

Internship Training

At

**ACCESS Health international**



**Integrating Social Protection- Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study**

By

***Dr. Diya Gouchwal***

*PG/21/034*

Under the guidance of

**Prof. Divya Aggrawal**

PGDM (Hospital & Health Management)

**2021-23**



**International Institute of Health Management Research**

**New Delhi**

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**New Delhi**

## **INTERNSHIP COMPLETION CERTIFICATE**

**(From the organization)**

### **QUALITY HEALTHCARE ACCESS PRIVATE LIMITED**

Regd. Office: 10A & 11, 1st floor, Salcon Rasvilas,  
District Centre Saket, Saket,  
New Delhi-110017

### **TO WHOM IT MAY CONCERN**

This is to certify that **Dr. Diya Gouchwal**, a student of Post Graduate Diploma in Management - Health and Hospital Management, IHMR, Delhi, has successfully completed internship at Quality Healthcare Access Private Limited (100% subsidiary of ACCESS Health International) from February 02, 2023 to May 02, 2023 in Digital Health Department on Digital Health-Social Protection : Interoperability with Social Protection Systems project under the supervision of **Ms. Komal Malhotra, Project Head-Digital Health**.

During the period of her internship programme with us, she was found punctual, hardworking and her performance was satisfactory.

We wish her all the best in her future endeavors.

Thanking you



**Krishna Reddy Nallamalla**  
Director  
Quality Healthcare Access Pvt. Ltd

**(COMPLETION OF DISSERTATION FROM RESPECTIVE ORGANIZATION)**

The certificate is awarded to

**Name-** Dr. Diya Gouchwal

in recognition of having successfully completed his/her Internship in the department of

**Title-** Digital Health – Social Protection

and has successfully completed her Project on

Interoperability with Social Protection Systems

**Date-** 16<sup>th</sup> May'2023

**Organisation-** ACCESS Health International

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavours.

**Training & Development**



KOMAL MALHOTRA, Project Head  
ACCESS Health International

**Zonal Head-Human Resources**



Bela Sehgal, Director-Human Resources  
ACCESS Health International

**CERTIFICATE FROM DISSERTATION ADVISORY COMMITTEE**

This is to certify that **Dr. Divya Gouchwal**, a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **“Integrating Social Protection- Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study”** at **“ACCESS Health International”** in partial fulfilment of the requirements for the award of the **PGDM (Hospital & Health Management)**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

  
**Institute Mentor**

Name: **Prof. Divya Aggrawal**  
Designation: Associate Dean  
Organization: IIHMR, Delhi



**Organization Mentor**

Name: **Komal Malhotra**  
Designation: Project Head  
ACCESS Health International

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Dr. Diya Gouchwal** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **ACCESS Health International** from **2<sup>nd</sup> February' 2023** to **2<sup>nd</sup> May'2023**.

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical. The Internship is in fulfilment of the course requirements. I wish him all success in all his/her future endeavours.



**Dr. Suresh Kumar**  
Associate Dean, Academic and Student Affairs  
IIHMR, Delhi



**Prof. Divya Aggrawal**  
Mentor  
IIHMR, Delhi

## CERTIFICATE OF APPROVAL

The following dissertation titled "Integrating Social Protection- Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of PGDM (Hospital & Health Management) for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

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Dr. Shiv  
Dr. Anandhi  
Dr. Sumant Swain

Signature

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**INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,  
NEW DELHI**

**CERTIFICATE BY SCHOLAR**

This is to certify that the dissertation titled “**Integrating Social Protection-Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study**” and submitted by **Dr. Diya Gouchwal** Enrolment No. **PG/21/034**, under the supervision of **Prof. Divya Aggrawal** for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **2<sup>nd</sup> February’2023** to **2<sup>nd</sup> May’2023** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.



Signature

**Dr. Diya Gouchwal**  
**PG/21/034**



## **FEEDBACK FORM**

**Name of the Student:** Dr. Diya Gouchwal

**Name of the Organisation in Which Dissertation Has Been Completed:** ACCESS Health International

**Area of Dissertation:** Digital Health- Social Protection

**Attendance:** 80%

**Objectives achieved:** Research on countries level on utilization of social registry in providing benefits to the beneficiaries.

**Deliverables:** Desk research analysis and process flow of selected use case

**Strengths:** desk research

**Suggestions for Improvement:** need to join calls on time and to be more proactive in teams works.

**Suggestions for Institute (course curriculum, industry interaction, placement, alumni):**  
Team students on the how to create the process flows, tools, sequence diagrams, wireframe.

*Komal Malhotra*

**Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)**

**Date:** 16<sup>th</sup> May'2023

**Place:** ACCESS Health International, New Delhi

## **ACKNOWLEDGEMENT**

First and foremost, I would like to thank Almighty, who gave me strength and courage to accomplish my dreams and kept me upright even in the deepest of my sorrows and pain.

I would like to thank my beloved parents for their un-conditional love and immense support throughout the journey of my life.

Any attempt at any level cannot be satisfactorily completed without the support and guidance of learned people. I owe a great debt to all the professionals at ACCESS Health Int. for sharing generously their knowledge and time, which inspired me to do best during my training.

I would like to express my sincere gratitude towards my guide **Ms. Komal Malhotra**, Project Head-Digital Health, who helped me immensely throughout the tenure of my dissertation. She inspired me greatly to work in this project with her valuable guidance, support, interest, encouragement, involvement and advice.

I would like to take immense pleasure to express my sincere and deep sense of gratitude to my mentor & guide **Prof. Divya Aggrawal & Dr. Anandhi Ramachandran** for their valuable suggestions, motivation and guidance throughout the course of project work. Without their guidance and encouragement, it would not have been possible to complete this study.

There are many others who I might have inadvertently left out and I sincerely thank all of them for their help.

**Dr. Diya Gouchwal**

PGDM Healthcare IT– Batch 2021-2023

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## **ABBREVIATIONS**

<b>SP-</b> Social Protection
<b>SPP-</b> Social Protection Programs
<b>SP-MIS-</b> Social Protection- Management Information system
<b>CRVS-</b> Civil Registration & Vital Statistics
<b>DCI-</b> Digital Convergence Initiative
<b>USP-</b> Universal Social Protection
<b>SDG-</b> Sustainable Development Goal
<b>UN-</b> United Nations

# **1. INTERNSHIP REPORT**



## 1. ORGANIZATION PROFILE

### 1.1 (About -ACCESS Health International)

ACCESS Health is an international think tank, advisory group, and implementation partner. We work to improve access to high quality and affordable healthcare for all.

ACCESS Health International believes that we can **adapt** and use the **lessons learned** from one country or state to implement healthcare best practices in another.

Our goal is to ensure **access to high quality, affordable health for all**, regardless of nationality or geography. We specialize in **knowledge transfer between health systems**.

### 1.2 (Vision -ACCESS Health International)

All people no matter where they live, no matter what their age, have the right to access high quality and affordable healthcare and to lead healthy and productive lives.

We strive to be a **thought leader** and the preferred **knowledge partner** for strengthening **health systems** in India.

### 1.3 (Objective -ACCESS Health International)

The objective of ACCESS Health International, a non-profit think tank, advisory board, and implementation partner, is to increase everyone's access to high-quality, reasonably priced healthcare, regardless of location or age. To enhance the quality of healthcare services and the health finance systems in low-, middle-, and high-income countries, we

closely collaborate with governments, the business sector, development partners, and researchers.

20 +

#### International Projects

We design and implement health initiatives that tangibly improve health outcomes and the quality of care across the globe.

100 +

#### Global Partners

We turn research into tangible healthcare improvements through unique partnerships with policymakers, private sector leaders, academia, and entrepreneurs.

125 +

#### Publications

We conduct practical research to improve health systems and healthcare delivery and share best practices that can be adopted and adapted worldwide.

## 1.4 (Human Resources -ACCESS Health International)

### Our Board Comprises of Global and Indian Experts



William A. Haseltine  
Chair And President



John-Michael Lind  
Vice President And Director



Margaret Crotty  
Director



Blaise Guerrand-Hermès  
Director



Robert Hormats  
Director



K. Ranga Krishnan  
Director



Jeffrey S. Lehman  
Director



Raghunath A. Mashelkar  
Director

### Executive Leadership Team



William A. Haseltine  
Chair And President



Krishna Reddy Nallamalla  
Regional Director,  
South Asia



Chang Liu  
Regional Director,  
East Asia



Sejal Mistry  
Regional Director,  
Southeast Asia



Biswajeet Chatterjee  
Chief Finance Officer



Courtney Biggs  
Director,  
Communications



Bela Sehgal  
Director, Human  
Resources

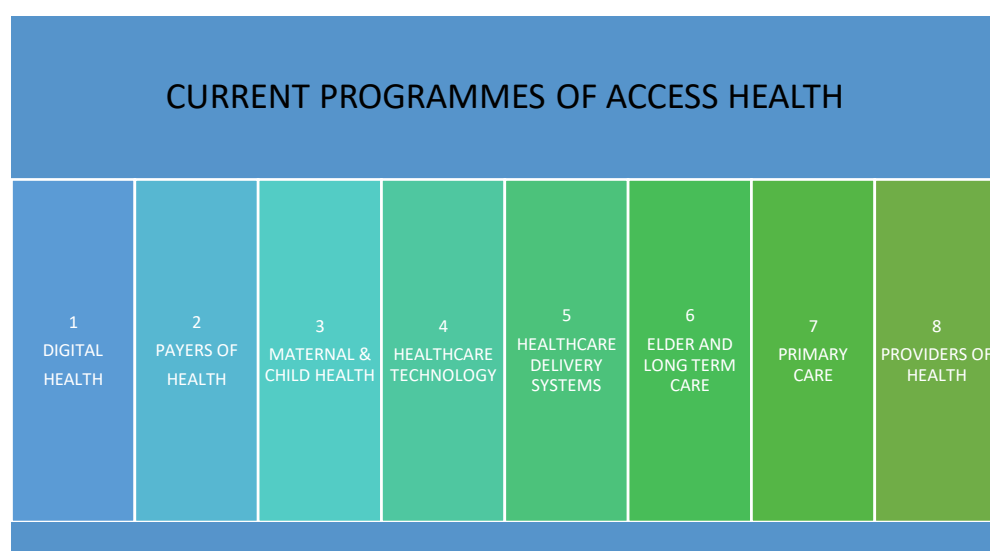


## 1.5 (Services Provided- ACCESS Health International)

### Where do we work?

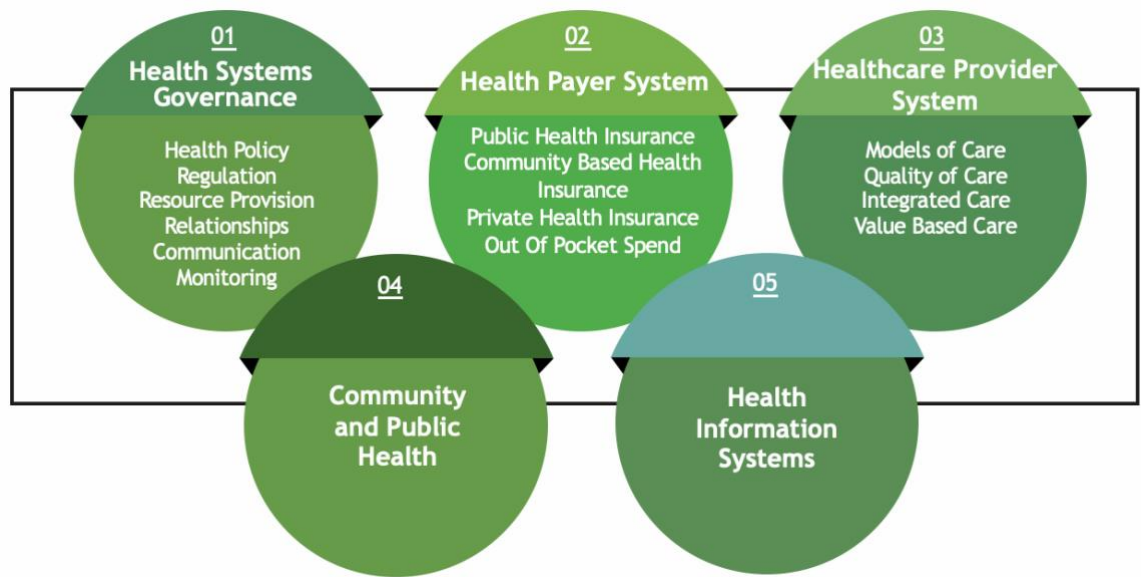


### Work Streams: Health Systems - Research, Advisory, Advocacy, and Capacity Building



The work of ACCESS Health India focuses on the foundations of a healthy society. The work of ACCESS Health India is structured around Five essential components of a health system:

1. Community Health
2. Health Systems Governance
3. Health Finance
4. Healthcare Provision
5. Digital Health.



## **2. RESEARCH REPORT**

# Integrating Social Protection- Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study

## **(Integrating SP-MIS & CRVS)**

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### **ABSTRACT**

#### ***1. Introduction***

Countries around the world implement several Social Protection (SP) programs for their residents to address various situations. Determining the eligibility of potential beneficiaries necessitates information exchange across different social protection information systems and foundational platforms such as Civil Registration and Vital Statistics (CRVS), identification system, and payment system, as well as with systems from other sectors. However, these systems often operate in silos, making interoperability a challenge.

#### ***2. Aim***

The purpose of this study is to identify the gaps in the existing social protection systems in the six targeted countries and provide a solution to address the gaps through integration of CRVS (Civil registration & Vital statistics) system SP-MIS (Social Protection- Management Information system).

#### ***3. Objective***

To develop use case document that highlights the Interoperability between Social protection- Management Information system (SP-MIS) & Civil registration & Vital statistics (CRVS) system.

#### ***4. Methodology***

This study, which discusses about the Interoperability of CRVS with Social Protection systems, will be based on secondary data that will be gathered from articles and online research in order to draw conclusions.

#### ***5. Result***

The study on the six countries concluded that the interoperability of social protection programs with CRVS can nudge people to update their data in CRVS in a timely manner, resulting in quick decisions on service delivery.

#### ***6. Discussion***

Based on the country case studies and use case analysis it is evident that integrating social protection program information systems with digital CRVS systems has numerous benefits.

#### ***7. Keywords***

CRVS, Social Protection, Interoperability, Integration, Standards, identification, identification documentation, Digital Convergence Initiative, USP2030.

## ***I. INTRODUCTION***

### **i. Project Title**

Integrating Social Protection- Management Information system (SP-MIS) with digital Civil Registration and Vital statistics (CRVS) system in six Countries: Literature based Study.

### **ii. Aim**

The purpose of this study is to identify the gaps in the existing social protection systems in the six targeted countries and provide a solution to address the gaps through integration of CRVS (Civil registration & Vital statistics) system SP-MIS (Social Protection- Management Information system).

### **iii. Objective**

To develop a use case document that highlights the Interoperability between Social protection- Management Information system (SP-MIS) & Civil registration & Vital statistics (CRVS) system.

### **iv. Background**

The very first goal of Sustainable Development Goals (SDG's) by the UN is "No Poverty". Committed to achieve the SDG's in time, countries are implementing several flagship welfare programmes to target multidimensional poverty.

Social protection is a set of policies and initiatives aimed at reducing vulnerability and poverty via the encouragement of productive work., and marketplaces, reducing risk exposure, and improving people's ability to defend themselves against dangers and interruptions or losses of revenue.

When properly carried out, these policies and initiatives have the potential to significantly advance the primary objective of eradicating poverty.

Information systems are indispensable for delivery of Social Protection.

Integrated and interoperable social protection systems enable efficient, responsive service delivery.

As more health systems move to digital health management information systems, considerations for achieving Civil registration and vital statistics (CRVS) interoperability has important implications for the way health data is collected, analysed and shared.

## **v. Introduction- about the Project**

- ***Social Protection***

Social protection is a set of policies and initiatives aimed at reducing vulnerability and poverty via the encouragement of productive work., and marketplaces, reducing risk exposure, and improving people's ability to defend themselves against dangers and interruptions or losses of revenue.

### **Components of Social Protection & Targeted Vulnerable Groups**

Labor Market Programs	The population of working age, being either wage or nonwage employees (formal or informal), employed, unemployed, or underemployed.
Social Insurance	The sick, elderly, widowed, disabled people, pregnant women, and unemployed, are eligible for insurance schemes.
Social Assistance and Welfare Services	The mentally and physically disabled, ethnic minorities, substance abusers, orphans, single-parent households, refugees, victims of natural disasters or civil conflicts, sick, elderly, widowed, disabled, pregnant women, and unemployed are ineligible for insurance schemes.
Micro and Area-based Schemes	Rural and urban communities are at risk.
Child Protection	Children and youth (0–18 years).

(SOURCE- DCI website: [spconvergence.org](http://spconvergence.org))

- ***Social Protection Programs***

Policies and programs aimed at reducing the economic and social vulnerabilities of children, women and families, in order to ensure their access to a decent standard of living and essential services. To overcome financial and social barriers to accessing services.

Social protection programs are utilized by the governments to prevent, manage, and overcome situations that adversely affect peoples' well-being. Particularly, these programs aim to assist excluded or marginalized individuals. However, inefficiencies, mismanagement, and corruption in the distribution of social protection benefits highlight the importance of legal identity and other documents for those who rely on them. The linkage between legal identity and social protection is a two-way relationship: without reliable identification, people cannot access social protection benefits, and the lack of access to social protection benefits reduces the incentives for individuals to register vital events such as birth, marriage, divorce, and death with the government.

- ***CRVS***

A well-functioning Civil Registration and Vital Statistics (CRVS) system registers all births and deaths, issues birth and death certificates, and compiles and disseminates vital statistics, including cause of death information. It may also record marriages and divorces.

There is no globally agreed alternative to a properly functioning CRVS system. The United Nations defines CRVS as the "continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events of the population in accordance with the law."

However, in many countries, the contribution of CRVS in the delivery of social protection has been limited. In almost all low- and middle-income countries, the CRVS is



significantly behind in providing information on vital events such as births, deaths, marriage, and divorce, to social protection delivery systems. For example, only 73% of the countries, territories and areas register at least 90% of births occurred. Furthermore, for death registration, only 68% of the countries, territories and areas have at least 90% coverage.

Countries around the world implement several Social Protection (SP) programs for their residents to address various situations. Determining the eligibility of potential beneficiaries necessitates information exchange across different social protection information systems and foundational platforms such as Civil Registration and Vital Statistics (CRVS), identification system, and payment system, as well as with systems from other sectors.

To achieve the objective of interoperability, studied the interoperability of SP systems with CRVS, considering that CRVS is a source of truth on various attributes that are important for decision making on beneficiary eligibility for SP programs. As SP programs serve people at various stages of life, from the womb to the grave, CRVS interoperability facilitates checks on birth, death, and marital life events, as well as family relationships, to determine eligibility for programs such as child grants, widow support programs, and old age allowance

Digital social protection delivery systems typically involve interactions amongst the various program specific information systems as well as with shared foundational systems like the CRVS, Digital Identification system, and Payment system. To achieve interoperability, a social protection system should have common standards and protocols in place. While the health sector has interoperability architecture and standards, such as OpenHIE and FHIR standards , no such standards exist for the social protection sector.

## ***II. LITERATURE REVIEW***

A descriptive study was done by **Debra Jackson et.al. (2018)**, to describe the Civil registration and vital statistics in health systems. The study highlights the barriers which are to be addressed to enable Interoperability in the CRVS system. The main barriers which are addressed are- infrastructure, legal framework and policies. Also, both the civil registration and vital statistics and health systems must be able to share data, while also protecting privacy. Harnessing opportunities to link civil registration and vital statistics and health systems will greatly improve the availability of health services, legal identity and crucial vital statistics and population data.<sup>(13)</sup>

Another descriptive study was done by **Anita Mittal et.al. (2022)**, to discuss the efficient delivery of Social Protection by leveraging Interoperability with CRVS system. The report concluded that Quite a few low- and middle-income countries have deficient CRVS systems. Integrated and interoperable systems enable people to access services without having to present physical documents and decisions can be made in real time enabling a seamless service delivery experience, particularly the poor and the vulnerable people seeking social protection.<sup>(5)</sup>

Descriptive research work was done by **Centre of Excellence for Civil Registration and Vital Statistics (CRVS) Systems**. This study analyses the role of the civil registration system and vital statistics structure in supporting social protection and inclusive development (and vice versa) in countries that have made significant advances in delivering social protection services.<sup>(2)</sup>

A pilot Exploratory study was done by **Tazeen Tahsina et.al. (2022)**, to assess the success rate of an innovative digital notification approach to improve the coverage of birth and death registration of these events at the community level. This study revealed that it is possible to coordinate with the routine health information system to note births and deaths as the first step to ensure registration. Health assistants could capture more than half of the notifications as a stand-alone source.<sup>(7)</sup>

A descriptive study was done by **Samuel Mills et.al. (2019)**, which discusses the civil registration and vital statistics systems with applications in low- and middle- income countries. It highlights the strategies that have been planned and implemented in improving CRVS systems in LMICs.<sup>(14)</sup>

A Descriptive study is done by **Louis Niamba (2020)**. The main objective of this work is to conduct a literature review of CRVS systems in the face of the COVID-19 pandemic. This study brings to our notice that nevertheless, with regard to the challenge of having reliable real-time data in the future, there is a need for proactive policy from national and international authorities to ensure adequate funding for CRVS systems so that they can be modernized for greater resilience to future disasters.<sup>(15)</sup>

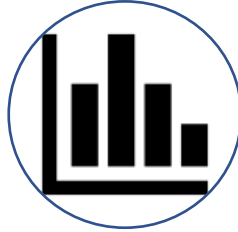
Apart from the literature studied through the published articles, a lot of country research was done by studying the data that is available freely on the public domains such as World bank, United nations, World Health organizations etc.

### **III. METHODOLOGY**

The research methodology involved the following phases :



**DATA COLLECTION**



**DATA ANALYSIS**



**IDEATION & PROTOTYPING  
OF USE CASES**



**DOCUMENTATION  
OF RESULTS**

#### **i. Research Design**

This is a secondary research study (Descriptive Study- Narrative Literature review) that will rely on the analysis of secondary data collected from the various web sources (Published articles, World bank documents, DCI convergence publications, PubMed, Google scholar).

#### **ii. Key Research Questions**

1. What are the existing gaps in the SP systems?
2. What are the features of CRVS system?
3. How CRVS can be bridged with SP-MIS to address the gaps.?

#### **iii. Data Collection**

- Literature Review:
  - A desk research was conducted to understand the use of Civil Registration and Vital Statistics (CRVS) for Social Protection (SP) program delivery.

- The study of six country cases -*Chile, Argentina, Namibia, Tunisia, South Korea and Philippines.*

#### **iv. Research Design/ Study Design**

Descriptive Study (Narrative Literature Review)

#### **v. Type of Data**

Secondary Data

#### **vi. Data Analysis**

Analysed information from various sources to create use cases for SP program delivery leveraging interoperability with CRVS. Study focused on how data from CRVS could aid in eligibility determination and automate decision-making to determine if a person is eligible to receive benefits or not. Additionally, analysed the interoperability processes, data attributes, and application programming interfaces (APIs) for data exchange.

**Tools used :** Draw.io, MS-PowerPoint

#### **vii. Ethical Considerations**

As it is a secondary data analysis and the data is freely available in the public domain, it is exempted from ethical issues.

#### **viii. Keywords**

CRVS, Social Protection, Interoperability, Integration, Standards, identification, identification documentation, Digital Convergence Initiative, USP203

## **IV. RESULT**

### **A. Findings based on the Country Research**

*(Chile, Argentina, Namibia, Tunisia, South Korea and Philippines)*

The study on the six concluded that the interoperability of social protection programs with CRVS can nudge people to update their data in CRVS in a timely manner, resulting in quick decisions on service delivery, as seen in the case of Chile. Mandatory birth registration was implemented for social protection in Chile, resulting in improvements for both the CRVS and social protection delivery. Other Latin American countries, including Argentina, Ecuador, Nicaragua, and Peru, modelled their social protection programs after Chile's and effectively implemented identity and identification requirements for enrolment in SP systems.

The study concludes that birth registration in Latin America could not have increased so sharply in such a short time without the link to civil registration and identification and social protection programs. This had an important impact on poverty reduction. According to a World Bank evaluation of social protection programs, poverty rates would be 13 percent higher in Latin America in the absence of conditional cash transfer programs.

The Namibia case demonstrated that interlinking civil registration and social protection can provide mutual benefits. In Namibia, civil registration is required to verify identification, manage entry to social protection databases, facilitate the placement of children in foster care and for adoption. Access to social protection systems creates a demand for civil registration and strengthens the demand for civil registration documents.

## **B. Data Analysis in form of Use Cases & Process Flows**

Analysing the business process workflows of social protection programs and mapping it across the different actors using swim lane diagrams brings out the role of CRVS in business process workflow for the social protection program delivery. The use cases clearly demonstrated the importance of CRVS in providing eligibility information for social protection programs, enabling real-time decision-making.

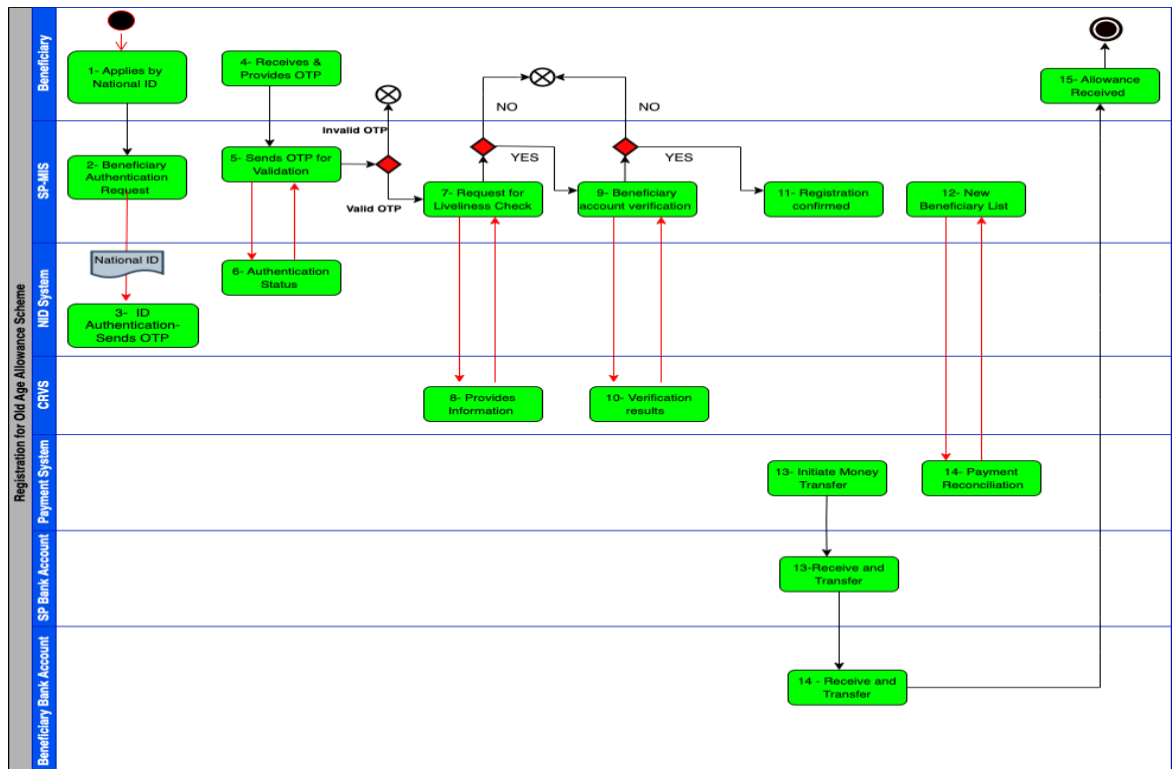
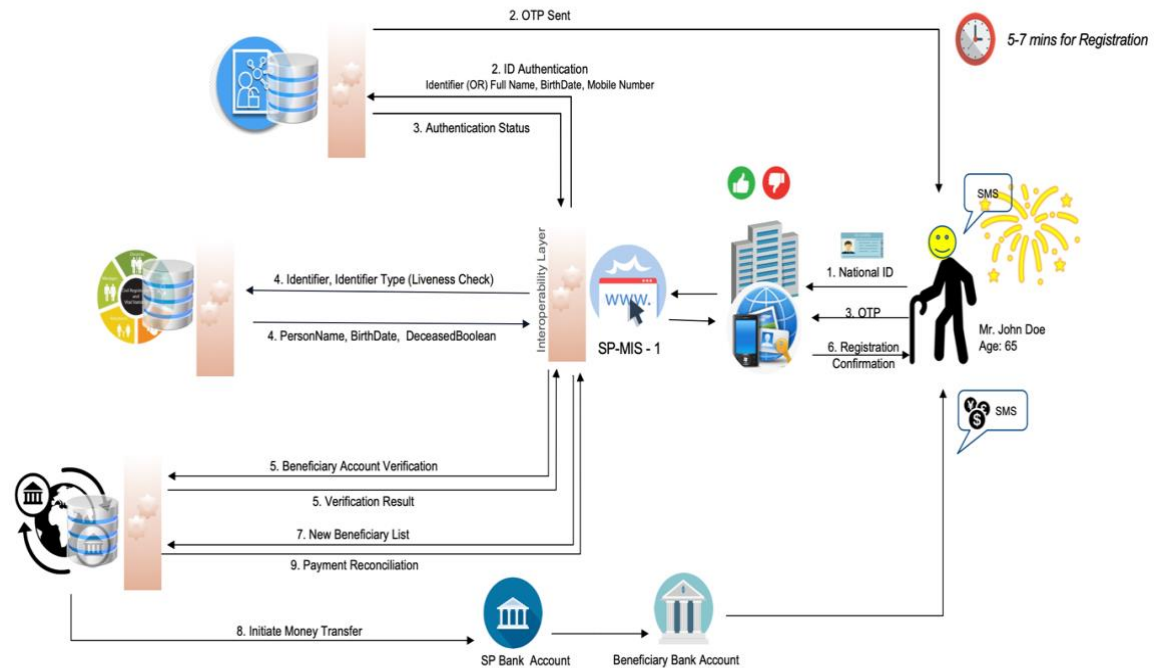
Determining eligibility for the old age allowance program required verification of the age and liveness check of the beneficiaries in the CRVS system. These data attributes enabled automated decision-making and a seamless service delivery experience for those in need.

Additionally, the workflow for the enrolment process of the Widow Allowance program was prototyped based on automated decision- making facilitated by fetching additional data attributes of the spouse from the CRVS system.

## USE CASE- 1

### Birth and Live Verification Use Case

(Old Age Protection Scheme Registration Scenario)- *Pensions scheme registration for old women and men*

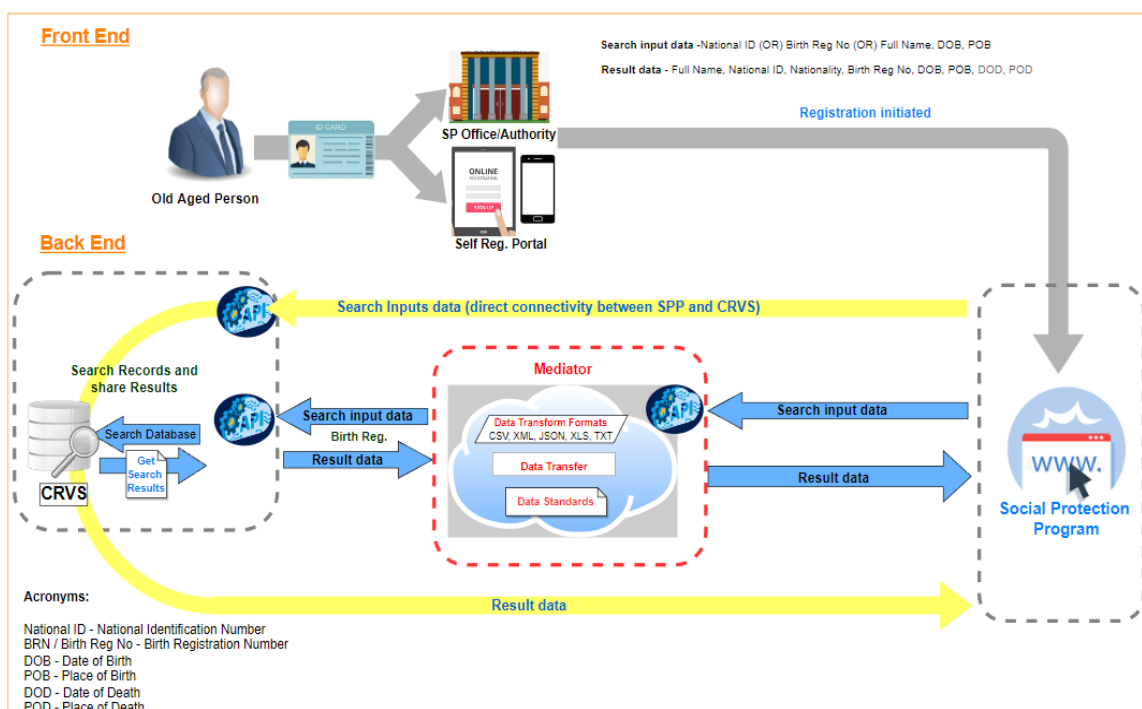


**Figure 1 b-** Sequence Diagram of old age protection scheme registration scenario



Sections	Description
<b>Overview</b>	An old age person chooses to register for pension scheme to get old age monetary benefit
<b>Actors</b>	Applicant, Registration Authority, Pension SP MIS, CRVS system, Middleware service
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Person already has a National ID and Birth Registration documents</li> <li>Person's birth event is registered in the Civil Registry</li> </ul>
<b>Pre-Condition</b>	<ul style="list-style-type: none"> <li>Person may provide National ID or Birth Registration Documents</li> </ul>
<b>Process</b>	Shown Below
<b>Post Conditions</b>	<ul style="list-style-type: none"> <li>Pension related Online system are informed verification details</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>Person does not have a National ID</li> <li>CRVS returned with 'No Results' as a Response with Status / Error code</li> <li>Verification with CRVS response - Failed - No Match Found</li> <li>Verification returns with multiple matching records</li> </ul>

**Figure 1 c-** Use case description of old age protection scheme registration scenario



**Figure 1 d-** Workflow of old age protection scheme registration scenario

## USE CASE- 2

### Birth, Death, and Marriage Verification Use Case

(Widow Pension Scheme Scenario)- **Widow pension to deceased Pensioners Spouse,**  
**Registration for Widow Allowance Scheme**

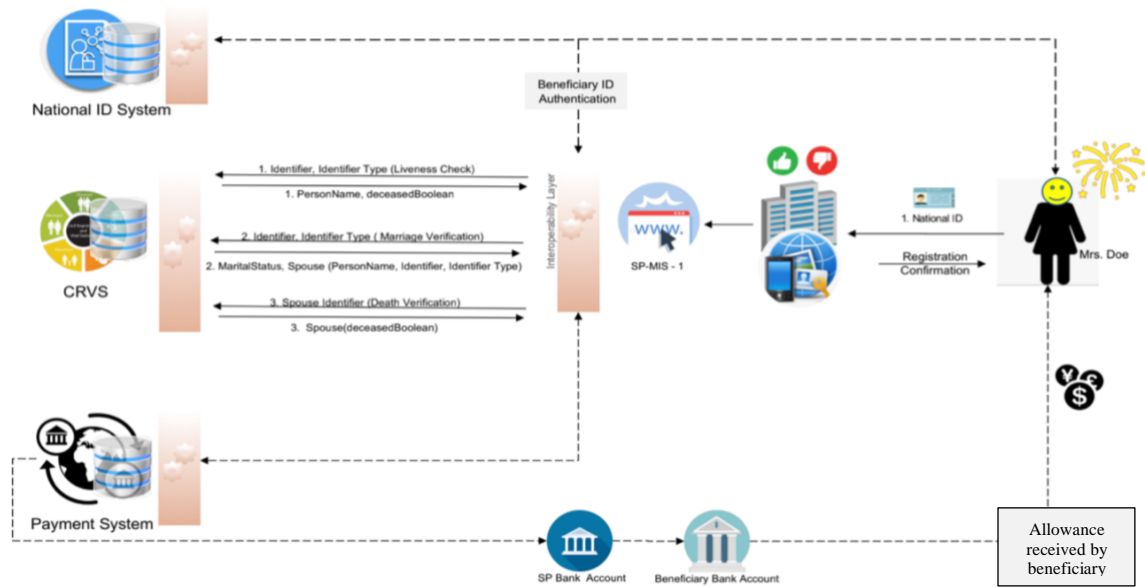


Figure 2 a- Use Case of widow pension scheme registration scenario

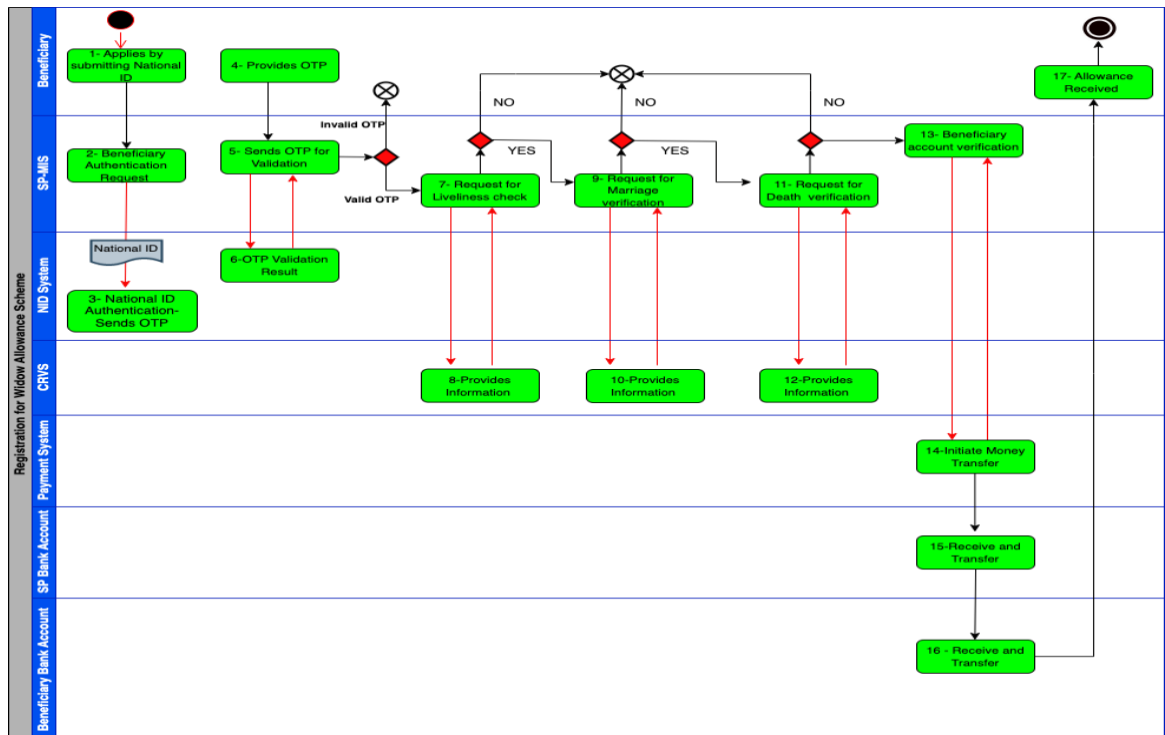
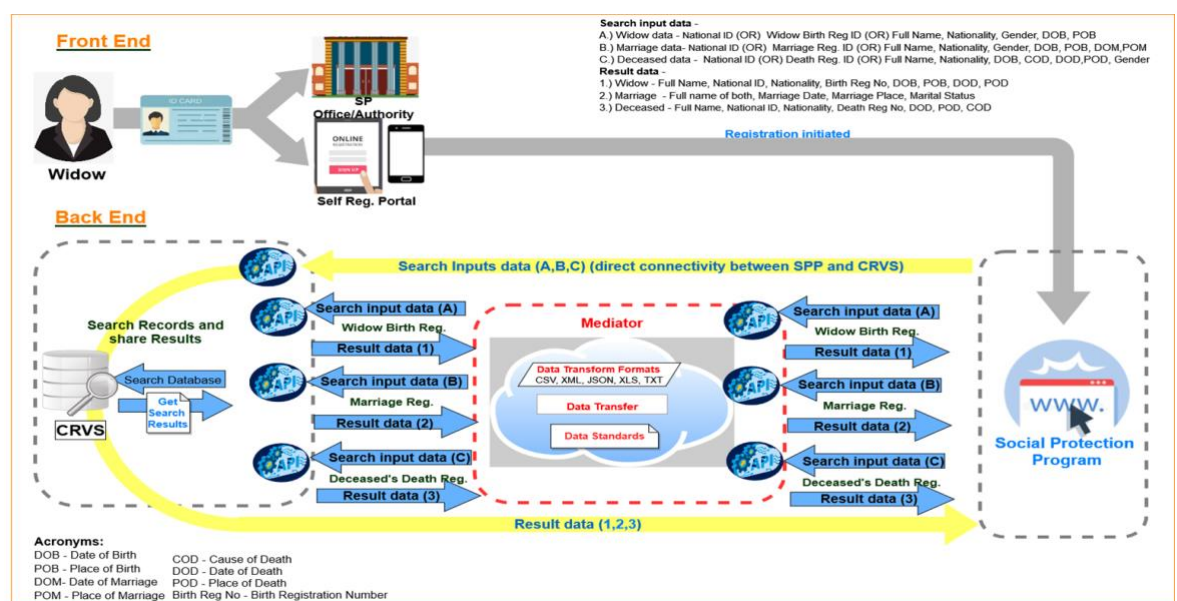


Figure 2 b- Sequence Diagram of widow pension scheme registration scenario

Sections	Description
<b>Overview</b>	Provide Widow pension benefits to the deceased pensioners widow
<b>Actors</b>	Widow, Deceased Person details, Registration Authority, Social Protection Widow Pension related Online system, CRVS system, Middleware service
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Widow already has a National ID, Birth Registration and Marriage Registration proof</li> <li>Widow also has deceased person National ID proof</li> <li>Event of widow birth is register in CR</li> <li>Event of Deceased person death is registered</li> <li>Deceased has only one Legal Spouse</li> </ul>
<b>Pre-Condition</b>	<ul style="list-style-type: none"> <li>Widow to provide Death Registration Documents</li> </ul>
<b>Process</b>	Shown below
<b>Post Conditions</b>	<ul style="list-style-type: none"> <li>Pension related Online system are informed of this successful verification</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>Widow does not have a National ID, Birth reg. or Marriage reg. proof</li> <li>CRVS returned with 'No Results' as a Response with Status / Error code</li> <li>Verification with CRVS response - Failed - No Result Found</li> <li>Verification returns with multiple search result</li> </ul>

**Figure 2 c-** Use case description of widow pension scheme registration scenario

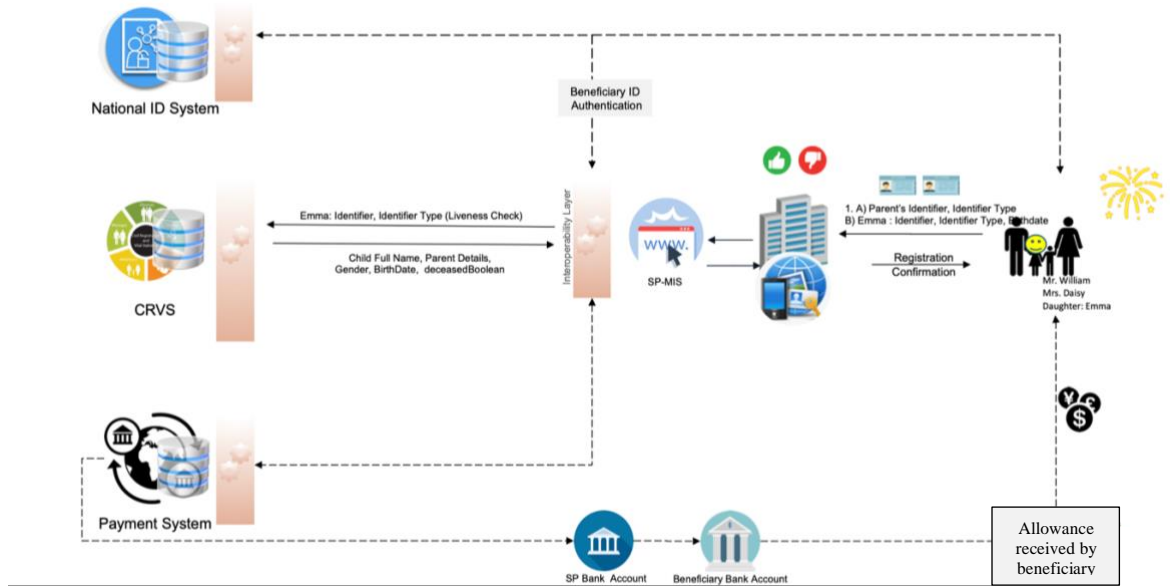


**Figure 2 d-** Workflow of widow pension scheme registration scenario

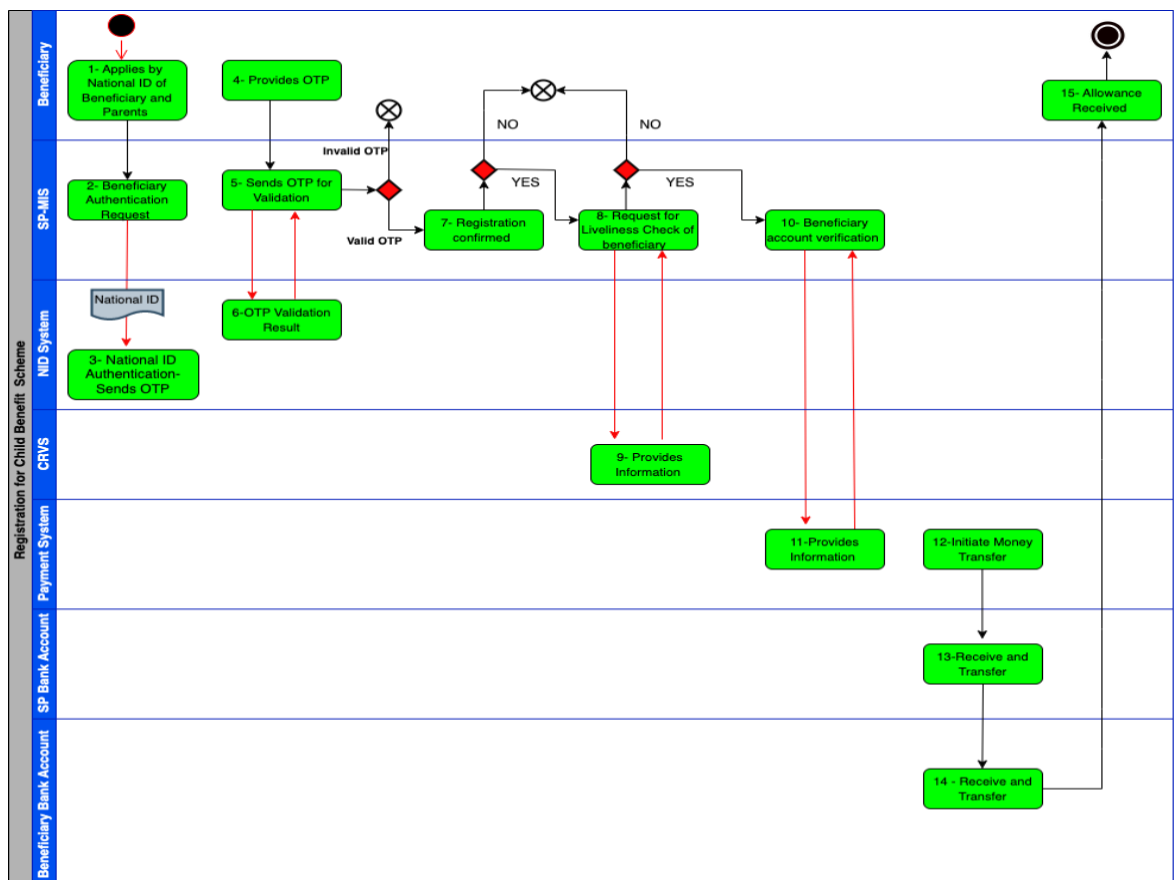
## USE CASE- 3

### Birth and Live Verification Use Case

(Child Benefit Scheme Scenario)- *Registration for Child Benefit Scheme*



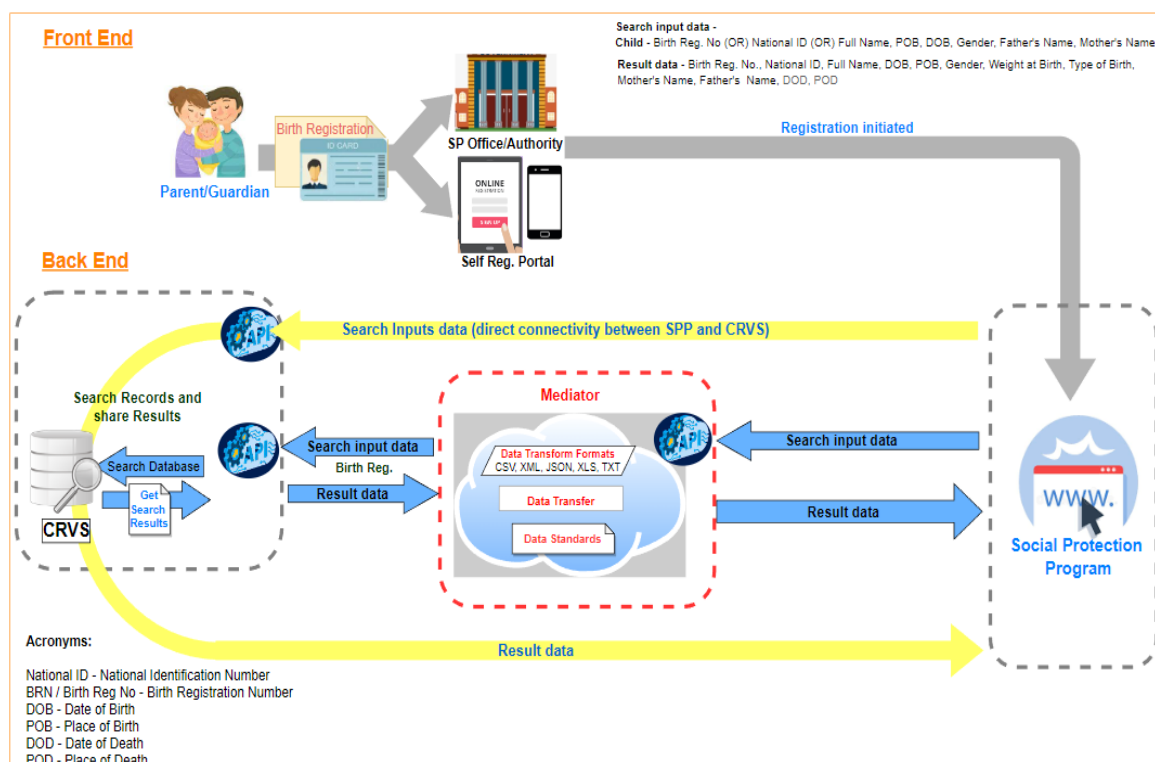
**Figure 3 a-** Use Case of Child benefit scheme scenario



**Figure 3 b-** Sequence Diagram of Child benefit scheme scenario

Sections	Description
<b>Overview</b>	Parent/Guardian chooses to register child for child benefit schemes (Cash Grant Programme, Malnutrition related Programme, Mid-Day Meal Programme, Infant and Young Child Feeding Programme)
<b>Actors</b>	Parents/Guardian, Child, Registration Authority, Social Protection System, CRVS system, Middleware service
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Child already has a National ID and Birth Registration documents</li> <li>Child's birth event is registered in the Civil Registry</li> </ul>
<b>Pre-Condition</b>	<ul style="list-style-type: none"> <li>Child may provide National ID or Birth Registration Documents</li> </ul>
<b>Process</b>	Shown Below
<b>Post Conditions</b>	<ul style="list-style-type: none"> <li>Child benefit related Online system are informed about search details.</li> </ul>
<b>Alternate Flows</b>	<ul style="list-style-type: none"> <li>Child does not have a National ID/Birth Registration No.</li> <li>CRVS returned with 'No Results' as a Response with Status / Error code</li> <li>Search with CRVS response - Failed - No Match Found</li> <li>Search returns with multiple matching records</li> </ul>

**Figure 3 c-** Use case description of Child benefit scheme scenario



**Figure 3 d-** Workflow of Child benefit scheme scenario

## **V. DISCUSSION**

### **1- Interoperability with Digital Systems - Old Age Allowance Scheme**

- **Description:** An old-age person chooses to register for the Old Age Allowance scheme to get old age-related monetary benefits.
- **Steps in Use Case:**
  - 1) The beneficiary logs onto the Social protection self -registration website or old age allowance registration website and starts the registration procedure by providing the National ID.
  - 2) The SP MIS gets the National ID registration request and contacts the National ID system to seek beneficiary authentication.
  - 3) The National ID system verifies National ID via an OTP validation; in this instance, an OTP can be issued through SMS to the beneficiary's National ID-linked contact number, which the beneficiary enters on the SP self-registration page.
  - 4) After being submitted, the OTP is returned to the National ID system for verification, and the findings are communicated to SP-MIS.
  - 5) If National ID authentication is successful, SPMIS makes a request to CRVS for eligibility and liveness check using the beneficiary's National ID.
  - 6) The CRVS system searches its internal database and sends the search results to SPMIS.
  - 7) Based on CRVS search results, SPMIS authorities verify eligibility and liveness checks.

- 8) If the eligibility and liveness checks are successful, the SPMIS requests that the beneficiary's bank account be verified using National ID through the payment system.
- 9) The payment system searches for and locates the bank account linked to the national ID using the ID Mapper database, evaluates whether it is due or not, and replies to SPMIS.
- 10) If the beneficiary's bank account is payable, the beneficiary's bank account information is added to the SPMIS Payment List, and the beneficiary is alerted on screen or by an SMS that the registration was successful.
- 11) The Payment System receives the revised Payment List and proceeds with the predetermined Payment Cycle.
- 12) Following the execution of the Payment List, the Payment's Reconciliation is returned to the SPMIS for record-keeping or audit reasons.

## **2- Interoperability with Digital Systems – Widow Allowance Scheme**

**Description:** Registration for Widow pension benefits to the deceased pensioner's widow.

### **Steps in Use Case:**

1. The beneficiary logs onto the Social protection self -registration portal/website or widow allowance registration website or visits the nearest SP Authority/office and starts the registration procedure by providing the National ID.
2. The SP MIS gets the National ID registration request and contacts the National ID system to seek beneficiary authentication.

3. The National ID system verifies National ID via an OTP validation; in this instance, an OTP can be issued through SMS to the beneficiary's National ID-linked contact number, which the beneficiary enters on the SP self-registration page.
4. After being submitted, the OTP is returned to the National ID system for verification, and the findings are communicated to SP-MIS.
5. If National ID authentication is successful, SPMIS makes a request to CRVS for eligibility liveness, marriage verification & death verification check using the beneficiary's National ID.
6. The CRVS system searches its internal database and sends the search results to SPMIS.
7. Based on CRVS search results, SPMIS authorities verify eligibility.
8. If that are successful, the SPMIS requests that the beneficiary's bank account be verified using National ID through the payment system.
9. The payment system searches for and locates the bank account linked to the national ID using the ID Mapper database, evaluates whether it is due or not, and replies to SPMIS.
10. If the beneficiary's bank account is payable, the beneficiary's bank account information is added to the SPMIS Payment List, and the beneficiary is alerted on screen or by an SMS that the registration was successful.
11. The Payment System receives the revised Payment List and proceeds with the predetermined Payment Cycle.



12. Following the execution of the Payment List, the Payment's Reconciliation is returned to the SPMIS for record-keeping or audit reasons.

### 3- Interoperability with Digital Systems – Child Benefit Allowance Scheme

**Description:** Parent/Guardian chooses to register child for child benefit schemes

**Steps in Use Case:**

1. The beneficiaries parent's logs onto the Social protection self -registration portal/website or child benefits registration website or visits the nearest SP Authority/office and starts the registration procedure by providing the National ID of the parents and the child.
2. The SP MIS gets the National ID registration request and contacts the National ID system to seek beneficiary authentication.
3. The National ID system verifies National ID via an OTP validation; in this instance, an OTP can be issued through SMS to the beneficiary's National ID-linked contact number, which the beneficiary enters on the SP self-registration page.
4. After being submitted, the OTP is returned to the National ID system for verification, and the findings are communicated to SP-MIS.
5. If National ID authentication is successful, SPMIS makes a request to CRVS for eligibility and liveness check using the beneficiary's National ID for the child.
6. The CRVS system searches its internal database and sends the search results to SPMIS.
7. Based on CRVS search results, SPMIS authorities verify eligibility and liveness checks.

8. If the eligibility and liveness checks are successful, the SPMIS requests that the beneficiary's bank account be verified using National ID through the payment system.
9. The payment system searches for and locates the bank account linked to the national ID using the ID Mapper database, evaluates whether it is due or not, and replies to SPMIS.
10. If the beneficiary's bank account is payable, the beneficiary's bank account information is added to the SPMIS Payment List, and the beneficiary is alerted on screen or by an SMS that the registration was successful.
11. The Payment System receives the revised Payment List and proceeds with the predetermined Payment Cycle.
12. Following the execution of the Payment List, the Payment's Reconciliation is returned to the SPMIS for record-keeping or audit reasons.

Based on the country case studies and use case analysis it is evident that integrating social protection program information systems with digital CRVS systems has numerous benefits.

Firstly, it can help governments ensure that their social protection programs reach their intended beneficiaries by establishing more accurate and up-to-date information on individuals by fetching the data from CRVS system. This can prevent fraud and ensure that program benefits reach those in need.

Secondly, integration can reduce administrative burdens and streamline program delivery by automating registration and verification processes.

Lastly, it can improve evidence-based decision making by providing governments with standardized data repositories and APIs that can be used to inform policy decisions and track progress towards development goals.

Overall, integration of social protection programs and CRVS systems has the potential to improve the lives of vulnerable populations and promote sustainable development.

CRVS systems provide legal identity, and they also serve as authoritative sources of truth for various attributes needed for access to government services such as (i) access to education, health, age-based cash transfer, and other government social services; (ii) access to formal employment and benefits, for example, death and disability insurance as well as health insurance; and (iii) the right to claim inheritance, among others.

The access to social protection services serves as an incentive to register vital events in CRVS system. The richness of the vital statistics is beneficial for both private sector and public sector. Social protection sector policies and programs can leverage the statistics in shaping the program design.

To realize the benefits and synergies of interoperability, well-functioning digital CRVS system and SP information systems are prerequisites. The CRVS system and SP systems should ensure that both the systems are interoperable by design by adopting open standards which enable interoperability and avoid vendor lock in.

However, there are also some challenges to address, e.g., availability of skilled resources and vendor ecosystem to support implementation and maintenance of the open-source software in developing countries.

This, consequently, enables interoperability by design.

## ***VI. CONCLUSION***

Quite a few low- and middle-income countries have deficient CRVS systems. Countries and multilateral organizations are working on strengthening their CRVS systems as they realize the need and potential of these systems for legal identity, administrative functions as well as statistical function.

While there are quite a few software products for setting up digital CRVS system comprising of both open-source software and proprietary products, the implementation of open standards for enabling interoperability of CRVS with social protection systems needs further work. The development and consensus building on these open standards (digital public goods) under the Digital Convergence Initiative would help interoperability of CRVS with social protection systems. Adoption of standards by both the CRVS software solutions and the social protection software solutions, would enable interoperability by design. This would allow for easy integration of various vendor solutions that adhere to globally accepted standards through a plug-and-play approach. Integrated and interoperable systems enable people to access services without having to present physical documents and decisions can be made in real time enabling a seamless service delivery experience, particularly the poor and the vulnerable people seeking social protection. However, the implementation of the interoperability standards in a country can vary widely depending on several factors, such as the availability and coverage of the digital systems, internet connectivity, digital literacy and the political will and enabling legal environment.

## ***VII. WAY FORWARD***

The use cases clearly demonstrated the importance of CRVS in providing eligibility information for social protection programs, enabling real-time decision-making.

Study focused on how data from CRVS could aid in eligibility determination and automate decision-making to determine if a person is eligible to receive benefits or not.

Determining eligibility for the old age allowance program required verification of the age and liveness check of the beneficiaries in the CRVS system. These data attributes enabled automated decision-making and a seamless service delivery experience for those in need.

Additionally, the workflow for the enrolment process of the Widow Allowance program was prototyped based on automated decision- making facilitated by fetching additional data attributes of the spouse from the CRVS system.

Integrating social protection program information systems with digital CRVS systems has numerous benefits. It has the potential to improve the lives of vulnerable populations and promote sustainable development.

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