1: This page asks for the login information.

Dashboard :: IPMS

http://dashboard.ipms.icds.gov.in

| Home | Official login | Public access point | Community grievance redressal | Contact us |

Please log in with your username and password to generate reports

DSW official login

Username: dir_icds

Password: ************

Click here if you have forgotton your username or password

b. Screen 2: This page lets the officer choose whether he wants to download an auto-generated report or generate a customised report using the query builder.

Dashboard :: IPMS

http://dashboard.ipms.icds.gov.in

| Home | Official login | Public access point | Community grievance redressal | Contact us |

---- Official login page ----

Choose an option:

○ Download auto-generated reports
○ Query builder for customised report

Submit

c. Download reports page: This page lets an officer download pre-designed regular reports.

d. Query builder page: This page lets the user choose the indicators to view. Please note that the list in the mock-up is only indicative. It should include all the indicators mentioned in the data analysis portion.

Dashboard :: IPMS

http://dashboard.ipms.icds.gov.in

| Home | Official login | Public access point | Community grievance redressal | Contact us |

Query builder for customised reports

Step 1: Select report level

District: Araria ▼
Madhubani
Select All

Block: Araria ▼
Bhargama
Select All

AWC: 001 ▼
012
Select All

Step 2: Select time
◉ Day   ○ Range
○ Week   From:
○ Month   [/ /] 🗓
○ Year   To:
               [/ /] 🗓

Step 3: Select indicators

- Nutritional status -

☐ Registered beneficiaries for nutritional supplements

☑ Registered beneficiaries for THR

☐ Registered beneficiaries for pre-school activities

☐ Registered beneficiaries for home visits

☑ % THR given

☐ % malnourished children

- Monitoring -

☐ Centre open

☐ Infrastructure update

☐ Breakfast served daily

☐ Lunch served daily

☐ Positive feedback

☐ No. of complaints

Step 4: Select reporters

☐ Sevika
☑ LS
☐ CDPO
☐ Beneficiary

Step 5: Select format

☑ Data
☑ Charts
☐ Maps

[Generate report]

3. Public access point: This is an open page for anyone to generate basic customised reports for a geographic area.

Appendix 17. Information provided by the IPMS call centre

The following information is provided to beneficiaries who call the IPMS call centre.

Category	Beneficiary	Information
Daily activities	SNP – AWC child	What are the daily activities at the AWC?
Breakfast	SNP – AWC child	When, how, and what should be prepared for breakfast?
Hot cooked meal	SNP – AWC child	When, how, and what should be prepared for lunch?
Selection	SNP – AWC child	Who and how many are entitled?
Preschool activities	SNP – AWC child	What are the activities that AWC should carry out?
Timeline	SNP – AWC child	On what days is the AWC open?
Grievance	SNP – AWC child	How can one register a complaint about poor service delivery?
Selection	SNP – THR child	Who is entitled to THR?
Amount	SNP – THR child	What should be provided and in what quantities?
Timeline	SNP – THR child	When is the THR provided?
Grievance	SNP – THR child	How can one register complaint for poor service delivery?
Selection	SNP – THR mother	Who and how many are entitled for THR?
Amount	SNP – THR mother	What should be provided and in what quantities?
Amount	SNP – THR mother	What should be provided and in what quantities?
Timeline	SNP – THR mother	When is the THR provided?
Grievance	SNP – THR mother	How can one register a complaint about poor service delivery?

Appendix 18.   Triggers and actions for ICDS stakeholders

The following table represents a set of recommended metrics for Sevika evaluation by L.S. This structure can be modified applied to other employee levels as well.

The Sevika starts with 10 points and each negative aspect receives point cuts. Some events are mutually exclusive. For example, if the AWC is closed, no other metric is relevant (therefore the -10).

Category	Observation by	Observation	Points
AWC visit	LS/CDPO/State official	AWC closed during visit	-10
		Less than 40 children present	-0.5
		Attendance not recorded for the day of visit	-0.5
		Attendance recorded for the day of visit differs from actual attendance by more than 5 children	-0.5
		SNP: Major ingredients absent from meal	-1.5
		SNP: Quantity of hot meal is insufficient	-0.5
		Overall cleanliness: bad	-0.5
		Less than 50% of registers updated	-0.5
THR day	LS/CDPO/State official	THR distribution not done	-5
		Less than 50% THR distributed	-1
		Weighing scale or box not used	-0.5
		50% of the community members didn't sign the register	-0.5
VHSND	LS/CDPO/State official	No VHSND on the assigned day	-0.5

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