play to learn

Technology Decision Roadmap Solutions for Distributing Media in Crisis-affected Communities





Introduction

What?

This document is a Decision Roadmap - a tool that facilitates a step-by-step process to help your team determine the most appropriate technology solutions and partnerships for distributing video content to children in low-connectivity and crisis-affected communities. The Decision Roadmap works best as a tool to guide key project stakeholders (including relevant implementing partners) through a workshop-style design discussion or series of discussions to reach a final decision on technology solutions and partnerships. While this is not a full program design tool, the Decision Roadmap helps to solidify the understanding of the program approach and to identify underlying logistical considerations related to delivery of video content. The Decision Roadmap is accompanied by a Data Capture Worksheet. Use both documents together to guide your team through a decisionmaking process.

Why?

The Decision Roadmap is built on best practices within the international development community, keeping target populations and their barriers to and opportunities for digital inclusion at the center of the decision-making process. It allows you to thoughtfully analyze the context, the problem you are trying to address, the population you aim to reach, and the outcome you want to achieve. This analysis will guide you towards technology solutions and partnerships that can make a positive impact on children in crisis-affected communities.

When?

The Decision Roadmap can be used at multiple stages in the project lifecycle. Ideally, you should use it during the design phase of a project to make sure that your programmatic decisions and intervention design are based on a clear understanding of the context. You can also refer to the Decision Roadmap during proposal development. While monitoring project implementation, you can use the Decision Roadmap to assess any adaptations needed based on the learning that monitoring efforts surface. For example, you could confirm the ongoing appropriateness of the technology solution given data on device usage, changes in the security or technology landscape, or shifts in end user needs. You can also use the Decision Roadmap to iterate on an existing intervention that is looking to incorporate video content in its program design.

Who?

Walk through the *Decision Roadmap* with your project team in collaborative sessions. Ideally, these session will include a variety of participants who will be involved in design and implementation; those who have a strong familiarity with the proposed video content; as well as those who thoroughly understand the context and connectivity environment you plan to work in.

Examples of participants may include:

- Education Specialists
- Production Specialists, as needed to reflect understanding of content
- Technology/EdTech Specialists
- Project Managers
- Monitoring, Evaluation, and Learning Specialists
- Project-level Decision-Makers

How?

The *Decision Roadmap* workshop can be broken down into three facilitated sections.

- 1. The first session will focus on Understanding the Context, working with your team to understand the operational context; your target audience; and the barriers to and opportunities for technology usage in this context. **(2 hours)**
- In the second session, you will use the context analysis results to select technology solution(s) delivery method(s), and partnerships that will support achievement of your project goals in your context. In this session, your overall approach to the project will start to materialize.
 (2.5 hours)
- In the final session, you will think through the potential operational challenges you might face in making your chosen technology solution(s) work. This is a ground-truthing stage where assumptions about your proposed solution can be tested against the realities of your context. (4 hours and ongoing)

The latter two sessions may be repeated – as when you reach operational session you may realize that you need to consider a different or additional technology solution or partnership to deliver on the project objectives.

Although a full session is preferable, for instances where time is limited project teams can consider hosting a shorter facilitated session. This session should focus on color ranking the barriers to digital inclusion (page 8) and on technology selection (page 12).

Before you begin...

What inputs do you need prior to using the *Decision Roadmap*?

Project Idea:

While it does not need to be fully fleshed out, your team needs to have a project idea in mind, including the problem you are trying to solve, the outcomes you want to achieve, and the target population you want to reach (not just the age group, but also the specific geographical area in order to enable detailed data collection).

Connectivity Analysis:

The *Decision Roadmap* can only be used if you have access to a connectivity analysis of the chosen context, whether conducted in-house or via an external partner. This analysis should provide you with information on the barriers to and opportunities for digital inclusion that the target population faces, including specific information on how these barriers affect young children and their families. Some of the key guiding questions to answer during the Connectivity Analysis can be found on pages 9 and 10 and in Annex 3 of the Decision Roadmap. If you are unable to conduct a full connectivity analysis, make sure that staff or partners with a thorough understanding of the context attend the first workshop. Additionally, this tool should align with more comprehensive context analyses done through the OCHA cluster system, where relevant, and other coordination efforts.

Roadmap overview









Identify the Challenge

In this step, you will be working "problem first." As a team, define the problem you are trying to solve, the outcome you wish to achieve, and your target population.

Define the problem

What is the problem that you are trying to solve?

Guidance:

Identify the main challenges to accessing education that children in your context face.

Define your audience

Who is the target population?

Define the specific group(s) that you want to reach. Do not forget to include marginalized members of this population (e.g. persons with disabilities and ethnic minorities).

Define the outcome

What is the outcome you are trying to achieve?

Clearly define your goal and what success looks like in this particular context.



Refer to the Data Capture Worksheet (page 2) to record your notes on the problem, target audience and outcome.









The barriers to digital inclusion

This is a reference page – use it to complete your Digital Inclusion Barrier Analysis on the next page.



Make sure to consider how each barrier may affect parents/caregivers and children differently. For example, the parent may have access to a phone, but may not share it with the child due to affordability concerns.

Affordability

encompasses all barriers caused by costs associated with accessing digital technologies, including the cost of devices and equipment, airtime and data plans, and electricity costs.

Attainability

includes the social and political norms and discrimination that prevents certain groups from accessing and using digital technologies, including gender, disability, age, ethnicity, geographical location, and other social and political norms.

Connectivity o

encompasses internet infrastructure coverage and quality from first to last mile and the required energy access to use devices. Barriers to digital inclusion

Locally relevant content

refers to the extent to which digital content is available in local languages, is culturally appropriate and-where possible-created by or with local community members.

Digital trust & security

encompasses the extent to which an individual feels safe online; that the information they provide or their personal data will be handled safely and securely; and that they or their family members will not be presented with harmful or inappropriate content. It also includes physical safety during technology use.

Awareness

refers to whether users understand what digital technologies can do for them, including their knowledge of relevant digital products, services, and information.

Literacy & skills

includes basic literacy, numeracy, and digital literacy (i.e. the ability to define, access, manage, integrate, communicate, evaluate and create information safely and appropriately through digital technologies and networked devices for participation in economic and social life).





Refer to the Data Capture Worksheet (pages 3-4) for guidance on how to rate the digital inclusion barriers in your given context.

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Digital inclusion barrier analysis

Discuss each of the digital inclusion barriers in detail, and assess which barriers are most challenging for your target population. Check each box after you have had a discussion about whether it is a barrier.

Connectivity	Affordability	Attainability	Awareness	Literacy &	Digital trust &	Locally
WiFi 3G/4G Quality and bandwidth Reliability Electricity Internet blockages or restrictions	Data costs Airtime costs WiFi costs Device costs Charging/electricity costs Other subscriptions/ license costs	Social norms Gender norms Disability Age Refugee limitations Geographic location ID requirements Free time Technology sharing habits with children	Understanding of the available relevant digital products, services, and information Perception of technology as a means for education	SKIIIS Literacy and numeracy Digital literacy Child vs. parent/ caregiver level of digital literacy	SecurityTrust in protection of personally identifiable information (PII)Fear of government monitoringPerceptions of the dangers of technology and internet use for childrenPhysical safety and security of children during technology use (i.e. threats of theft)"	Local languages Culturally appropriate Developed with or by local staff Considers local content restrictions
Do people have consistent and quality access to the internet? Is this through WiFi/3G/4G? Do people have consistent access to electricity?	Do the costs associated with technology use (such as data, WiFi, or electricity costs) pose a barrier to use or force people to limit use of technology?	Do parents/ caregivers own video- enabled devices? Are there any social barriers that prevent parents/caregivers and/or children from accessing technology? Do parents/ caregivers tend to share their mobile phones or other devices with children?	Are parents/ caregivers and children aware of the services/ products available? Do parents/ caregivers consider technology to be an educational tool?	Are parents/ caregivers' and children's levels of literacy and numeracy sufficient to use technology? Do parents/ caregivers and/ or children have a sufficient level of digital literacy to use devices and platforms independently?	Do parents/ caregivers limit children's use of technology due to fear of online harms? Do parents/ caregivers limit children's use of technology due to concerns over the physical safety and security of the child?	Is existing and new educational content culturally appropriate and available in local languages, including minority languages? Is existing and new educational content useful, of relevance and of interest to users?



In this step, assess what is already happening in the given context that could be leveraged to support technology programming. Parents/caregivers and children have most likely found way to navigate the barriers identified in the previous step. Integrating these same approaches could be critical to designing technology solution(s) that will be widely adopted by the target population.

Check each box after you have had a discussion about whether it is an opportunity.

Child-friendly community spaces

Usable community spaces (religious spaces, schools, halls) for parents/caregivers and children

Internet access points in these community spaces that are accessible to parents/ caregivers and children

Guiding questions:

Are there religious spaces, schools or other community spaces where parents/ caregivers and/or children gather?

If yes, can people access the internet, television and/or technology devices in these spaces?

Usage solutions for parents/ caregivers and children

Devices used for or by children

Web platforms used for or by children

Videos used for or by children

What devices are parents/caregivers and children already using? (e.g. TV, computers, mobile phones)

Which web platforms are used and trusted? (e.g. Facebook, Youtube, Whatsapp)

How do they get access to and watch videos? (i.e. Streaming, USBs, SD cards)

Existing services, projects, and partners

Existing partner services and projects, including camp services (where relevant) that target parents/ caregivers and children

Educational provision for children age 3-8

Government services that target parents/caregivers and children

Existing partners

What technology-based projects or services already operate in your context that target parents/ caregivers and children?

Are there existing educational services that target children age 3-8 that can be leveraged?

Are there existing government programs and services that provide opportunities to reach parents/caregivers and children?

Do you have an established partnership with an organization operating in the context?







Understand the technology solutions

This is a reference page to help you understand the types of technology solutions.

No internet



Sneakernet

Portable media storage - e.g. USB drives or disks - distributed for use on personal devices

- Hardware: Portable media storage like USB drives or disks. Relies on access to existing devices
- Content delivery: Offline
 content loaded on to existing
 personal or community
 devices
- Connectivity: Requires no internet access, but requires electricity for device use

Pre-loaded	
devices	

Devices pre-loaded with content that can be used offline

- Hardware: Devices
 pre-loaded with content
- Content delivery: Content pre-loaded or device has access to offline platforms
- Connectivity: Requires no internet access, but requires electricity for device use

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Setting up internet

Local server

Providing content on a local server that can be accessed by existing devices without internet

- Hardware: Mini servers such as Raspberry Pi, as well as power sources
- Content delivery: Local server with limited content
- Connectivity: Requires internet access for initial setup but not for users, and requires electricity



Newly-installed access points that allow online content to be accessed via existing devices

- Hardware: Portable cell towers or satellite connections, as well as power sources
- Content delivery: Via platforms such as YouTube, Facebook, WhatsApp, or online learning platforms
- Connectivity: Requires portable cell towers or satellite connections, as well as electricity

Traditional internet

Reliance on existing internet

Existing access point(s) to online content via personal or community devices

- Hardware: Traditional internet (via mobile data, WiFi, or broadband) on existing devices
- **Content delivery:** Via platforms such as YouTube, Facebook, WhatsApp, or online learning platforms
- Connectivity: Requires existing access to the internet and electricity for device use

Examples:

Educational content is housed on an app on an android mobile phone. The mobile phone is plugged directly into a Pico Projector and the video content played to children at a community center in facilitated sessions. Pre-owned laptops are loaded with educational content and distributed to community centers for use by parents and their children at the center. A Raspberry Pi mini server is loaded with educational content and is installed at a community center. Parents access and download that content on their mobile phones through the Raspberry Pi local WiFi connection.

A satellite internet connection is made accessible at a community center to give children access to online learning material. They may use their own devices or the center's tablets to use the internet. An organization sends educational videos to parents and caregivers by providing links to YouTube via WhatsApp and Facebook. Adults access these apps via their personal devices.

Match your context with the appropriate technology solution(s)

Which of the technology solutions maps most closely to your understanding of the digital inclusion barriers in your context? Use the check boxes to mark whether a barrier is a significant challenge (red), somewhat a challenge (yellow) or not a challenge). You can choose more than one solution, as a hybrid approach may be most suitable to reach different groups!





Refer to the Data Capture Worksheet (pg. 6) to discuss and select the technology solution(s) that best align with the digital inclusion barriers and opportunities in your context.



Select appropriate delivery method(s)



This is a reference page to help you understand the types of delivery methods and how they apply to your context. "Usage" refers to the way in which the user accesses the content, and "Device access" refers to the device the user accesses the content on. Oftentimes you will need to use multiple delivery methods to reach your target population.

DEVICE



Communal

Content is provided through digital means and facilitated in a group setting. Communal usage is appropriate when any of the following apply.

- Facilitators are available, either in existing settings or provided by the project
- Community spaces are available to children (e.g schools, community halls, or religious spaces)
- Device sharing with children at home is low
- Caregivers are not familiar with and/or not open to the use of devices for educational purposes

Individual

Content is provided through a digital means to an individual, for access on a device independently. Individual usage is appropriate when any of the following apply.

- Device access, use, and sharing with children is high and/or the project provides devices on which content can be accessed.
- Limited community spaces are available and/or children do not regularly go to school
- Children and/or their parents/caregivers have a sufficient level of digital literacy to navigate the digital content
- Caregivers are familiar with and/or open to the use of devices and digital content for educational purposes



Shared Screens

Parents/caregivers and children access the content in a communal space on a shared screen, such as a projector. The session is usually facilitated.

Shared screens are most suitable when the requirements for Communal Usage apply.



Provided Devices

Parents/caregivers and children access content on a device provided by the project. This may be at home, but more often is at a central location where the devices are stored.

Provided devices are most suitable when the requirements for Individual Usage apply, and the project has sufficient budget to provide, store and maintain devices on which content can be accessed.

Personal Devices their own devices.

Parents/caregivers and children access the content on

Personal devices are most suitable when the requirements for Individual Usage apply, and the project has suitable budget.



For traditional internet and internet access point, you may choose to leverage messaging apps and social media to get content to users. See Annex 1 on page 25 for key considerations of using these platforms.



Select appropriate delivery method(s)

Now that you have narrowed down your technology solution(s), select the best delivery method(s) that apply to your context and complements your solution(s). Remember, you can choose more than one for a hybrid approach!



Sneakernet

Independent use via personal devices: project

distributes portable media storage devices (USBs or SD cards) loaded with video content to parents/caregivers and their children, allowing them to watch the content on their own devices in any location.

Communal use through shared

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screens: project provides content through portable media storage devices to facilitators to play on screens (e.g. TV or projector) at community spaces.

Pre-loaded devices

Independent use via provided devices: project

distributes devices pre-loaded with video content to parents/ caregivers and their children for use in any location.

Communal use via provided devices: project P

provides and stores devices pre-

loaded with video content in community spaces for shared use across multiple users at different times.

Local server

Communal use via personal

devices: project loads content onto a local server that limits full internet access. Parents/caregivers and their children use their own devices to login to the server through an internet browser in community spaces or can download content to watch at any location.

Communal use via provided



Internet access point

Communal use via personal devices:

project loads video content onto an app, social media platform, or the project website. Individuals use their own devices to access the internet and the content through the internet access point at community spaces.

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Communal use via provided devices: project

F loads video content onto an app, social media platform, or the project website. Project provides mobile phones, tablets, or other devices for children to view the content through the internet access point at community spaces.

Communal use via shared screens:

project loads video content onto an app, social media platform, or the project website. Facilitator uses device to play content on existing or project-provided screens (e.g. TV or projector) in community spaces.

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Traditional Internet

Independent use via personal devices:

project loads video content onto an app, social media platform, or the project website. Children watch videos on their parents'/caregivers' devices using an existing 3G/4G or WiFi connection in any location.

Independent use via provided devices:

project loads video content onto an app. social media platform, or the project website. Project provides mobile phones. tablets or other devices for children to view the content using an existing 3G/4G or WiFi connection in any location.

> For internet access points and traditional internet, you may chose to leverage messaging and social media apps to aet content to users. See Annex 1 (page 25) and Annex 2 (page 27) for key considerations of using these platforms.









Understand partner types

Now that you have narrowed down your technology solution(s) and delivery method(s), use this reference slide to look at potential partners that might enable implementation.

Local technology and innovation hubs

- Provides ideation and design support, with a team that has deep contextual knowledge
- Provides technology development support, such as app development
- Provides advisory on the local digital ecosystem

Hardware providers

 Provides devices (e.g. USBs, tablets, TVs, modems, routers)

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- Works within international or national import restrictions
- Sets up electricity solutions (e.g. solar power, generators, etc.)
- Creates internet access points

Humanitarian organizations

- Provides access to camp sites and onsite security, community meeting places and/ or community internet access points
- Leverages their existing networks and projects for community outreach and distribution

Mobile Network Operators (MNOs) and Internet Service Providers (ISPs)

 Reduces or subsidizes the cost of internet use, for example, by providing zero-rated sites or data packages

Guiding questions:

Do you need a partner to provide devices to your target audience?

Do you need support from a partner in designing an innovative implementation strategy?

Do you need a partner to reduce or subsidize the cost of internet access?

Do you need a partner to provide a team onsite that can manage implementation of the solution(s)?

Do you need support from a partner in designing or maintaining new software or hardware?

Do you need a partner that understands the local context well?

Do you need government buy-in prior to and during implementation?

Do you need a partner to establish your sustainability plan for when the project ends?

Local NGOs/ Community organizations

Provides local knowledge, staff, and networks for on-the-ground implementation, such as awareness campaigns, digital literacy training, digital trust building, and community outreach and distribution

Technology firms

Designs platform for content management

Provides ongoing IT support for software and hardware maintenance and updates

Governments

- Provides guidance
 on educational
 curricula
 - Provides opportunities to leverage their existing projects or services that target communities

Broadcast

- Provides platform for release of content through broadcast, such as national television channels.
- Provides opportunities for advertising of other available content delivery methods, such as social media pages or chatbots.

Note: For all partners, make sure to consider their relationship to the conflict, whether they are perceived as neutral, and make sure they are able to operate with sensitivity in crisis affected communities."

Identify possible partners

Use this slide to identify the partner(s) your project needs.

Local technology and innovation hubs

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Local technology and innovation hubs might be a useful partner across all technology solutions, especially when you need local knowledge of the digital ecosystem. While these partners are less common, they are in line with the Grand Bargain commitments as well as COVID-19 restrictions, which have increased the need for locally-driven efforts.

Might be needed with:



Hardware providers

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Hardware providers are essential to addressing <u>attainability</u> of the physical components of your technology solution. They may be local providers or international, depending on the level of development of the local digital ecosystem.

Might be needed with:

Mobile Network Operators (MNOs) and Internet Service Providers (ISPs)

MNOs and ISPs might support the project in provision of <u>connectivity</u>, either by providing access (such as an ISP providing broadband access) or by subsiding data costs, therefore addressing <u>affordability</u>. Such partnerships are often on a large scale.

Might be needed with:



Governments

You should be aware of any ongoing government initiatives in each community, so as to unlock opportunities for collaboration and avoid duplication. In crisis-affected communities, where governmentcommunity relations are often strained, it will be vital to take a considered and contextually-appropriate approach to any partnership decision.

Might be needed with:



Humanitarian organizations

Across all technology solutions, you should consider engaging with the humanitarian agency(ies) that are working in your specific context, either through a formal partnership or through agreements to share information, logistics, or security support.

Might be needed with:



Technology firms

Technology firms can provide maintenance of IT systems in cases where the hardware or software maintenance extends beyond simple logistics or require additional <u>digital</u>. <u>security</u>. You may engage a local firm to directly provide these services, or to train project staff to maintain project systems

Might be needed with:

Local NGOs/ community organizations

Local NGOs and community organizations can be valuable partners, not only for local outreach and <u>awareness</u>-building, but also to help you understand local communities and build <u>digital trust</u> in solutions.



Broadcast

Broadcast partners are helpful when children are already accessing educational videos through television channels. Working with the broadcast partners to add additional content increases <u>attainability</u> for the target audience.



Refer to the Data Capture Worksheet (pg. 7) to discuss and select the partnership type(s) that best align with your context and chosen technology solution(s) and delivery method(s).







Initial training and/or

mentoring support

Dedicated staff

Finally, make sure you take time to think through the possible operational challenges that you may face during implemention to help you come to the best solution.

Staff capacity and continuous professional development

- IT skills
- Availability of local staff
- LOE of hardware maintenance and/or software updates

Guiding questions:

Will you have staff in the project area, or will you rely on partners for on-the-ground staffing?

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Do you or your partner(s) have staff who have the necessary IT skills to set up and maintain the technology solution(s)?

Do you or your partner(s) have staff who have the necessary skills to set up and maintain the operational aspects of the project(s)?

Do you or your partner(s) have local staff who understand the context and can (safely and) meaningfully work with diverse groups? Consider religious and ethnic identities, gender, displacement and legal status, affiliations with different parties to the conflict, as well as ability status.

Do your technology solution(s) and implementation approach require training or mentoring for staff?

Do you have the existing training and mentoring content for each partner and/or staff category/ project function, or do you need to develop it? Does it need to be translated?

Project implementation

User experience

Partner monitoring

Cross border/cross

Language of content

zone-of-control

implications

and platform

feedback

- MEL implementation
- Content management
 and updates
- Project duration
- KPI planning to inform expansion
- Hardware- and software-related quality assurance

How will you monitor and evaluate the success of the project? What KPIs will you use to measure progress?

What safe, user-specific (including child-friendly) feedback mechanisms are built into the project?

What platform will you use to manage the locally relevant content? How and how often will the content be updated?

How long will the project last? Will the length of the project affect the selection of technology solution(s) and/or partners?

What language/translation needs are there for the platform to be useable by staff and end-users?

Sustainability Planning

- Sustainability plan post implementation
- Long term asset management

Does the donor have any specific restrictions that need to be adhered to and will affect implementation of the chosen technology solution(s) (e.g. restrictions in working with parties to the conflict)?

Are there any branding restrictions that preclude ongoing use of content, hardware, or software after project close-out?

Are there any restrictions with sharing content with partners (i.e. IP considerations)?

What field-level resources (hardware, technology partnerships, personnel, etc.) must remain for the project benefits to continue after close-out?

What disposition plans should be put in place for use of the technology devices when they are no longer needed by the project?

Project logistics

- Technology procurement and distribution
- Tech storage (humidity, heat)
- Cross-border implementation (where relevant)

Guiding questions:

Do you need to procure any hardware or software to roll out the chosen technology solution(s)?

Are there multiple project sites with differing logistical considerations?

Can hardware/software be sourced inside the country/zone of control where the project will operate?

Will you need to manage implementation across borders (formal/internationally-recognized or disputed) or other barriers like checkpoints, movement through different zones of control, etc.?

What restrictions (formal policies, informal practice, security concerns, time delays, cost implications) might affect the transfer of technology solutions and content across borders, through checkpoints, etc.?

Budgets

- Connectivity
- Devices
- Power
- Maintenance
- Hardware and software
- Shipping, tax, and import

How much is the cost of internet access for your target population (if you have chosen technology solutions that require connectivity)?

How much is the cost of devices (e.g. tablets, mobile phones, USBs, or SD cards) if you have chosen technology solution(s) that distribute devices to your target population?

Will you need to subsidize the cost of electricity in community access points? If, so how much is the cost of electricity?

How much is the cost of maintaining the technology solutions over time (personnel, depreciation, regular maintenance costs, parts and labor, replacement costs, etc.)?

How much does the procurement of hardware and software solutions cost?

If hardware cannot be purchased locally, what is the cost of shipping it to the project site(s), including taxes and import fees?

Government¹ policies and restrictions

- Government restrictions on internet access (geographic or platform-specific)
- Limitations placed on international actors or partner operations in-country
- Import/export legal restrictions
- Restrictions on the type of technology used

Are there any government restrictions that limit internet access to specific locations, to the technology solution(s) or platforms, or to the content/messaging chosen that would affect the roll-out of your approach?

How does the project align with the relevant strategies of the relevant ministries (Technology, Education, Social Welfare, Refugees, etc.)

Are there any limitations placed on international implementors (or any of the potential partners) operating in your context that need to be addressed prior to roll out?

Are there any legal restrictions on what hardware or devices can be imported into the country?

Safety and security

- Security of devices/tech
- Security of staff
- Safety of children, their caregivers, and other end-user affiliates (facilitators, volunteers, etc.)

Guiding questions:

How will you store the devices and/or hardware securely to protect them from damage or theft?

Do the devices or hardware hold any perceived value that might cause conflict or could lead to targeting (of hardware, people managing the devices, end users)?

Are certain devices or device brands affiliated with specific parties to the conflict?

How will you keep local staff safe from harm?

How will you ensure the physical safety of your target population as they access the chosen technology solution(s)?

What agreements need to be put in place with local partners, recognized governments, or other parties to the conflict to ensure the safety of staff and end users?

Have you considered the security of transfer, appropriateness of use, or any brand-related risks (logos stuck on devices, in the content, etc.)?

Do any potential partners have formal or informal affiliations with any companies (foreign or domestic) or parties to the conflict that could affect the success of the project or safety of project affiliates?

If using messaging apps or social media, how will you ensure that mis/disinformation does not percolate on Sesame platforms? (e.g. enhanced moderation)

If using social media, are the sites' privacy and security policies matched to Sesame's organizational policies? (e.g. are there suitable restrictions on content access for young children?)

Privacy

- Security of personal data
- Informed consent of data collection, sharing and use

How will you ensure that the personally identifiable information (PII) of the target population is protected, particularly data that could exacerbate conflict or put individuals or groups at risk?

If using messaging apps, are the encryption protocols appropriate to the sensitivity of data being shared?

If using social media and/or messaging apps, how can the privacy of individuals identity be assured (e.g. contact information is private)?

If collecting or sharing data, how will you ensure the target population has a clear understanding of the data being collected about them, who will access it, and how it will be used?

Potential company restrictions

- Donor restrictions
- Sharing content with partners (IP considerations)
- Level of involvement in on-the-ground implementation
- Branding restrictions

Does the donor have any specific restrictions that need to be adhered to and will affect implementation of the chosen technology solution(s) (e.g. restrictions in working with parties to the conflict)?

Are there any branding restrictions that must be followed during implementation?

Are there any restrictions with sharing content with partners (i.e. IP considerations)?



Are the operational challenges prohibitive in implementing the technology solution(s)? If so, reassess your choice of technology solution(s), delivery method(s), and partnerships, or determine a different approach that does not rely on technology.



Refer to the Data Capture Worksheet (pg. 8-10) to record your discussions about these operational challenges and determine next steps.







Social media is a collective term for websites and applications that focus on communication, community-based input, interaction, information sharing, and personal messages. Includes applications such as Facebook, YouTube, Instagram, Twitter and TikTok. Note: This analysis focused on Facebook and YouTube since they are most commonly used to provide educational content to children, but some components are relevant to other social media platforms as well.

Uses of Social Media

Content Provision: Platforms such as Facebook allow for provision of different types of content, including posts, videos, images, and links to external sites. YouTube and TikTok can be used to share long- and short- form video content respectively, and Instagram can be used to share images and live or recorded videos.

Community Building: Functions such as Facebook Groups, Facebook Pages, and Instagram and YouTube comments can be used for engagement among members of a community or between the community and an organization.

Audience Engagement: Organizations can use functions such as Facebook Pages or Instagram posts or stories to broadcast updates and alerts to followers, and to engage with them. By engaging with users on platforms they already frequent, organizations can attract new users to their offerings. Audiences can also be targeted through paid campaigns and ads.

Key Considerations

Access: Social media requires a smart phone and internet connectivity. Stable and high quality internet connectivity is particularly vital for video content.

Affordability: Data usage of social media is high, particularly to view video content. MNOs may offer free or reduced rates for using some social media sites, or some phones come pre-loaded with Facebook Free Basics: A mobile application that provides access to limited Facebook services and a set of partner websites without incurring mobile data fees. Costs for the organization include the staff time to manage the platform and paid advertisement, but usage of social media is free.

Digital harms: Social media has inherent risks, particularly for children. Sites' privacy and security policies aim to protect children, but should be reviewed against organizational data protection policies. For example, Facebook, Instagram, Twitter, YouTube and TikTok require a person to be over 13 years old to set up an account. There is no restriction for watching videos on YouTube without an account, unless the video is rated 18+. But, when using parents' accounts, children may access content not intended for them. Apps such as YouTube Kids and various parental controls are available, which restrict the content children can see, but usage of these depends on a parents' digital literacy level. Further detail is available on page 23.

Operations and scalability: Managing social media requires staff to update content and/or engage with followers. The level of engagement required depends on the platform, amount of new content, and number of followers.

Functionality: The variety of social media platforms and their functionalities is broad. When deciding on a platform, it is important to consider the type of engagement you want with users or type of content to be shared.

Legal and commercial: Sesame Workshop or its donors and partners may have restrictions on working with social media organizations. Consider any legal and commercial implications of uploading content to social media.

Guiding Questions

Which social media platforms are your target audience already using?	Can your users afford the data costs to use social media?
What is the potential scale that may be reached by integrating social media into the strategy?	Do parents have privacy/security concerns that would preclude the use of social media for educational content?
How are they already accessing video content?	Do you have the resources and staff to manage the social media accounts?
Do you want to engage with users, or just provide content?	Are the risks of using social media balanced with the benefits?



FACEBOOK

2.93 billion active monthly users

Used globally

An extensive suite of functions including Messenger, Groups (communities of users), Pages (business accounts), Events, Stories (visible for 24hrs)



YOUTUBE

Over 2.1 billion active monthly users Used globally.

As well as regular videos, functionality includes Shorts (60 second videos) and Livestreaming to followers.

	PROS:	CONS:	PROS:	CONS:
Content Provision	 Ability to post different types of content (video, image, text-based) to followers of the Facebook Page. Content posted on Pages available to anyone. However, only followers receive it on their news feed. 	 High management requirement: Facebook Pages require a steady flow of new content and posts to keep users engaged. Potential for children to access content not suitable for them (e.g. through negative posts on the Facebook Pages or parents' Facebook feed). 	 Ability to post high-quality videos. Content available to anyone, through direct links or internet search. Subscribers can receive new content alerts. Limited management required: just upload of video. Potential to share content for viewing by users in a group setting (e.g. airing a YouTube video in a community hall). 	• Potential for children to access content not suitable for them (e.g. through suggested video function or search).
	PROS:	CONS:		CONS
Community Building	• Extensive opportunities for engagement between followers through comments on organization's Facebook Page.	 Potential for spread of mis/ disinformation in group engagement. 		 Most users (i.e. unless they subscribe) need to be pushed to the platform to view new content, through direct links or advertising. Very limited opportunities for community building: it is unlikely users will engage in the comments. The Community Tab function a feature whereby users with over 500 subscribers can engage with their audience through polls, text-based posts and images - is unavailable for channels with content aimed at children.
-	PROS:	CONS	PROS	CONS
Audience Engagemen	 Strong ability to engage with followers through posts and comments on organization Facebook Page. High advertising potential. Ability to leverage existing followers to increase engagement: e.g. users are able to share posts with their own friends. 	 High management requirement, including engagement with followers in comments and moderation of conversations. Potential for inappropriate comments. 	Limited engagement with audience through comments.	Potential for inappropriate comments.

ANNEX 2: Messaging Apps

A messaging application (or app) is a mobile-phone-based software program that allows users to send and receive information using their phones. Some of the most common messaging apps include WhatsApp, Facebook Messenger, Telegram, WeChat, Viber, Line, Signal, and Tencent QQ.

Uses of Messaging Apps

In addition to audio and video calls and text-based messages, users can send different types of files including images, videos, and documents; GPS location, audio recordings, memes, and emojis. Methods of sending content include:

Direct Messages: Private messages sent between two users of a messaging app.

Group interactions: Virtual groups of messaging app users where members can send messages that are received by all other members, enabling group conversations and media sharing.

Information Broadcast or Bulk Messaging: Single messages sent to a large number of users simultaneously.

Chatbots: A computer program designed to simulate conversation with human users through the messaging app. Chatbots can be used to answer Q&A, share text-based information and other content/resources such as videos and GIFs, and provide links to external resources.

Key Considerations

Access: Messaging apps operate on smart phones, though some feature phones have this functionality. They require internet connectivity.

Affordability: Data usage of messaging apps is low, although downloading images, documents and videos requires more data. MNOs may offer free or reduced rates for using some messaging apps. For the organization, there may be costs attached to push messaging and chatbot development.

Digital Harms: While most messaging apps are encrypted, it is important to review encryption protocols, data policies and anonymity features of apps to understand how best to ensure the privacy of users and security of their data. Messaging apps – particularly groups – can also be breeding grounds for dis/misinformation, so consider how groups will be moderated. **Scalability:** Messaging apps may have limitations on the numbers of users in a group, or the way in which they can be contacted (particularly for business users), which may limit operationality. Staffing requirements may also be a consideration, for instance management of groups or chatbot.

Functionality: Messaging apps offer various functionalities and versions suited for different purposes. Review options to consider whether a private or public group is suitable; whether a Chatbot will serve better than a Group Chat; or whether your organization would benefit from a business account.

Guiding Questions

Which messaging app(s) are your target audience already using?

Which messaging app(s) an methodology (chatbot, group) support the kind of content you want to share? (e.g. PDFs, images, GIFs)

Can your users afford the data costs to use the messaging app?

Will messages be end-to-end encrypted, or could companies and governments potentially gain access to the data?

Are the risks of using the messaging apps balanced with the benefits?

Do you have the resources and staff to develop and manage the messaging app platform?

Are the user number or group size limitations suited to the organization's need?

What are the opt-in requirements for engagement with users through the app?









USAGE	1 billion active users in 2022. Popular globally, particularly in Southeast Asia, including Indonesia and the Philippines.	2.2 billion active users in 2021. Popular globally. The most popular app across Europe, LATAM, and Southeast Asia.	500 million active users in 2021. Particularly popular in Europe and Asia, in countries such as Armenia, Cambodia, and Moldova.	820 million active users in 2021, mainly concentrated in Eastern Europe, the Middle East and Southeast Asia. Popular in countries such as Ukraine, Greece, and Bulgaria.
DIGITAL HARMS	Facebook Messenger is not end-to-end encrypted but promises to be at some point in 2023. Users can use a 'Secret Conversations' feature that enable end-to- end encryption (E2EE) in conversations between two people.	"Gold standard" E2EE by default for all person- to-person and group chats, as well as voice and video. Messages to business accounts are also encrypted, but also subject to the businesses' own privacy policies.	Only optional "Secret Chats" are end-to- end encrypted, and these are enabled possible between two users. All other chats are encrypted, but Telegram can access the data, although its policies state it will not.	Viber is E2EE. Both individual and group chats are encrypted. Public channels and communities, chatbots, and business messages are not encrypted.
SCALABILITY	Facebook Messenger: up to 250 in a group chat. No limit to number of followers of a Facebook Page or to numbers of people in a Community.	 WhatsApp Broadcast List: the limit is 256 contacts per broadcast. WhatsApp Group Chat: 512 person limit WhatsApp Business: No limit to number of users, but limit to number of messages in a tier system based on number of users a business has. Tier 4 is unlimited. 	Group Chat: up to 200 members Supergroup: 100,000-member capacity Channels: no limit to number of members.	Group chats : up to 250 people Viber Community : Unlimited Members
FUNCTIONALITY	 Secret Conversations: enables two users to speak to each other in an encrypted space which no-one else, including Meta, is able to view. Facebook Messenger Lite: designed for low-resource environments, Messenger Lite is an app that includes the core features of the standard Facebook Messenger app. You can send text, photos, links, and stickers to anyone on Messenger or Messenger Lite, and can video chat. All functions require less storage and lower data requirements than regular Messenger. Facebook Chatbots: Facebook chatbots operate within Facebook Messenger. Users can initiate chats and exchange messages with the bot, but the business must respond within 24hr of the initial message. Businesses can also send Message Tags outside this window, which are pre templates pre-set by Facebook. There are limits to numbers of messages based on a businesses' number of contacts. Users can opt-in to receive a one-time notification from the bot. 	 WhatsApp Business: allows an organization to engage with customers. There are limits to the number of "business-initiated" messages that can be sent (i.e. outside of a user request window), based on the number of users a business has. There are also limits to the number of messages that can be sent in one day by the business. Broadcast Lists (WhatsApp and WhatsApp Business): Broadcast lists are saved lists of message recipients that you can repeatedly send broadcast messages to without having to select them each time. WhatsApp Chatbots: Operates under WhatsApp Business. "Session messages" are messages sent within 24 hours of a user-initiated conversation and these are not limited. Messages outside this window ("business-initiated") are limited to templates, which must be pre-approved in content and incur a charge to the business. 	 Secret Chats: enables two users to engaged in a chat which is E2EE. Messages cannot be forwarded and you can set the chat to self-destruct. Channels: "one-to-many" broadcast channels can be public or private, have an unlimited number of members, and administrators send out messages to everyone that has subscribed. Supergroup: a supergroup on Telegram is a community that allows for higher member capacity than an ordinary group. Anyone can create one, and it can be public or private. 	 Viber Community: a large chatroom consisting of people with a common interest. SuperAdmins and Admins moderate content. Phone numbers are private to all including admins Viber Business Messages: a Viber Business Messages account allows businesses to message customers using their phone numbers. Businesses can send a high volume of transactional messages, with no limit, but each message incurs a cost. Viber Chatbots: used to send transactional, promotional and conversation messages. Businesses may send up to 10,000 messages per month for free, but incur a charge thereafter.

ANNEX 3: Rapid Connectivity Analysis

Conducting a connectivity analysis is vital for usage of the Decision Roadmap. A connectivity analysis should provide you with information on the barriers to and opportunities for digital inclusion that the target population faces, including specific information on how these barriers affect young children and their families. Below are a sample of key guiding questions that can be used for the connectivity analysis. These questions should be tailored to the context.

Barrier Analysis

Connectivity

- 1. Do people have consistent and quality access to the internet?
- 2. Is this through WiFi/3G/4G?
- 3. Do people have consistent access to electricity?

Affordability

4. Do the costs associated with technology use (such as data, WiFi, or electricity costs) pose a barrier to use or force people to limit use of technology?

Attainability

- 5. Do parents/caregivers own video-enabled devices?
- 6. Are there any social barriers that prevent parents/caregivers and/or children from accessing technology?
- 7. Do parents/caregivers tend to share their mobile phones or other devices with children?

Awareness

- 8. Are parents/caregivers and children aware of the services/ products available?
- 9. Do parents/ caregivers consider technology to be an educational tool?

Literacy and skills

- 10. Are parents/caregivers' and children's levels of literacy and numeracy sufficient to use technology?
- 11. Do parents/caregivers and/or children have a sufficient level of digital literacy to use devices and platforms independently?

Digital trust and security

- 12. Do parents/caregivers limit children's use of technology due to fear of online harms?
- 13. Do parents/caregivers limit children's use of technology due to concerns over the physical safety and security of the child?

Opportunities

- 14. Are there religious spaces, schools or other community spaces where parents/caregivers and/or children gather?
- 15. If yes, can people access the internet, television and/or technology devices in these spaces?
- 16. What devices are parents/caregivers and children already using? (e.g. TV, computers, mobile phones)
- 17. Which web platforms are used and trusted? (e.g. Facebook, Youtube, Whatsapp)
- 18. How do they get access to and watch videos? (i.e. Streaming, USBs, SD cards)
- 19. What technology-based projects or services already operate in your context that target parents/ caregivers and children?
- 20. Are there existing educational services that target children age 3-8 that can be leveraged?
- 21. Are there existing government programs and services that provide opportunities to reach parents/caregivers and children?
- 22. Do you have an established partnership with an organization operating in the context?







EXAMPLE: Colombia

This example from Colombia shows how you might use the Decision Roadmap to make decisions about the project's technology solution, delivery method, partnerships, and operational considerations.

Technology solution



Delivery method

- Device access, use, and sharing with children is high
- ✓ Limited community spaces available and/or children do not regularly go to school (e.g. COVID-19 restrictions or a lack of community spaces)
- Caregivers are familiar with and/ or open to the use of devices and digital content for edu-cational purposes
- ☑ Children and/or their parents/ caregivers have a sufficient level of digital literacy to navigate the digital content

Partnerships

- Review discounted packages for social media and messaging apps. Consider partnership with an MNO if further discounts are required.
- Consider partnership with humanitarian agencies to grant access to community spaces.
- Consider partnership with Local NGOs for local outreach and awareness building.

Operational considerations

- ☑ Does Sesame Workshop have enough staff to maintain messaging apps or social media accounts?
- Are there likely to be any Government restrictions on internet access or access to social media?
- ✓ How will you ensure that mis/ disinformation does not percolate on Sesame platforms? Are the sites' privacy and security policies matched to Sesame's organizational policies? Are there any restrictions on social media use from Sesame Workshop, partners, or the donor that must be followed during implementation?



Traditional Internet





Individual use via personal devices



LOCAL NGO

MNO or ISP

HUMANITARIAN AGENCIES





EXAMPLE: South Sudan

This example from South Sudan shows how you might use the Decision Roadmap to make decisions about the project's technology solution, delivery method, partnerships, and operational considerations.



Technology solution Delivery method

- Access to basic and feature phones is high
- ✓ Facilitators and community spaces are available
- \boxdot Device sharing at home is mixed
- Caregivers are open to the use of devices for educational purposes

Partnerships

- Spaces for facilitation of communal sessions
- \checkmark Access to POCs
- \boxdot Distribution of media storage
- Provision of devices/ media storage

Operational considerations

- ✓ Logistics for storage and distribution of media storage/ devices
- \square Power
- Shipping, tax and import Security of devices/tech



Sneakernet SD Cards and Projectors



Communal

use via

shared

screens

Individual use via personal devices



Humanitarian Agencies

- Local NGOs/ Community Organizations
- Hardware provider



play to learn



Data capture worksheet

Use these worksheets alongside the Decision Roadmap to record the outcomes of your discussions and decisions around the technology solution(s), distribution model(s) and delivery method(s), partnerships and operational considerations.





Identifying the challenge

Use page 6 of the Decision Roadmap to guide your discussion, and record the major points here.

The problem:

The audience:

The outcome:

Digital inclusion barrier analysis

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Note the major points from your discussion of page 9 of the Decision Roadmap, and using the definitions below assign each barrier a color code - red, yellow, or green - by marking the circle(s) that apply. Where selecting one color is difficult, you can select two color codes for a given barrier (e.g. yellow/red). Remember, because the context may be nuanced, this exercise should be considered a "gut reaction" rather than an exact science.

• High levels of literacy, numeracy,

Children can independently use

Limited literacy, numeracy, and/

Children need some support to

No literacy, numeracy, and/

children cannot use technology

or digital literacy skills

Parents/caregivers and

and/or digital literacy

technology

or digital literacy

use technology

independently

Connectivity **Attainability** Literacy and skills Social barriers do not typically prevent device Consistent access to ownership and internet access electricity OR Consistent access to • Parents/caregivers frequently share devices with internet through 3G/4G their children and/or WiFi. Inconsistent access to Social barriers limit device ownership and internet electricity access for some people, but not all OR Inconsistent access to internet through 3G/4G Parents/caregivers do not frequently share devices and/or WiFi with their children Social barriers completely prevent device • Limited or no access to ownership and internet access for the target electricity population Limited or no access to the OR internet Parents/caregivers do not share devices with their children NOTES: NOTES: NOTES:

Affordability

 Cost of devices and internet access is affordable and does not prohibit use

OR

- Users receive internet. access and/or devices for free
- Cost of devices and internet access limits full-time access and use, but does not prohibit it completely
- Cost of devices and internet access is prohibitive and restricts access and use

Awareness

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• High awareness of services/

products offered through

• Parents/caregivers perceive

technology to be a tool for

Limited awareness of the

through technology

Some parents/

technology

perceive

education

services/products offered

to be a tool for education

 No awareness of services/ products offered through

Parents/caregivers do not

technology to be a tool for

caregivers perceive technology

technology

education

Digital trust and security

- Parents/caregivers:
- Are not aware of or concerned with online harms
- Are not concerned with the physical safety and security of children when using devices or accessing the internet
- Do not limit children's access.

Parents/caregivers:

- Are concerned with online harms
- Are concerned with the physical safety and security of children when using devices or accessing the internet.
- Do not completely limit children's access

Parents/caregivers:

NOTES:

- Are very concerned with online harms
- Are very concerned with the physical safety and security of children when using devices or accessing the internet
- Completely restrict children's access

Locally relevant content

- Available content is culturally appropriate and relevant to parents/caregivers and their children
- Available content is in languages used by target audience
- Available content has some culturally appropriate elements and is sometimes relevant to parents/caregivers and their children
- Limited amounts of content is available in languages used by target audience
- Available content is not culturally appropriate and relevant to parents/caregivers and their children
- Available content is not in languages used by target audience

NOTE: This Decision Roadmap assumes that locally relevant content has already been developed.

NOTES:

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NOTES:



Digital inclusion opportunity analysis

Use page 10 of the Decision Roadmap to guide a conversation on the digital inclusion opportunities that exist in the three areas below:

Child-friendly community spaces

Usage solutions for parents/ caregivers and children Existing services, projects, and partners

NOTES:

NOTES:

NOTES:

Select your technology solution(s)

Check the box of the technology solutions that align best with your context. Use page 13 of the Decision Roadmap to guide your selection.

Sneakernet



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Pre-loaded devices



Local server



Internet access point



Traditional internet

No tech

NOTES:

Select your delivery method(s)

Check the box of the distribution models that align best with your context and technology solution(s). Use page 16 of the Decision Roadmap to guide your selection.



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Sneakernet: Independent use via personal devices



Sneakernet: Communal use through shared screens



Pre-loaded devices: Independent use via provided devices



Pre-loaded devices: communal use via provided devices



Local server: Communal use via personal devices



Local server: Communal use via provided devices

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Internet access point:

Communal use via personal devices

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'n	2

Internet access point:

Communal use via provided devices

ß Internet access point:

Communal use via shared screen



Traditional internet:

Independent use via personal devices



Traditional internet:

Independent use via provided devices

NOTES:

Identify possible partnerships

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NOTES:

Check the boxes for the types of partnerships that will support your technology solutions and distribution models. Use pages 18 and 19 of the Decision Roadmap to guide your selections. Make note of the names of specific partners that you discussed.

Local technology and innovation hubs

Hardware providers

Humanitarian organizations

Mobile network operators (MNOs) and internet service providers (ISPs)

Local NGOs/community organizations

Technology firms

Governments

Broadcast



Operational assessment

Use page 21-23 of the Decision Roadmap to guide your discussion around potential operational challenges. Record the major points of your discussion here. Consider the different phase of the project cycle—design, initial startup phase, implementation, monitoring, evaluation, and close-out or extension.

Staff capacity & continuous professional development	Project implementation	Sustainability planning	Project logistics
NOTES:	NOTES:	NOTES:	NOTES:

Budgets	Government policies & restrictions	Safety & security	Privacy	Potential company restrictions
NOTES:	NOTES:	NOTES:	NOTES:	NOTES:



Go/no-go decision: Re-assess your options

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Are the operational challenges prohibitive in implementing the technology solution(s)? If so, reassess your choice of technology solution(s), distribution model(s), and partnerships, or determine a different approach that does not rely on technology.

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Moving Forward

Record the action items and next steps that you will have to take in order to address the operational challenges you noted in the previous pages.

Action items and next steps:

Person(s) responsible

Timeline



EXAMPLE: Colombia

This example from Colombia shows how you might use the Decision Roadmap to make decisions about the project's technology solution, delivery method, partnerships, and operational considerations.

Technology solution



Delivery method

- ☑ Device access, use, and sharing with children is high
- Limited community spaces available and/or children do not regularly go to school (e.g. COVID-19 restrictions or a lack of community spaces)
- Caregivers are familiar with and/or open to the use of devices and digital content for edu-cational purposes
- Children and/or their parents/ caregivers have a sufficient level of digital literacy to navigate the digital content

Partnerships

- Review discounted packages for social media and messaging apps. Consider partnership with an MNO if further discounts are required.
- Consider partnership with humanitarian agencies to grant access to community spaces.
- Consider partnership with Local NGOs for local outreach and awareness building.

Operational considerations

- ☑ Does Sesame Workshop have enough staff to maintain messaging apps or social media accounts?
- Are there likely to be any Government restrictions on internet access or access to social media?
- How will you ensure that mis/ disinformation does not percolate on Sesame platforms? Are the sites' privacy and security policies matched to Sesame's organizational policies? Are there any restrictions on social media use from Sesame Workshop, partners, or the donor that must be followed during implementation?



Traditional Internet





Individual use via personal devices



LOCAL NGO

MNO or ISP

HUMANITARIAN AGENCIES





This example from South Sudan shows how you might use the Decision Roadmap to make decisions about the project's technology solution, delivery method, partnerships, and operational considerations.



Delivery method

- Access to basic and feature phones is high
- ☑ Facilitators and community spaces are available
- \square Device sharing at home is mixed
- Caregivers are open to the $\mathbf{\nabla}$ use of devices for educational purposes

Partnerships

- ☑ Spaces for facilitation of communal sessions
- $\overline{\mathbf{A}}$ Access to POCs
- Distribution of media \checkmark storage
- Provision of devices/ \checkmark media storage

Operational **considerations**

- \square Approvals for operating in the POCs
- \square Logistics for storage and distribution of media storage/ devices
- Power $\overline{\mathbf{A}}$
- ☑ Shipping, tax and import Security of devices/tech



Sneakernet SD Cards and **Projectors**



use via

shared

screens

Individual Communal use via personal devices



Humanitarian Agencies

Local NGOs/ Community **Organizations**

Hardware provider

