SOCIAL IMPACT LAB

Framework for Context Analysis of Inclusive Technologies in Social Change Projects

Hello folks!

This version of this document is outdated. It's the one designed for SIMLab staff, which was shared publicly from 2016-2017 for consultation and comment.

In November 2017 this document is being rewritten for a more general audience and will be finalized and shared on the SIMLab.org site by December 7th, thanks to DIAL who are supporting the work. We'll be launching it at their Digital Principles event in Washington, DC on the 7th December.

For a link to the current draft, which is still under public consultation, head to http://www.simlab.org/resources/contextanalysis.

About this Framework

This Context Analysis Framework aims to provide clear best practice guidance to SIMLab staff on how and when we do context analysis in our inclusive technology projects. This is a minimum standard for projects we implement ourselves, and the basis of our advice to others.

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What do we mean by 'inclusive technologies'?

SIMLab defines inclusive technology broadly as those which embody the values we've come to learn are key for truly scalable, locally-owned impact. For us, a technology is inclusive if it is accessible and easy to use; the hardware it requires is relatively inexpensive to buy and maintain, with parts available locally; and has manageable running costs (power and airtime, for example). *It may not be digital.* Other communications technologies, such as radio, can also be used as broadcast media, and use digital communications to be increasingly interactive. At the lower end of the technology spectrum, community meetings, noticeboards, feedback boxes, or public criers may all be utilized to gather and share information. The important thing is to ask what people use in a place and time, and more importantly, what they trust and act upon.

The Framework compiles and shares clear, concrete approaches to researching the inclusive technology context in which implementation will take place, including: individuals and communities; organizations and their capacities; the operating environment and marketplace; the political landscape; and technology. It points to good resources on research and analysis methodologies which might be appropriate for our projects. It supplements and refers to existing best practice resources, rather than seeking to rewrite or replace them.

We created this Framework because existing context assessments do not effectively cover lines of inquiry critical to using inclusive technology in social change or development projects. Most existing assessments are designed for use in specific sectors, such as humanitarian aid or water and sanitation. Some cross-cutting issues, such as gender and protection, are part of many such assessments. To date, although some (such as the Needs Assessment tools developed for use in sudden-onset emergency response by the CDAC Network and ACAPS) do cover technology and media habits, none take into account technological infrastructure and how project-based constraints affect our assumptions. We wanted to develop a Framework which builds on many existing tools to provide a thorough list of themes and issues for our staff to cover in context analysis and to share with partners.

This document can be applied across SIMLab's continuum of program and partnership modalities, whether SIMLab is implementing directly, working with a partner or consortium, or advising a client on conducting a context analysis for their project.

As with all our learning and best practice resources, the Framework is shared publicly under an open license,

1) so that our partners can refer to it, and potentially adapt elements of it in their own work;
2) so that others can comment on and improve the Framework, and
3) as a contribution to the thinking of the wider sector about the factors which contribute to success in inclusive technology projects.

This Framework is a work in progress and will be regularly updated and improved.

What this Framework does not cover

This framework does not aim to provide guidance on program design and planning, although context analysis is an important part of this work. Additionally, we do not delve into the range of ways that technology can support context analysis itself (e.g., using technological devices to collect, analyze and visualize data) whether the projects themselves use technology or not. At present, this Framework focuses at project level, and does not seek to support strategic analysis of the potential for use of inclusive technology in a field, an organization's work, or a broad geographic area.

About SIMLab

Social Impact Lab (SIMLab) helps to build accessible, responsive and resilient systems using inclusive technologies, helping people and organizations solve both the technological and human obstacles along the way. SIMLab believes that equitable participation of marginalized and 'last-mile' populations in public, economic, and social life contributes to a more just world. We believe that increasing systemic adoption and use of inclusive technologies leads to greater access to services for all populations, accountability and responsiveness of institutions, and resilience of societies.

Our organizational principles

In 2015, SIMLab developed core principles to guide us in our work and behavior, with colleagues and partners, and in our decision-making. Three principles in particular

inform our context analysis work, and mean that we place high value on thinking before we act and understanding our environment before we seek to change it.

Be context-sensitive

We will build projects from a thorough understanding of the local context and systems, and avoid bringing preconceived solutions to new problems. We will push for changing the fundamentals of a project if it is a poor fit for the contextual reality, and we will structure partnerships that allow for this agility. We will exit any engagement that we feel is inappropriate for the context, or that violates our principles. We will evaluate projects on how they address the core challenges of the context, rather than through a purely technology-grounded lens.

Build inclusion

We will prioritize including marginalized and vulnerable populations in the systems and services we contribute to, regardless of cost. We believe that doing otherwise builds harmful, discriminatory systems, and we will not participate in any engagement that 'prices out' including marginalized or vulnerable populations.

Design for sustainability and ownership by local implementers

We will design projects with clear plans for their sustainable operation, replication, horizontal scaling, or exit without substantial further resources from outside their implementing organization and context.

What do we mean by context analysis for inclusive technologies in social change projects?

SIMLab's context analysis approach has evolved from an Information and Communications Context Assessment Checklist originally developed with info*as*aid in

2011, later adapted by the CDAC Network for their Analysis Guides. As such, it owes a lot to humanitarian needs assessments and is typically conducted relatively rapidly at the beginning of an engagement, given our involvement in contexts and projects during a brief design stage or without lengthy local experience before embarking on a project.

Context analysis should provide detailed articulation of the context (internal and external) in which our project will operate, and *inform*, but not *include*:

- review of the theory of change and associated assumptions
- detailed project design, including what needs to change from the proposal or planning stage, and practical implementation considerations
- the project monitoring and evaluation plan, including any baseline survey that may be planned and associated indicators
- risk analysis and in-depth understanding of the operating environment

The context analysis process should involve key stakeholders, including implementing partners, donors, local and national authorities, and community members.

In making this Framework part of our toolkit, we are reaffirming our commitment to the importance of local context to the success of inclusive technology projects, and rejecting 'one size fits all' methodologies that are not tailored to the places in which they are implemented.

Context analysis is distinct from a baseline survey, which is typically conducted at the beginning of a project as part of monitoring and evaluation. Baseline surveys collect data according to agreed-upon indicators as a starting point from which the monitoring and review processes will measure change over time. However, a context analysis can and often does inform indicators for baseline surveys.

When and why to conduct context analysis

SIMLab believes that a thorough understanding of the context is an important prerequisite for a well-designed project. Good design must take into account how individuals and communities use and view different communications channels and technologies; the implementing organizations and their capacities; the mobile and internet operating environment and marketplace; the political landscape; and the state of the available technology marketplace.

A context analysis is one way to achieve this. An alternative is to take an experimental approach, co-creating design by trying things out, involving the community and the implementing team and going in with as few assumptions as possible. This very agile, adaptive approach, although more time-consuming, can arguably lead to more sustainable, locally-owned solutions, and may be an option where we are: working with established service providers such as governments or local authorities, in a long-term development setting, or where such approaches are the target of the learning. However, even in this methodology, the areas of observation we suggest in this Framework would be relevant and should be borne in mind.

Most of the time, a discrete context analysis exercise is a good way to take stock near the beginning of a process, and is well-suited to the relatively short-term project cycle in which most social change work is funded and carried out. For SIMLab, who are often brought in for a specific role, and not always at the beginning of the project, it is crucial to establish this type of knowledge in order to inform our advice. It may be that our partner already knows or possesses the relevant information, in which desk review of existing documents and a brief report may suffice. In other cases, fieldwork and original research may be required. Regardless, some sort of context analysis is advisable in every project that SIMLab takes on, but the scale of the assessment will vary widely depending on budgets and timelines.

SIMLab works in a number of ways, which are loosely broken down below with corresponding guidance on what might be required in each case. This guidance is advisory only - this question is always a judgement call and should be signed off by the Head of Programs/CEO. Where no one category perfectly fits our particular situation, consider those that most closely reflect reality.

Advisory capacity, or consortium partner without direct responsibility for implementation or context analysis

Here, we may be working with a partner with an existing context analysis approach. Use this guide to help them supplement their lines of inquiry and, where necessary, their methodology to come up with a context analysis appropriate to the scale of the project.

If they do not plan to expend any resources on context analysis, consider whether they have the information they need to effectively design communications strategies. If not, is the project likely to meet the standard set by our principles (see above)? At a minimum, propose that we or the partner develop a short paper summarising existing information so that we have some indication of the setting for which our strategy is being formulated. This will make it more readily apparent if and where the design is heading in the wrong direction.

Lead implementer, or consortium partner with direct responsibility for context analysis

Here we expect to require a context analysis phase, the scale of which should be informed by:

- Scale of the proposed project
- Availability of existing information about the context
- Available time and budget for a context analysis or a planned analysis which we could supplement with additional questions
- Partner capacity to conduct a context analysis
- Partner (and donor) openness to change to the planned approach based on such an analysis (this should not rule out conducting an analysis if additional information would help in the design process, but is worth bearing in mind as we shape the context analysis itself)
- SIMLab's previous experience in the context

The timing challenge: the adaptive tension between proposal and context analysis

Ideally, context analysis should inform project design, meaning that it should be done either as part of proposal development, or as part of an inception period at the start of a funded project. In this case the partner and donor will hopefully be open to amendments in the project plan, should the context analysis identify inconsistencies with the proposed approach.

In reality, there are often tensions here. In the vast majority of cases, the proposal process for technology projects in social change work requires us to pre-suppose a lot of the knowledge we gather in a context analysis before giving us the funding to test our assumptions. This is a huge challenge. This type of preparatory work is almost never funded as part of proposal development, and it is rare, although less so, for the inception stage to include funds for serious fieldwork.

This means that SIMLab may be in the position of advising on a project proposal, without having been able to conduct analysis beforehand. In this case, we should lobby for: an inception period with an early context assessment; allowances for changes to the approach to be built into the grant agreement; and to try to assimilate as much evidence as possible from partners and other sources to ground our recommendations.

Bear in mind that these types of caveats can be offputting to both donors and partners, and so careful diplomacy may be required.

SIMLab is keen to see change in this area. We believe that by making critical design decisions prior to thorough context analysis, a project may rely on incorrect assumptions about access to and use of technology for information and communications, thereby inadvertently excluding or downplaying certain groups' ability to actively participate. While we don't have an answer for this problem, we do urge donors and implementers to strive to be flexible and open-minded to the need for change based on the information that comes out of the context analysis.

It is also worth noting that the context will change (both as a result of our intervention, and as a result of externalities such as time, season and developing markets). Project design should aim to anticipate these changes and be open to conducting supplementary context analysis throughout the project.

Building a picture: the SIMLab Context Analysis Lines of Inquiry

In 2015, SIMLab began working on a way of structuring the many factors that we look at in order to build up a picture of how technology interplays with the environment and the people who use it. The work is still in progress, and continues to evolve.

There is no one perfect checklist of questions to be answered which will result in a 'diagnosis' of the appropriate technologies or communications channels to use. Rather, there are various elements that come together to influence how appropriate and effective different options might be for a particular project in a particular place and time.

We began by identifying five areas of interest; the people directly and and indirectly targeted by the project; the community and culture in which they live; the market and technology environment; the political economy; and the implementing organization. These areas of interest overlap to a significant degree, and an analysis exercise may examine multiple areas through the same desk research or fieldwork exercise. However, we believe that considering them in turn helps establish a complete picture. Often, projects are designed based on certain assumptions; that a feedback mechanism that people can use via their mobile phones will improve a service, or that agricultural information via social media or text message will improve yields; and these Lines of Inquiry can be used as lenses through which to critically consider and test those assumptions.

At some point, open-minded inquiry and analysis goes beyond building a picture, and puts that information to work to make design decisions. This Framework, and the Lines of Inquiry below, do not seek to give design advice. For example, to set benchmarks within which a certain communications channel is advisable or not - we're not yet sure it's possible to do this well and cover all the variables presented by our complex world. Rather, at this stage, we are simply trying to point out the questions that might give the project team the information they need to make those decisions at the inception or final design stage of a project.

People

Those targeted, directly or indirectly, by the potential intervention. Individual choices, opportunities and capacity, and often an individual's role within their community, affect their **access to information and technology**. Specific criteria that may have an impact include:

- Levels of education and literacy
- Existing channels and habits for gathering news and information
- Familiarity with technology, or 'technological literacy'. Bear in mind that people may over-report their use of technology for fear of appearing 'backward'
- Ability to use social relationships to mitigate problems, e.g. by asking others to help with reading, writing and using technology
- Access to disposable income for equipment, electrical power to charge devices, and airtime and data to run them
- Seasonality or regularity of income
- Time to travel and wait to buy airtime, charge devices or get a signal

Role of Gender
While women and girl children share the same barriers to access to information and technology as the men and boy children in their community, they often face even graver and nuanced challenges to access. Women are less likely to have their own disposable income, freedom to travel, or the time to wait for devices to charge. They are more likely to have their use of technology and intake of information moderated or overseen by male relatives or older female relatives. Women are also less likely to have the official paperwork necessary to register a SIM card in some countries, often resulting in their statistical underrepresentation.

It's important to recognize that no community or sub-group are homogenous, and always to ask: who is missing from this analysis? Who may be able to control our access

to the community and influence our findings? Who is hidden from this methodology of sampling, selection, or survey?

Community

The factors above may vary from person to person within a community, based on their position within it. They may also influence some communities or groups of people differently. For example, a nomadic clan may have attributable characteristics shared by its members, and variations in levels of access and freedom within the clan differentiated by gender and age.

Power Dynamics
While power imbalances can be a source for concern when power is held by elite groups or individuals, conversely, it can also be a way for certain groups to exert disproportionate influence and make change greater than the sum of their parts. It is critical to take into account this power spectrum during the context assessment. Identifying community leaders and changemakers is imperative in this process. Their access to and use of technology should be critically evaluated in the context assessment process to be taken into account for project design. Having an eye on the extremes of several indicators will be helpful. For example: wealth and income, age, health, groups or tribes in government or those not represented, minorities, etc.

- Principal occupations, location, tribal identity and other factors can impact access to technology in a community, or a sub-group within it. For example, communities in a traditionally poor, agricultural area may command little power and disposable income and therefore be last in line for infrastructure such as electricity and mobile service, and access to markets (for example, through mobile money agent networks). Members of a community may share a profession with seasonal income, disrupting access to airtime and electricity for periods of time. Service disruptions require creative solutions and a nuanced understanding with alternative communication mechanisms that supplement communications when prefered means are unavailable.
- A community's composition is important to consider, whether the community is unified by a single tribe or religion, or a melting pot of identities, both can affect the speed of change or rate of adoption. For example, an immigrant community made up of those from many cultures may experience very different challenges, where one especially vulnerable group may push for greater security in the community, which does not seem necessary to a group not affected by the targeted violence. For the affected group, pushing for greater security resources may be a frustratingly slow process. Whereas, if a community is more

homogeneous, it will more likely have shared challenges and culture, leading to broad support and quick buy-in with little resistance.

- Language, too, may be influential here, as the languages of marginalized groups or minority tribal peoples are less likely to be represented on the written web, or the interfaces for mobile phones.
- Increasingly, we have to expect and address migrating groups of people, such as the normal throughput of a big city, or large-scale migration by refugees or internally displaced people (IDPs) due to conflict or natural disaster.

Conflict

Depending on the region or country, an active or post-conflict area will have its own unique characteristics which must be considered during an assessment. There may be large differences in access to and use of technology amongst ethnic, cultural or religious groups at the individual and community level, as well as between urban and rural communities. Unsurprisingly, differences may be exacerbated by conflict. Accepted uses of technology such as mobile phones may be more restricted in these settings, whereby users place higher value on the phone and would not find it appropriate to use in new ways, i.e. the mobile phone may be reserved only for communication with family members and not for information provision. Nonetheless, research has shown conflict-affected contexts can have a higher than normal rate of increase in mobile penetration, as people rely on the technology to keep in touch with family, conduct business and gather information about threats and risks.[1] In a conflict context, it is also critical to consider how the market and political environment are controlled by powerful groups or entities, whether national or international. This in turn impacts the use of technology specifically for the purposes of communicating about security issues and may greatly shape how individuals and communities perceive their own vulnerability as well as the safety and "trustworthiness" of particular communication channels, for example.

Within and between communities, power dynamics affect the ability that individuals and groups have to make and influence change.

Remember that access to technology and connectivity to mobile or internet are not static, and do not always increase in a linear progression. Fluctuations in income, seasonally poor transport connections, disasters such as drought or famine, political events and other factors can mean that access can disimprove as well as improve.

[1] Best, Michael L. Mobile Phones in Conflict Stressed Environments, https://pdfs.semanticscholar.org/7fda/5d2283959165d4e0786d5eafcd11b165fae6.pdf

People and communities make strategic decisions about how to use assets and connectivity all the time, based on their needs and available resources.

Market environment

How technology is used, and the strategies available to implementers, are both strongly influenced by the market in which the project is taking place, and are key obstacles in scaling technology-focused social change solutions from one country to another. An understanding of the key players, the mobile market, and the infrastructure are all critical to making good design decisions. It will be important to build up a picture of:

- Infrastructure: the geographic spread, quality and reliability of key telecommunications infrastructure, including resilience to natural hazards, with an understanding of urban and rural divides and key coverage 'deserts', particularly if they impact the project area or target communities
- The cost and availability of electricity and charging stations in the project area.
- Mobile and mobile data markets: the number of mobile networks, their relative costs and coverage, and whether or not subscribers can message across networks. People often cope with this by swapping SIM cards for multiple providers in and out of their phones to get the best deal, and many handsets are built to make this easier. High costs, whether of calling, data or SMS, will have a chilling effect on use.
- Commercial mobile infrastructure: whether operators or third party aggregators are able to provide implementers with short-codes, premium or reverse billing, or even an API to connect their system easily with yours. In many countries, this has become increasingly easy, but many 'frontier' markets remain where this is harder and more expensive than you might imagine.
- Legal and regulatory issues, both consumer-facing (e.g. ID required to register) and implementer-facing (e.g. license required for broadcasting via SMS, or requirements on the location of data storage for certain types of data), and broad-based concerns (freedom of speech) (see box below)

Future-focussed view

Advancements in software, hardware, supply chains and more have lowered the cost of devices and public infrastructure, increasing the accessibility of these technologies for the poorest in many markets. New features, capabilities, trends and devices are released all the time - many potentially very exciting for social change projects. It's important to be up to speed with current capabilities and have an eye on anticipated trends - but also to be realistic about the speed and spread of adoption.

Incorporating new technologies into programs is essential to understanding use cases, impact and usability, but new technologies should be held to the same standards as old. Is it locally available? Is it accessible in terms of cost? Is it intuitive or is the program aiming to introduce the tool and provide comprehensive trainings? If so, how sustainable is this? Are there any potential harms of introducing this new technology, for example by exposing private data? Most importantly, will it adhere to do no harm? Technology exists to make life easier, cheaper or 'better', but we need to ensure the promises of tomorrow are in line with the realities of the context we are trying to reach today.

'Smartphones are ubiquitous' and similar claims about access and ownership are ones the development field will need to continue to stand up against far into the future. Those unfamiliar with vulnerable groups, and 'last mile' settings sometimes conflate increasing infrastructure and device penetration in the market as benefiting the world's population uniformly. However, we know this is not always the case. Disadvantaged groups are always the last to benefit from advancements in technology and because of this we must be acutely aware and suspicious of such overarching claims.

Legal and regulatory issues

Much social change work, particularly if it is carried out or supported by agencies operating across borders, or involves sensitive types of data such as legal or financial information, may activate regulation from multiple branches of the law, in multiple jurisdictions. This makes it very difficult to find good legal advice on your obligations under the law, and to decide which to follow in the event that two jurisdictions have divergent law.

For example: a German NGO carrying out a health project in Kenya and sending data via SMS through a cloud service which is based in the US, and stores its data in the cloud using Amazon Web Services (AWS). Potential liability arises here through the home jurisdiction of Germany, which has stringent data privacy laws which may apply to organizations even as they operate overseas; in Kenya, where data privacy laws and other requirements relating to health data should be carefully checked, and an additional question relating to the bulk transmission of this data via SMS; and the US, where the data is stored. Understanding the terms and conditions of your service providers is also important here, as, for example, AWS and your cloud-based SMS

provider may not be able to guarantee the level of privacy required by German law, due to differing government powers in the US.

Ultimately, the law on these types of issues is developing very fast, and may not be predictable or even have a good answer to your questions. It's useful to know that global technology platforms like Facebook and Twitter simply retain counsel in each country, which is not an option for non-profit organizations. Making a thorough map of data storage and transfer throughout your proposed project, and identifying all the potential liabilities, is a good start, as is collaborating with pro bono legal counsel in each jurisdiction to get the best advice you can.

Political environment

Communications infrastructure is becoming so critical to society's functioning that some countries are regulating even privately-provided services as public utilities. In lower-governance contexts and emerging economies, ownership and control of such infrastructure often remains murky, as their origins and ownership are often rooted in private entrepreneurship and investment, but maintain a close relationship with the state. Mobile networks and email services, as well as physical assets such as cables and towers, could be owned and controlled by private companies or by state actors. In the former case, the state often issues licenses and reserves some priority uses and access for itself. Such infrastructure can be controlled, influenced, or simply monitored by police and security organizations, and state and non-state actors. Infrastructure can be damaged by conflict, and access to install, repair or maintain it can be disrupted by control or incursion by a non-state actor into a geographic region.

As such, an analysis of this control and access in the context of the politics of the region is critical. Understanding ownership of the communications flows and who can access information passed along them is vital to an effective risk assessment, as information that would be harmful in the wrong hands could be intercepted. Even if this risk is low, people may avoid these technologies for fear of reprisals, or may associate particular channels or organizations (such as certain newspapers, or broadcasters) with specific political, ideological, or religious groups or movements. Informal influence may be harder for an outsider to perceive in this instance. For more, see our Data Integrity Guide from 2011.

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Implementing organization

Given the project-level focus of this Framework, our concept of a prudent context analysis includes an understanding of the implementing organization. In SIMLab's experience this can be central to the success or failure of an intervention. Many interventions have failed because staff were not able to maintain technology, because power or access to internet were not strong enough, or because the intervention was not supported by a broader culture of innovation and adaptive learning. Even if no (or multiple) target implementer(s) is/are identified at the start of a context assessment, it is still useful to visit and understand similar types of partners.

SIMLab has identified a range of characteristics important to successful implementers, including:

- Effective access to the necessary infrastructure, including electricity, internet, and mobile signal - whatever the technology requires to function properly. If power supplies are frequently interrupted, or mobile data signal is weak, this does not mean that technology projects are impossible, just that the platforms and workflows would need to be resilient to these problems.
- Support for innovation and tolerance of risk at the leadership level, or sufficient independence at the team level to try new things and learn from them. An alternative model leverages individual innovators within teams, finding technology tools to solve the problems they encounter in their work. These projects can result in successful innovations, but may peter out when that individual moves on, as learning and skills are not internalized by other members of the team.
- Staff need to be sufficiently technologically literate to manage whatever technology is envisioned, and sufficiently motivated to alter their working habits to run the new system effectively.
- Organizationally, the implementer has to have enough bandwidth (usually, staff time) to be able to handle not only the implementation of the new system, but the *resulting activity*. SIMLab have heard from organizations who understand the rationale for feedback mechanisms, but are concerned about having the capacity to change interventions in response, or to handle the feedback itself.
- Communicating the new approach to end users - beneficiaries or communities being supported by the intervention - is a critical element of success.

Organizations with weaknesses in communications with their community will need support to manage this effectively.

Key terms for table of methodologies

Key informant interview (KII)
Focus Group Discussion (FGD)

Table of methodologies

Area of inquiry	Scope of research	Suggested methodology	Example Indicators	Sample Questions
People				
Level of literacy	Individual, community-level	FGDs, KII, observation, desk-research	Adult literacy rates	Where do you get your news? Who in your household reads the newspaper, if anyone? Do you read text messages? (Observation)
Existing habits, devices and channels, platforms, strategies, level of technological literacy	Individual, community-level	'Digital Days' methodology: KII, observation	Number of households with access to and use of landlines	How do you keep in touch with family and friends? When you are on your way to work how do you get news? What devices do you own? Do you listen to the radio or watch TV?
Assets and disposable income for communications, and how they	Individual	FGDs, disaggregated where possible, KII and surveys,	Amount of money allocated for communication monthly	How often / at what time of the month do you purchase airtime? How much do you typically spend and how does this

vary with time and events		timeline exercises		vary? Do you use data or just SMS and voice airtime? How do you charge your phone?
Information needs	Individual, community-level	FGDs, KII and surveys	Number and type of communication tools used for information	Do you need information for your business? How often? And how do you get this information? How do you hear about important updates such as health information?
Social relationships to leverage access and use	Individual, community-level	FGD, disaggregated where possible 'digital days', KII, surveys	Strength of social ties to leverage for information provision	If you did not have a (primary source of information) how would you get the information? Would you be able to share or borrow?
Community				
Background information: • Demographics • Rural/urban • Transport links • Primary occupations • Average income • Key languages • Permanent/temporary/migrant residency • Average literacy and education	Community-level	Desk research, KII	% population urban vs rural	What language do you speak in your home? At your work? With friends?

rates/levels				
Gender relations and other inequities between groups	Community -level	FGDs (gender-specific), desk research, KII	Ratio of elected female vs. male representatives in office	What do women do for work in your community? Why don't they do x? If a woman wanted to do x what would she have to do to be fit for the role? Do women own mobile phones?
Key community leadership groups and decision-making, potential for change, champions for innovation	Community -level	FGDs, desk research, KII	Number and type of successful community-run initiatives in the past	If you heard a rumor in your community, who would you trust to confirm or deny it? Is there anyone in your community who has helped make a big change happen?
Area of inquiry	**Scope of research**	**Suggested methodology**	**Example Indicators**	**Sample Questions**
Market environment				
Infrastructure, mobile provider ownership and landscape, commercial mobile infrastructure including premium services and APIs	National, Local	Desk research, KII	Areas of coverage, average lead time, number of mobile providers and market share	What services have you used with x provider? What billing options, services are available? How many networks are there? Can you send SMS to people on other networks?
Coverage and reliability of mobile and internet	Community -level	FGD, desk research, KII	Average downtime per month in x location	How many times a week do you find you do not have mobile network? Is it

				in one specific area or variable?
Mobile and mobile money market access and use, including both cost of airtime and access to airtime, including seasonally and during difficult times	Community -level	Observation,FGD, KII and surveys, Digital Days	Number of people who have sent mobile money in the last 1 month	Have you ever had trouble buying airtime? Loading airtime? Does this happen at certain times of the year? Do you use mobile money?
Availability of devices for sale, repair and resale	Community -level	Observation, FGD, KII	At a crowded marketplace observe the number of vendors,size of shops, variety of phones, number of customers and number of customers purchasing phones	How did you acquire or buy your current phone? What would happen if it stopped working?
Cost of electricity and charging	Community -level	FGD, KII and surveys, observation	Number of people who have no difficulty in keeping devices charged	1. How do you keep your mobile phone charged? a. My home has electricity b. My workplace has electricity where I charge my phone

				c. I go to a charging station and pay_____per_____ d. other_____ 2. How often is your phone powered? a. Always, it's always on b. Almost always, unless there is a power outage. c. During the work day d. At night e. Only for emergencies f. Other_____
Legal and regulatory issues	National	Desk research, KII	Number of reported regulation issues by ICT initiatives	Are you aware of any ICT initiatives that were stopped due to regulation issues? Who is the regulatory body?
Area of inquiry	**Scope of research**	**Suggested methodology**	**Example Indicators**	**Sample Questions**
Political environment				
Ownership and control of key communications infrastructure	National, Regional	Desk research, KII	Percentage of state run vs. privately run comms. infrastructure	Does the state have access to messages sent domestically?

Protection risks inherent in data leaks	National, community-level, individual	KII, desk research	Existence of government regulations or policies on data protection	What type of data would you aim to collect for your program? How would you store it? Who would have access to it? If the data were intercepted, could there be adverse consequences for the subject or participants, or any group of people? If you received information about health risks, security alerts or an emergency evacuation via SMS/Radio/Newspaper would you trust it?
Perception of likelihood of interception of data, and impact on use of communications	National, community-level, individual	FGDs, KII and surveys, observation	Number of known data intercepts, Existence of surveillance policies or regulation	Do you sometimes change or not send information because you're concerned about who could read it? Do you know of anyone who has had a negative experience with their data being intercepted by the government or other group?
Area of inquiry	**Scope of research**	**Suggested methodology**	**Example Indicators**	**Sample Questions**
Implementing organization				
Meaningful access to key infrastructure	Organizatio nal	KII, observation, spot tests	Number of times power is lost or interrupted during a one week period (NB	Do you have access to a computer with power at all times during the workweek?

			may vary seasonally)	
Culture of innovation, tolerance of risk, learning	Organizational	KII, observation	Involvement of leadership in conversations around project	Has organizational leadership made a commitment to using ICTs? If the project did not work, what would happen?
Staff skill sets	Organizational	KII, surveys, observation	Years of experience working with technology, Types of available applications	What computer applications do you use on a daily and weekly basis? If your computer stops working, are you able to fix it or find someone who can?
Capacity to manage information and communicate new approaches to the community	Organizational	KII, observation, 'digital days'	Human resources devoted to communication	Does the organization have a communications budget or plan for disseminating information?

Resources:

- The Sphere Project has useful guidance on common indicators used in assessments: http://www.sphereproject.org/resources/download-publications/?search=1&keywords=&language=English&category=56&subcat-22=0&subcat-29=0&subcat-31=0&subcat-35=0&subcat-49=0&subcat-56=86&subcat-60=0&subcat-80=0

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A typical context assessment process

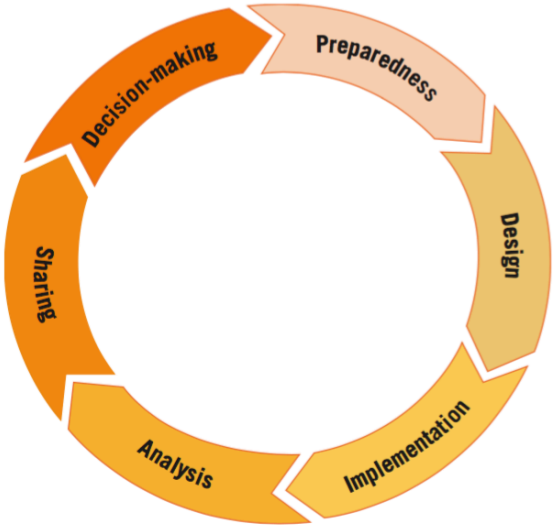

Figure 1. The assessment cycle [2]

Source: ACAPS The Good Enough Guide

This process is similar to the process in our Monitoring and Evaluation Framework, which guides SIMLab staff through planning an evaluation.

1. Preparing for the context analysis: outlining the process, decision-making framework, key areas of inquiry and other matters in a Terms of Reference (sample Terms of Reference).

2. The context analysis should be approached with an understanding of the fixed parameters that exist for the project. To this end, the person responsible for conducting the context analysis should carry out a literature review and remote discussion with partners: including project proposals and reports, the SIMLab Theory of Change (ToC) or a program/project logical framework or ToC, and other

[2] ACAPS The Good Enough Guide
https://www.dropbox.com/s/lgfmllmlssqpjw9/The%20good%20enough%20guide.pdf?dl=0

key originating project documents. Development of a full and final draft context assessment workplan and methodological approach which includes the following:

a. The intended budget and timeframe. While ultimately these matter more for design decisions (not addressed by this Framework) the scale and speed of the intervention has an impact on the focus and scope of the context analysis. For example, a project with time and budget for staff and relationship-building may be able to take a more agile approach to experimentation. Conversely, a small budget and short project period may restrict implementation options and area.

b. The type, richness and scale of the information to be communicated, gathered and managed. Some types of data, such as health or Personally Identifiable Information (PII) carries additional regulatory requirements which should be scoped. Some information may be relatively straightforward and lend itself to short-form communications channels such as SMS, while others may need more qualitative and open-ended units, such as voice calls or messages.

c. The grant requirements can be determinative. For example, if the context assessment has to inform a design which cannot be changed, that makes it all the more important to get the fullest picture possible. If the donor requires disclosure of all data collected through the project, this raises additional scoping of regulation and potential risk. If the donor requires only open source software to be used, or that only non-profit service providers are used, this is important to bear in mind. Other non-functional requirements may arise, and it is always useful to bear a list of these in mind as the assessment is carried out. See our Annex for a sample list.

3. Identify valuable/useful data that already exists. Consider the following:

a. What, if any, data collection will be carried out and what methodologies/ sampling strategies will be used

b. Key lines of inquiry (with further lines of inquiry to be developed as we learn more about the context)

c. Sample survey materials, interview or focus group discussion questions, and other materials based on methodology, time, budget and relevance

d. Protocols for informed consent, data management and retention for any surveys, interviews and notes. The ELAN Data Starter Kit has tips on safe data collection: http://elan.cashlearning.org/

4. Logistical preparation:
    a. Organize travel, including relevant visas, conduct a travel safety and security assessment, and fill out SIMLab's Staff Travel Security Form.
    b. Organize key informant interviews, events, workshops, and any other known methodological steps that need prior arrangement.
    c. Translate key texts including consent forms and information about the assessment.
5. Conduct country/regional-level research, where appropriate.
6. Analyze data and write up as a Context Analysis report, which should include:
    a. Methodologies used
    b. Key lines of inquiry and findings for each
    c. Barriers to implementation and recommendations to inform the final design of the project, including Do No Harm and risk analysis.
    d. Recommendations for key types of communication channels
7. Share a summary of findings with stakeholders:
    a. Use visualizations when applicable and relevant
    b. Make recommendations
    c. Use simple, friendly language
    d. Share the findings and support others to use them
8. If SIMLab are to continue to be involved, feed conclusions from the Context Analysis into the final project design and make any necessary amendments to project timelines, budgets, staffing, etc.

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Methodologies and tools that may be helpful in conducting context analysis in inclusive technology projects

Projects and our mode of operation vary hugely, so it is difficult to recommend one approach or methodology. In this section, instead, we provide a short overview of data collection and analytical tools that might be suitable for a context analysis for the types of programs and projects that SIMLab is a part of. The aim is that SIMLab staff can improve their knowledge of some of these approaches and provide greater input into context analysis design, whatever our role or the type of project.

In addition to the following section on methodologies, SIMLab staff should also read the Humanitarian Needs Assessment: Good Enough Guide, which was developed as a resource for field-level staff to quickly read and use to implement post-disaster. For SIMLab, the guide is useful as it notes many best practices, is easy to use, and lists relevant data collection methodologies. The Good Enough Guide should be read by staff not already familiar with context assessments, and should be consulted when planning for any assessment.

The following list of methodologies is by no means exhaustive, nor is it necessary to use all the methodologies for any context assessment, but the list may be helpful as a collection of the types of methods we would typically apply in our work.

Lastly, anytime we are unfamiliar with the context, whether it be a new geography, sector, or type of organization, it's often helpful to ask colleagues who have lived or worked in the region. They may be able to point you to local resources useful in your assessment.

Data collection tools

Desk based research: review secondary and primary data

Depending on the context and sector of the project, there may be a significant amount of existing data that can save us time and money and strengthen the context analysis. A review of secondary research is fundamental to the preparation of any context analysis. Secondary research refers to any data that has been analyzed and interpreted by

someone else, and will give us information provided by governments, businesses, organizations, and academic researchers. It should always be combined with primary research. Secondary research is likely where we will start researching in order to understand key lines of inquiry, the history of the sector, and the context. When reviewing research, it is essential to pay close attention to the data source(s) and be aware of potential biases. Secondary sources are a reflection and analysis of an event that has taken place in the past.

We may also be able to look at primary data, which is the raw data collected by an organization or individual, if organizations have released their data sets. Reviewing interviews, blog posts, newspaper articles, and/or surveys covering a first person account of an event or context is important. We may be able to follow up with the person to inquire further or determine if the context may have changed since the interview or writing took place. Just as with secondary data, when reviewing primary data it is essential to pay close attention to the data source(s) and be aware of potential biases. Primary sources cover a first-person account of an individual who directly experienced the event, or who narrated the event on account of someone else's direct observations.

Resources:

- Literature review and secondary data guidance by the World Food Program: *http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp203200.pdf*

Key informant interview

A key informant interview (KII) is an in-depth 1-on-1 interview conducted by a professional to gain insight from someone actively involved in or affected by the program or community. A KII will result in primarily qualitative information, stories, understanding, and reasoning from the informant's perspective. The interviewer needs to prepare questions and lines of thinking well in advance and should ensure many KIIs are conducted in order to inform a holistic perspective. Ideally, many of the questions will be the same so that answers can be compared across the interviews (for example, a village elder may report that women are always included in decision-making, while a local female leader may say that women's opinions are never considered). Follow-up questions can target more nuanced information that is not asked of every interviewee. It is most helpful to be able to view the informant's face and mannerisms, so in-person or via video are the best options for conducting KIIs. It's worth noting a distinction between KIIs which tend to be informal and best for eliciting background information as opposed to qualitative interviews which are formal, rigorous and should be comparable across subjects. Typically SIMLab will conduct the former, whereas a qualitative

interview may be of more use during an evaluation. See SIMLab's Monitoring and Evaluation Framework for more information.

Resources:

- ALNAP has an older, but excellent, guide here: http://www.alnap.org/resource/19319
- Basic overview, tips, and a good discussion on KIIs in development and evaluation: http://dmeforpeace.org/discuss/dme-tip-key-informant-interviews

Survey or questionnaire

Surveys can be very useful when trying to gain input (and feedback) from a large number of people who are either directly affected or part of the target demographic for the intervention. Surveys can be done in person or through various digital means, and can collect both quantitative and qualitative data. Without a large and representative sample, results need to be viewed very critically, and trends rather than precise figures should be the primary takeaway. Surveys need to be carefully designed to ensure the questions are correctly comprehended by both respondents and surveyors. It is important to respect survey participants' time by monitoring the length of a survey and being cognizant of the incentives (or lack thereof) for participation.

Resources:

- Meant for Rapid Assessments in humanitarian emergencies, but applicable to many of the contexts we work in: http://www.unicef.org/eapro/Rapid_assessment_sampling_booklet.pdf
- Brief blog on sample size, with links to other survey design help: http://www.tools4dev.org/resources/how-to-choose-a-sample-size/
- An assessment for the capacity and reach of radio stations in humanitarian emergencies: https://www.dropbox.com/s/4jeyswpv689nwdh/CDAC%20Network%20Suite%20of%20Common%20Needs%20Assessment%20Tools-4.pdf?dl=0
- An affected population questionnaire in humanitarian emergencies: https://www.dropbox.com/s/r09hbgkck1h9qrw/Affected%20Population%20Questionnaire.pdf?dl=0
- Another good resource for survey design: http://www.surveysystem.com/sdesign.htm
- A resource for micro-level surveys: http://dmeforpeace.org/sites/default/files/HiCN-WP-153.pdf

Focus group discussion

Focus group discussions are a group interview style, facilitated by an outsider. FGDs are used with specific stakeholder groups to understand the local context, a specific program, historical accounts, or thoughts on future programs. Depending on the project, homogenous groups may work best since information might be sensitive and best shared with similarly situated community members. Groups can be broken up by gender, religion, political affiliation, tribe, ethnicity, affected populations or any other readily distinguishable group that can be feasibly addressed in a group setting. FGDs are effective at bringing out misconceptions, inequalities, and impressions of past or future programs. By contrast with a community group discussion (explained below), FGDs have a more targeted audience and participants are invited for a specific purpose.

Resources:

- A short guide to FGDs from USAID: https://usaidlearninglab.org/sites/default/files/resource/files/Focus_Group_Interviews_Tech_Note_FINAL_2013_1119.pdf
- Resource on conducting FGDs that are comparable across multiple cultures/contexts: http://www.welldev.org.uk/research/workingpaperpdf/wed27.pdf
- FGD toolkit and interactive guide from SFCG: http://www.dmeforpeace.org/sites/default/files/2.3%20Focus%20Group.pdf
- This guide is a classic, and concise:http://www.eiu.edu/~ihec/Krueger-FocusGroupInterviews.pdf

Community group discussion

Community group discussions (CGDs) are similar to FGDs, but involve inviting the community at large, rather than a smaller, focused group. CGDs can help us gain valuable insight if the community is recovering from or preparing for a large scale event. A CDG can be particularly helpful if there is a new proposal that will potentially positively impact the community, making initial buy-in and insight very valuable. Power relations in this type of discussion need to be well understood in order to appropriately sort reactions from the discussion. CDG need to be very well prepared for, especially if controversial ideas or thoughts will be brought up. It may be helpful to follow up on any controversial points or ideas that surface in focus group discussions, in order to hear from all the different sides.

A CDG should be run by a facilitator who is familiar with the culture and by someone who speaks the local language. Preparation for a CDG could encompass a brainstorm of the spectrum of response to the discussion ie; anticipate the best case scenario

along with the worst case and plan how to ensure conversation ensues.

Life histories

Life histories allow a respondent to share a comprehensive account of his or her life. In these interviews, the researcher only prompts the respondent with questions of clarification. This offers a unique opportunity to understand the continuity of people's lives. At the same time, people might be sharing difficult and painful experiences that researchers have an ethical responsibility to respect and ensure that the respondent is not placed in any harms way by sharing their life story. Thus, anonymization is critical if these stories are to be used.[3]

Resources:

- More detailed information on life histories provided by Overseas Development Institute: http://www.chronicpoverty.org/uploads/publication_files/3.2%20Using%20life%20history%20research%20-%20overcoming%20the%20challenges.pdf

Digital Lives

The Digital Lives methodology was created by Caribou Digital as a way to understand individuals' use of digital tools on a daily basis. The Digital Lives method asks participants open ended questions about how they receive, send, digest and exchange information during a typical day, in order to understand patterns of usage. The method asks situational questions about how the individual communicates in the morning on the bus to work, versus at lunch time versus in the evening, for instance. An advantage of using the Digital Lives methodology is that it enables a broad definition of digital interactions whether or not they seem important, utilitarian or social. By reflecting more thoughtfully on information and communication throughout the whole day, respondents may also be less likely to exaggerate or overstate their use of a particular technology. Collecting digital interactions throughout the day can give implementers insights in how to connect with users in ways that would not be apparent without such a wide lens.

Notes from call with Caribou:
Created as a way to get into the detail of what people actually do in a tangible way - more likely to get the truth. Push the researchers to get people to explain what you do in the morning, what do you do when travelling to the next place in your day, etc throughout the day. Getting our research team to think about what it means to describe their day. Origins were a diary method. Really inspired by the financial diaries of the poor - a way for us to conceptualise what those practices look like an explaining it to people who aren't familiar with particular social science research methods like diaries etc.

[3] Source: ICT4COP Basic Methodology

Unless you go in for a long time, like a year, you can only try to approximate through transect walks etc and other PRA-inspired methodologies to introduce temporal elements into quite static enquiry methods. A way of approximating a rapid ethnography. More of an approach than a framework. Recorded interviews which were then transcribed. Pilot research, pilot interviews ourselves or with research partners on the ground. Then reframe questions and approach based on that bit of a testing and then put together if not a questionnaire then an interview guide or FGD guide to give our researchers a broad set of areas we want ppl to look into. Before that we have a long engagement with the research partner - it's key they understand what you are trying to get at and where you're coming from, objective, context, maybe relevant literature etc.

Resources:

- Caribou Digital's report on the use of the Digital Days methodology in Ghana, Kenya, and Uganda: http://cariboudigital.net/new/wp-content/uploads/2015/12/Caribou-Digital-Digital-Lives-in-Ghana-Kenya-and-Uganda.pdf

Direct observation (structured and unstructured)

Direct observation can be useful when first entering a new context to gain a broad idea of how public spaces are used by community members, or in a very specific setting to see how things are run. Observation is helpful when done in a public setting because people will act naturally, as opposed to if they know they are being observed. Observation can be structured when we are looking for a certain type of behavior or to answer a particular question (i.e. Do women use cell phones in public?). Conversely, observation can be unstructured where we are looking to observe what happens and what may not happen (i.e. How do community members use communications technology in public?). Unstructured observation can be guided by a series of open ended questions.

Resources:

- Research methods knowledge base for direct observation guide provides detailed information on qualitative methods observation: http://www.socialresearchmethods.net/kb/qualmeth.php
- Technical brief by ACAPS on "Direct Observation and KII Techniques for primary data collection during rapid assessments" offers a thoughtful guide to the advantages and applications of direct observation: http://dmeforpeace.omnidev3.com/learn/direct-observation-and-key-informant-interview-techniques-primary-data-collection-during-rapid

Facilitated workshop

A facilitated workshop should be completed by SIMLab staff in order to better understand a particular setting. The workshop can take many shapes, such as outcome mapping, use case mapping, or user personas, and should be interactive and involve structured exercises and activities to get participants thinking more freely. A good workshop will allow the facilitator(s) to gain both qualitative and quantitative insights from those in attendance. The workshop can help tease out certain parts of a current or past project or to understand current operations and structures. A facilitated workshop is different than a focus group in that it involves more outputs and exercises than just discussion, and is not segmented by any one demographic/group type.

Bias

It is important to be aware and plan for assessments that control for gender and power dynamics to ensure they represent views and statements that are as close to reality as possible. Social desirability bias dictates that individuals feel pressure to answer questions based on their perception of what is correct or socially acceptable.[4] Questions around technology use and access, literacy, salaries, and other areas that may be understood as a status or power issue may be easily conflated by respondents. Conversely, when participants are under the impression that answering in a certain way will determine their ability to participate in or benefit from a certain type of program, we can also see respondent bias. Additionally, the person asking the questions or facilitating the session can impact the participants to act or answer in a certain way. Factors such as age, gender, race, caste or social status differences between the facilitator and the participants can lead to biased answers and discussions. These issues can be mitigated by carefully selecting facilitators and interviewers, designing open-ended questions for surveys, and carefully constructing focus group discussions and workshops. Issues of imbalanced power dynamics and bias can also be mitigated by adhering to research ethics and ensuring the informed consent of all participants and respondents.

Useful Resources: The International Program for Development Evaluation Training http://dmeforpeace.org/sites/default/files/M14_NA.pdf and Designing for Results https://www.sfcg.org/Documents/dmechapter11.pdf both offer guides to research design and ethical research practices, including informed consent and minimizing bias.

Participatory Data Collection

As noted at the beginning of this Framework, we seek to support users to build a picture of the context in which they are working, but stop short of supporting the project design and decision-making process. We feel this would be a much larger endeavour, and may not be possible, as every context is different and these design decisions are a matter of professional judgement.

[4] Maccoby, Eleanor E. and Nathan Maccoby (1954), "The Interview: A Tool of Social Science." in Handbook of Social Psychology. Vol. I, ed. Gardiner Lindzey. Cambridge, MA: Addison-Wesley. 449-487.

The methodologies below offer some potential approaches to parsing and analysing the data you have gathered. For most practitioners, these methodologies will not need to be as rigorous as those for academic research. Most assessments towards projects are conducted on a tight timeframe, with limited resources, and not all those who would carry out such context assessments have research methods training. However, we have tried to offer some accessible methods which might help make sense of the data.

Stakeholder mapping and analysis

Stakeholder mapping enables an understanding of the main individuals and groups who may influence the project, and how they need to be engaged or managed to ensure the project is implemented effectively and fairly. It is important to undertake this exercise in the context of power analysis, as power relations may shift through a new project, and the power imbalances need to be stated. The power analysis will also ask questions around how power is practised through formal and informal mechanisms, and what hidden and invisible forms of power exist (e.g. beliefs around who is entitled to participate).

STEEP Analysis

A STEEP (Social, Technological, Economic, Environmental, Political) analysis is a well known tool to evaluate factors in the external environment that may influence an organization, project, or initiative. The STEEP analysis provides a picture at a given point in time, but can also assess the key drivers of change in an evolving picture over time. STEEP analysis can be used at two levels: firstly, among project staff working in the area in a workshop setting, and secondly, with community members through a focus group. The former will not only enable valuable insights into the local context, but also provide an opportunity to develop greater analytical and reflection skills among participants.

STEEP analysis can be done as a visual, participatory exercise using flip chart paper and post it notes. The external factors identified by the participants are grouped and ranked under low, medium and high influence on the project. Probing questions are asked as to whether the factors are increasing or decreasing in importance, the effectiveness of current feedback mechanisms, and to generate an understanding of the change over time (trend analysis). This analysis should carried out in a group setting (with beneficiaries and project staff in different forums by “level”).[5]

Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis

A SWOT analysis is used as a participatory group exercise. The SWOT analysis is intended to assess internal processes and as such could be used in a few ways in our assessment. Rather than look at the external environment, as is the case with the STEEP analysis above, the SWOT analysis looks internally to analyze the strengths, weaknesses, opportunities and threats for a particular organization or project. With

[5] https://drive.google.com/file/d/0BydouDNRMaH0OExHY2V2Qy1xSGs/view?usp=sharing

these characteristics or conditions identified, an organization or set of partners is much better equipped to create a thoughtful plan of action. For the context assessment, the SWOT analysis could be particularly useful to understand the capacity of a potential 'implementing organization.'

Organizational capacity assessment

An organizational capacity assessment can be very useful in understanding the abilities, procedures and structures of an organization. This type of an assessment can take a variety of forms including a self assessment, participatory workshop, or can be facilitated by an outsider. An organizational capacity assessment is both quantitative (i.e: number of staff, communications budget etc.) and qualitative (i.e.: perceived motivation to make change, level of community influence). A focus on organizational capacity is very suitable when trying to understand the function an organization may play in the wider community, its ability to support community members, or looking at how an organization may be able to pivot to new program areas and make change. The assessment is especially useful for evaluating an organization's ability to adopt new technology. A technology checklist should be included in an organizational capacity assessment. This will be especially necessary if we are evaluating many organizations for suitability, as we will need to know at a minimum what systems and tools they use and/or have access to. We may also request an organogram to understand how the organization operates on paper, and inquire in person and through observations as to how the organization operates in practice.

Resources

- Depending on the project, we will want to assess different areas of the organization but can refer to CaLP's for cash transfer programming and to SIMLab's Organizational Capacity Assessment tool

Analysis Tools

In general, the majority of the data collected will be in the form of "narrative data," resulting from the data collection tools outlined here, such as key informant interviews or focus group discussions, both of which are characteristic examples of qualitative research.[6] As such, the analysis strategies highlighted below are focused on qualitative rather than quantitative methods. Given that the context assessment may not necessarily engage with a formal or robust research approach, we do not go so far as to present computer programs for qualitative data analysis, nor do we engage directly with evaluating the validity or credibility of the data. Nonetheless, the following strategies are

[6] Taylor-Powell, E. and Renner, M. Analyzing Qualitative Data, http://learningstore.uwex.edu/Assets/pdfs/G3658-12.pdf.

grounded in traditional qualitative research methods and will help to guide researchers or staff in thoughtfully addressing the data gathered from the context analysis approach.

Ongoing analysis

A characteristic feature of qualitative research is that data analysis occurs alongside data collection,[7] beginning as soon as the first piece of information is collected.[8] This process is sometimes referred to as "interim analysis," in which researchers use guiding questions to continually and critically engage with the data. In this way, staff or researchers are constantly interrogating common patterns or themes (or deviations from these patterns), identifying stories of interest, and considering whether further fieldwork or literature review may be necessary.[9] It is not hard to imagine how, following a conversation with a focus group or a key informant, a researcher might logically begin to analyze the answers, probe further into a particular area of interest, or engage a new line of inquiry. In this way, the researcher or staff is critically evaluating not only the findings but also the research approach and focus. By engaging with analysis from the very beginning, this approach can also help to address a key challenge in the data analysis process, which is the need to consistently "reduce" the amount of data collected, and in turn, analyzed, by choosing specific themes or patterns to focus on. Overall, this approach reflects the inherent flexibility and iterative nature of partnership work at the local level.[10]

Reflections and fieldnotes

In many ways, a staff or researcher's notes and documentation becomes a form of data itself, and researchers can even be considered "instruments" of the research.[11] One strategy for performing data analysis during data collection is "theoretical memos," through which a researcher makes tentative interpretations of the data while research is still ongoing. The memos then stand as record of the researcher's approaches and thought process throughout the course of the research.

Another record of the researcher's contribution are fieldnotes themselves. In the same way that KII or FGD interview questions may be phrased or organized in a similar

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[7] Chapter 6 Qualitative Research Methods. Winston Jackson and Norine Verberg. *Methods: Doing Social Research, 4e.* 2007 Pearson Education Canada.
[8] Pell Institute. Analyze Qualitative Data, http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/
[9] Pell Institute. Analyze Qualitative Data, http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/
[10] National Science Foundation. Analyzing Qualitative Data, https://www.nsf.gov/pubs/1997/nsf97153/chap_4.htm
[11] AIPMM. Ethnography: Your Guide to Doing it Right. http://www.aipmm.com/html/newsletter/archives/000362.php

manner in order to support consistency across the data collection methods, so too can fieldnotes. To facilitate comparison, a researcher should make sure to document all work to the same level of detail, and take down information that has been observed in the field as soon as possible. Particularly when working with participants, it is important to properly describe and explain the settings within which the research took place, documenting how the meeting came about, why the organization, community group, or individual was targeted for follow up, and the nature of the conversation. This type of notetaking is sometimes referred to as a "reflection sheet template,"[12] in which a researcher notes down their own reflections on observation or interaction with a participant. This becomes an important tool for tracking particular choices or observations throughout the research, regardless of the data collection method.

Content and thematic analysis

With analysis and reflection already engaged, a researcher is then better prepared to identify meaningful patterns and themes within the data. In order to do so, qualitative analysis typically relies on content analysis and thematic analysis.[13] Content analysis refers to coding or classifying data based on specific words used or concepts discussed. Coding can thus enable content analysis to produce "analytic units" that can then be used for quantitative analysis (of the qualitative data). Thematic analysis instead groups the data into themes, as the name suggests. Themes may have been predetermined, based on how the research was organized, or have emerged over the course of the fieldwork, sometimes called "preset" and "emergent" categories.

Data presentation

A final strategy for addressing the data collected in the CAF is to use thoughtful presentation methods to convey the data findings. One particularly strategy is to use "integrative graphing" or "concept mapping," as a means to piece together the meaning of different concepts that come up during the research. This not only allows the researcher to summarize the findings for other audiences, but also encourages critical thinking about the research itself.[14] With categories of concepts or grouping of themes already in place with concept or thematic analysis, concept mapping can help to make sense of the hierarchies, interrelationships, and relative importance between the

[12] Pell Institute. Analyze Qualitative Data, http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/
[13] Pell Institute. Analyze Qualitative Data, http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/
[14] Research Methods Knowledge Base. Qualitative Approaches, http://www.socialresearchmethods.net/kb/qualapp.php

categories.[15] Another important strategy for comparative studies is a matrix or information table, allowing data and findings to be readily compared across sites or study areas.[16]

Ultimately, the lines of inquiry from the Context Assessment Framework itself also serve as an excellent basis for data presentation, enabling researchers to group information based on how it informs a better understanding of the local context, whether in terms of people; community; market environment; political environment; or implementing organization.

[15] Taylor-Powell, E. and Renner, M. Analyzing Qualitative Data, http://learningstore.uwex.edu/Assets/pdfs/G3658-12.pdf
[16] Pell Institute. Analyze Qualitative Data, http://toolkit.pellinstitute.org/evaluation-guide/analyze/analyze-qualitative-data/

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Annexes

- Example Context Assessment
- Sample Context Analysis Terms of Reference

Non-Functional Requirements for Software

Area	Description
Accessibility	usability concerns for people with non-standard constraints – e.g. colorblindness, poor or no eyesight
Archiving	Will the data need to be archived or deleted after a period of time? e.g. Customer accounts to be deleted after 3 months; or marked as obsolete and archived to a secondary database for future access
Auditability	What data must be audited? How can fraud be detected?
Authentication	Security requirements to ensure "you are who you say you are"
Authorization	Security requirements to ensure users can access only certain functions within the application (by use case, subsystem, web page, business rule, field level etc)
Availability	How long the system will need to be available (24x7, 99.999%?) (in which case steps need to be in place to allow the system to be up and running quickly in case of any failure etc.)
Compatibility	Adherence to industry standards for input/outputs (XML, ebXML, BPML etc)
Configurability	Ability for the end users to change aspects of the software's configuration easily (through usable interfaces or config files etc.)
Continuity	Disaster recovery capability
Data Integrity	Tolerance for loss, corruption, or duplication of data
Extensibility	will the software be extended in the future? How important it might be to plug new pieces of functionality in
Help	Type and extent of help required for the application – Interactive help? online help? Instruction manual?
Installability	Ease of system installation on all necessary platforms (e.g. installation by end users vs. deployment by tech team)
Integratability	Ability for the application/solution to easily fit in as part of a larger system

Interoperability	APIs required to allow other applications to talk to our application/solution easily. This is unique from compatibility because it is concerned only with the structure and ease of use of the API's, not the industry standard protocols
Legal	What legislative constraints is the system operating in? (Data Protection, PCIDSS, Sarbanes Oxley, etc.). What reservation rights does the company require? Any regulations regarding the way the application is to be built or deployed?
Leverageability/reuse	Ability to leverage common components across multiple products - do components need to be designed so they can be re-used?
Licensing & copyright	Does the client require particular rights to use the application or ownership of the code? Do these place restrictions on the software libraries we can use?
Localization	Support for multiple languages or locally-appropriate formats throughout the application e.g. on entry/query screens in data fields; on reports; multi-byte character requirements and units of measurement and currencies; date formats
Maintainability	Will the system be continuously enhanced after the current deployment? Can it be re-engineered once it goes live? Is it going to be used only as a pilot system and dropped later?
Multiple environment support	Need to run multiple environments on a single machine (e.g. servers for development, system test, user acceptance test; multiple desktop environments with separate config)
Operational	Does the system's interfaces need to comply with the timing of any other interfaces which are currently in place?
Performance	Includes stress testing, peak analysis, analysis of the frequency of functions used, capacity required, response times etc. Performance acceptance sometimes requires an exercise of its own taking months to complete
Personalization	Ability for individual users to personalize their view of the application/solution (e.g. widgetisation; individual localisation etc.)
Portability	Does the system need to run on more than one platform? E.g. different operating systems; different database systems etc.
Privacy	Ability to hide transactions from internal company employees (encrypted transactions so even DBA's and network architects cannot see them); siloing of data between different users of the system

Recoverability	Business continuity requirements i.e. in case of a disaster, how quickly is the system required to be on-line again. Does the software need to automatically recover from failure? Does it need to be manually recoverable to a previous state? This will affect the backup strategy, requirement for duplicated hardware, etc.
Reliability / Safety	To assess if the system needs to be fail safe, or if it is mission critical in a way that affect lives? If it falls over, will it cost the org large sums of money?
Reporting	Ability to access information on the applications behaviour. Are there certain metrics that the software should be measuring for later reporting?
Robustness	Ability to handle error and boundary conditions while running (internet connection goes down, power outage or hardware failure)
Scalability	Ability to handle a wide variety of system configuration sizes and requirements. How many users does the software need to work for concurrently? How much data does it need to support? Etc.
Security	Does the data need to be encrypted in the database? Encrypted for network communication between internal systems? What type of authentication need to be in place for user's access remotely?
Supportability	What resources will tech support need? What levels of logging? Will they use JavaDocs?
Upgradeability	Ability to easily/quickly upgrade from a previous version of this application/solution to a newer version on servers and clients. Do provisions need to be made for upgrading the software in the future? Manually? Remotely? Migration of data from old version to new?
Usability/achievability	What level of computer literacy is expected from users? Level of training required for users to achieve their goals with the application/solution. Usability requirements need to be treated as seriously as any other architectural issue.