ICRC

DIGITAL HEALTH FRAMEWORK 2024–2027

LEVERAGING DIGITAL HEALTH INNOVATIONS AND INTELLIGENCE TO SUSTAINABLY IMPROVE THE QUALITY, ACCESSIBILITY AND EFFECTIVENESS OF ICRC HEALTH-CARE SERVICES

1. INTRODUCTION

The ICRC's Digital Health Framework establishes the direction of its aims in terms of planned outputs, outcomes and impact through 2024 and beyond. The framework provides a clear and structured understanding of the ICRC's digital health goals and intended outcomes and impact. This enables the organization to design common indicators to measure progress on existing and new activities, assess the impact of interventions and report back. Ultimately, it establishes a basis for evaluation and accountability by ensuring greater coherence and alignment with the ICRC's priorities.[1]

To develop the Digital Health Framework and map outputs, outcomes and impact, key documents were reviewed and interviews conducted with 21 people from the ICRC's Digital Health, Technology and Information, Health, Innovation, Enterprise Architecture and Support and Digital Transformation teams, as well as an external digital health expert. A workshop with the ICRC's Digital Health team and partners took place to draft the Digital Health Framework and its corresponding indicators, as set out below.

2. CONTEXT

The ICRC's Institutional Strategy 2024–2027 recognizes the importance of digital opportunities, entitling Strategic Orientation 7 as "Accelerating the digital transformation". The adoption of digital technologies is currently transforming how health services are delivered, optimizing access, enhancing quality of care, improving accountability and reducing costs. Health-care systems face numerous challenges in the areas in which the ICRC operates, including security risks, limited medical supplies and skilled health-care professionals, and humanitarian access. Digitalization provides an alternative way to overcome these constraints to strengthen humanitarian response and increase health-care access for millions of people. This is especially pertinent in developing and fragile contexts, where the transformative potential of leveraging digital technology can address unmet health needs.

However, digital solutions are often developed for limited purposes in specific areas of health care, fostering fragmentation in the challenging contexts in which the ICRC operates. For example, patients' health records may be stored in disparate systems, which contributes to uncoordinated care. Other times, identical devices in the same facility run different applications, when they could have all had the same applications. This prevents economies of scale and efficiencies. In addition, with each different system that collects, stores or transmits patients' personal information, risks to the security of data multiply.

1 This is meant to be a "living" document that will be updated to ensure alignment with the upcoming releases of the Digital Strategy and other key digital transformation initiatives like SAFE.

3. DIGITAL HEALTH FRAMEWORK 2024–2027

There is a strong call from the field for digital health solutions, and the ICRC's field teams are highly motivated and actively innovating in this space. Although digital health solutions have been meeting clear needs in the field, problems have often been solved by adding digital solutions rather than by integrating them into a single system, leading to fragmentation. The digital health programme is taking steps to integrate solutions into widely used platforms such as DHIS2 and OpenMRS.

The great majority of the Digital Health team's current approach to data collection focuses on monitoring numerous short-term output indicators rather than long-term outcome measures that represent its higher-level goals. Moreover, the outcome measures that are currently in place exist mainly per project/digital solution.

The Digital Health Framework establishes outcome measures (see Figure 1) to examine performance across all digital health and supports the Digital Health team to focus on the most important aspects of the work and what is achieved (outcomes), rather than what is produced (outputs).

The Digital Health team worked together to co-create the Digital Health Framework and its corresponding indicators, enabling the team to track and measure their performance and achievements, identify gaps or areas for improvement, and empower them to communicate their value proposition and impact story to stakeholders and audiences. This framework enables the team to evaluate their efforts and learn from successes and failures so that they can achieve greater impact.

While investments in digital solutions have been considerable, the ability to systematically measure their value or impact is low. This framework and its accompanying indicators provide a platform to measure the outcomes and impact of digital health solutions – and to be able to tell the story of the ICRC's digital health in a cross-cutting manner.

To meet these objectives, the Digital Health team will focus on achieving the following seven outcomes, which can be mapped onto the ICRC's Institutional Strategy 2024–2027 Strategic Orientation 7, in particular points 7.1, "Improving digital organization, processes and systems architecture", 7.3, "Investing in research and development", and 7.5, "Leading by example" (in parentheses below):

1. enhanced speed and effectiveness of digital health solutions in deployment across all ICRC health priority contexts (7.1)
2. better accessibility, accuracy and completeness of health data for decision-making and planning (7.1)
3. partnerships established with local stakeholders to co-construct and/or co-own digital solutions (7.5)
4. digital health solutions scaled up and contribute to the digital public good (7.5)
5. greater adoption of and user-satisfaction with digital health solutions (7.3)
6. sustainability of digital health solutions secured (7.3)
7. health-care systems improved (7.3).

Figure 1. ICRC's Digital Health Framework

IMPACT

Strengthened humanitarian response and improved health outcomes through sustainable provision of digital solutions

OUTCOMES

Enhanced speed and effectiveness of digital health solutions in deployment across all ICRC priority contexts

Better accessibility, accuracy and completeness of health data for decision-making and planning

Partnerships established with local stakeholders to co-construct and/or co-own the digital solution

Digital health solutions scaled up and contribute to the digital public good

Greater adoption and user satisfaction with digital health solutions

Sustainability of digital health solutions secured

Health-care systems improved

OUTPUTS

Funding streams sought

Evidence generated for decision-making

Innovations created, piloted and integrated into digital health platform

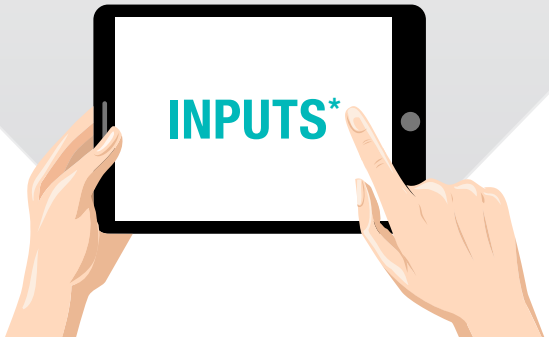
Solutions maintained and updated

Partnerships established and maintained

Data safety and security ensured

INPUTS*

ALMANACH PSM **Funding Partnerships**
Voucher System **Biomedical Tracker** **Innovation Scanning**
Pearl Emergency Shelf **Assets and Equipment**
Telehealth **Knowledge of Field Needs** MAD
DCMS **Chatbots** **Technical Expertise**



* See Annex for details about inputs.

The main aim of the ICRC's digital health work is to strengthen the ICRC health response and improve health outcomes through the sustainable provision of digital solutions. To meet this goal, there are six outputs and seven outcomes. Corresponding indicators and targets are listed for each output and outcome.

To achieve its outputs, outcomes and impact goal, the Digital Health Framework includes a reflection on a number of assumptions and gaps that need to be considered, as detailed below.

A. INPUTS

The inputs into the Digital Health Framework are included to provide an overview of the resources and digital health solutions that lead to the desired outputs, outcomes and impact. Inputs include financial resources, partnerships and any other components that contribute to the success of the framework, as depicted in Figure 1. An overview of digital health solutions is included in the Annex.

B. OUTPUTS

With the current financial crisis, sustainability of funding streams is key, not only to maintain and update current solutions but to be able to create, pilot and integrate new innovations into digital health platforms. Evidence must also be generated to make well-informed decisions. Considering the current focus on sustainability, partnerships are particularly important to leverage as a catalyst to achieve higher-level, longer-term outcomes and impact.

OUTPUT 1: INNOVATIONS CREATED, PILOTED AND INTEGRATED INTO DIGITAL HEALTH PLATFORM

Indicator 3.1. Number of innovations created, piloted, and integrated into digital health platform.

Target: Total number of innovations integrated, divided by number of innovations whose pilots are successful (80%).

OUTPUT 2: EVIDENCE GENERATED FOR DECISION-MAKING

Indicator 2.1. Data are accurate and easily accessible for further analysis and considered to inform decision-making (internal to the ICRC) and research (e.g. evaluations, cost-benefit analysis/ROI, peer-reviewed research), as rated by users.

Target: 80% of data rated accurate and easily accessible by end users.

Indicator 2.2. Percentage of tools that have data visualization and summarization capabilities.

Target: 80% of tools have dashboards or can be queried via chatbots for data reporting.

Indicator 2.3. Number of research papers/publications.

Target: 1–2 per year.

OUTPUT 3: SOLUTIONS ARE MAINTAINED AND/OR UPDATED

Indicator 4.1. Percentage of digital health solutions maintained and/or updated.

Target: 90% maintained and/or updated.

OUTPUT 4: DATA SAFETY AND SECURITY ENSURED

Indicator 6.1. Percentage of data in compliance with relevant data protection regulations and standards.

Target: 100% of data compliant with policies.


A. Boubour

Shirika La Umoja Physical Rehabilitation Centre, Goma, DR Congo. Staff use a tablet to receive training on DCMS.

OUTPUT 5: PARTNERSHIPS ESTABLISHED AND MAINTAINED

Indicator 5.1. Qualitative assessment of new partnerships established and ongoing active ones.

Target: This qualitative descriptor provides an opportunity to reflect upon and assess the usefulness of new partnerships that have been established or ones that need to be maintained (rather than aiming to increase the number of partnerships, which would not necessarily reflect the usefulness of partnerships established and maintained).

OUTPUT 6: FUNDING STREAMS SOUGHT

Indicator 1.1. Percentage of potential digital health funding streams sought.

Target: Action taken on 100% of identified potential digital health funding streams (e.g. applications for additional funding, internal and external funding sources (such as donors) contacted, funders responding and supporting).

C. OUTCOMES

While output variables are essential for monitoring and assessing immediate results, outcome variables are critical for evaluating the overall success and impact of digital health solutions. Outcomes represent the broader long-term, sustained changes that the ICRC digital health programme aims to achieve.

OUTCOME 1: ENHANCED SPEED AND EFFECTIVENESS OF DIGITAL HEALTH SOLUTIONS IN DEPLOYMENT ACROSS ALL ICRC HEALTH PRIORITY CONTEXTS

Indicator 1.1. Percentage of users who attribute increased speed of deployment and/or increased effectiveness of health response in an emergency and/or protracted conflict due to digital health solution.

Target: 80%.

OUTCOME 2: BETTER ACCESSIBILITY, ACCURACY AND COMPLETENESS OF HEALTH DATA FOR DECISION-MAKING AND PLANNING

Indicator 2.1. Percentage of health-care staff who report digital solution makes data more accessible (easy to find when they need it), accurate and complete.

Target: 80%.

Indicator 2.2. Percentage of health-care staff who report better decision-making and planning as a result of digital solution.

Target: 80%.

OUTCOME 3: PARTNERSHIPS ESTABLISHED WITH LOCAL STAKEHOLDERS TO CO-CONSTRUCT AND/OR CO-OWN THE DIGITAL SOLUTION

Indicator 3.1. Percentage of digital health solutions co-constructed and/or co-owned by local partners.

Target: 80%.

Indicator 3.2. Contribution of local partners (e.g. staff time and skills, financial contribution), as assessed qualitatively by ICRC staff.

Target: Qualitative assessment that local partners are contributing significantly to digital solutions.

Indicator 3.3. Percentage of digital health solutions used by local partners on their own (of those who have been identified as having the capacity and resources to do so).

Target: 50%.

OUTCOME 4: DIGITAL HEALTH SOLUTIONS SCALED UP AND CONTRIBUTE TO THE DIGITAL PUBLIC GOOD

Indicator 4.1. Number of digital health solutions scaled up to serve other ICRC functions (beyond Health) and delegations.

Target: 4 Digital health solutions per year.

Indicator 4.2. Percentage of digital health tools contributing to the digital public good (e.g. open-source repository such as GitHub, Digital Public Goods registry).

Target: 80%.

Indicator 4.3. Uptake of ICRC digital health tools (e.g. by MSF, other users of ICRC-developed DHIS2 component, health ministries), as captured through qualitative feedback from those using the tools.

This entails interviewing those using ICRC-developed digital tools to ask where and how they have been using them, and to ascertain how many people are using these tools and what impacts the tools have had for them. In addition, a quantitative measure can be added, e.g. the number of downloads from open-source repositories such as GitHub.

Target: Qualitative and quantitative feedback that offers insight into the broader impact of digital health solutions developed by the ICRC, beyond the impact for the organization itself.

OUTCOME 5: GREATER ADOPTION AND USER SATISFACTION WITH DIGITAL HEALTH SOLUTIONS

Indicator 5.1. Quantitative and qualitative user feedback on digital health solutions.

Target: 80% positive feedback in user surveys (e.g. net promoter score), and positive qualitative feedback.

Indicator 5.2. Percentage of those trained who become active users (e.g. who regularly log in and actively use digital health solution for a certain amount of time).

Target: 90% of those trained will become active users.

OUTCOME 6: SUSTAINABILITY OF DIGITAL HEALTH SOLUTIONS SECURED

Indicator 6.1. Financial sustainability: **Percentage of multi-year and internal funding = (multi-year funding + internal funding) / total budget x 100**.

This measures the proportion of Digital Health's budget that is covered by multi-year funding commitments and internal sources of funding, as an assessment of the digital health programme's financial stability and ability to plan for the longer term.

Target: 50% of total digital health funding is either multi-year or internal funding.

Indicator 6.2. Qualitative assessment of the ICRC's long-term commitment to supporting digital health solutions, as gauged by key digital health staff.

Target: Perception that the ICRC has demonstrated sufficient long-term commitment to support digital health solutions.

OUTCOME 7: HEALTH-CARE SYSTEMS IMPROVED

Indicator 7.1. Percentage of health-care staff who report that digital solution has improved health-care system effectiveness (e.g. diagnosis, prescription, triage).

Target: 80%.

Indicator 7.2. Percentage of health-care staff who report that digital solution has improved health-care system processes and efficiency (e.g. quicker, more efficient service, cost savings).

Target: 80%.

Indicator 7.3. Percentage of health care staff who report that digital solution has allowed them to have more quality time with patients.

Target: 80%.

Centre National d'appareillage orthopédique (CNAO), Lomé, Togo. The clinicians are trained on the digital center management system (DCMS) tablet during a deployment.

D. IMPACT

Strengthened humanitarian response and improved health outcomes through the sustainable provision of more efficient, effective and accessible digital health solutions to conflict-affected populations.

Indicator 1. Qualitative feedback from health staff on the contribution of digital health solutions to a more efficient and effective humanitarian response, including perceived agility and usefulness of solutions.

Target: Positive qualitative feedback on contribution of digital health solutions to humanitarian response.

Indicator 2. Qualitative feedback on perceived impact on health outcomes (e.g. through better diagnosis, prescription, physical rehabilitation, prehospital services, hospital care, triage, mental health care, reduction of medical errors, and continuity of care and coverage through improved data across all health sectors with digital solutions implemented).

Target: Positive qualitative feedback on contribution of digital health solutions to health outcomes.

Indicator 3. Percentage of health-care staff who report that digital solution has improved health outcomes (e.g. through better diagnosis, prescription, physical rehabilitation, prehospital services, hospital care, triage, mental health care, reduction of medical errors, and continuity of care and coverage through improved data across all health sectors with digital solutions implemented).

Target: 80%.

4. NEXT STEPS

Developing a clear and concrete monitoring and evaluation (M&E) plan is the next step. An M&E plan detailing when and where to collect data, and according to which indicators, should be developed. For example, current solutions and activities can be mapped to determine which indicators they are contributing towards, which may lead to priorities being redefined or new indicators chosen. One of the ways of gauging progress can be via a yearly survey to all end users of the digital health solutions. In addition, a regular review of findings should be instigated to inform decision-making and to gauge whether the ICRC's digital health programme is on the right path to achieve its objectives or if they have been achieved.

The ICRC takes for granted that change is a constant, especially in digital and humanitarian work, and that this Digital Health Framework must be adaptable and responsive to evolving circumstances. For example, the current emphasis on the sustainability of digital health solutions stems from the current context of budget cuts to digital health at the ICRC. Future objectives may move beyond a focus on sustainability and emphasize climate or other key considerations. As such, the Digital Health Framework should be periodically reviewed to reflect any change in circumstances.

5. GAPS AND ASSUMPTIONS

Gaps and assumptions represent areas of uncertainty and limitations in a framework. These were identified to ensure a realistic and accurate reflection of the complexities of the real world in achieving outcomes and impact. The following should be considered:

- continuous ICRC leadership buy-in
- trust in and operational prioritization of digital health solutions
- alignment with the standard reporting guidelines of health ministries and the World Health Organization
- alignment with the International Red Cross and Red Crescent Movement's digital health approaches
- sustainability of non-ICRC health programmes to achieve outcomes
- dependency on external factors that the digital health programme is not able to control to ensure success (e.g. resources available to manage solutions in the field, risks of non-supported solutions not being replaced due to lack of investment/rollout e.g. PMS)
- dependency on local co-ownership (sense of ownership of the solution to ensure it continuously runs) and co-investment (buying tablets, adding staff, etc.) in the field.

To ensure outcomes for digital health, the following should be considered:

- long-term investment and vision remain consistent
- ICRC's Data Protection Office allows cloud computing and artificial intelligence (AI), and uses simpler memoranda of understanding for data protection at country level
- compatibility with product management SAFE approach
- monitoring mechanisms in place and health-care providers' input are utilized to guide digital solutions
- more data integration (DHIS2) with local partners and their health systems
- sustainable health programmes to achieve outcomes
- user-centric tool/user-feedback loop is in place
- buy-in and a digital mentality required from staff at all levels.

To ensure outputs for digital health, the following should be considered:

- sustainable funding (e.g. Tier 2, Foundation)
- digital health integrated into the ICRC's processes (e.g. Planning for Results)
- HR and financial resources
- consideration of local context
- partnerships established
- available resources/product team secured
- sufficient ICT support for running solutions and maintenance (proper internal support remains a challenge so supporting external partners is an even greater challenge)
- ICRC in general is supportive of the new Digital Health Framework.

Adamawa State Primary Health Care Development Agency

Health worker uses the ALMANACH during a consultation in Nigeria.

ANNEX

INPUTS – CURRENT DIGITAL HEALTH SOLUTIONS AT THE ICRC

There are currently more than ten digital health solutions that support activities in the field. These digital health solutions are recognized within the ICRC and externally as exemplary models of tech-for-development. That is, they are open-source, collaborative, interoperable and scalable, and they support the timely and nimble provision of quality care, field support and emergency readiness.

The current digital health solutions include the following.

The Medical Activity Databases (**MADs**), which collect, generate, analyse, interpret and disseminate the ICRC's health data. **HeMAP** is currently migrating the historical health data from Lotus Notes MADs to the District Health Information System 2 (DHIS2), an open-source software platform used for the collection, analysis and visualization of health-related data that is widely used in the low- and middle-income countries in which the ICRC operates. DHIS2 is the world's largest health information management system platform, used by health ministries across 80 low- and middle-income countries.

Pearl is a case management application for ICRC health-care practitioners providing mental health and psychosocial support and other health care to individuals. It enables the ICRC to manage electronic patient records for hospitals and health care in detention and gives field counsellors the necessary information to develop tailor-made treatment plans for each patient. Data from Pearl are aggregated into the MADs.

Digital Centre Management System (DCMS) is a digital solution for electronic medical records and enterprise resource planning for physical rehabilitation centres. DCMS is open-source software and can be used independently by the ICRC's partners and physical rehabilitation centres, as well as by other health-care providers. In some cases, data from DCMS are aggregated into the MADs.

ALMANACH (Algorithm for the MANAgement of CHildhood illness) is a tablet-based digital health tool that provides clinical decision support to health-care providers in low- and middle-income countries. It is based on the digitalized guidelines of the Integrated Management of Childhood Illness guidelines, provided by the World Health Organization, and is being used in Nigeria, Somalia and Libya.

Pharmacy Stock Management (PSM) is a real-time digital solution with off-line capability that provides stock and order management as well as business analytics for assisted health-care facilities. It is integrated with the ICRC's ICT solutions (IRIS and Tableau Business Analytics) and provides global, real-time stock and data visibility to all pharmacy staff and the ICRC's health programme managers, logistics services and general management.

Telehealth provides teleconsultation (client-to-provider telemedicine to complement face-to-face delivery of health services via audio or audio/video) and tele-expertise (provider-to-provider telemedicine) to improve access to quality care and expert advice to health workers in remote settings, enabling them to communicate with specialists (send patient files, images/audio/video) and provide diagnosis or treatment.

Other digital health solutions provide **a voucher system** for hospital care and other services.

Muhda Primary-Health-Care Centre, Adamawa State, Nigeria. Checks are run to make sure local partners can see if pharmaceutical products are in stock.

It was recently confirmed that the digital health programme would receive funding over five years to create a unified platform from existing digital health solutions at the ICRC, augment them with breakthrough technologies and quickly deploy them through the Movement. This initiative, supported by the Foundation of the ICRC, consists of three pillars:

1. **AI4Health**: Breakthrough AI products that simplify processes, leverage advanced machine learning for data science and augment current solutions including with chatbots. For example, a ChatGPT-style chatbot that (1) answers technical FAQs about existing solutions to support users of digital health solutions in the field, (2) enables staff to generate graphical representations of data, and (3) enables access to health guidelines to aid decision-making in real-time. (Aligned with Strategic Orientation 7.1.)

2. **Point-of-care**: Bringing proximity to patients by integrating patient-facing solutions into a single point-of-entry that supports clinical decisions, including ALMANACH, telehealth, augmented reality and bypassing paper-based data entry to allow real-time data insights and decision-making. (Aligned with Strategic Orientation 7.3.)

3. **Emergency shelf**: In partnership with the International Federation of Red Cross and Red Crescent Societies, identify digital health solutions from ICRC delegations or National Societies that are either proven in one country or could potentially be used worldwide. Put them on the "emergency shelf" for general applicability and quick deployment in novel emergency contexts. (Aligned with Strategic Orientation 7.5.)

I. Taaxta/ICRC

Medical practitioners in Radar, Gubadhley, Afgoi, Farjano, Beletweyne and Howlwadaag use an electronic application to assist them in diagnosing children and prescribing the most effective treatment.

Cover photo: An orthopaedic technologist takes measurements and enters the information directly into the database. The University of Maiduguri Teaching Hospital in Nigeria is supported by the ICRC.

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