



Principle: Understand the Ecosystem



Overview

Well-designed initiatives and digital tools consider the particular structures and needs that exist in each country, region and community. Dedicating time and resources to analyze the ecosystem, or context where you work, helps to ensure that selected technology tools will be relevant and sustainable and will not duplicate existing efforts. Ecosystems are defined by the culture, gender norms, political environment, economy, technology infrastructure and other factors that can affect an individual's ability to access and use a technology or to participate in an initiative. Initiatives that do not account for ecosystem challenges are less likely to achieve their objectives or scale. This may also lead to unintended consequences. The ecosystem is fluid, multifaceted and ever-changing, requiring that digital development practitioners regularly analyze the context to check their assumptions.

Core Tenets

- **Engage with your target users and consult existing research to develop an understanding** of the people, networks, cultures, politics, infrastructure and markets that make up your ecosystem before designing your initiative or tool.
- **Coordinate with other implementing organizations, civil society and the government** early on to learn from successful and unsuccessful initiatives in the ecosystem, to avoid duplicating efforts and to integrate with existing technical systems more easily.
- Ensure that your initiative **aligns with existing technological, legal and regulatory policies** and that you consider policies that are currently in development.
- **Involve community members, donors, local and national governments, and other implementing organizations** throughout the project lifecycle.
- **Monitor the ecosystem** for changes throughout the project lifecycle, and adapt your products, tools or initiative as needed.

PROJECT LIFECYCLE GUIDANCE

The following recommendations, tips and resources are drawn from the digital development community to give you options for applying this Principle during each phase of the project lifecycle. This guidance is not meant to be exhaustive, but rather suggests actions you can take to apply this Principle in your work. If you have other tips, resources or comments to add, please share them with the community at <https://forum.digitalprinciples.org/>.



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Analyze & Plan

Understanding the ecosystem involves gathering data to develop knowledge about the following areas:

- People targeted by the product or program, including women, children and people with disabilities.
- The community, culture and socio-economic context in which users live.
- The market and technology environment, including regulatory considerations.
- The political landscape, policies and regulations.
- Active donors, implementers and digital development initiatives in the implementation area.

This process is a core component of initiative planning. A thorough context analysis, including desk research, in-person interviews, focus groups and other relevant research methods, such as the Digital Lives methodology [<http://cariboudigital.net/new/wp-content/uploads/2015/12/Caribou-Digital-Digital-Lives-in-Ghana-Kenya-and-Uganda.pdf>], should take place prior to design and deployment.

■ **Identify areas of inquiry for your context analysis.** Social Impact Lab’s Framework for Context Analysis of Inclusive Technologies in Social Change Projects [<https://docs.google.com/document/d/1-RvVkyOubjH1qxP201AvNeCleTJHsyZ3qGVik-iUDYM/edit#>] identifies the following areas to analyze during planning, along with examples of questions to answer:

- People: What are the target users’ levels of education? What digital tools are they familiar with?
- Community: Who are the key community leaders and influencers?
- Market environment: Is the mobile market competitive? What market issues are specific to your sector (e.g., banking regulations)? What infrastructure already exists? What’s missing? How much does it cost?
- Political environment: Do citizens experience censorship or government digital surveillance? Is there an e-governance sector-specific policy? Whom do you need to work with?
- Implementing organizations: What is the staff’s capacity to implement a digital initiative?

■ **Map out current and past digital development initiatives.** Determine if their successes or failures point to key ecosystem

ANALYZE & PLAN

TIPS AND RESOURCES

TIP: Specialized toolkits provide guidance on conducting context assessments specific to various development sectors, including the following:

- Guide to the Use of Digital Financial Services in Agriculture https://mstarproject.files.wordpress.com/2015/11/dfs_bsf_matrix_guide-v11_final-web.pdf.
- Making the Journey from Cash to Electronic Payments: A Toolkit for USAID Implementing Partners and Development Organizations https://www.usaid.gov/sites/default/files/documents/15396/USAID_NetHope_ePayment_Toolkit_2016.pdf.

TIP: If it is important for your initiative to understand the mobile ecosystem, consult the tips and processes included in the Integrating Mobiles Into Development Projects handbook, published by FHI 360 [https://www.fhi360.org/sites/default/files/media/documents/2M4DHandbook_August2014-New.pdf].

RESOURCE: Digital Lives in Ghana, Kenya, and Uganda, Caribou Digital Publishing. <http://cariboudigital.net/new/wp-content/uploads/2015/12/Caribou-Digital-Digital-Lives-in-Ghana-Kenya-and-Uganda.pdf>.

RESOURCE: Framework for Context Analysis of Inclusive Technologies in Social Change Projects, Social Impact Lab. <https://docs.google.com/document/d/1-RvVkyOubjH1qxP201AvNeCleTJHsyZ3qGVik-iUDYM/edit#>.

RESOURCE: Local Systems: A Framework for Supporting Sustained Development, USAID. <https://www.usaid.gov/policy/local-systems-framework>.

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ANALYZE & PLAN TIPS AND RESOURCES

RESOURCE: Project Needs Assessment, CommCare Help. <https://wiki.commcarehq.org/display/commcarepublic/Project+Needs+Assessment>.

- considerations. Failures with past pilots may also shape users' perceptions toward a new digital tool.
- **Identify what other organizations or donors are working in your ecosystem.** Sometimes, communities and stakeholders are overwhelmed with development pilots and projects and may not be eager to participate in a new initiative. Determine if platforms, approaches or services exist that you could build on or share with other organizations [<http://digitalprinciples.org/reuse-and-improve/>].
 - **Identify any local technology preferences.** The community may have significant experience using a certain device or a preference for a certain mobile operator based on factors like network reliability. Engage with your users to understand these preferences.
 - **Determine areas of inquiry that are critical to your sector.** For example, practitioners working on digital financial services will need to analyze existing financial regulations and banking infrastructure.
 - **Understand the local systems that are foundational for sustainability.** [<http://digitalprinciples.org/build-for-sustainability/>] These are the systems – interconnected sets of governmental bodies, civil society, private sector organizations, universities, individuals and others – that jointly produce development outcomes. USAID published a local systems framework that suggests conducting analysis using the “Five R’s” approach: Resources, Roles, Relationships, Rules and Results [<https://www.usaid.gov/policy/local-systems-framework>].
 - **Understand the local protocols you need to account for and adhere to.** If you do not understand or adhere to local customs and procedures when engaging with potential users and partners, you could set up your initiative for failure. Following certain formalities when engaging with community leaders and policymakers may add extra time to your planning process, but it will lay the foundation for a strong working relationship and feelings of local ownership. For example, while your tool may target women, you may need to first seek the approval of men in the household to ensure that they understand the tool and its intention and that they will support it, rather than be suspicious or skeptical of the women’s use of the technology.



Design & Develop

As you design your initiative, reflect on the context analysis to determine which tools would be appropriate to meet user needs.

- **Decide if your technology tool or approach is feasible and appropriate.** Evaluate key ecosystem considerations such as connectivity, mobile market penetration, desired medium for outreach (e.g., text messaging, voice, data), and language or localization changes you will have to make. For example, during the formative research phase of Aponjon (an initiative by the Mobile Alliance for Maternal Action in Bangladesh), the team discovered that most women being targeted were illiterate. As a result, the implementing team changed their app messaging system to interactive voice response. FHI 360's Integrating Mobiles Into Development Projects can support your analysis of whether the tool you have selected is appropriate for your context [https://www.fhi360.org/sites/default/files/media/documents/2M4DHandbook_August2014-New.pdf]
- **Determine a starting point for the initiative.** Your analysis and planning should reveal what technology and capacity already exist. Use this information to inform your design and where you will need to start in areas such as training, procuring technology and raising awareness. For example, the United Nations Foundation and ICT for Saving One Million Lives program conducted a landscape assessment, policy review and field assessment to determine what policies were already in place and what still needed to be included in the Nigerian digital health strategy [http://www.mhealthknowledge.org/sites/default/files/Toolkit-assessing-enabling-environment_FINAL.pdf].
- **Incorporate incentives that drive your target audience.** If recognition from an expert motivates your stakeholders, be sure to credit stakeholders publicly for the work they contributed. Also consider what other incentives would be appropriate in the culture and context, such as a stipend or a reward for participation. However, be careful that you do not set precedents that may affect the sustainability or scalability of your initiative.
- **Identify requirements for technology integration and interoperability where there is overlap with existing systems and tools.** For example, the Ministry of Education may already be using a database to collect and analyze education data. It is

DESIGN & DEVELOP TIPS AND RESOURCES

■ **RESOURCE:** Integrating Mobiles Into Development Projects, FHI 360. https://www.fhi360.org/sites/default/files/media/documents/2M4DHandbook_August2014-New.pdf.

■ **RESOURCE:** Toolkit: Assessing the Enabling Environment for Establishing a Contextualized National Digital Health Strategy, United Nation Foundation. http://www.mhealthknowledge.org/sites/default/files/Toolkit-assessing-enabling-environment_FINAL.pdf.

■ **RESOURCE:** The mHealth Planning Guide: Key Considerations for Integrating Mobile Technology Into Health Programs: Concept Development, K4Health. <https://www.k4health.org/toolkits/mhealth-planning-guide/concept-development>.

■ **RESOURCE:** Why Information Matters: A Foundation for Resilience, Internews Center for Innovation & Learning. https://www.internews.org/sites/default/files/resources/150513-Internews_WhyInformationMatters.pdf

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critical to ensure that any new system or platform you develop or introduce can share data with current systems.

- **Identify and articulate any assumptions about how different aspects of the ecosystem, as well as sociocultural factors, may positively or negatively affect your initiative's implementation or outcomes.** Before implementation, consult with local stakeholders to validate your assumptions and preliminary design [<http://digitalprinciples.org/design-with-the-user/>].

Deploy & Implement

The ecosystem may shift during the lifecycle of your program. During the implementation phase, keep collaborating with local networks, partners, governments and users, and be attentive to change.

- **Promote uptake and usage of your tool.** This could mean promoting adoption of your tool by conducting marketing campaigns and outreach through known channels to reach your targeted user groups, such as women or youth. Trusted and effective channels could include local radio, person-to-person outreach or a social media platform, such as Facebook, depending on your context and users. You can work with local networks or organizations that your targeted users trust to encourage uptake. When conducting outreach campaigns on social media, consider the security and privacy of your participants. For example, if you want to encourage active engagement with your tool by connecting users, you may need to consider doing so in a private, secure, moderated group, rather than one that is open to the public. This will protect users in contexts where governments may target people engaging with an international development organization or where a community could be suspicious of someone's involvement with an international organization.
- **Monitor for and document contextual elements that either facilitate or impede implementation.** During implementation, you can document any factors that contribute to an enabling environment for your tool. These factors could include attitudes, policies and practices that support uptake and usage of your tool. Identifying the enabling and impeding factors in the environment can help you to determine whether your tool can scale and how to plan for the next phases of implementation. In your monitoring, you may find that any assumptions or risks

DEPLOY & IMPLEMENT TIPS AND RESOURCES

TIP: Feedback Labs has created a curated collection of actionable resources to improve your feedback loop

<http://feedbacklabs.org/toolkit/>

RESOURCE: Conflict-Sensitivity and Do No Harm, CDA Collaborative Learning Projects. <http://cdacollaborative.org/what-we-do/conflict-sensitivity/>.

RESOURCE: The MAPS toolkit: mHealth Assessment and Planning for Scale, World Health Organization. <http://www.who.int/reproductivehealth/topics/mhealth/maps-toolkit/en/>

RESOURCE: SDG ICT Playbook: From Innovation to Impact, NetHope Solutions Center. <http://solutionscenter.nethope.org/toolkit/view/sdg-ict-playbook-from-innovation-to-impact>

RESOURCE: How Feedback Loops Can Improve Aid (and Maybe Governance), Center for Global Development. <https://www.cgdev.org/publication/how-feedback-loops-can-improve-aid-and-maybe-governance>



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about the ecosystem that were articulated during design do not hold, and as a result, your outcomes will be affected.

- **Orient staff to understand the ecosystem and how changes could affect implementation or targeted outcomes.** For example, by not considering conflict dynamics, a project could make existing conflicts worse. In conflict settings, consider training staff using the Conflict-Sensitivity and Do No Harm methodology [<http://cdacollaborative.org/what-we-do/conflict-sensitivity/>].
- **Identify communities and like-minded practitioners to engage with and learn from.** To continue to develop your understanding of the ecosystem and reduce the likelihood of duplication of efforts, join communities and networks such as a technical working group [<http://digprinciples.staging.wpengine.com/resource/omnis-ipsam-consequuntur-enim-ut-aperiam/>]. There may also be a local community of users or developers for a software program being used in your initiative where you can discuss how the ecosystem affects implementation and work together to identify solutions to common challenges. In large development organizations, you may find that you can learn lessons for your initiative by connecting with colleagues working on other initiatives in the same context.
- **Establish stakeholder feedback loops to make iterative changes in your project implementation.** Creating a feedback loop means providing consistent ways for users to explain what they like and do not like about your initiative or tool. This could be accomplished through in-person meetings or by collecting feedback with a mobile tool such as an SMS-based survey. To close the feedback loop, you need processes for how to synthesize this feedback and use it to make modifications. Build these feedback loops into your implementation plan at regular intervals from the beginning.
- **Observe the capacity of local users, and determine the capacity building that is needed to support local ownership and sustainability.** During the planning phase, you uncovered organizational and individual capacity challenges that could affect your implementation, and you used that information to inform capacity building. During deployment, you can observe what challenges users have with a technology and solicit users' feedback on areas where capacity building is still needed. Use that information to develop a plan and budget for the capacity building that would be necessary to transfer the tool to local

CROSS-CUTTING:
MONITOR & EVALUATE

TIPS AND RESOURCES

TIP: Outcome Harvesting and Most Significant Change are two tools that can be used to look for emergent program outcomes from the perspective of beneficiaries, users or other stakeholder groups across the ecosystem.

RESOURCE: Outcome Harvesting, BetterEvaluation. http://www.betterevaluation.org/en/plan/approach/outcome_harvesting

RESOURCE: Most Significant Change (MSC), BetterEvaluation. http://www.betterevaluation.org/en/plan/approach/most_significant_change

RESOURCE: Identify Potential Unintended Results, BetterEvaluation. http://www.betterevaluation.org/en/plan/define/identify_potential_unintended_results

RESOURCE: Assumptions Monitoring Template (Optional), USAID. <http://usaidprojectstarter.org/content/assumptions-monitoring-template-optional>



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partners or otherwise sustain the tool in this ecosystem [<http://digitalprinciples.org/build-for-sustainability/>].

- **Plan ahead for how to adapt implementation around major events and interruptions.** Consider local and national election cycles in your planning. Government officials may not take meetings or want to make any commitments before an election cycle has ended. Elections can also lead to increased instability and violence, which could affect implementation. You also want to plan around important events. For example, if you are working with farmers, understand major harvest periods when they may not be available for meetings or interviews.

Cross-cutting: Monitor & Evaluate

Throughout the project lifecycle, monitor the ecosystem for changes, and adapt your initiative or tool to those changes. Contextual factors, such as political stability, peace and security, and technology infrastructure, such as mobile network strength and reliability, can all shift rapidly. Your evaluation is informed by your theory of change and should take into consideration how your initiative or digital tool has influenced or changed the ecosystem, as well as what effect the ecosystem, or changes to it, had on outcomes.

- **Monitor identified assumptions or risks in order to adapt your initiative.** Changes could include reductions in electricity reliability or declines in the economy. Account for how these changes in the ecosystem could affect your initiative.
- **Evaluate for intended and unintended outcomes, as well as other contributing factors that may account for results.** Unintended consequences could be either positive or negative and could provide useful ecosystem insights to carry forward to future deployments. For example, in implementing the Makhalidwe Athu initiative, which distributes simple stories for reading practice to early-grade students in Zambia via text messaging, Creative Associates International noticed that fathers took on a more active role in their children’s education [<https://www.creativeassociatesinternational.com/news/innovative-digital-storytelling-pilot-project-boasts-positive-results/>]. Since men are typically the owners of mobile devices in the rural areas targeted by the initiative, they were the ones receiving the SMS stories for their children’s at-home reading practice, and in turn they became more interested in education

“It’s not so much ‘aligning to’ an ecosystem, as it is understanding how an ecosystem works, and how to adjust accordingly.”

ANONYMOUS




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and what their children were learning in school. This increased involvement in education by men was not an explicit objective of the initiative, but it is explained by the technology usage and gender dynamics typical of the ecosystem.

- **Use lessons-learned processes, and recognize and document the obstacles or enabling factors in the ecosystem that affected your work.** You may find that you did not adequately account for gender considerations, security challenges or infrastructure challenges. Plan how to apply these lessons learned to future initiatives in this ecosystem, as well as how to share them with the digital development community [<http://digitalprinciples.org/reuse-and-improve/>] [<http://digitalprinciples.org/use-open-standards-open-data-open-source-and-open-innovation/>]
- **Document the insights you receive from users throughout the process.** Ask users to provide feedback on design, as well as how the context is shifting and how those shifts in the ecosystem will affect your initiative or tool. You should also share lessons learned with local stakeholders and get their insights on why the tool either was or was not successful to ensure that future implementers are carrying forward lessons about the ecosystem factors that affected implementation and impact [<http://digitalprinciples.org/build-for-sustainability/>].



Ask users to provide feedback on design, how the context is shifting and how those shifts in the ecosystem will affect your program or solution.