

Child Protection Case Management Information Systems: Promoting Appropriate Care for Children



A Framework for Engagement

March 2020 (revised October 2022)

Molly Cannon, MPH
Stuardo Herrera, MBA
Patricia Mechael, PhD



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Data for Impact

University of North Carolina at Chapel Hill
123 West Franklin Street, Suite 330
Chapel Hill, NC 27516 USA
Phone: 919-445-6949 | Fax: 919-445-9353
D4I@unc.edu
<http://www.data4impactproject.org>

Molly Cannon, MPH
Stuardo Herrera, MBA
Patricia Mechael, PhD

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D4I is committed to local partner engagement and individual and institutional strengthening. Local authorship is important, and we urge you to engage local partners in analysis and reporting.

Contents

Acknowledgments	3
Abbreviations	6
Background	7
The Framework	8
Framework Development Process	8
Framework Overview	9
<i>What Is a framework?</i>	9
<i>Who should use a framework?</i>	9
<i>Where can the framework be used?</i>	10
<i>How can the framework be used?</i>	10
<i>Why was the framework developed?</i>	10
<i>What doesn't the framework do?</i>	10
Three Perspectives for a Holistic Approach to a CMIS	11
Perspective 1: Child-Centered	12
<i>Detail Children's Situations</i>	13
<i>Understand the Case Management Process</i>	14
<i>Define Success from the Child's Perspective</i>	15
Perspective 2: Improving Services and Planning through Information	16
<i>Map Service Delivery and Information Flow</i>	16
<i>Measures of Success</i>	20
<i>Identify Use Cases</i>	22
Perspective 3: Digital Design Considerations	27
<i>Understand Context and ICT Enablers</i>	28
<i>Assess ICT Needs and Capacity</i>	30
<i>Design Architecture and Select Technology</i>	30
Application of the Case Management Information System Framework to Kenya's Child Protection Information Management System	34
Call to Action	36
Additional Resources	37

Figures

Figure 1. Information systems framework for the case management of child protection and care.....	11
Figure 2. Core steps in the case management process	14
Figure 3. Child’s journey through the child protection case management process.....	15
Figure 4. Alternative care assessment framework.....	20
Figure 5. Child’s journey map showing where a child’s case intersects the case management system.....	23

Tables

Table 1. Services for children and their families who protect them.....	18
Table 2. Illustrative data flow in a case management information system	19
Table 3. Types of case management users and cases.....	24
Table 4. Digital development principles and their applications to child protection and care.....	27

Abbreviations

APCCA	Advancing Protection and Care for Children in Adversity
CBIS	community-based information system(s)
CMIS	case management information system(s)
DCOF	Displaced Children and Orphans Fund
HIS	health information system(s)
ICT	information and communication technology
IT	information technology
M&E	monitoring and evaluation
NGO	nongovernmental organization
SOP	standard operating procedure
USAID	United States Agency for International Development

Background

The United States Agency for International Development (USAID) works in countries worldwide to improve the lives of the most vulnerable children, in keeping with the three objectives established in the U.S. government strategy Advancing Protection and Care for Children in Adversity (APCCA). Those objectives are to build strong beginnings, put family first, and protect children from violence (<https://www.childreninadversity.gov>).



In March 2017 USAID, through its Displaced Children and Orphans Fund (DCOF), engaged the USAID-funded MEASURE Evaluation (MEVal) project to reinforce and build on U.S. government programming on childcare and protection in Armenia, Ghana, Moldova, and Uganda. MEVal works globally to strengthen country capacity to gather, analyze, and use data for decision making to improve sector outcomes. Successful implementation of child protection and social welfare services depends on the availability and effective use of relevant child protection and social welfare data. With countries' and programs' increased interest in advancing digital solutions for case management of children at risk, USAID DCOF asked MEVal to convene experts from December 4–6, 2019, at Palladium's office in Washington, D.C. to inform the development of a framework for case management information systems (CMIS) centered on child protection and care. In June 2022, under the USAID-funded Data for Impact project (D4I), the same group of experts reunited to refresh the CMIS Framework to add new case studies and incorporate new lessons learned over the past three years.

The main purpose of the Information Systems Framework for the Case Management of Child Protection and Care (hereafter, the framework) is to consolidate lessons learned from those who have developed, implemented, and used such systems and agree upon best practices when approaching the design and strengthening of such systems. This document is written from the perspective of supporting government-led and owned systems, but it recognizes that nongovernmental organizations (NGOs) may have other systems that feed into those government systems or operate independently for their programming purposes.

The framework is a product of a participatory design workshop involving 25 women and 17 men from USAID DCOF and the Office of HIV/AIDS, UNICEF headquarters and field offices, case

management experts, monitoring and evaluation (M&E) experts, and digital solution experts. Armenia, Cambodia, Ghana, Guatemala, Kenya, Moldova, Romania, Uganda, and the United States were represented (<https://www.measureevaluation.org/resources/publications/ws-20-57>).

The Framework

Framework Development Process



During the workshop, participant groups engaged in activities relating to the cases of six children in different countries: a child with a disability in need of specialized services to prevent separation; a child removed from the home because of a protection issue and in need of temporary foster care placement; a child left with kin whose parents are in another country; a child reunified from residential care to a household in need of support services; a child separated from family in an emergency situation; and a neglected child removed and placed in residential care and subsequently adopted domestically. Design activities were as follows:

- Mapping the child’s journey: defining the country context; developing the child’s profile; drawing out the case management scenario of the specific case; defining what the child might consider a successful resolution of his/her case; and mapping the information flow of the case management system with respect to the case (e.g., which actors are doing what at each level)
- Identifying CMIS design considerations: developing CMIS use cases based on the child’s journey and related actors; selecting appropriate technology given the use cases and country context; identifying key enablers of system design, including important governance issues such as privacy and security, data sharing, and interoperability; and elements regarding sustainability, such as financing and human resources availability
- Sharing key metrics of success according to different system actors

Participants agreed that the framework could identify minimum requirements of a CMIS; present CMIS elements that can be standardized to ensure common approaches and processes when developing digital solutions and avoiding recreating the wheel each time a system is built; indicate existing resources where possible; and develop a “Call to Action” advising governments, donors, professional communities, and civil society on practical ways to engage communities of users and disseminating the good practices contained in the document, as well as building on this document in the future.

Framework Overview

The framework is written in accessible language, including examples with useful visual illustrations, so that it can be easily understood by people who are not information technology (IT) specialists. It was designed to reflect a broad range of child protection and care issues in different country contexts. It reflects many lessons learned and will be a living document to be validated by partners and countries through its adoption and use. The framework builds on important work of the MEval project such as health information systems (HIS: <https://www.measureevaluation.org/our-work/health-information-systems>), community-based information systems (CBIS: <https://www.measureevaluation.org/our-work/community-based-information-systems>), and alternative care for children (<https://www.measureevaluation.org/our-work/youth-and-adolescents/alternative-care>) frameworks.

What is the framework?

The framework, in line with the [Principles for Digital Development](#), presents three perspectives and related processes that should be considered together to ensure a holistic approach to CMIS development. The three perspectives are gleaned through several processes described in later chapters. It is necessary to approach the first two perspectives before developing digital solutions technology.

- Child's perspective: First and foremost, systems should be designed from the perspective of the child and his/her interface with the case management system, with a focus on improving outcomes, including support to families.
- Services and planning perspective: CMIS should be developed in a way that helps child protection and social work actors do a better job of responding to client needs.
- Digital design perspective: CMIS architecture should be based on technology appropriate to the country context and the information needs that were identified when the second perspective was addressed.

Who should use the framework?

The CMIS framework is developed for procurers, developers, implementers, and users of CMIS for child protection and care as well as policymakers who are interested in investing in or strengthening a CMIS.

Where can the framework be used?

The framework can be applied in many settings to develop global, country, or project-specific systems.

How can the framework be used?

The framework can be used in different ways. It can guide the development of a scope of work for those responsible for procurement. It can also serve as a checklist to follow when developing or implementing systems; as a communication tool for stakeholders; or as a tool for monitoring the implementation of systems.

Why was the framework developed?

The framework is intended to bring consensus among global stakeholders to increase standardization across systems and to develop sustainable, useful CMIS.

What doesn't the framework do?

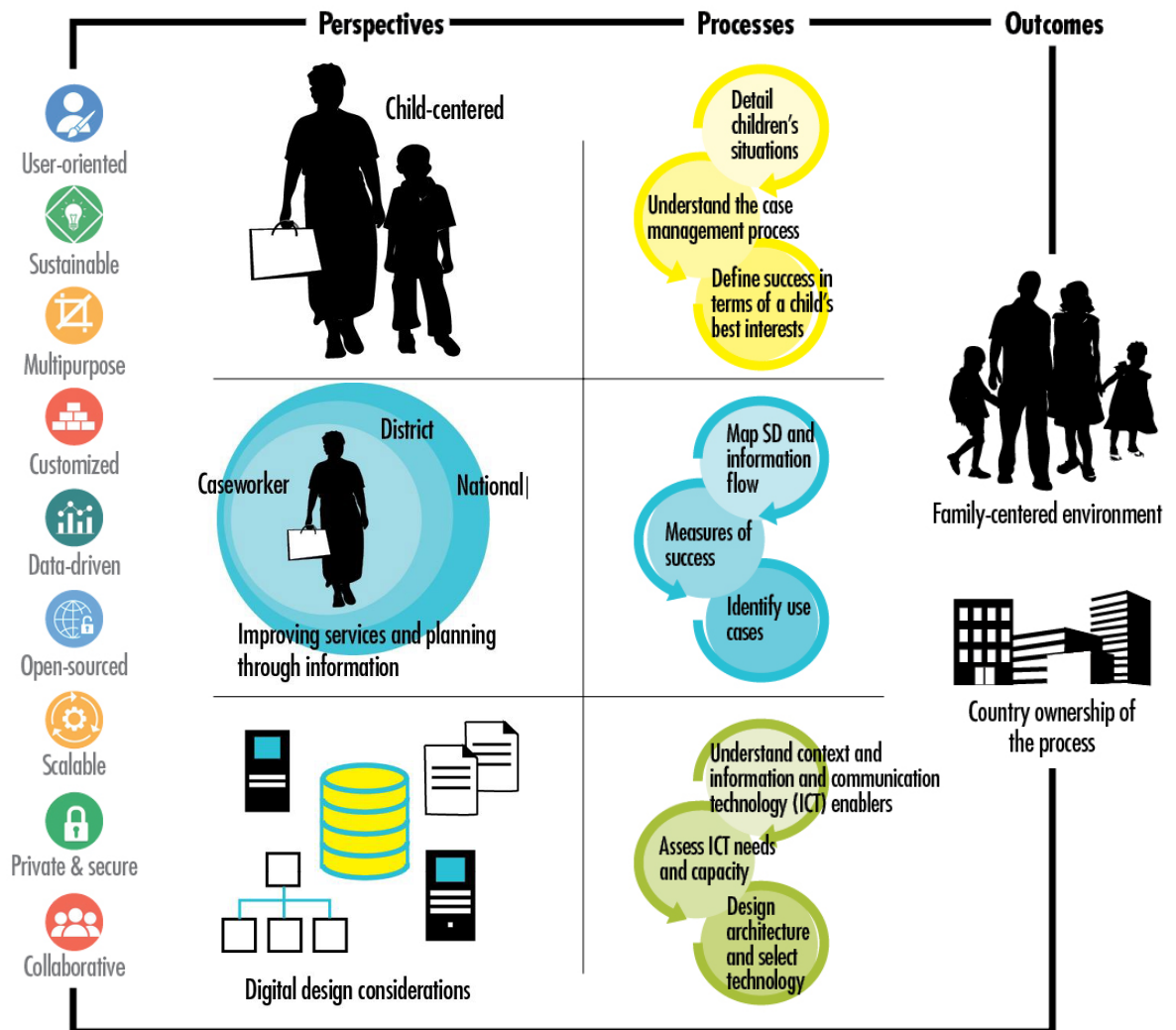
It is not a detailed standard operating procedure (SOP) or a guide for system development. It does not standardize all elements of the three perspectives and processes, but it provides resources, where possible.

Figure 1 presents an overview of the framework, structured by the three perspectives mentioned above, associated processes, and envisaged outcomes, highlighting on the left the Principles for Digital Development.

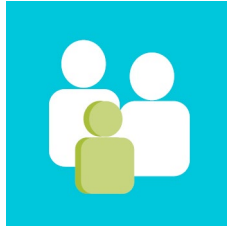
Three Perspectives for a Holistic Approach to a CMIS

We devote a chapter to each perspective, highlighting the main processes, the items that can be standardized or adapted, and a list of resources.

Figure 1. Information systems framework for the case management of child protection and care



Perspective 1: Child-Centered



A child protection CMIS should address a range of highly sensitive child protection and care needs, either as a discrete system capturing data related to each need or as a single system capturing data on all needs, independently or jointly. These needs are those of children abandoned by their parents or guardians, of children exposed to violence, of children removed or separated from their families, of children in emergency settings, of children living with disabilities or who are at risk of family separation, and/or of children who have been reunified with their families and whose situations should be monitored.

Detail Children's Situations

Part of developing any CMIS is to understand the range of children's needs and children's current situation, including information about their families. The box below describes one of those cases, but a national CMIS would need to consider the multitude of cases that exist. Appendix D in "Promoting Appropriate Care for Children: Report on a Workshop on Case Management Information Systems" (MEASURE Evaluation, 2020; <https://www.measureevaluation.org/resources/publications/ws-20-57>) offers more examples of cases.



Cristina is a seven-year-old girl living on the outskirts of Chişinău, the capital city of the Republic of Moldova, with a mother who struggles with addiction, her mother's boyfriend, and two two-year-old twin brothers. Cristina's mother used to work as a saleswoman in a shop nearby, which was recently closed. Her mother's boyfriend is a day laborer in construction. Their circumstances are very difficult; they are unable to make ends meet. Cristina's mother is receiving a monthly child allowance for the children. Last autumn, the municipality provided her some cash support for the cold season; she also received some school supplies and clothing for her daughter from a humanitarian nongovernmental organization. Alcohol consumption is a fact of life in the household, and the small income the couple has is usually spent on that.

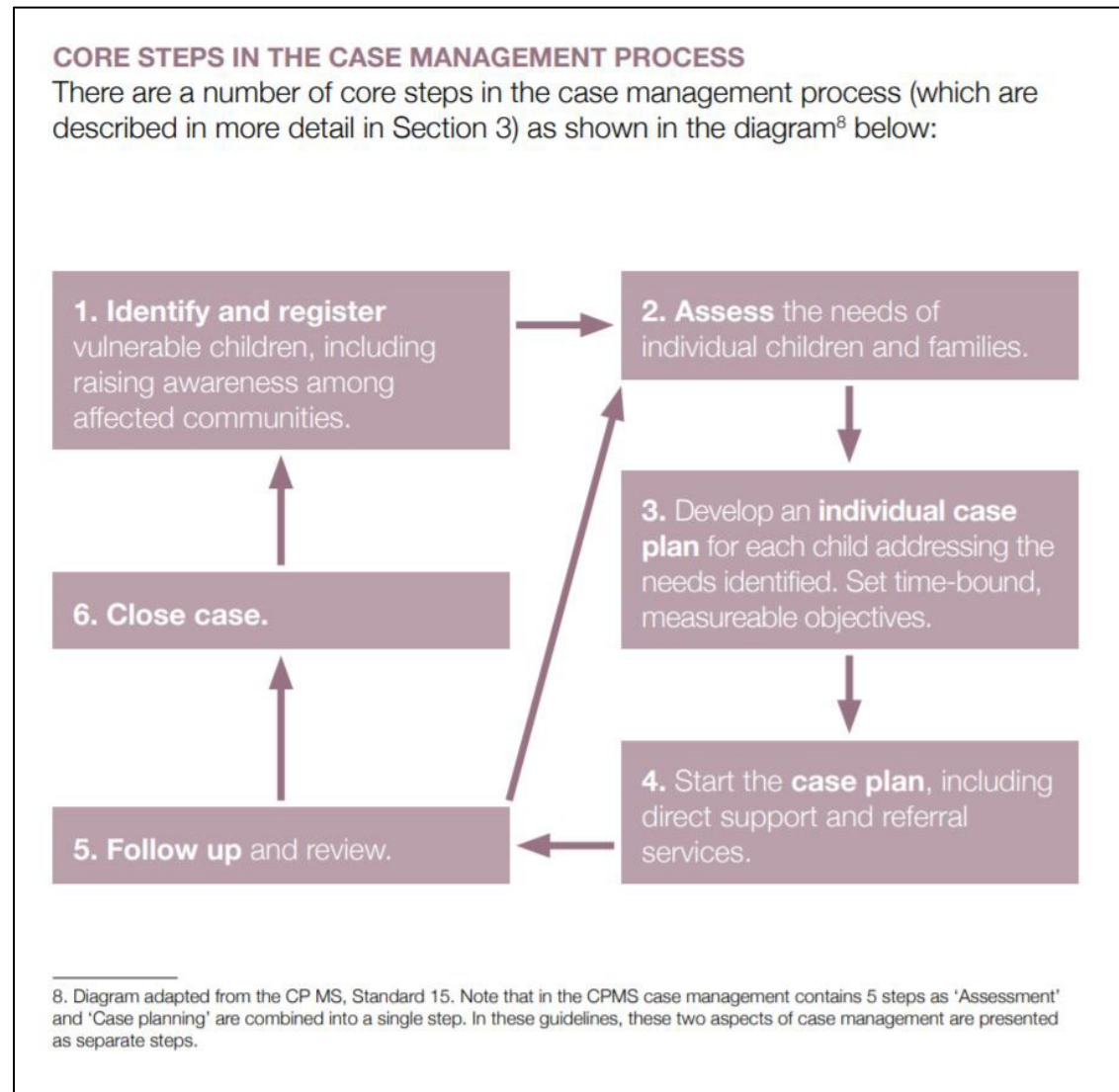
One day, the neighbors heard Cristina's mother and her mother's boyfriend fighting. This was not unusual, because the two frequently quarreled, but this time the children were crying loudly and shouting for help. The neighbors immediately called the emergency number 112 and reported the case to the local police officer. He informed the mayor (guardianship authority), the community social worker, and the doctor, who all went to the house. By the time they arrived, the children were sitting on the floor, frightened and whimpering as if they were afraid of waking up their mother and her boyfriend, who were falling asleep. Following an initial assessment, the children were removed from the house and brought to the hospital, where it was determined that one of the twins had been beaten and Cristina had been sexually abused. The mayor issued a decision for the emergency placement of the children in foster care.

Cristina and her siblings need urgent removal from an abusive family, and she needs immediate health care and psychological counseling. She needs to live, together with her siblings, in a safe and caring environment, free of harm and abuse and to be able to go to school, play with her peers, and have an adult she can trust in the household.

Understand the Case Management Process

Understanding how case management works in a country is a critical step in developing a CMIS, because such a system needs to reflect the laws, policies, and SOPs regulating case management, as well as workforce considerations (e.g., who carries out case management at what levels of the system). This informs what technology options ought to be considered, given the country context and set of services to be delivered. If SOPs for case management are absent, they will need to be developed as part of the CMIS. In some cases, implementing partners and NGOs working in child protection might also be collecting case management data and need to be considered in this process. Also, consider the child's identity and vulnerability (gender, sexual orientation, nationality, religion, etc.) and how that is expressed across physical, psychological, social, and cultural aspects. This will impact the data that will be collected about them and the interventions that are planned (See *Perspective 3: Digital Design Considerations* for more information about data privacy). The six steps of the case management process are illustrated in Figure 2.

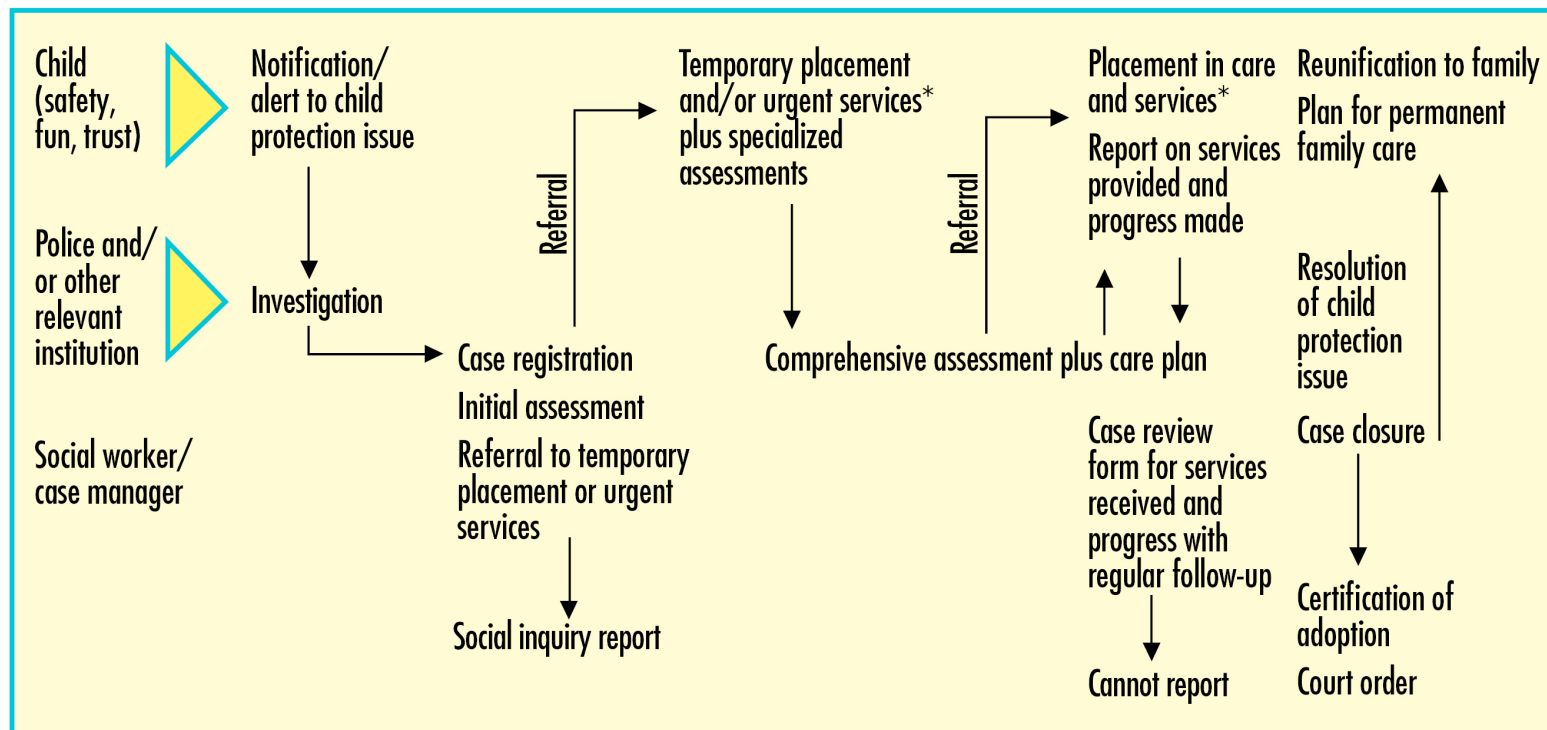
Figure 2. Core steps in the case management process



A map of the child's journey through the case management process to its resolution (e.g., case closure) can help identify all possible points of contact the child has with the system: meeting with the caseworker, he/she or a family being referred for a specific service, moving into a foster care home, etc. The map would also identify when the journey takes the child beyond the community level and interfaces with district- and/or national-level services. Figure 3 is a generic journey map for a child that can be tailored to the specific needs of a country or program.



Figure 3. Child's journey through the child protection case management process



*Examples of services are those for health, counseling, education, and disability

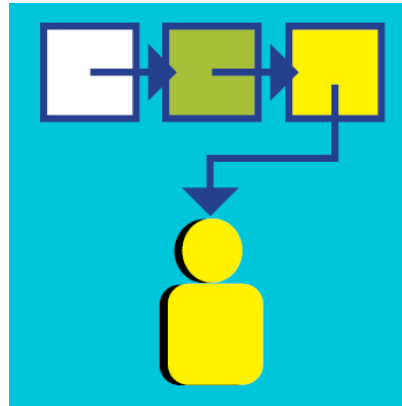
Define Success in Terms of a Child's Best Interests

It is important first to determine what is in a child's best interests: that's always the goal of the case management process, and the CMIS is meant to support its achievement. Indicators of progress might include improved well-being of the child: feeling safe, having someone the child can trust, being able to go to school, being healthy, and being treated well by others.



Items for Standardization	Resources
<p>Case management tools, such as case management guidelines or SOPs, standard forms for intake, assessment, individual care plans, and registration process</p>	<p>Family Care for Children with Disabilities: Practical Guidance for Frontline Workers in Low- and Middle-Income Countries (World Learning, Partnerships for Every Child, 2018; https://resourcecentre.savethechildren.net/library/family-care-children-disabilities-practical-guidance-frontline-workers-low-and-middle-income)</p> <p>Integrating Case Management for Vulnerable Children (UNICEF/Eastern and Southern Africa Regional Office and Maestral International, 2017; https://maestral.org/wp-content/uploads/2017/08/Integrating-Case-Management-for-VC.pdf)</p> <p>http://www.socialserviceworkforce.org/resources/interagency-guidelines-case-management-and-child-protection</p> <p>https://www.refworld.org/docid/51a84b5e4.html</p> <p>https://casemanagement.alliancecpha.org/en/child-protection-online-library/case-management-supervision-and-coaching-training-package</p>
<p>Indicators for child well-being</p>	<p>MEASURE Evaluation Essential Survey Indicators (MEASURE Evaluation, 2014; https://www.measureevaluation.org/resources/publications/ms-14-90)</p>

Perspective 2: Improving Services and Planning through Information



Map Service Delivery and Information Flow

Services provided to children and their families will vary by country, district, and local community depending on multiple factors such as policies and procedures, legislation, and resources allocated. Services provided also vary depending on the child's situation. For example, a child with a severe physical disability who is living at home may need physiotherapy services; a child who has been removed from his/her home will likely need legal/justice and psychological counseling services; a child who is reintegrated into a household will need support services for his/her family to ensure that the child is doing well. Understanding the services available and who provides them at what level is an important aspect of CMIS development. In some countries, residential institutions provide services, the district level may provide foster care services, and the community level may provide prevention services (such as education support). Often, each service provider is also collecting and sharing information about the child's situation. Table 1 lists services that may be provided at different levels of the system.

Table 1. Services for children and their families and who provides them

Illustrative Services	Potential Service Providers
Economic support for family strengthening	Guardianship authority, civil society organizations, district authorities
Counseling	Psychologists; social workers
Physiotherapy	Physiotherapists
Life skills	Social workers
Justice/ legal support	Judges; courts; child ombudsman
Respite care	Day care centers; residential care facilities; children's homes
Foster care	District authorities; certified/approved foster parents
Adoption	National adoption agency
Residential care	Institutions; placement centers; small group homes; boarding schools



Key Consideration:

Coordination and alignment between different ministries (and potentially other external stakeholders, like funders) will need to be addressed through a governance mechanism (see *Perspective 3: Digital Design Considerations for governance considerations*)

Although the primary focus of case management is to ensure that the case worker is able to help resolve the child's issue, governments have a responsibility to ensure that children are properly cared for and that case workers have the resources (e.g., training, supervision, awareness of referral services, transportation means) needed to perform case management functions. Case management at the child level is embedded within a national system that falls under the mandate of one or more ministries. Given this mandate and in their capacity as duty-bearers, governments have a responsibility to know what is happening to these children and how the case management system is working.

The United Nations Guidelines for the Alternative Care of Children (2010; <https://digitallibrary.un.org/record/673583?ln=en>) has several paragraphs that refer to the collection of information:

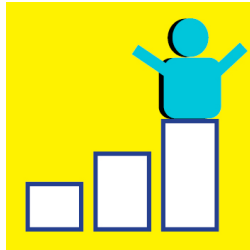
- § 23 To monitor a state's strategy for deinstitutionalizing its alternative care system, the United Nations calls on the state to collect and analyse data at national level to monitor the number of children who remain in institutional care and those who have moved out of care.
- § 69, 70 To develop evidence-based approaches to policy and service delivery, the state should collect and analyze the necessary data

Understanding how information flows within the country is critical to ensure that the CMIS is set up correctly. The process of information flow is important whether a paper-based or digital system is being developed. Table 2 shows a generic illustrative adaptation for this purpose of a data flow map that MEASURE Evaluation developed (2010; <https://www.measureevaluation.org/resources/publications/gr-18-016>). All information should be based on SOPs or guidelines. If those are unclear or unavailable, it would be necessary to clarify and/or develop them.

Table 2. Illustrative data flow in a CMIS

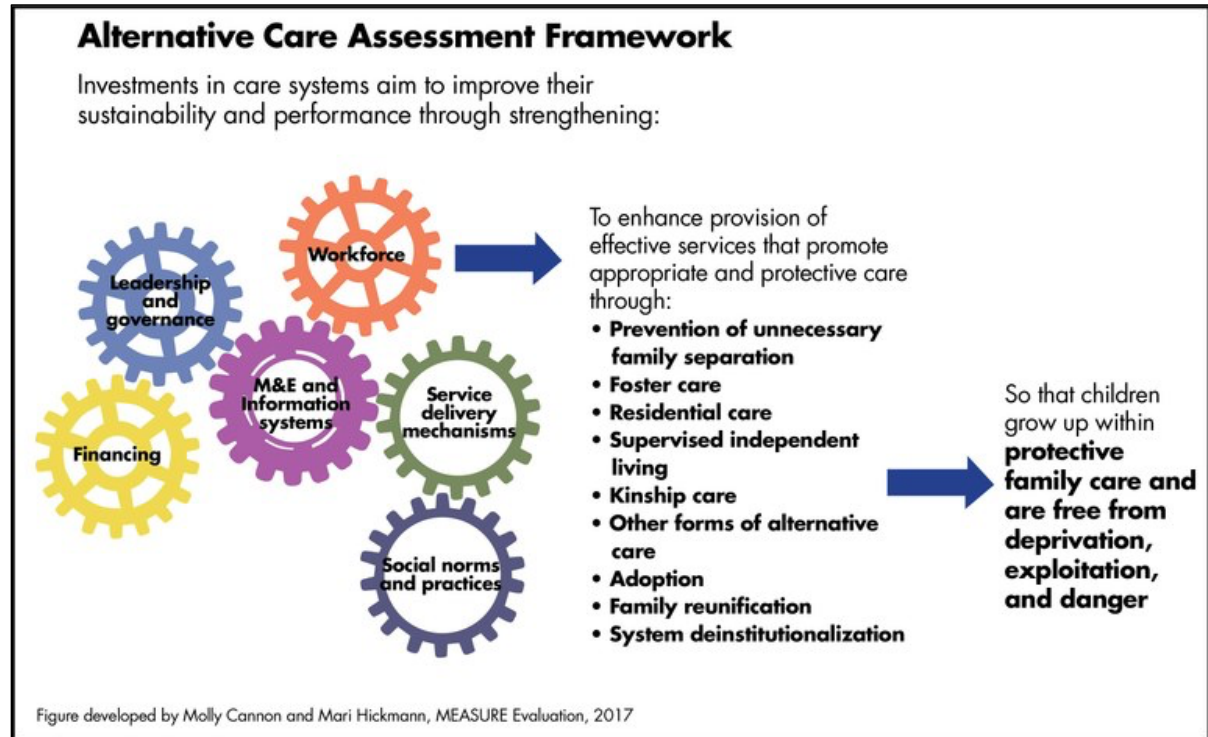
Duty bearer	Data collection (what collected)	Compilation (who compiles data)	Storage (where are data stored)	Analysis (who analyzes data)	Reporting (frequency and to whom)	Use of information
Community caseworker	Notifications of child abuse, neglect, violence, exploitation Data on children and families Data on active child cases Data on monitoring visits according to individual care plans	Community caseworker	Paper-based files or electronic data storage	Community caseworker together with supervisor	Monthly and/or quarterly to the district	Implementation of case management work Follow-up and review of individual care plans Provide evidence on resources needed
Residential institution	Child intake data Child progress data	Social worker in the residential institution	Paper-based files or electronic data storage	Head of institution together with social worker	Monthly to district	Monitor inflow and outflow of children in institutions to inform development of alternative family-type services
District-level authorities*	Records of decisions on child separation, referral, and placement District data on children in placement services, reunified with the family, and adopted Data on active child cases at district level Records of regular supervision meetings with caseworkers	Relevant staff members (e.g., child protection specialist; supervisor)	Paper-based files or electronic data storage	Head of district authority and relevant staff members	Quarterly, semiannually, and annually to district and regional leadership	Monitor trends on children at risk of separation to inform prevention and family-type services Review staff caseloads and assess staff gaps, training, and supervision needs at district level to inform programming and required resources Provide feedback to community caseworkers
Regional-level authorities	Regional data on children in different placement services, reunified with the family and adopted Data on active child cases at regional level	Relevant staff members—either monitoring and evaluation (M&E) or technical staff—with such duties	Electronic data storage	Head of regional authority	Quarterly, semiannually, and annually to regional and national leadership	Inform regional programming of service provision Monitor timeliness of decision making Estimate required resources Provide feedback to districts
National-level authorities*	National-level data on children in different placement services, reunified with the family or adopted domestically Data on children adopted internationally Data on active child cases, by region	Staff of technical and M&E departments	Paper-based files or national database	Head of national authority and heads of relevant departments	Annually to the national statistics office and government leadership	Monitor inflow of children in placement services compared to those reunified Prioritize services geographically Assess performance Demonstrate accountability Inform policymaking and advocacy of resource allocation Provide feedback to lower levels

Measures of Success



The Alternative Care Assessment Framework shown in Figure 4 (MEASURE Evaluation; <https://www.measureevaluation.org/our-work/youth-and-adolescents/alternative-care>) helps to illustrate some of the overall goals in care as they relate to the pathways that children might take in getting to a more stable living and care situation. For both case management and the related information system to succeed, it is important that measures of success from the child's and the systems perspective be identified from the outset. The gears reflect system components that drive the various elements related to case management.

Figure 4. Alternative Care Assessment Framework



Besides the child’s measures of success mentioned in the section “Define Success in Terms of a Child’s Best Interests,” system successes can be useful to measure. These could be grouped in the following categories:

- **Case management implementation.** Understanding the status and trends of child care and protection is critical in serving the needs of children. At district and national levels, policy, staffing, and planning decisions depend on knowing how many children have been separated, how many have been reunited or placed in care, how many reunited children have integrated successfully in families, and other such data. Understanding the categories of children in different situations is also important: for example, children with disabilities, children 0–3 years of age, or children from minority populations.
- **Case management performance.** Indicators to measure the numbers of open and closed cases and the outcomes achieved are important so program managers can understand and respond to barriers to meeting child-level outcomes. Countries would want to look at whether case management standards are followed, in accord with the country SOPs or guidelines. For example, are assessments carried out within the specified timeframe? Are all service providers accredited? Are children placed in temporary care in a timely manner as stipulated by the country SOPs?
- **CMIS implementation indicators.** In line with the Principles for Digital Development, the aim is to build CMIS that are country-owned and sustainable. Development of a monitoring, evaluation, and learning (MEL) plan for CMIS implementation is one way to ensure this. Examples of questions that this MEL plan would answer are, is the system available in all districts, are all districts reporting complete data, and are all new service delivery providers added to the CMIS?
- **Building a culture of effective data use.** In addition to prioritizing metrics of success, creating mechanisms and approaches to visualize data and to send and receive alerts when referrals are made, when investigations should occur, and so forth ought to be built into the CMIS through a participatory design process with the primary intended users at all levels of the system. Regular data review meetings, use of data for improved service delivery, better resource allocation, and adaptive management can also increase the use of CMIS data and contribute to their overall effectiveness. Data quality should also be measured as part of this process.



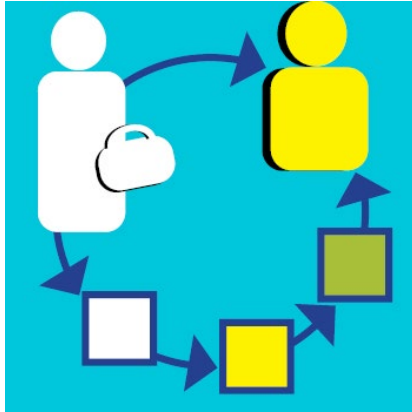
Key Considerations:

In addition to providing data for decision-making to district and national stakeholders, data should be available for case managers to improve the quality of service they provide to children.

Create feedback loops with case managers to identify, understand and address potential issues with the data being collected through the CMIS.

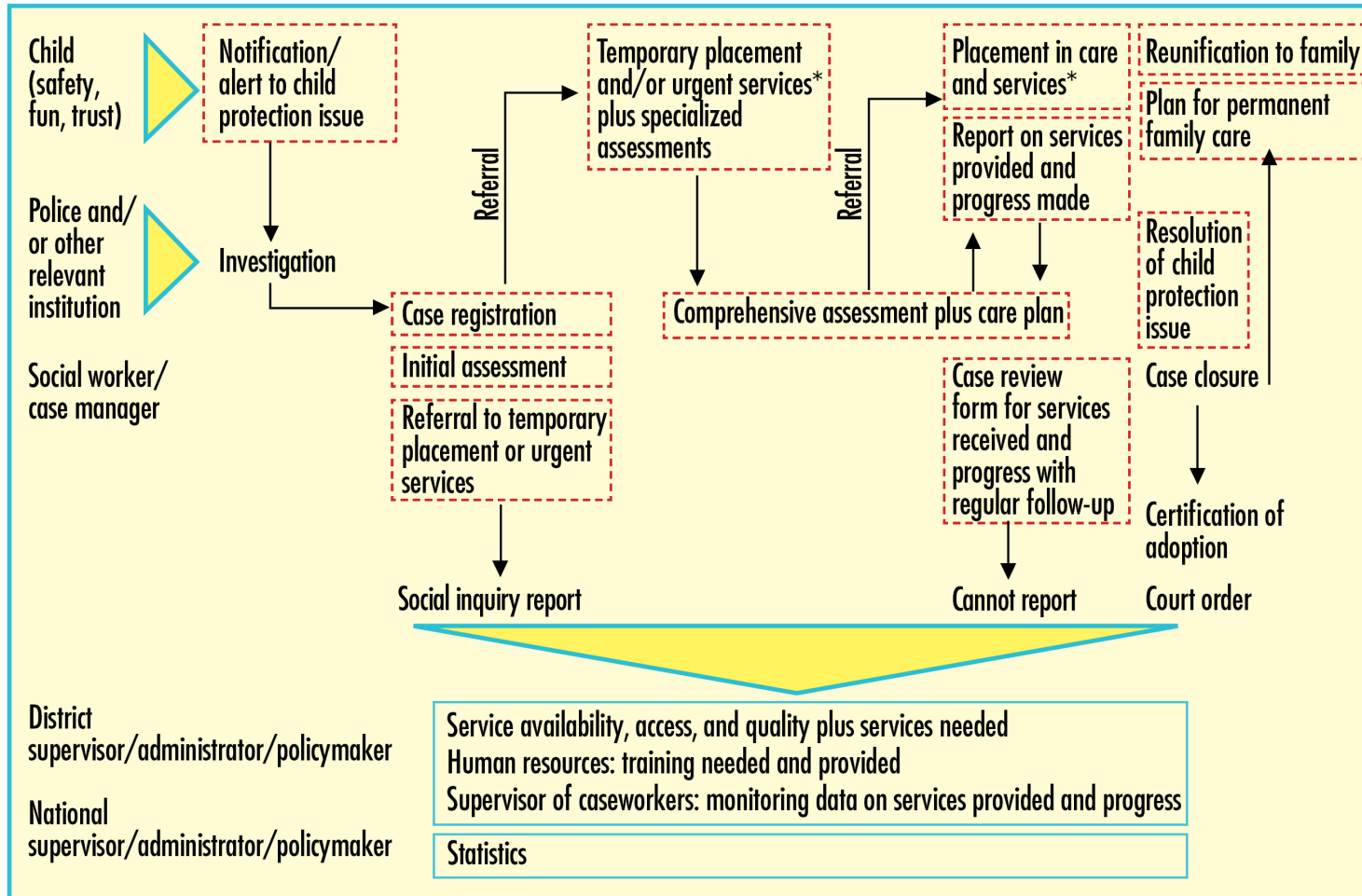
It is broadly agreed that if there is an irreconcilable conflict between the time social workers have for case management versus the time they spend on an information system, case management should be the priority. However, if a CMIS is designed well, it should improve the quality of service delivery and the continuity of care without increasing the reporting burden.

Identify Use Cases



Once the journey map has been developed, one can identify the types of use cases for a CMIS – remembering that the purpose of the CMIS is to support case management. Figure 5 reprises the child’s journey map shown in Figure 3, this time highlighting in red specific intersections between the child’s case and the case management system. For each of those points of intersection, it is recommended to identify the potential users of information and the types of information from the system that they would use. This will inform the technology considerations.

Figure 5. Child's journey map showing where a child's case intersects the case management system



*Examples of services are those for health, counseling, education, and disability

In Table 3, we present the types of users and use cases for the system, because the users and use cases will be different at each level. For example, at the notification stage of case management, when there is an alert concerning a child protection-related issue, the users of a notification module in the CMIS could be the caseworker, schoolteacher, police officer, community doctor, and/or community member, depending on who is reporting the case. That person could have restricted access to an input form to report issues. Their use of the CMIS would be to alert authorities to possible issues and trigger response according to local laws.

Table 3. Types of CMIS users and use cases

Case management step	Potential users	Illustrative use cases
NOTIFICATION / ALERT OF CHILD PROTECTION ISSUE	Social worker/case manager Schoolteacher Police Community doctor Community members	Users alert local-level authorities about a possible child protection issue through an official reporting channel (website, mobile application, Short Message Service (SMS), help line, etc.).
CASE REGISTRATION	Social worker/case manager Local/district guardianship authorities	A case manager enters the child's information in the CMIS through a device (smartphone, tablet, web-based form). Through interoperability, the CMIS connects with other agencies' databases (health, education, police) to retrieve approved historical information on the child and family. Local/district guardianship authorities track case through the CMIS.
INITIAL ASSESSMENT	Community social worker/case manager	The case manager performs an initial assessment in the location where the issue was reported, using a device to record information (smartphone, tablet, web-based form).
REFERRAL TO EMERGENCY PLACEMENT SERVICES	Social worker/case manager District guardianship authorities	The case manager refers the case to the emergency placement service through the CMIS. District guardianship authorities track and authorize referrals through CMIS. A social worker in the emergency placement service reviews the case through the CMIS.
SPECIALIZED ASSESSMENTS	Social worker / case manager Community doctor School teacher Psychopedagogical expert	The social worker requests and schedules specialized assessments to social services through CMIS. The community doctor, teacher, and psychopedagogical expert perform specialized assessments and record results in the CMIS.
COMPREHENSIVE ASSESSMENT	Case manager Multidisciplinary teams	Case manager /multidisciplinary teams perform a comprehensive assessment, recording information in the CMIS using a mobile device.

Case management step	Potential users	Illustrative use cases
INDIVIDUAL CARE PLAN WITH SERVICES TO BE RECEIVED + PROGRESS WITH REGULAR FOLLOW-UP	Community caseworkers Community doctor School teacher Psychopedagogue District guardianship authorities	The case manager completes a care review form and creates an assistance plan in the CMIS. Case managers receive reminders and alerts through the CMIS about the interventions required for children. The community doctor, teacher, and psychopedagogue review the plan, perform interventions, and record results in the CMIS. The case manager follows up on the child's progress through the dashboard or report generated by the CMIS. District guardianship authorities follow up on progress through aggregated child protection indicators displayed in dashboards or reports generated in the CMIS.
PLACEMENT IN CARE + REPORT ON SERVICES PROVIDED + PROGRESS MADE	Community caseworkers Community doctor School teacher Psychopedagogue District authorities	The case manager refers the case to placement in care through the CMIS. The community doctor, teacher, and psychopedagogue perform interventions stipulated in the assistance plan and record results in the CMIS. The case manager follows up on the child's progress through the dashboard or report generated in the CMIS. District authorities follow up on progress through aggregated child protection indicators displayed in dashboards or reports generated in the CMIS.
REUNIFICATION WITH FAMILY PLACEMENT TO PERMANENT FAMILY CARE	Community caseworkers District guardianship authorities	The case manager closes the case and enter final details in the CMIS. Case managers maintain the adoptions database and match separated children with potential prospective adoptive parents through CMIS. District guardianship authorities follow up and verify closed cases.
DECISION MAKING	District guardianship authorities National authorities	The CMIS sends reports and aggregated data from local levels to district and national levels. District and national authorities view dashboards and take decisions related to service availability, quality of service, human resources, funding, and monitoring indicators. National authorities export aggregated CMIS data to report to other government agencies.





Items for Standardization	Resources
Care indicators	<p>A Manual for Routine Monitoring of the Alternative Care System in Ghana (MEASURE Evaluation, 2019; https://www.measureevaluation.org/resources/publications/ms-19-169/)</p> <p>Manual for the Measurement of Indicators for Children in Formal Care (Better Care Network, 2009; https://bettercarenetwork.org/library/social-welfare-systems/data-and-monitoring-tools/manual-for-the-measurement-of-indicators-for-children-in-formal-care-word-document)</p>
Case management performance indicators	Need to be developed
CMIS indicators	Need to be developed
Interactive tools and scripts for engaging with children in the steps of the case management process	Need to be developed
Built-in data visualizations, such as dashboards	Need to be developed






Perspective 3: Digital Design Considerations



The framework is underpinned by the Principles for Digital Development (<https://digitalprinciples.org/>), a comprehensive set of guiding principles for digital solutions. We have developed child protection and care-specific considerations mapped to each principle. The principles underscore the importance of developing sustainable systems that can be owned and operated by host governments and they are interwoven throughout this framework’s perspectives and processes. To inform the design and development of child protection CMIS, we recommend taking a principled approach.

Table 4. Digital development principles and their applications to child protection and care.

Principle for digital development	Application to child protection and care
1. Design with the User 	The first accountability is to the child and family, and the information system should be designed from the perspective of the child’s needs, the family’s needs, and then the needs of the caseworker and child protection system.
2. Understand the Existing Ecosystem 	System design should be based on an understanding of the child protection case management process, system, and regulations, with regular consultations with policymakers, users, and system developers.
3. Design for Scale 	A realistic assessment of the country situation in terms of infrastructure (hardware, software, Internet access, etc.) and the digital literacy of caseworkers and other stakeholders should be conducted. Consider funding options and the maintenance cost of the child protection CMIS when it’s expanded.
4. Build for Sustainability 	The relevant government body or bodies responsible for child protection should own the system, with the relevant representative governance structures for the system set up in a way that accounts for high staff turnover in the social sector.

<p>5. Be Data Driven</p>		<p>Data use culture needs to be developed among case managers and decision makers throughout the child protection and care system to provide better care to children, manage and track services, and monitor children's progress over time.</p>
<p>6. Use Open Standards, Open Data, Open Source, and Open Innovation</p>		<p>Adopt child protection standards agreed to by the community and local stakeholders. If new software code is developed for the CMIS, license it as open source, so that it can be viewed, copied, modified, and shared, and distribute the code in public repositories. Share nonsensitive aggregated child protection data after ensuring that data privacy needs are addressed, to ensure that data are used by a wide range of stakeholders to foster open innovation.</p>
<p>7. Reuse and Improve</p>		<p>Instead of starting from scratch, adapt and enhance existing open-source child protection software and case management systems. Consider the use of global goods produced by the international development community. Develop modular, interoperable approaches instead of building parallel systems with the same functionalities.</p>
<p>8. Address Privacy and Security</p>		<p>Privacy and data security are critical in child protection, especially when there are multiple users and higher risk of confidential information about children being leaked. Confidence in the system needs to be built through strict user access rules and privacy policies, including consent of parents/caregivers/guardians, determined by each country in accordance with national legislation and international good practices. Apply industry best practices to secure the source code of the CMIS and server infrastructure to protect it from digital attacks.</p>
<p>9. Be Collaborative</p>		<p>Caseworkers appreciate integrated information to avoid a manual process of getting information from other sectors (health, education, police, justice, etc.). This requires interoperability of systems across sectors based on data sharing agreements, data standards, and solutions for unique identifiers of children.</p>

Understand Context and ICT Enablers



When determining which technologies to use for a CMIS, you have three main enabling environment considerations to examine: political context, stakeholder environment, and ICT governance.

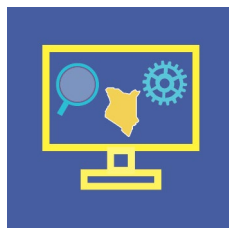
- **Political context.** Examining the political context as it relates to case management for children helps determine that the right technologies are selected to ensure long-term success. It is important to understand the current government's political will in the area of child protection and care in addition to understanding the laws and policies that govern the child protection and care space, to see how the CMIS can fit into the government's priorities, structures, and budget. The political stability of a country is also important. Countries with rapid turnover of governments or that are in conflict can make information systems more likely to fail. Being prepared for them is a step toward mitigating risk of failure. Often, child protection and care are intersectoral, so it is critical to ensure that roles and responsibilities are clear throughout the processes and within the CMIS.
- **Stakeholder environment.** Apart from the political context and key government actors, knowing who else is involved and what their interest and role in the CMIS is will help build support for a functional system. For example, do international agencies, civil society, implementing partners, universities, etc. play a role in CMIS? Is there a functioning coordination mechanism for relevant actors? Have there been other previous CMIS solutions? If so, why weren't they successful?
- **ICT governance.** The term governance refers to the ability of an organization to control and regulate operations to avoid conflict. For information systems, governance refers to the management and regulation established to determine the mechanisms used to endorse institutional decisions related to information systems; identify the officials who are assigned the responsibility of endorsing these decisions, who are accountable for the results of these decisions; and identify the organizations (or departments) that must meet to discuss these decisions. Knowing these things will help lead to the establishment of a governance structure for the implementation of any CMIS as well as data sharing protocols. Understanding whether there are e-Governance laws, ICT ministries, and so forth in place will ensure that the proposed solutions fit within the government structure. In developing the governance structure, other important considerations are ensuring proper budgeting for ICT, including equipment, training, and server and maintenance costs.

Assess ICT Needs and Capacity



Technology infrastructure is improving globally. In many countries, the availability of good IT and programming resources and good connectivity is increasing, as is digital literacy. Understanding how widespread IT infrastructure and capacity are within a country is important in determining appropriate digital solutions for a CMIS. Internet connectivity; the availability of hardware, electricity, and ICT support; and previous experience with digital technology are all important to understand when designing a CMIS. With a user-centered design approach, identify the potential users and the regions where the digital solutions will be used. Then assess the availability of devices and hardware, ICT literacy, and the availability of providers that can give ICT help-desk support. Resources such as the USAID, Digital Ecosystem Assessments, are useful to achieve this objective.

Design Architecture and Select Technology



The design of a CMIS should take into account such technology- and data-related factors as interoperability, data ownership, privacy and security, devices and access, data standards, and data quality. For each factor, we provide a definition and things to consider when building the CMIS.

INTEROPERABILITY is a characteristic of a product or system to share data with other information systems, at present or in the future, in either implementation or access, without any restrictions. While the term was initially defined **for information technology or systems engineering services** to allow for information exchange, a broader definition takes into account social, political, and organizational factors that have an impact on system-to-system performance. This requires building coherent services for users when the individual components are technically different and managed by different organizations.



- Interoperability improves coordination mechanisms between child protection stakeholders by building bridges between information systems that may hold data about the historical records of children. Always seek consent from the child and the child’s legal guardian before sharing data between information systems.
- The minimum information required to provide a social service needs to be agreed upon by different stakeholders. Information systems should share only the individual case data required to improve the quality of services and not all the data that systems collect.
- To ensure interoperability and coherence between information systems, data standards need to be defined by all of the stakeholders.
- Use existing open platforms where possible to help automate data sharing and to connect tools or systems with others. Seek platforms with flexibility to adapt to future needs. If the CMIS is managed by an NGO, consider data sharing capabilities of the software selected for case management. Assess the feasibility of having automated data transfer processes with government systems. If this is not possible, consider manual data-sharing processes that ensure data privacy and security.



Key Considerations:

Data privacy by design: Make sure that the CMIS is designed in a way that promotes and reinforces confidentiality and builds trust.

Give transparency to stakeholders, particularly children and their families on where the data is hosted and who it belongs to.

PRIVACY AND DATA OWNERSHIP considers who has final, legal authority over access and use of the data. The idea refers not just to the ability to access, create, modify, package, derive benefit from, sell, or remove data, but also to the right to assign access privileges to others. Ownership policies also consider data sovereignty, which defines which of a country’s laws apply to data during processing.

CMIS for child protection will likely hold the data of citizens, including children and other vulnerable groups. Being aware of who has legal authority over the control of the data and access to it will protect the citizens’ rights and will help assess possible risks to their individual liberty.

- Review local data privacy regulations and ensure that the CMIS complies with them. If no local regulations are in place, use regional or international regulations, such as the General Data Protection Regulation (GDPR) from the European Union (<https://gdpr-info.eu/>) as a reference.
- Determine if local privacy regulations state that citizens’ data need to be hosted and processed in data centers located in-country. Assess if the government has the capacity and infrastructure to host the CMIS and data in-country or if “offshore” alternatives have been considered and the associated legal and ethical implications.
- Identify the local data protection agency to coordinate efforts related to data ownership.
- Develop data privacy policies for CMIS.
- Ask for clear informed consent by families and assent by children and be transparent about data processing, storage, and uses, in keeping with their ability to meaningfully understand these. Train social workers and find communication strategies that take into consideration age and literacy of children and legal guardianships. Work with users and stakeholders to identify who is using data and how they are using the data. Observe the role that data use plays in their daily activities.



SECURITY of data considers the set of principles and best practices that should be in place to ensure that data collected, stored, processed, displayed, and shared are secure and respect the privacy of citizens. Organizations and information systems need to implement measures to protect confidential information and identities of individuals represented in data sets from unauthorized access and manipulation.

- Limit access to data to a need-to-know basis and add policies on user access and roles.
- Identify and address the risks associated with data privacy and security—especially related to access to and use of personal data.
- Develop data security policies and protocols for the CMIS. Follow industry best standards to make the source code secure and to protect devices, servers, and infrastructure from digital attacks.
- Assess capacity gaps and provide training on data handling and security to users.
- Depending on the use case, de-identify cases from the CMIS and underlying databases (e.g., aggregated reports consulted by higher-level stakeholders).
- Keep audit records to track user access and edits to cases. Identify an independent stakeholder to audit these records.
- Avoid storing data that could put clients at risk (e.g., data on religious groups and ethnic groups).
- Consider protection measures to access the CMIS, such as two-factor authentication.

DEVICES AND ACCESS refers to the need for funders, system designers, and software developers to consider in what context and use cases it is appropriate and necessary for users to enter and access data in the system. This analysis will help determine the type of devices that fit the intended use of the information system (smartphones, tablets, laptop computers, etc.) and the access requirements considering the specific ICT context (Internet access, security concerns, digital literacy, etc.).

- Through a user-centred approach, evaluate a child's journey and determine at what stages a CMIS will be relevant to use by different stakeholders and at each level of the system.
- Analyze the CMIS users' ICT and security context to determine appropriate devices and access policies.
- Consider offline alternatives in settings with poor connectivity.
- Consider optimizing the CMIS for mobile devices so that case managers can access information in the field.
- If the CMIS implementation strategy includes the use of mobile devices, develop device access and security policies to ensure that information is protected if the device gets stolen or lost. Policies include securing the device with passwords and remote access management.

DATA STANDARDS are agreements by organizations and the owners of information systems on the format

and processes that will make data exchange possible. The meaning of the data must also be defined, to ensure that the systems will interpret the data in the same way. Usually, these definitions are stated in a data dictionary. Standards also ensure that data are stored in a machine-readable format, creating an enabling environment for automatic data transfers.

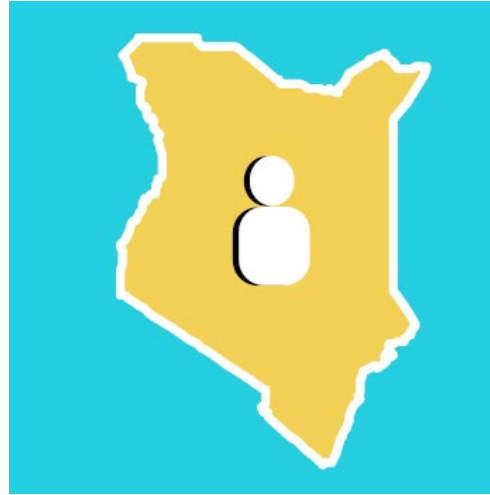
- Create coordination mechanisms between stakeholders to agree on the data standards to be used in the CMIS. If available, choose open standards developed by, agreed to, adopted by, and maintained by a community and that enable sharing of data across tools and systems.
- Agree or comply with the child-protection minimum data set to be collected by different stakeholders.
- Work with stakeholders to define the priority set of child protection indicators and standardize the variables to calculate the indicators.
- Create a child-protection data dictionary that describes the meaning, relationships, origin, format, and use of data.
- Ensure that data fields in the CMIS comply with the data standards, including options in drop-down menus.

DATA QUALITY is the quality of a set of data collected in a database that has the attributes of accuracy, reliability, precision, completeness, timeliness, integrity, and confidentiality for processing, analysis, and any other purpose that a user wants.

- Include automated logic checks in the design of the CMIS to flag data entries that fail common-sense validations and comparisons (e.g., children older than 18 years of age; subregions that are not part of a region).
- Generate regular reports that highlight deviations to the average data collected.
- Institutionalize regular data quality audits.
- Define SOPs and protocols to assess data quality at different levels (site, regional, national, etc.).

Items for standardization	Resources
Stakeholder engagement tools	Stakeholder Engagement Tool (MEASURE Evaluation, 2011; https://www.measureevaluation.org/resources/publications/ms-11-46-e)
ICT enablers assessment	USAID Digital Ecosystem Country Assessments (USAID, 2020-2022: https://www.usaid.gov/digital-strategy/implementation-tracks/track1-adopt-ecosystem/digital-ecosystem-country-assessments)
CMIS assessment tools	Case Management Information System Assessment Toolkit (Data for Impact, 2021: https://www.data4impactproject.org/publications/case-management-information-systems-assessment-toolkit/)
CMIS governance guidelines	Case Management Information Systems Governance Guidelines (Data for Impact, 2021: https://www.data4impactproject.org/publications/case-management-information-systems-governance-guidelines/)
Data privacy and cybersecurity for child protection implementation guides	Need to be developed

Application of the CMIS framework to Kenya's Child Protection Information Management System



Kenya developed a Child Protection Management Information System (CPMIS), which captures the government's child protection data as well as data on orphans and vulnerable children reported by U.S. Government implementing partners. The table below describes the child protection data side of the development of the CPMIS, through the lens of the CMIS framework. The table demonstrates how to apply the perspectives and processes in identifying the CMIS solution.

Perspective	Process 1	Process 2	Process 3	Outcomes
Child-centered	<p>Detail children's situations: Children who are in residential institutions and children facing child protection issues (in need of protection, or in conflict with the law) are served by subcounty children's officers, voluntary children's officers and statutory institutions.</p>	<p>Understand case management process Kenya case management SOPs. Child protection cases reported to children's office. Determination of case category using the child service guidelines of the Department of Children Services. Issuance of summons and referrals for interventions and placements by children's office, court systems, and other state and nonstate actors (e.g., national health insurance; bursary)</p>	<p>Define success from child's perspective</p> <ul style="list-style-type: none"> • Well-being of child (schooled, safe, healthy) • Removal from child protection threat 	<ul style="list-style-type: none"> • Government-owned, -led, and -supported • CPMIS Technical Working Group and steering committee leads the process • University of Nairobi manages system upgrades and maintenance • Rolled out in all 47 counties and all 31 statutory institutions

Perspective	Process 1	Process 2	Process 3	Outcomes										
Improving services and planning	<p>Map service delivery information and flow:</p> <p>Conducted information flow analysis, starting from where the child interaction occurs through to the case's closure. The information flow varies depending on nature of case (e.g., to court; doctor)</p>	<p>Measures of success</p> <ul style="list-style-type: none"> • # of cases by type, by age and sex, and by locale • # of cases by status (active, closed, pending), by age and sex and by locale • For Charitable Children's Institutions, # of children in institutions (statutory and charitable) • # of children reintegrated 	<p>Identify use cases</p> <ul style="list-style-type: none"> • Development of investment case for CP activities; budgeting process • Planning for case manager's daily activities • Reporting obligations (Kenya National Bureau of Statistics, United Nations Convention on the Rights of the Child, African Charter for the Rights of Children, UNICEF, and World Bank) • Developed dashboards to present key indicators aligned with use cases 	<table border="1"> <thead> <tr> <th>Case status</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Closed</td> <td>134,050</td> </tr> <tr> <td>Active</td> <td>15,836</td> </tr> <tr> <td>Pending</td> <td>39,368</td> </tr> <tr> <td>Grand total</td> <td>189,254</td> </tr> </tbody> </table>	Case status	Number	Closed	134,050	Active	15,836	Pending	39,368	Grand total	189,254
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Closed	134,050													
Active	15,836													
Pending	39,368													
Grand total	189,254													
Digital design considerations	<p>Understand context and ICT enablers</p> <ul style="list-style-type: none"> • Conducted stakeholder mapping • Reviewed previous assessments • Identified unique ID system, help line (116), and Vurugu Mapper application • Reviewed data ownership laws and identified inability to share data among courts and education and health facilities • Developed data quality guidelines based on national data quality assessment guidelines 	<p>Assess and address ICT needs and capacity</p> <ul style="list-style-type: none"> • Conducted ICT/individual capacity assessment • Costed, procured, and deployed ICT equipment • Developed user guidelines and training curricula for data entry, data quality, and data use 	<p>Design architecture and select technology</p> <ul style="list-style-type: none"> • Longitudinal system • Hybrid of online transaction processing and online analytics processing • Design approach based on open standards and open sources applications • Developed in Python Django framework on a PostgreSQL back end • Web-based for development, training, and production. • Modular development approach to allow both vertical and horizontal scalability • Access levels developed 											

Call to Action



Through the development of this framework, many good practices were identified that together can serve as a call to action for those working in child protection in general and those designing CMIS in particular. These are as follows:

1. Focus on the child and on child-friendly services and systems.
2. Engage key government and other child protection stakeholders to ensure that the CMIS fits within the political priorities and stakeholder relationships and workflows.
3. Standardize where possible and appropriate.
4. Embed CMIS within broader case-management service delivery and M&E systems.
5. Take a responsible rights-based approach to data and systems development. Child protection is a sensitive area with a high bar for privacy and security of data supported by data sharing agreements.
6. Adopt the Principles for Digital Development and apply them to the planning, implementation, and evaluation of CMIS.
7. Coordinate, contribute to, and feed lessons, approaches, templates, and reusable products (software global goods) into the wider child protection and ICT4D communities locally and globally. This will enable greater standardization and reduce duplication of efforts.
8. Scale and sustainability will have an impact on technology decisions and design options, so develop a roadmap for them as part of the initial planning for the CMIS.

Additional Resources



Principles for Digital Development: <https://digitalprinciples.org>

MEASURE Evaluation's Health Information System Strengthening Model: <https://www.measureevaluation.org/his-strengthening-resource-center/his-strengthening-model>

Digital Square's Global Goods Guidebook (to promote reusing systems): <https://digitalsquare.org/resourcesrepository/global-goods-guidebook?rq=global%20goods%20guidebook>

Responsible Data for Children: www.RD4C.org

Responsible Data: The Engine Room (<https://www.theengineroom.org/projects/responsible-data/>)

General Data Protection Regulation (<https://gdpr-info.eu/>)

Digital Public Goods Alliance (examples of governing collaboratively): <https://digitalpublicgoods.net>

Case studies and open data framework visualized as a periodic table: Open Data Impact (<https://odimpact.org/periodic-table.html>)

International Committee of the Red Cross "Restoring Family Links" program: Photographs with IDs are used to help find family members (<https://www.icrc.org/en/document/south-sudan-restoring-family-links-snapshots-photos>)

World Health Organization, PATH: Planning an Information Systems Project (https://path.azureedge.net/media/documents/TS_opt_ict_toolkit.pdf)

Quantitative Scenario-Based Assessment of Contextual Factors for ICT4D Projects Design and Implementation in a Web-Based Tool: <https://www.researchgate.net/publication/278684674>

Open Health Information Mediator (OpenHIM): <http://openhim.org/>

United Nations Department of Economic and Social Affairs and the Global Partnership for Sustainable Data (2019): Introduction to data interoperability across the data value chain (https://www.unescap.org/sites/default/files/Session_4_Data_Interoperability_WS_National_SDG_10-13Sep2019.pdf)

RD Community (2019): The Hand-Book of the Modern Development Specialist (<https://rd4c.org/>)

United States Agency for International Development (USAID): Considerations for using data responsibly at USAID (<https://www.usaid.gov/responsibledata>)



Dimagi, Inc. (2020): Mobile Data Collection: Everything you need to know to improve the speed and accuracy of your data collection (<https://dimagi.com/mobile-data-collection/>)

Principles for Digital Development: How to Choose a Mobile Data Collection Platform (<https://digitalprinciples.org/resource/howto-choose-mobile-data-collection-plaform/>)

Digital Impact: Digital Impact Toolkit (<https://digitalimpact.io/toolkit/>)

MEASURE Evaluation (2018): Data Demand and Use Concepts and Tools: A Training Tool Kit (<https://www.measureevaluation.org/resources/training/capacity-building-resources/data-demand-use-concepts-tools>)

MEASURE Evaluation (2016): Guidelines for Integrating Gender into an M&E Framework and System Assessment (<https://www.measureevaluation.org/resources/publications/tr-16-128-en>)

MEASURE Evaluation (2019): Data Quality Assurance: Data quality auditing and routine data quality assessment tools (<https://www.measureevaluation.org/resources/publications/ci-19-026>)

World Health Organization (2015): The MAPS Toolkit: mHealth Assessment and Planning for Scale (<https://www.who.int/reproductivehealth/publications/mhealth/maps/en/>)



Data for Impact

University of North Carolina at Chapel Hill
123 West Franklin Street, Suite 330
Chapel Hill, NC 27516 USA
Phone: 919-445-6949 | Fax: 919-445-9353
D4I@unc.edu
<http://www.data4impactproject.org>

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