SCANNING FOR DIGITAL INNOVATIONS AND OPPORTUNITIES

A LANDSCAPE REVIEW OF BRAC BANGLADESH PROGRAMMES

A project of the DigiDev Initiative: A collaboration between the BRAC Institute of Governance and Development, BRAC University and the Independent Evaluation and Research Cell

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Overview

Background

The Applied Research and Implementation Initiative (DigiDev) is designed to help develop the organizational capacities of BRAC and BRAC International (BI) to integrate digital innovations into anti-poverty programs in Bangladesh and beyond.

The DigiDev initiative is made possible by a three-year grant from ananonymous philanthropic fund from 2021 to 2024. It is jointly conducted by BRAC Institute for Governance and Development (BIGD) at BRAC University, BRAC International's Independent Evaluation Research Cell (IERC), BRAC Social Innovation Lab (SIL) and BRAC USA, with country and program teams across BRAC.

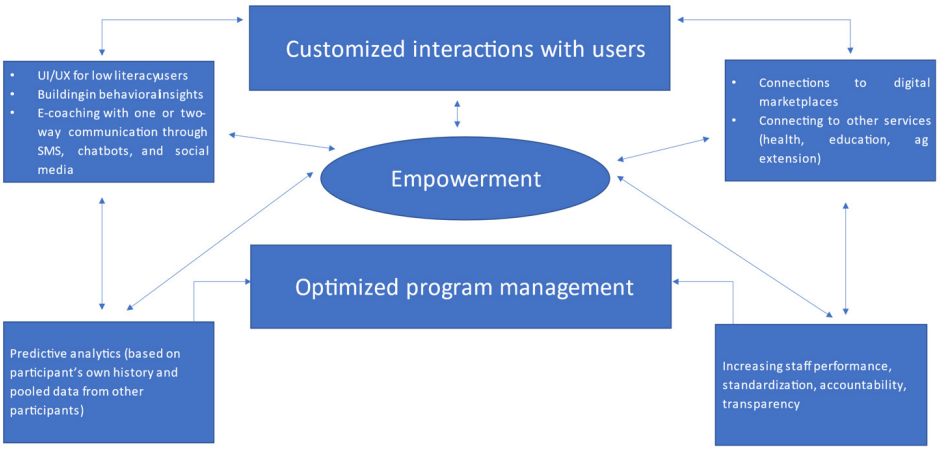
In the next three years, with supplemental program funding, DigiDev hopesto provide core operating support for applied research and implementation to further test, evaluate, and scale the most promising digital innovations.

Landscaping

In early 2021, the DigiDev team conducted a landscaping review to identify promising digital innovations that could be scaled for impact in BRAC'soperations in Bangladesh and internationally. The Covid-19 pandemic is accelerating the pre-existing movement to build-in digital solutions in the design and delivery of BRAC programs worldwide in areas such as earlychildhood development, education, youth empowerment, skills development, agriculture, and community health. Digitization is only nascent in some programs, while it is already piloted and even scaled inothers. Given BRAC's recognized pioneering role in development and its commitment to learning and sharing, the digital innovations piloted at BRAC are poised to scale through NGOs, governments, and other development partners worldwide.
DigiDev's working definition of digital innovation refers to the application of digital technologies to development problems in the roll-out of program activities, program delivery, monitoring, and other aspects of development work. Often, digital innovations rely on the use of Information and Communications Technology (ICT) to solve development problems. In that sense, digital innovation encompasses Information and Communications Technology for Development (ICT4D) but is broader.
Digital innovations have the potential to increase program's cost-effectiveness in two major ways—see graphic hereafter.

1. they can strengthen program outcomes, in particular customized interactions with participants.

2. they can help optimize program management by increasing program efficiency, enhancing staff performance, accountability,and transparency.



Summary findings

In early 2021, the DigiDev research teams at BIGD and BRAC International scanned BRAC's portfolio for digital innovations through a series of surveysand interviews. They identified 32 digital innovations across areas of Edtechand Capacity Building (10 programs, of which three are in Bangladesh),Digital Financial Services (DFS) (seven programs, of which five are inBangladesh), Digital Management Information Systems (MIS) and DataCollection tools (13 programs, of which 10 are in Bangladesh), Enterprise Resource Planning (ERP) systems to manage day-to-day business and Machine Learning (ML) initiatives using Artificial Intelligence (AI) for automated decision-making (two programs, one ERP and one AI, both with BRAC International). All the digital innovations in the landscaping rely on the existence of minimal public or private infrastructures such as digital payments infrastructure,mobile connectivity infrastructure, or unique identification systems. The potential to scale these innovations depends on access to this infrastructure,but also the level of digital literacy and basic literacy of targeted users inprogram areas. Most innovations in the landscaping were developed with attention to the Principles for Digital Development such as the need to design with the user, the need to be iterative, having a strong understanding of the ecosystems in place and the need to coordinate with others. Several innovations are developed in partnership with mobile network operators and technology providers.

Attention needs to be paid to how collaborative and open-source the digital solution is and the security of the data.

Next steps

Moving forward the DigiDev team will work closely with BRAC operational teams on a few of the solutions that are functional and have potential of scale for user testing, further fine-tuning and testing impact at scale.

1. Introduction

The goal of DigiDev is to build the organizational capacities of BRAC Institute of Governance and Development (BIGD) and Independent Evaluation Research Cell (IERC) to conduct rigorous research on digital innovations in development programmes within BRAC and beyond. The core objectives are to identify digital innovations that can successfully adapt, replicate, and scale-up within development programmes. BIGD conducted a landscape review globally to aggregate innovative and promising digital solutions that have the potential to benefit people in poverty and human development at scale. BIGD is now evaluating the readiness for digital solution uptake within BRAC programmes in an attempt to overcoming barriers to integrate digital solutions into existing programmes, and identifing opportunities for iteration based on applied research.

This document provides a landscape review of the current internal ecosystem of digital innovation within BRAC and BRAC International (BI) with the aim of aggregating innovative and promising digital solutions that have the potential to benefit people in poverty and human development at scale.

Various BRAC programs, including education, early childhood development, agricultural extension, skills development, youth empowerment, and community health have achieved momentum in adopting digital innovations for optimized impact. Momentum ranges from interest among the programs' leadership, to testing digital modalities, to successfully scaling initiatives.

The report is organized as follows: first the landscaping of BRAC programs in Bangladesh is presented followed by the landscaping of programs operating in BRAC International countries. After each main section, opportunities and challenges to digital implementation are highlighted. The report concludes with high-level recommendations for next steps. Additional supporting documents and charts can be found in the appendices.

2. Landscape Methodology and Approach

In order to conduct a landscape of digital innovations throughout BRAC in Bangladesh, BIGD conducted interviews with program staff exploring existing digital solutions within BRAC projects. Snowball sampling was used to identify participants. The interview responses were analyzed and they, in turn, informed the design of a survey that was sent to a wider sample of BRAC projects and representatives. These interviews helped us find the categories of digital solutions and shed light on various challenges faced during their implementation. Based on our learning from these interviews, we designed a brief online survey which we sent out to nineteen people representing BRAC and its partners. From this, we identified *eighteen digital solutions* currently being implemented by BRAC and concerned projects representatives to get a more comprehensive list of digital solutions. We wanted to ensure the listing of all the digital solutions to help us categorize and use the findings for our research purpose. It is important to note that we used the term digital 'solutions' instead of digital 'innovations' in the survey. The underlying rationale was that from the earlier interviews we understood people tend to often presume a digital solution to be innovative, which is not necessarily always true. To avoid this confusion, we wanted to get insights on the existing digital solutions and then assess whether a solution is a digital innovation or digital adaptation.

We asked programme heads to participate in the survey or nominate someone to complete it on behalf of the programme. Nineteen people participated in our survey representing different programmes and projects. The main objective was to discern the digital solutions, hence, the sample size was not a concern. The survey forms were sent to the selected participants. We had to drop one observation as the solution mentioned by the respondent had already been reported by another respondent. The list of the selected programmes is presented in Figure 1. The findings of the survey are presented in the next section. The summary of our survey methodology is as follows:

1. We identified and interviewed key personnel within BRAC using a snowball method to list the existing digital solutions in different BRAC projects. Using a snowball method.

2. We designed a brief online survey which was sent out to a wider sample of BRAC employees and project representatives involved to get a more comprehensive list of digital innovations.

3. Nineteen people participated in our survey representing different programmes and projects (Appendix A), and they shared information about eighteen digital solutions.

3. Categories of Digital Solution

Following a thematic approach, we defined five broad categories of digital solutions based on the purpose, users, and expected outcomes of the solution. We have categorized the eighteen solutions analyzing and comparing the objectives of each solution.

3.1 Management Information Systems (MIS)

This category comprised eight digital solutions from the seventeen solutions. MIS includes digital solutions that are focused on a digital system that is integrated into the organizational system and used to process data and provide decision-making within the organization. Digital solutions under this category both collect and manage data and help projects and programmes in data-driven decision making.

1. BMP-I: BRAC Migration Programme (BMP) uses a digital solution to support their Disrupting Cross-border Trafficking Networks Project's data collection, management, and dynamic report generation purpose.

2. SDP: BRAC Skills Development Programme (SDP) uses a business intelligence tool based on the Salesforce platform to manage their project.

3. MFS-I: Credit Shield Insurance (CSI) initiative by Microfinance: Client (smallholder farmers) enrollment is done through BRAC Enterprise Resource Planning (ERP) system, and the claim settlement process is fully digital and managed through the insurer's web portal.

4. HNPP: The 'mHealth' solution by BRAC Health, Nutrition, and Population Programme (HNPP) aims to make the work of community health workers (CHW) cashless and paperless. The output of the project will be capturing detailed data of the day-to-day work of CHWs.

5. BHP-I: BRAC Humanitarian Programme initiative aims to digitize the data collection process and registration of targeted participants, generating analytical reports and detailed programme activity data.

6. CEP: Community Empowerment Programme (CEP) uses Polli Shomaj Software to digitize the MIS and monitoring system of the Polli Shomaj (rural regions)

7. GJ&D: Gender Justice and Diversity Programme (GJ&D) piloted use of digital devices in awareness raising programmes, gender sensitization training and results tracking, advocacy, networking, research work, etc.

8. UPG: Ultra-Poor Graduation Programme (UPG) developed UPG automation software for digitizing the MIS process.

3.2 Digital Financial Service (DFS)

This category comprised five digital solutions among the seventeen solutions. The use of digital financial services has led to opportunities to incorporate this service in its projects in pursuit of making transactions easier and faster.

1. BEP-I: BRAC Education Programme (BEP) digitized teachers' salaries and students' tuition fee payment and receiving processes using mobile money which was previously done through cash.

2. UDP: Urban Development Programme (UDP) is using a digital solution developed by WFP to provide cash support (mobile money) to low-income people who lost their livelihoods due to the pandemic. This support is to ensure nutritious food intake of the most vulnerable urban me people. The technology allows to track food purchasing activities.

3. BMP-II: Socio-Economic Reintegration of Returnee Migrant Workers of Bangladesh project of BMP distributes financial support through mobile financial services (e.g., bKash) to migrant workers.

4. IDP: Integrated Development Programme uses mobile money transactions through bKash on feature or Android phones amongst the hard to reach area dwellers to ensure safe and rapid financial transactions.

5. MFS-II: Microfinance solution is a collection of installments through a mobile wallet (bKash) and also digital payments and saving services.

3.3 Data Collection Tool

This category comprised two digital solutions. These solutions are essentially collecting data, online and offline, using tablets/phones, and then storing the collected data in its system. These solutions are implemented in rural areas only.

1. CCP: Climate Change Programme (CCP) adapted 'KoboCollect' to collect large volumes of data which replaces the earlier manual way of data collection process.

2. BHP-II: BRAC Humanitarian Programme (BHP) is using KoBo Toolbox for data collection in projects focused on humanitarian response to restore safety, dignity, and resilience of flood-affected people in Bangladesh.

3.4 Digital Learning System

One reported digital solution of the BRAC Education Programme (BEP) is focused on an alternative to physical classes, shifting education delivery to a digital platform. Another solution named Onneshon, an initiative of BEP in collaboration with Social Innovation Lab (SIL) provides an online platform for the teacher's skill development.

1. BEP-II: BRAC Home School by BEP offers a feature phone-based remote voice conference class with a group of four students during the pandemic.
2. BEP-SIL: BRAC Education Programme in collaboration with "Onneshon", a digital learning platform for the teachers initiated by BRAC's Social Innovation Lab.

3.5 Job Matching System

The only digital solution is a job seeking platform, where the system suggests job seekers and eligible candidates to recruiters and employers based on matching profiles and job requirements. Currently, this solution is urban-based only.

1. Kormo: 'Kormo by Google' is a job matching platform for early job seekers and providers; BRAC SDP is knowledge partner

4. Summarized Findings

In this section, we look into the overall characteristics of all the digital solutions on the basis of 5 broad categories that we defined beforehand.

4.1 Context of Project

We looked into the context of the programmes/projects in which the solution was being implemented. It was particularly important to (i) see the usability of solutions across localities and scope of adaptability, and (ii) investigate further if the attributes of designed solutions were specific to its targeted regions only.

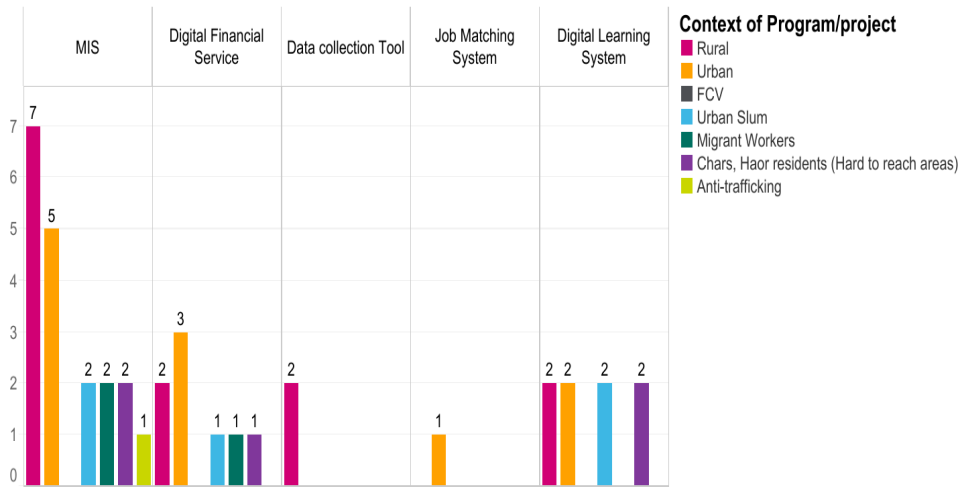


Figure 4.1. Context of program/project

Most of the MIS system covers rural areas. However, the job matching tool covers only the urban areas. One MIS solution within BRAC Migration Programme focuses on disrupting cross-border trafficking. Both the digital learning solution covers chars, rural and urban areas. The job matching solution is the only solution focused solely on the urban context.

4.2 Purpose of Digital Solutions

Although the purpose of solutions might vary across programmes, there are common uses of the different solutions. From this analysis, we can infer the scope of use across the different categories. We found the majority of the MIS categorized digital solutions focus on collecting data to target participants, case management, and dynamic summary report generation. However, three of the eight MIS solutions extend to staff supervision. Another solution within the same category addresses gender issues and works on violence against women and children.

Four of the DFS solutions focus on digital payments. Besides digital payments, the solution of UDP tracks food purchase information under their Urban Food Assistance project which targeted the low-income community people who lost their livelihoods during the pandemic.

Both the projects categories under the data collection tool digitizing their data collection process by using the KOBO platform. One of the digital learning solutions (Onneshon project) fosters quality education through delivering training modules to the teachers and managing staff.

There is only one solution (KORMO Jobs) under the Job Matching System which focuses on connecting job seekers and employers for entry-level jobs.

4.3 Users of Digital Solutions

Knowledge of the users of the digital solutions would be instrumental to infer whether solution integration is possible across programmes and/or categories holding other relevant factors constant. Multiple levels of programme/project managers along with the programme beneficiaries interact with the MIS type of digital solutions. Whereas programme beneficiaries are the major users of DFS type of digital solutions.

Data collectors are the majority of users of data collection tools but when it comes to job matching systems the users are typically entry-level job seekers and job providers.

4.4 Expected Outcomes of the solutions

The expected outcomes of the solutions reflect the possible benefits of digitalization in achieving the objectives of the programmes/projects.

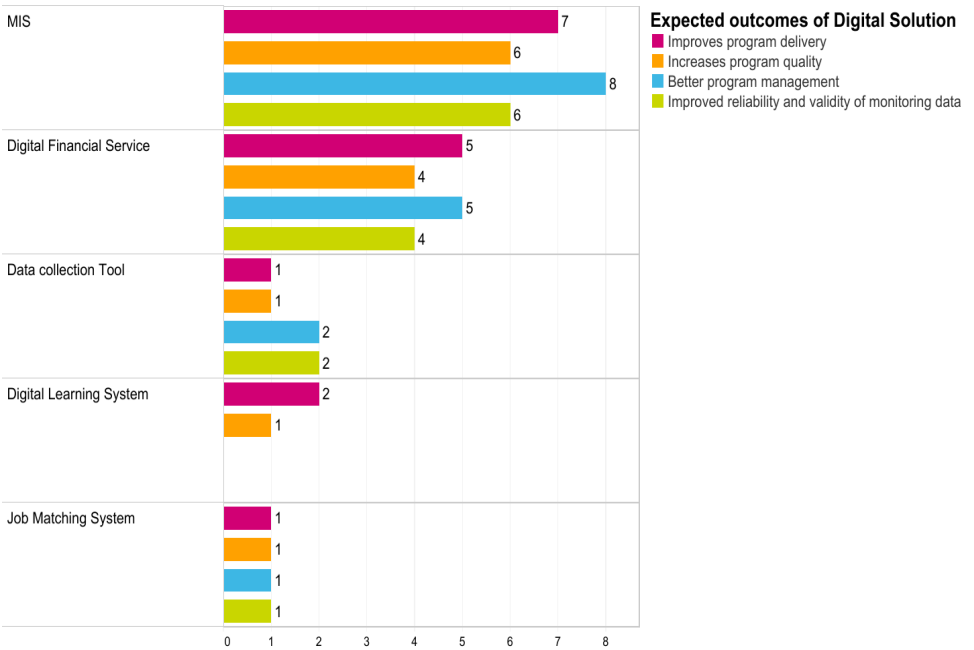


Figure 4.2. Expected outcomes of digital solutions

- MIS solutions, by and large, are intended to improve the programme delivery and ensure overall better programme management.
- DFS solutions also expect to improve programme delivery and ensure better programme management.
- Data collection tools mainly focus on better programme management, and data collection and monitoring aspects.
- The digital solutions categorized under the digital learning system are expected to improve the programme delivery.
- The only solution under the job-matching system focuses on improving the connectivity between the entry-level job provider and job seeker.

4.5 Nature of Digital Solutions

We wanted to see the digital modality of the solutions. The nature of the solution, e.g., website or smartphone application, would help us to understand how the solution is carried out to serve its purpose. We found no digital solution under the offline computer software category.

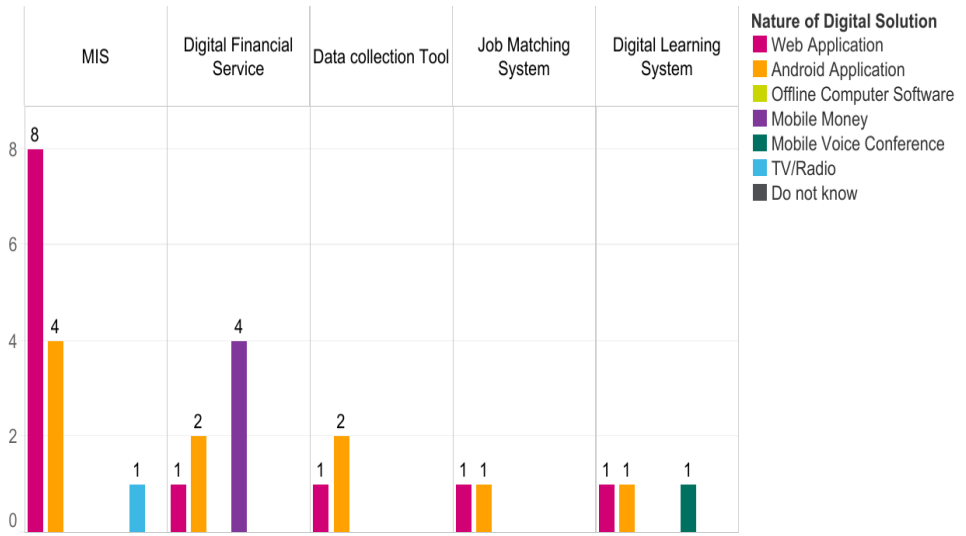
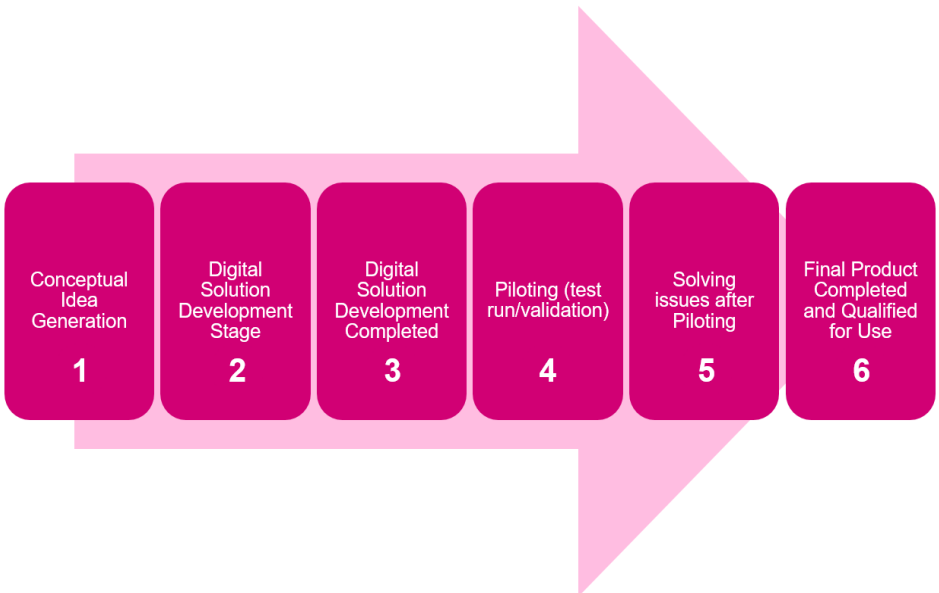


Figure 4.3. Nature of digital solutions

- The majority of the categories have web applications and/or Android applications. Eight solutions of the MIS category have their web-based services.
- In the case of DFS, the majority of the solution is reliant on the USSD service of mobile money transactions. This means the solutions do not require any website or smartphone applications.
- For the Job Matching solution, the solution has both website-based and android based applications for its users.
- One of the solutions within the digital learning system comprises the use of video call software—no need for website and smartphone applications. While the other solution within the same category is using the web and Android applications.

4.6 Stage of Digital Solution

We have looked into the current stage of the implementation of digital solutions. The stages of the solutions shed light on important aspects of scalability. The rationale behind asking this question is for fully completed solutions or those at the last stages before their implementation, the constraints are more known relative to the solutions in their infancy.



- MIS solutions of BRAC Migration programme and Skill Development programme are completely ready and currently being used in their respective programs.
- Two of the DFS solutions are using Bkash while the other one is using another solution developed by WFP to track the user's food purchase.
- One of the solutions within the Digital learning system is completed and already being used which is the feature phone-based home-school piloting. Whereas the other solution under the same category is in the development stage.
- Data Collection tool of Humanitarian programme is already in implementation in the field
- The only solution under the job matching system is currently being used by all its targeted users

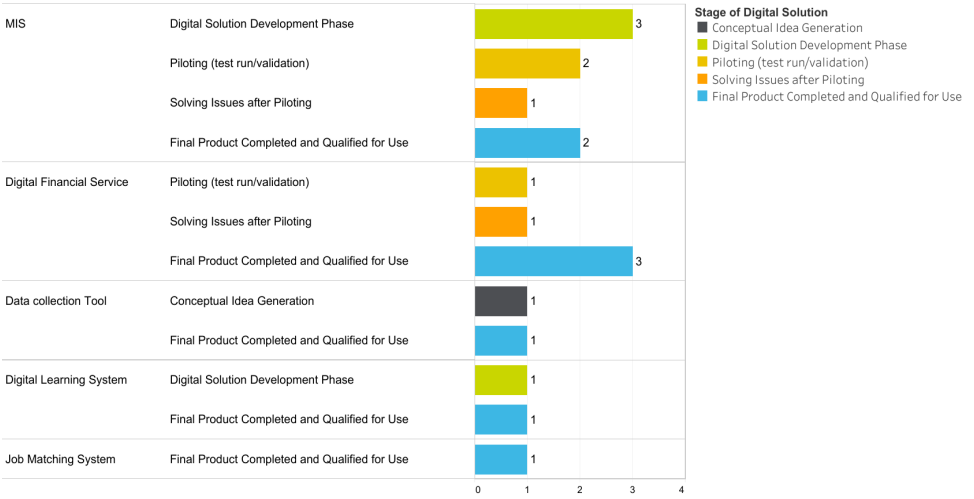


Figure 4.4. Stage of digital solution

4.7 Previous State of Task

We wanted to analyse whether a solution replaced manual work, if the older version of the solution or the task itself did not exist before. The majority of the tasks were done manually before the introduction of the current digital solutions. Only the job matching task for the semi-formal job market was a totally new process that was introduced through a digital solution. Fifteen of our surveyed solutions were brought in to replace the task that was done manually before.

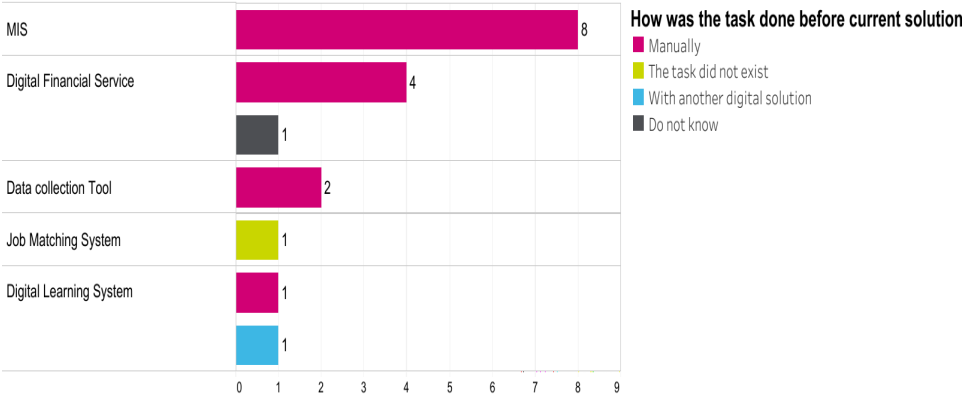


Figure 4.5. Previous state of task

4.8 Digital Solution Developer

We also wanted to observe how many solutions were outsourced to understand one of the possible constraints relating to the development of the solution. The majority of the digital solutions were developed outside of BRAC. Eleven of our surveyed solutions were developed outside of BRAC. Category wise breakdown of the digital solutions whether built in-house or not shown below.

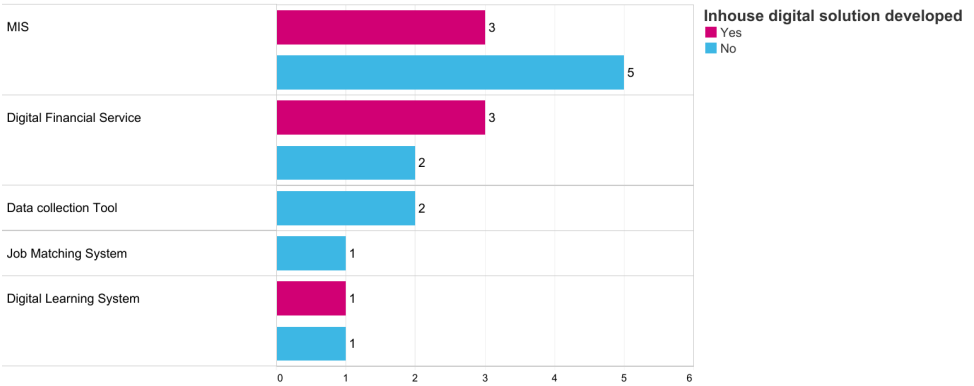


Figure 4.6. Solutions inhouse or outsourced

4.9 Training Nature

Understanding the training time required to learn the solution is important for the potential scalability of the solutions. If a certain solution requires one-off training, then

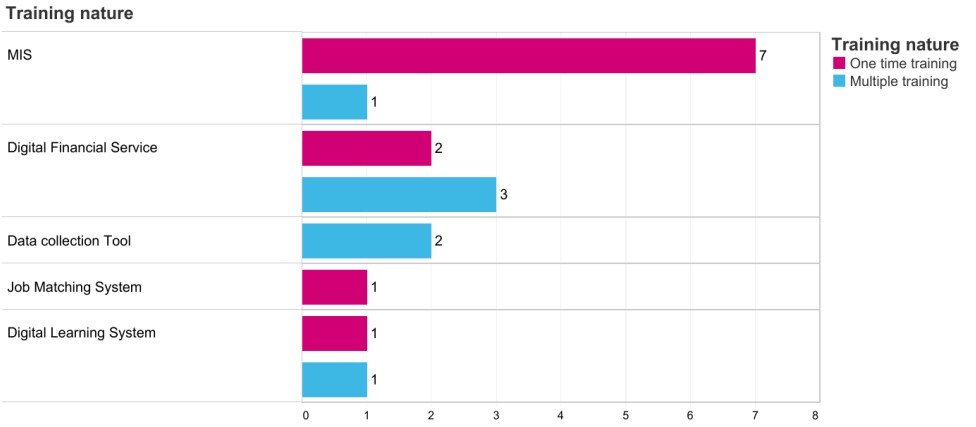


Figure 4.7. Nature of training

it is reasonable to assume that this solution if implemented in other programmes can be adopted by the targeted users with merely one round of training. Also the training time required could be a way to understand the complexity of the digital solution. If a solution needs multiple rounds of training in order to use it, the complexity of the solution is definitely higher than the digital solutions which require one-off training and is therefore easier to adapt for the users. The majority of the surveyed solutions require only one-off training. Seven out of eight MIS-based solutions need one-time training, and the majority of the DFS requires multiple training sessions.

4.10 Open API or Not

An open Application Programming Interface (API) is one that is made with a specific protocol that allows it to be more accessible to other developers. It is an aspect of the digital solution which defines if any other software can interact with it or use its features. We found eight solutions as reported not to be an open API indicating the limitation of interaction ability. Four of the surveyed digital solutions could not be identified as either open API or not. It is important to point out that this particular question is relatively more technical and requires a certain level of understanding of the technical aspect of the solution. There is a caveat that many of our respondents are from non-technical backgrounds and hence, their response on this question needs further verification.

4.11 Challenges

We chose a thematic approach to identify the challenges and barriers faced in implementing the solutions. We have categorized the challenges and analyzed them.

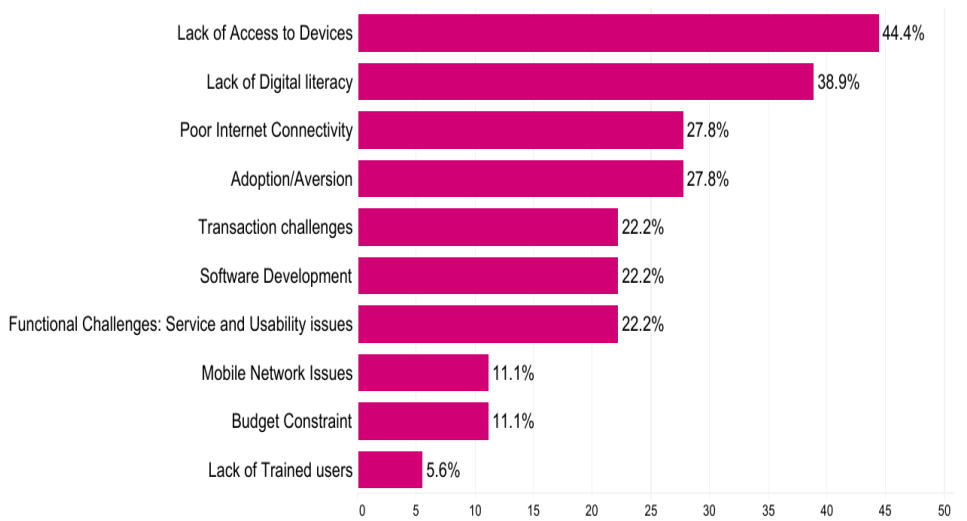


Figure 4.8. Types of challenges

Top Four Challenges

Lack of Access to Devices

The most prominent challenge was ensuring access to devices. About 44% of the solutions from the survey mentioned the challenges regarding the lack of access to devices. For instance, GJ&D mentioned that most of the targeted women and children do not possess mobile phones. Similarly, IDP reported that a lot of women do not own mobile phones. Under digital learning system category, both of the stated solutions reported accessibility of required devices as an impediment.

Lack of Digital Literacy

The second most reported challenge, stated by seven solutions' representatives, was the low rate of digital literacy among their targeted users. UDP informed that the digital literacy of the stakeholders was a hindrance during their implementation of the solution. For the nascent "Onneshon " initiative, training teachers through online mode has been a hurdle as there prevails a lack of digital literacy in terms of usability.

Poor Internet Connectivity

Poor internet connectivity disrupts the function of digital solutions, especially the solutions that are web-based and smartphone applications—requiring internet connectivity for work. Three of the MIS tools and one of the digital learning system and data collection tools have mentioned poor internet connectivity as one of their challenges.

Adoption/Aversion

We found from our survey that both adoption and aversion were prevalent as a common obstacle. Reluctance or disinterest among the users to learn or adapt to the use of digital modes. This challenge slows down the process of digitalisation as the objectives are not attainable if the beneficiaries do not comply with learning the digital solution.

Other Challenges

Transaction Challenges

Many users are often found to be unaware of the process of how to transfer money through mobile phones, they are dependent on secondary assistance. Many users faced some level of fraudulency.

Software Development

BRAC Migration programme informed about the delay in the software development. UPG has reported that the software developed is not equipped for the large network of functions that UPG needed.

Functional Challenges: Service and Usability Issues

The microfinance team informed that the digital solution they are using comprised certain functions that were not user-friendly.

Mobile Network Issues

Mobile connectivity issues hampered the solutions that are dependent on the use of phones. In remote areas—hard to reach regions—the mobile network is poor. These hard to reach areas presented the challenge of severe connectivity issues across people. BRAC Home School project faced the mobile network issues while implementing their remote schooling initiative across all the BRAC schools.

Budget Constraint

For certain projects, there was a financial constraint to develop the digital solution that was required.

Lack of Trained Users

Certain solutions needed users with adequate knowledge of the operability of the solution.

4.12 Broader Categorization

All the digital solutions characteristics have been presented in two separate tables, where the first table focuses on the nature and objective of the solution and the project involved (Appendix A.1). And the second table shows the technical aspects of the digital solution (Appendix A.2).

We tried to categorize each solution in three broad categories - Digitalization, Adaptation, Innovation. This would help us to identify the digital solutions that we could consider for our applied research. Following the landscape survey and selection of digital solutions of our research interest, we can proceed to the next phase of our study that involves delving into the selected solutions and evaluating the scope of scalability in other development programmes/projects.

Digitalization - The solutions labeled under this category are somewhat digitalizing the already existing processes.

Adaptation - The solutions labeled under this category are adapting already existing digital solutions to improve programme performance.

Innovation - The solutions labeled under this category took some kind of innovative approach to improve the programme performance like digitizing a heavy-weighted manual task/process that was not digitized before or by introducing a totally new process.

We have presented the digital solutions under these three categories in the following table. As mentioned earlier, the details of the solutions are summarized in Appendix A.1

Category	Digital Solutions
Digitalization	BMP-I, BHP-I, GJ&D and UPG
Adaptation	SDP, BMP-II, IDP, MFS-II, CCP, BEP-II
Innovation	MFS-I, HNPP, CEP, BEP-I, UDP, KORMO

Conclusion

Our short survey was conducted to capture an overall picture of all the available or upcoming digital solutions involving BRAC programs. Now to understand the scalability and replicability we propose to thoroughly investigate the technical aspects for the listed three digital solutions:

MFS-I

This solution is in the development phase and aims to fully digitalize the claim settlement process through the insurer's web portal. Digitalizing the whole claim settlement process is an innovative approach that could be investigated thoroughly.

KORMO

'KORMO by Google' is a job matching platform for early job seekers and providers targeting the semi-formal job sector where BRAC SDP is the knowledge partner. Connecting the entry-level job providers and job seekers by job matching is an innovative process itself.

BEP-SIL

"Onneshon" is a BEP project in collaboration with SIL, is in the development phase and it aims to provide a digital learning platform for the teachers.

To reiterate, the aim of this landscape review is to identify the digital solutions in the different BRAC programmes and also, in external development projects BRAC is associated with. From our landscape survey, we found eighteen digital solutions. We categorized the solutions into five categories of digital systems/services. We presented our findings here and attempted to draw comparison from the descriptive analysis. For the purpose of our research, we investigated the various constraints faced while implementation of the solutions. This is important for our DigiDev research as our objective is to analyze digital initiatives and see the scope of scalability/replicability in other programmes. We can also design interventions pertaining to the prominent challenges of the solutions. Based on our understanding of the responses, we further categorized the solutions into three broad categories of Digital initiatives: Digitalization, Innovation and Adaptation. Finally, we shortlisted three digital solutions as proposed solutions that seemed to be potential innovative solutions that we may further dive into and assess the scalability of the solutions.

Appendix A

List of Programs/Projects

- BRAC Migration Programme (BMP-I & BMP-II)
- Skills Development Programme (SDP)
- BRAC Education Programme (BEP-I & BMP-II)
- Urban Development Programme (UDP)
- BRAC Microfinance Programme (MFP-I & MFP-II)
- Ultra-poor Graduation Programme (UPG)
- Humanitarian Programme (BHP-I & BHP-II)
- BRAC Migration Programme (BMP-II)
- BRAC Microfinance Programme (MFP-II)
- Integrated Development Programme (IDP)
- Social Innovation Lab (SIL)
- Humanitarian Programme (BHP-II)
- Gender, Justice and Diversity Programme (GJ&D)
- Climate Change Programme (CCP)
- Community Empowerment Programme (CEP)
- Health, Nutrition and Population Programme (HNPP)
- Kormo Jobs by Google (KORMO)

Appendix A.1
Summary of Digital Solutions: BRAC Bangladesh

Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
MIS	BMP-I	1. Mobile data collection for registration and targeting of participants 2. Dynamic Summary Reports	1. Web Application	1. Programme Head 2. Project Head 3. Project Officer 4. Branch manager 5. Regional Manager 6. Technical Officer	1. Improves programme delivery 2. Better programme management 3. Improved reliability and validity of monitoring data	Final Product Completed and Qualified for Use	Anti-trafficking
	SDP	1. Mobile data collection for registration and targeting of participants 2. Mobile tools for case management 3. Staff Supervision 4. Dynamic Summary Reports	1. Web App 2. Android App	1. Programme Head 2. Project Head 3. Project Officer 4. Branch manager 5. Data Collector 6. Area Manager 7. Regional Manager 8. echnical Officer	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Final Product Completed and Qualified for Use	1. Rural 2. Urban
	MFP-I	1. Dynamic Summary Reports 2. Claim documents submission to Insurer, claim monitoring and performance management	1. Web App 2. ERP System	1. Project Head 2. Project Officer 3. Branch manager 4. Data Collector 5. Area Manager 6. Regional Manager 7. Technical Officer 8. Insurer's authorized representatives	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Digital Solution Development Phase	1. Rural 2. Urban 3. Urban Slum 4. Migrant Workers 5. Haors/Chars residents

[Appendix A.1 contd...]

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Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
	HNPP	1. Mobile data collection for registration and targeting of participants 2. Mobile tools for case management 3. Digital Payments 4. Health management information system 5. Logistics or for in-kind aid 6. Inventory management 7. Dynamic Summary Reports	1. Web App 2. Android App	1. Programme Head 2. Project Head 3. Project Officer 4. Data Collector 5. Area Manager 6. Programme Manager	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Solving Issues after Piloting	1. Rural 2. Urban 3. Urban Slum 4. Migrant Workers
	CEP	1. Mobile data collection for registration and targeting of participants 2. Redress and Complaints 3. Dynamic Summary reports	1. Web App	1. Project Officer 2. Data Collector 3. Regional 4. Manager Technical Officer 5. Beneficiaries	1. Better programme management 2. Improved reliability and validity of monitoring data	Digital Solution Development Phase	Rural

[Appendix A.1 contd...]

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Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
	BHP-I	1. Mobile data collection for registration and targeting of participants	1. Web App	1. Project Head 2. Project Officer 3. Data Collector	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Piloting (test run/ validation)	1. Rural 2. Urban
	GJ&D	1. Mobile data collection for registration and targeting of participants 2. Mobile tools for case management 3. Delivery of coaching/mentoring 4. Staff supervision 5. Sanitise on gender issues	1. Web App 2. Android App 3. TV/Radio	1. Regional Manager 2. Technical Officer	1. Improves programme delivery 2. Better programme management	Piloting (test run/ validation)	1. Rural 2. Urban 3. Haor/Chars residents
	UPG	1. Mobile data collection for registration and targeting of participants 2. Mobile tools for case management 3. Delivery of education 4. Delivery of coaching/mentoring 5. Staff Supervision 6. Dynamic Summary reports	1. Web App 2. Android App	1. Programme Head 2. Project Head 3. Project Officer 4. Branch manager 5. Regional Manager 6. Technical Officer	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Digital Solution Development Phase	Rural

[Appendix A.1 contd...]

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Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
DFS	BEP-I	Digital Payments	Mobile Money	1. Project Head 2. Project Officer 3. HR Officer 4. Branch Manager 5. Area Manager	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Final Product Completed and Qualified for Use	1. Rural 2. Urban 3. Urban Slum 4. Migrant Workers
	UDP	1. Mobile data collection for registration and targeting of participants 2. Sales/Purchase Management	1. Web App 2. Android App	1. Technical Officer 2. Beneficiaries	1. Improves programme delivery 2. Increases programme quality 3. Better programme management	Final Product Completed and Qualified for Use	3. Urban 4. Urban Slum
	BMP-II	Digital Payments	Mobile Money	1. Beneficiaries 2. Volunteers	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Piloting (test run/ validation)	Migrant Workers
	IDP	1. Digital Payments 2. Digital Saving Services	Mobile Money	1. Programme Head 2. Branch Manager 3. Area Manager 4. Technical Officer 5. Regional Manager 6. Beneficiaries	1. Improves programme delivery 2. Increases programme quality 3. Better programme management		Haor/Char areas residents

[Appendix A.1 contd...]

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Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
	MFP-II	1.Digital Payments 2. Digital Saving Services	1. Android App 2. USSD	1. Beneficiaries	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Digital Solution Development Phase	1. Rural 2. Urban
Data Collection Tool	CCP	Mobile data collection for registration and targeting of participants	Android App	1. Programme Head 2. Project Officer 3. Data Collector 4. Area Manager 5. Technical Officer	1. Better programme management 2. Improved reliability and validity of monitoring data	Conceptual Idea Generation	Rural
	BHP-II	Mobile data collection for registration and targeting of participants	1. Web App 2. Android App	Data Collector	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Final Product Completed and Qualified for Use	Rural

[Appendix A.1 contd...]

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Digital Solution's Categories	Digital Solution Code	Purpose	Nature	Users	Expected outcomes	Stages	Contexts
Job Matching System	KORMO	Job Matching Platform	1. Web App 2. Android App	Beneficiaries	1. Improves programme delivery 2. Increases programme quality 3. Better programme management 4. Improved reliability and validity of monitoring data	Final Product Completed and Qualified for Use	Urban
Digital Learning System	BEP-II	Delivery of Education	Voice Conference	Programme Beneficiaries	Improves programme delivery	Final Product Completed and Qualified for Use	1. Rural 2. Urban 3. Urban Slum 4. Haor/Char residents
	BEP-SIL	1. Mobile data collection for registration and targeting of participants 2. Mobile tools for case management	1. Web App 2. Android App	1. Area Manager 2. Regional Manager 3. Teachers	1. Improves programme delivery 2. Increases programme quality	Digital Solution Development Phase	1. Rural 2. Urban 3. Urban Slum 4. Haor/Char residents

[Appendix A.1 contd...]

Appendix A.2
Technical aspects of Digital Solutions: BRAC Bangladesh

Categories	Digital Solution	Previous State of Task	Training Nature	Developed In-house (Yes/No)	Open API	Challenges
MIS	BMP-I	Manually	One-time training	No	Yes	1. Lack of Access to Devices 2. Functional Challenges 3. Software Development
	SDP	Manually	One-time training	Yes	No	1.Adoption/Aversion 2. Budget Constraint 3. Lack of Digital Literacy
	MFP-I	Manually	One-time training	No	Do not know	1. Lack of Digital literacy 2. Functional Challenges 3. Software Development
	HNPP	Manually	One-time training	No	Do not know	1.Adoption/Aversion 2.Lack of Access to Devices 3.Lack of Digital literacy
	CEP	Manually	One-time training	No	No	1.Adoption/Aversion 2.Lack of Access to Devices 3.Poor Internet Connectivity 4.Functional Challenges 5.Software Development
	BHP-I	Manually	One time training	No	No	Poor Internet Connectivity
	GJ&D	Manually	Multiple training	Yes	Yes	1.Lack of Access to Devices 2.Poor Internet Connectivity

[Appendix A.2 contd...]

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Categories	Digital Solution	Previous State of Task	Training Nature	Developed In-house (Yes/No)	Open API	Challenges
	UPG	Manually	One time training	No	Yes	1. Functional Challenges 2.Software Development
DFS	BEP-I	Manually	Multiple Training	Yes	Do not know	No Challenges
	UDP	Manually	Multiple Training	No	Yes	1. Lack of Digital literacy 2.Transaction challenges
	BMP-II	Manually	One time training	Yes	Do not know	Transaction challenges
	IDP	Do not know	Multiple Training	Yes	Yes	1.Lack of Access to Devices 2.Mobile Network Issues 3.Lack of Digital Literacy 4.Transaction challenges
	MFP-II	Manually	One time training	No	No	1.Lack of Digital literacy 2.Transaction challenges
Data Collection Tool	CCP	Manually	Multiple Training	No	No	1. Lack of Access to Devices 2.Budget Constraint 3.Lack of Trained Users
	BHP-II	Manually	Multiple Training	Yes	Yes	Poor Internet Connectivity

[Appendix A.2 contd...]

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Categories	Digital Solution	Previous State of Task	Training Nature	Developed In-house (Yes/No)	Open API	Challenges
Job Matching	KORMO	The task did not exist	One time training	No	No	Adoption/Aversion
Digital Learning System	BEP-II	Manually	Multiple Training	Yes	No	1.Lack of Access to Devices 2.Mobile Network Issues
	BEP-SIL	With another digital solution	One time training	No	No	1.Adoption/Aversion 2.Lack of Access to Devices 3.Lack of Digital Literacy 4.Poor Internet Connectivity

Appendix B: Landscape overview

1. EdTech and Capacity Building solutions using digital technologies such as eLearning platforms, Interactive Voice Response (IVR), and Short Messaging Service (SMS).	
BRAC Bangladesh	1. **BRAC Home School Programme** offers a feature-phone based remote voice conference class for groups of four students. 2. **Onneshon**, is a digital learning platform for teachers implemented by BRAC Education Programme and developed in collaboration with BRAC's Social Innovation. 3. **Kormo** by Google is a job matching platform for early job seekers and providers; BRAC Skills Development (SKD) programme is knowledge partner.
BI	4. **Interactive Empowerment and Livelihood for Adolescents in Schools (ELAS) in Uganda**: Partnership with Viamo and Peripheral Vision International to develop a gamified version of the ELA content enabled by IVR. 5. **Mastercard Foundation (MCF) Scholars E-Learning in Uganda:** Partnership with government to provide tablets with pre-loaded Virtual Learning Content through a Learning Management System. 6. **Early Childhood Development (ECD) through mobile messaging and radio program in Uganda:** Mixed learning initiative through SMS and radio programs to Play Lab parents through. 7. **Lulu Lab Gamification Project and Behavioral Activation Therapy in Uganda:** Looks into the feasibility of integrating digital educational apps, such as Sexual and Reproductive Health and Rights games, within the ELA platform. 8. **Kuamsha app in Uganda:** The Behavioral Activation project is developing this app to teach a simple psychological intervention to prevent and treat depression with adolescents aged 15-19. 9. **Global Innovation Fund digital health solution project in Uganda:** Partnership between BRAC, Viamo, and Medic Mobile to improve the performance of 6,000+ Community Health Workers and ensure the safe continuation of essential healthcare for 2M+ clients in districts at high-risk from COVID-19. 10. **Remote Education in Afghanistan:** Partnership between EdTech Hub and Roshan Telecom, and BRAC Afghanistan to implement an IVR-enabled home-learning initiative for students.
2. Digital Financial Services (DFS)–financial services accessed and delivered through digital channels, such as payments, credit, savings, remittances, and insurance, expanding the delivery of basic financial services to people left behind through innovative technologies like mobile-phone-enabled solutions, electronic money models and digital payment platforms.	
BRAC Bangladesh	1. **BRAC Education Programme (BEP)** digitized the teacher's' salaries and students' tuition fee payment and receiving processes using mobile money (previously done through cash). 2. **BRAC Urban Development Programme (UDP)** is using a digital solution developed by WFP to provide cash support through mobile money to people who lost their livelihoods due to the pandemic in low-income communities. Food purchases are tracked using technology. 3. **The Socio-Economic Reintegration of Returnee Migrant Workers of Bangladesh** project is distributing financial support through mobile financial services (e.g., bKash) to migrant workers. 4. **BRAC Integrated Development Programme** uses mobile money transactions through bKash on feature-phones or Android phones in hard-to-reach areas. 5. **BRAC Microfinance Programmme** collects installments through a mobile wallet (bKash) with digital payments and saving services.
BI	6. **WE SolVE Project in Tanzania** provides microloans to enable people without access to traditional finance to purchase solar energy products such as lights and phone chargers. 7. **Microfinance FieldBuzz in Rwanda** is an app designed to digitize field operations with a web-based Mission Control interface: it allows managers to know exactly what is happening in the field, through real-time maps, graphs and tables, including drill-down to individual transactions and profiles, plus targets and alerts.
3. Digital MIS and data collection tools with a focus on implementation of digital platforms for data collection and visualization to ensure that programs are data-driven, with systematic processes for data collection and analysis	

that can be used to explore project performance and impact questions to inform implementation.	
BRAC Bangladesh	1. **Disrupting Cross-border Trafficking Networks Project** of BRAC Migration Programme is using a digital solution to support data collection, management, and enable dynamic reporting. 2. **BRAC Skills Development Programme (SDP)** uses a business intelligence tool based on the Salesforce platform to manage their project. 3. **Credit Shield Insurance (CSI)** of BRAC Microfinance Programme uses BRAC Enterprise Resource Planning (ERP) system for client enrollment. The claim settlement process is fully digital through the insurer's web portal. 4. **M-Health solution** of BRAC Health, Nutrition, and Population Programme (HNPP) makes the work of community health workers (CHW) cashless and paperless. The detailed data of the day-to-day work of CHWs is captured through an app. 5. **BRAC Humanitarian Programme (BHP)** initiative aims at digitizing participant registration and data collection process, generating analytical reports and detailed program activity data. 6. **BRAC Community Empowerment Programme (CEP)** uses Polli Shomaj Software to digitize MIS and monitoring system in rural regions. 7. **Gender Justice and Diversity Programme (GJ&D)** uses digital devices for awareness raising, gender sensitization training and results tracking, advocacy, and networking, and research work. 8. **Ultra-Poor Graduation Programme (UPG)** is developing a custom software it digitize its MIS. 9. **Climate Change Programme (CCP)** adapted KoboCollect platform to collect large volumes of data which replaces the earlier manual way of data collection process. 10. **KoBoToolbox** is used by BHP for data collection in humanitarian contexts.
BI	11. **Community Health Toolkit** is a mobile-based application and platform that collects data on patients, households, and visits for over 2M people in Uganda. 12. **ELA Novo Tie-off project in in Sierra Leone, Liberia, and Tanzania** uses TaroWorks for club mentors to collect MIS data. Learning materials can also be accessed through phones. 13. **Disability Inclusive Graduation Programme (DIG) in Uganda** is piloting data collection through the Taroworks platform.
4. Enterprise resource planning (ERP) systems to manage day-to-day business and Machine Learning (ML) initiatives using Artificial Intelligence (AI) for automated decision-making.	
BI	1. **sbiCloud** is an ERP with the following modules: Accounts, Microfinance, Human Resource, and Budget. The web-based application is designed to increase the efficiency of operations, assist in continued growth, and improve internal controls. 2. **Microsoft AI for Health in Uganda:** Microsoft and BRAC USA have negotiated a collaboration agreement through which Microsoft will donate the services of its data scientists to analyze BRAC's current and historical data sets containing patient data in maternal, neonatal and child health, to establish correlations between risk factors and health-related outcomes.