DIAL Baseline Ecosystem Study

DECEMBER 2018

Digital Impact Alliance

UNITED NATIONS FOUNDATION | BILL & MELINDA GATES foundation | SWEDEN | USAID FROM THE AMERICAN PEOPLE

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Acronyms

Term	Definition
BMGF	Bill and Melinda Gates Foundation
CRS	Catholic Relief Services
DIAL	Digital Impact Alliance
DFID	United Kingdom's Department for International Development
IATI	International Aid Transparency Initiative
ICT	Information and communication technology
ICT4D	Information and communication technologies for development
IDP	Internally displaced persons
IVR	Interactive voice response
LGBTQI	Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, Intersex
M&E	Monitoring and Evaluation
MENA	Middle East and North Africa
MNO	Mobile network operator
NGO	Non-governmental organization
ODK	Open Data Kit
R&D	Research and development
RF	Results framework
RFP	Request for proposals
SDGs	Sustainable Development Goals
Sida	Swedish International Development Cooperation Agency
SMS	Short message service
USAID	United States Agency for International Development
USD	United States dollar
USSD	Unstructured supplementary service data

1 Objectives and background

DIAL aims to unlock markets to deliver digital services to the most vulnerable, working with partners to overcome these challenges encouraging a more inclusive digital society. DIAL commissioned a Baseline Ecosystem Study to understand the current aspects and experiences of the digital ecosystem from **multiple stakeholder perspectives**. It was designed for internal measurement purposes, but its findings speak to larger themes in the digital ecosystem; themes that may be of interest and use to others working in this space.

This report provides an overview of this research process. Several general themes emerged from the findings, and this report is organized around them. They include an observed **Typology of ICT4D**, gaps in **Funding for digital services**, the factors influencing the **Design of digital solutions**, and gaps in various actors' **Capacity to use digital data and technology**, and stakeholders' awareness of, and experiences in implementing, the **Principles for Digital Development.**

1.1 Study design

The framing of the research was based on DIAL's understanding of the 'digital ecosystem'[1] – an interconnected web of actors working cross-functionally toward digital inclusion. The key stakeholder groups of concern to DIAL's strategic focus and represented in this ecosystem study are therefore:[2] [3]

1. **Technology specialists**: Representatives of primarily social mission-driven organizations that build, develop, provide and support technology services. These include, among others, creators of mobile and web software, individuals responsible for tech and/or digital data within NGOs, providers of mobile data collection and information solutions, and providers of cloud-based applications and consulting services. The technology specialist key informants were drawn from both not-for-profit and for-profit social enterprises.
2. **Funders**: Representatives of large providers of aid funding, specifically bilateral donors, as well as private foundations and impact investors.[4]
3. **Governments**: Representatives of government departments in developing countries, with a focus on departments that have a strong interest in technology, such as health, ICT, and e-governance.
4. **NGOs and implementers**: Representatives of program teams in large international NGOs and smaller grassroots NGOs who implement services that make use of digital technologies in one way or another.[5]

[1] Some key informants stated that they did not feel part of an ecosystem, and that a better term for describing the stakeholders engaged in ICT4D work and studies like this is 'community of practice'.

[2] It should be noted that while DIAL's vision is to create benefits for underserved beneficiaries or clients, DIAL does not anticipate working with them directly, and therefore did not seek to include them in this study.

[3] Some key informants fit into more than one of these groups, but were classified according to how they self-identified, or through the research team's background research on their organization and role.

[4] Where findings differed according to different funder types, this has been specified.

[5] Where findings differed according to different NGO types, this has been specified.

Figure 1: Categories of stakeholders that participated in the Baseline Ecosystem Study

From these categories it is clear that an important stakeholder group missing from this research is the private sector, particularly MNOs[6] and large-scale profit-driven technology providers.[7] The participation of government representatives and individuals outside of North America and Africa was also low. These and other limitations are described in Section 2.3: Limitations below.

Given the profile of participants in this study, the findings reflect the current state of the ecosystem based on the donor/NGO model of digital development, rather than a typical market system built around typical

[6] DIAL originally included MNOs as the fifth stakeholder group in the study. However, due to other concurrent research with being done with MNOs, DIAL decided to suspend interviews with MNOs during the data collection phase.

[7] Industry associations and academic institutions have also been consulted by DIAL in past research, and were noted by participants in webinar sessions as useful to consult for future studies.

models of supply and demand. DIAL recognizes that the digital ecosystem is more complex than this, and that its true promise likely lies in engaging more widely with those missing voices. At this time, however, perhaps not all of these actors see themselves as members of the digital development sector or are yet incentivized to participate in it.

2 Methodology

An overarching analysis framework based upon DIAL's results framework guided this study and the subsequent data collection tools and data analysis. The framework structured quantitative and qualitative research questions according to thematic areas related to DIAL's work, with the intention of providing a rich and complementary data output.

2.1 Data collection methods

The Baseline Ecosystem Study used a mixed methods approach, combining qualitative and quantitative primary data with secondary desktop research to achieve the objectives of the study. **In the findings section of this report, data that emanated from the survey refers to *respondents*, and data that emanated from key informant interviews (KIIs) refers to *key informants*.**

2.1.1 Key Informant Interviews (KIIs)

The research team conducted 42 key informant interviews (KIIs), qualitative in-depth interviews. Where possible, the KIIs targeted individuals in a wide range of geographies and organizational roles through snowball sampling.

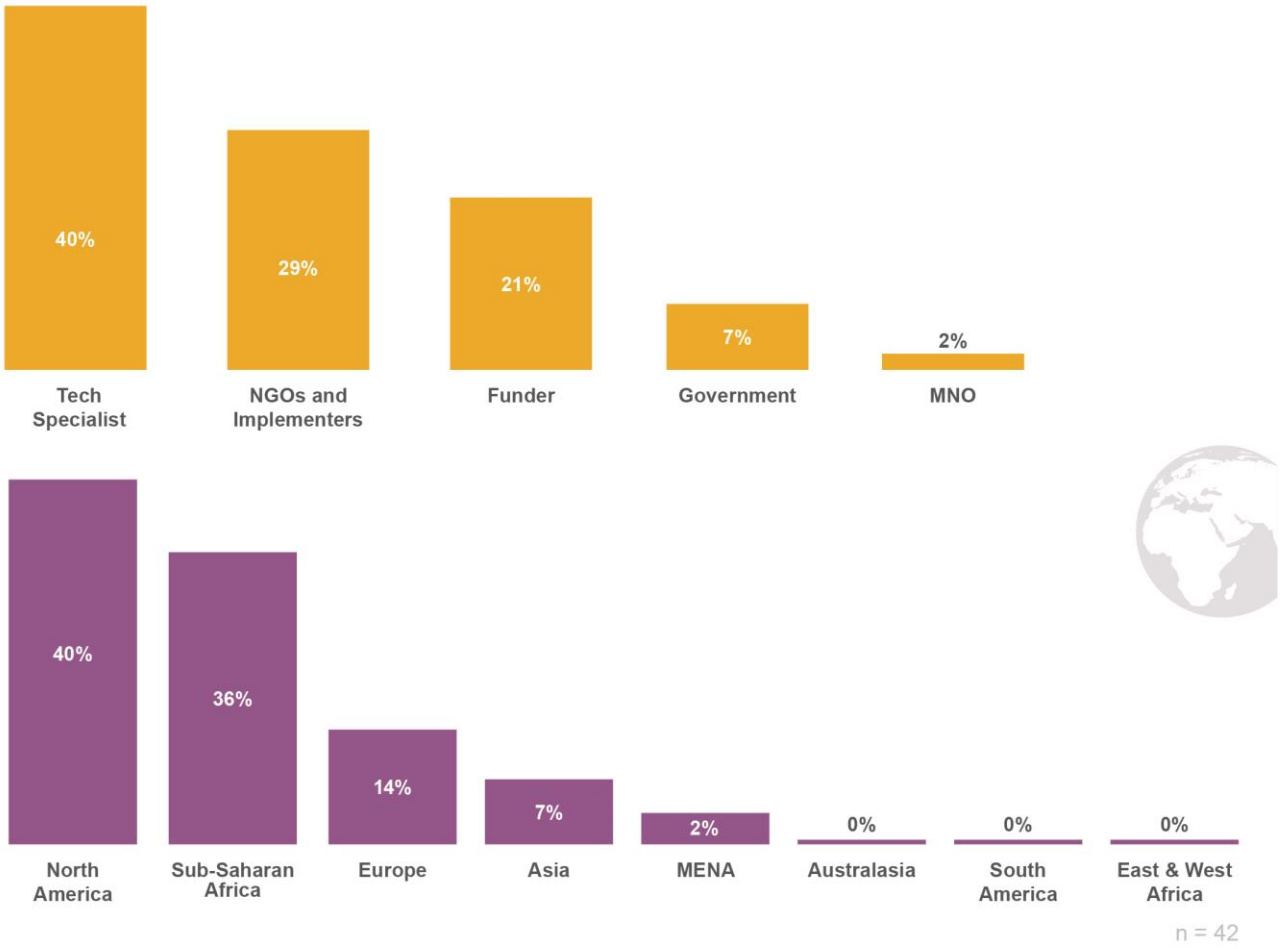
Figure 2 provides an overview of the share of KIIs conducted per stakeholder group. NGOs and tech specialists were the most represented stakeholder groups, making up 40% and 29% of the cohort respectively, followed by funders at 21%.

Box 1: Snowball sampling

This process began with the identification of initial interviewees, who were asked to nominate ecosystem stakeholders known to them, increasing the sample size and widening the scope of engagement. The research team used an ongoing gap analysis and referrals to complete the interview list.

While there were challenges reaching the 'grassroots' and government perspectives from many different local contexts, the research team believes (validated by stakeholder feedback) that there are many voices represented in the study that are not often heard.

Figure 2: KII demographics



The geographic distribution included individuals based in North America[8] (40%), Sub-Saharan Africa[9] (36%), Asia (7%), MENA (2%), also depicted in Figure 2 above.

2.1.2 Survey

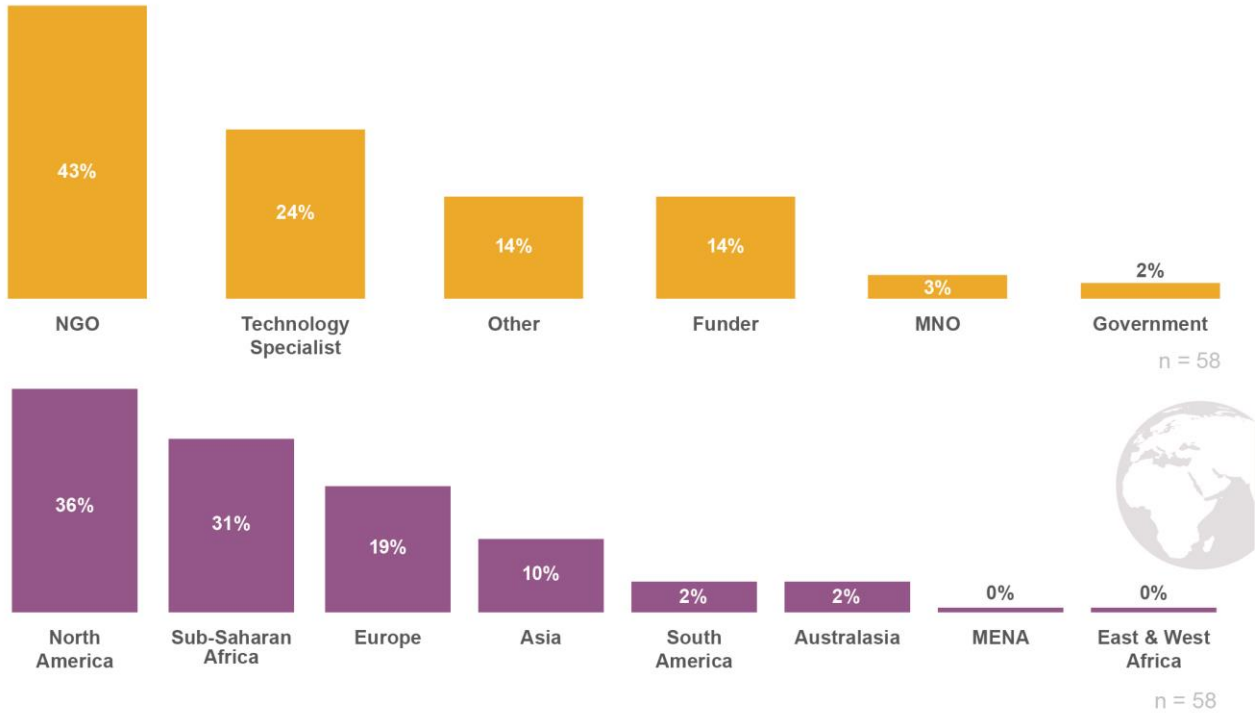
The research team created online survey questionnaires to capture a snapshot of the ecosystem. The initial response rate was low. After considering the potential challenges and limitations,[10] the research team, in collaboration with DIAL, launched an incentive-based campaign to encourage responses. The incentives did not, however, have a significant effect on responses and the response level remained low. In total, the survey received 58 complete and validated responses. Figure 3 below indicates the total responses by stakeholder group, as well as the responses by region. Similar to the KIIs, the majority of survey respondents were NGOs and tech specialists based in North America and sub-Saharan Africa.

[8] Based in North America, these are stakeholders / organizations that work or fund work in developing countries,

[9] While some individuals represented global organizations, their geographic location was recorded as where they spend the majority of their time.

[10] Christine Wolff-Eisenberg (2016). Survey Administration Best Practices: Using Incentives Effectively AND Eleanor Singer (2012) The Use and Effects of Incentives in Surveys. *University of Michigan*.

Figure 3: Survey demographics



2.2 Validation of findings

The data synthesis and analysis process of both qualitative and quantitative data culminated with the validation of findings. This was done in two phases:

1. ***Internal validation****:* This was done in a series of intensive meetings between the research team and DIAL. The research team used feedback from DIAL to help refine and finalize its analysis.
2. ***Key informant corroboration and exploration of findings****:* All key informants were invited to attend one of two open webinars, during which the research team presented a summary of the findings and facilitated feedback on those findings.

2.3 Limitations

The research team encountered the following design and implementation limitations during the course of the study:

- **Challenges in securing government participation**: Government contacts were largely unresponsive to requests for interviews.

- **Geographic focus**: KII respondents were largely concentrated in North America and Sub-Saharan Africa. While the research team and DIAL attempted to engage key informants beyond these two regions, stakeholders outside of these regions were generally unresponsive.
- **Low number of private sector key informants**: While niche private tech specialist firms working in digital development were included in the study, large-scale private tech providers were not. Due to concurrent research being conducted by DIAL, Mobile Network Operators (MNOs) were also excluded from this study. Where possible, findings from that research have been integrated into this report.
- **Low number of survey responses.** The primary challenge was a limited click-through rate, indicating that the survey was not attracting the attention necessary to bring respondents to the survey landing page. One explanation is 'survey fatigue.'[11] Another explanation, noted earlier, could be that many stakeholders do not self-identify as part of the digital ecosystem and therefore did not show interest in or ownership of the survey's subject matter.
- **Fraudulent survey responses**: The introduction of the incentive resulted in fraudulent survey responses. This was anticipated, caught early, and a reCAPTCHA was added to ensure that those completing the survey were human. The research team is confident that all fraudulent responses were removed from the survey dataset.[12]

Despite these limitations, the completed KIIs and surveys generated rich and complementary data that has been found useful by participants in validation webinars and other presentations of the study results. These limitations also generated useful findings and recommendations for DIAL on how to approach similar studies in the future.

3 Key findings and analysis

Five key themes emerged organically from the data: Typology of ICT4D; Funding for digital services; Design of digital solutions; Capacity to use digital data; and the Principles for Digital Development. These are discussed in turn in the following sections.

3.1 Typology of ICT4D

Box 2: Key takeaways

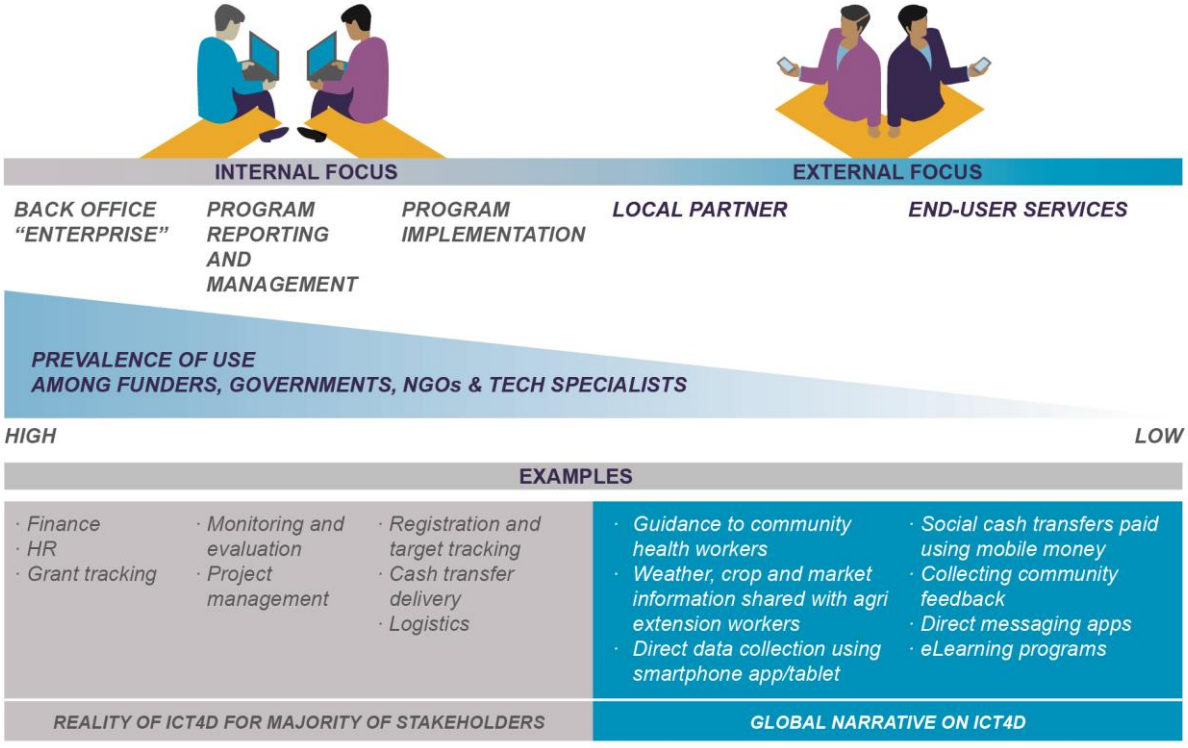
1. The global narrative on ICT4D is predominantly on external, beneficiary-focused uses for ICT4D However, many development initiatives are internally focused and support enterprise or program operations (e.g., data collection, participant tracking, monitoring and evaluation (M&E).

[11] Lydia Dishman (2014). Retailers: Your Surveys are Making Customers Suffer. Available at: https://www.forbes.com/sites/lydiadishman/2014/03/07/retailers-your-surveys-are-making-customers-suffer/#cff8cd82b4fc.

[12] A reCAPTCHA is a system that aims to establish that a computer user is a human. It requires the user to click a box to confirm "I'm not a robot."

An important finding that emerged during the study was the need to clearly distinguish the spectrum of digital development activities (see Figure 4). Given DIAL's strategy of unlocking markets to deliver digital services to the most vulnerable, the research team designed the study with the expectation that most of the research findings would reflect externally focused (i.e. end user or extension worker/partner facing) ICT4D initiatives. However, the reality for most key informant and survey respondents participating in this study is that most digital development engagement is still internally focused (i.e., support enterprise or program operations (e.g. monitoring and evaluation). While good internal ICT is often an important prerequisite for good end-user-facing technology, the global narrative around ICT4D is dominated by the end-user side of the spectrum. An important takeaway is that digital development involves both improving the efficiency and effectiveness of the operational workings of an organization, as well as its strategic service delivery. Neither of these two ends of the spectrum can be considered more important than the other, nor is there always a clear bifurcation between the two.

Figure 4: Digital development typology



3.2 Funding for digital services

Box 3: Key takeaways

1. *Key informants see typical donor funding as ill-suited to digital development life-cycles. Funding cycles are considered to be too short and disproportionately focused on the early stages of technology development. There is a need for more funding to maintain and scale digital solutions.*
2. *Tech specialists indicate that other stakeholders do not fully understand technology and manage it ineffectively. They suggested that including tech specialists in planning phases would allow for greater sustainability and scaling of digital solutions.*

While funding for digital services was not itself a specific area of research for this study, this finding emerged consistently and significantly enough to warrant special attention. How digital solutions are funded has great impact on quality, relevance, utility, and impact of the tools developed. The nature of investments in digital solutions and specific funding gaps are described in turn below.

3.2.1 Nature of investments

Funding for research and development for digital initiatives, as well as for capacity-building to enable organizations to use new digital solutions,[13] is in low supply and few organizations reported to have core funding to do either.[14] Most investments for digital appear to be project-based or components of a program, rather than solution or sustainability-focused. The implications of this are varied across the stakeholder groups.

All **tech specialist** key informants reported having an explicit digital investment strategy with an intentional area of focus, be it sector or platform specific. However, only organizations with a proprietary product reported direct reinvestment into digital solution development. Those focused on specific sector development (e.g. health) through the use of digital solutions tended to require ear-marked funding to pursue the development of their digital solutions.

> ***"We are a social, for profit [organization], reinvesting our profit into research and innovation. We are growing more than 100% per year. We are not expanding further because we can't staff central functions as fast as we are growing."***
>
> - Tech specialist

Many tech specialists indicated a desire for greater engagement with beneficiaries/users during the design and development of solutions, as well as resources for product iteration to ensure that the solution is suited to the needs of the user. Despite widespread understanding of this principle, however, these key informants indicated that funding for this type of inclusive, human-centered design process continues to be limited.

[13] Capacity-building in this context refers to the upskilling of individuals to use a particular new digital solution rather than digital literacy as a broad concept.

[14] As noted earlier, these findings are largely limited to funding of digital solutions through bilateral, government, or foundation donors, not through capital investment or other private sector sourcing.

Investments in, and attitudes towards digital by **institutional donors and foundations** were quite similar to those of **large NGOs and grassroots NGOs**. Donor key informants reported making large system-wide investments in organizational capacity-building, with a strong drive for *innovation* from their central headquarters. However, diffusion to their decentralized country offices was often slow and unsuccessful. Large NGO key informants reported similar dynamics to funders between their headquarters and country offices for internal dissemination of technology. Key informants from these institutions noted that they face the additional characteristic of running multiple digital pilots, and that they experience challenges in scaling these solutions due to competing priorities and timelines within large, decentralized organizations. This is a difficulty often cited in the ICT4D sector.

In contrast, **large Foundations** exhibited their drive for digital through the uptake of internal data management or organization systems, particularly Monitoring and Evaluation (M&E) systems. One key informant from a large (private) Foundation referred to this as 'digitization.'[15] Small Foundations could be on either extreme. Some had a sole focus on digital development and use of technology while others had no real engagement with digital at all. **Small NGO** key informants indicated that their organizations make use of digital for M&E and beneficiary communications. These findings indicate that there is significant variation in organizations' investments in digital initiatives, which is largely informed by organizational size and stakeholder group. Additionally, many stakeholders across the ecosystem have not yet moved beyond internally-focused digital development initiatives.

> ***"However, there are discussions starting that say this is untapped potential. I attended the Africa Strategy conference early last year which got me thinking about digital, and our country strategy refresh got me thinking about digital as well."***
>
> - Large NGO country office

Government key informants did not report their offices or departments having explicit digital strategies. They communicated that they would like to use digital to streamline activities, but that they did not have the funding to do so. This indicates a recognition of the value of digital, as well as a tension between needing to invest in physical services to citizens as a priority over digitization.

Implementing digital funding strategies

Key informants reported that there are significant challenges to implementing a funding strategy for digital. These include different funding cycles among funders, causing sporadic and confusing grant processes and expectations, and unreliable funding. During the validation process for this study, key informants confirmed that without the presence of a full-time grant team, it is incredibly difficult to navigate the funding network. Key informants also noted that there is often not much scope for follow-up funding.

[15] One funder key informant, reflecting on another large foundation (not included in this study), also emphasized that this foundation is focused on push digitization.

Funder key informants who reported making some progress in implementing their digital development strategies have done so due to successful integration of digital within their organizations. Having a digital champion or team also made a big difference in ensuring in-country adoption of digital.

Funder key informants found the prospect of scaling digital within their own organization daunting. Large donors reported that the complexities of coordinating systems and processes internally was a large contributor to their lack of progress in digital.

"The other challenge on scaling is the timing and coordination piece, where country offices have different priorities and timelines and trying to align both the attention and funding so can step together globally, and balance that with keeping momentum going for projects at a country level."

- *Large Foundation*

3.2.2 Funding gaps

Key informants engaged as part of the study expressed that there are important gaps in the funding for digital solutions. They emphasized that the funding cycle in its current form does not support ongoing maintenance, monitoring, support and iteration of digital development projects or products. Overall, key informants reported that the funding cycle does not align easily with the life-cycle of technical solutions. Some specific cases of mismatch are as follows:

- Tech is not included at the initial conception and planning phase, but rather as an after-thought to bolster a project, which often leads to difficult and inefficient tech integration. Tech specialists are often not included in proposal writing or planning, which can lead to an inaccurate portrayal of the incorporation of digital solutions in a project to secure funding.
- There are unrealistic timeframes for development and investment, which can often lead to tech not being implemented before the final phases of a program, or being developed sub-optimally.
- There is often no funding allocated for maintenance, monitoring or iteration of tech solutions post-piloting.[16]
- In general, funding tends to be short-term with little interest in or funding for platform development or scaling.

Key informants provided potential explanations for these funding gaps. The first explanation is that funders sometimes have unrealistic expectations of what digital can do for beneficiaries. According to key informants, this lack of understanding on the part of funders may lead them to fund a digital solution to be used in a context or program where digital may not be a suitable option, or

"Some foundations are unfocused in that they do one thing, then before a certain idea has taken hold, move on to the next thing."

- Tech specialist

[16] When discussing this issue, a few key informants referred to the issue of 'pilotitis,' which is a term that has been used to express frustration at the "continuing emphasis on demonstrating successful outcomes from narrowly focused interventions targeting relatively small populations." These key informants emphasized that funders tend to be focused on demonstrating the value of a pilot, but moving on to funding new opportunities before full value from a pilot. See Fei Huang, Sean Blaschke and Henry Lucas (2017). Beyond pilotitis: taking digital health interventions to the national level in China and Uganda. *Globalization and Health*, Vol. 13, No. 49. 2017: 2-11. Available at: https://globalizationandhealth.biomedcentral.com/track/pdf/10.1186/s12992-017-0275-z.

without fully understanding the resources necessary to develop a viable solution given context constraints. The second explanation is that funders do not appear to have a consistent focus and tend not to extract full value from a pilot before moving on to other initiatives. Interestingly, funders mentioned that they would prefer to scale, if possible, but comments from the tech specialists suggest there might be **a gap in funders' aspirational and actual strategies.**

Through the validation process, key informants noted that the most urgent adjustment needed in the funding cycle is the inclusion of hard-to-raise scale and diffusion[17] funding. Independent research by the United Kingdom's Department of Food, Environment and Rural Affairs has indicated that investing in "teams not programs" when it comes to digital is the way to generate consistent technical progress.[18] This supports tech specialists' desire for long-term funding that is not linked to a specific, often time-bound, program. In addition, key informants suggested a range of funding models to reconfigure the funding cycle so that it aligns more appropriately with digital development solutions. These models were provided by foundations or impact investors and are described below:

- *Core funding:* continuous operation cost support to encourage an innovative culture (conception through enhancements).
- *Seed funding:* helpful in managing upfront cost of product development (initial conception and R&D).
- *Scale funding:* not common but asked for frequently, to help a functional product upgrade and scale (diffusion and maturity).
- *Impact investing*: seen as more willing to take risks and consider long term potential of products, including the potential for scale and impact.
- *Challenge funds:*[19] enthusiasm for its generation of a "start-up" culture. However, experience of the implementation of these types of funds has been mixed. Early stage innovation funding through challenge funds, like seed funding, should include rigorous selection criteria and an assessment of the ability to access scale funding in the future.

> ***"Innovation funding always wants something exciting, not something that is formative and functional. What funders are looking for often makes a big problem here. We need to make a case to show why it is compelling and explain why we need [core funding] support. [A large NGO] had an amazing individual who made it her mission to solve this funding focus issue… She saw the problem of no core funding."***
>
> - Tech specialist

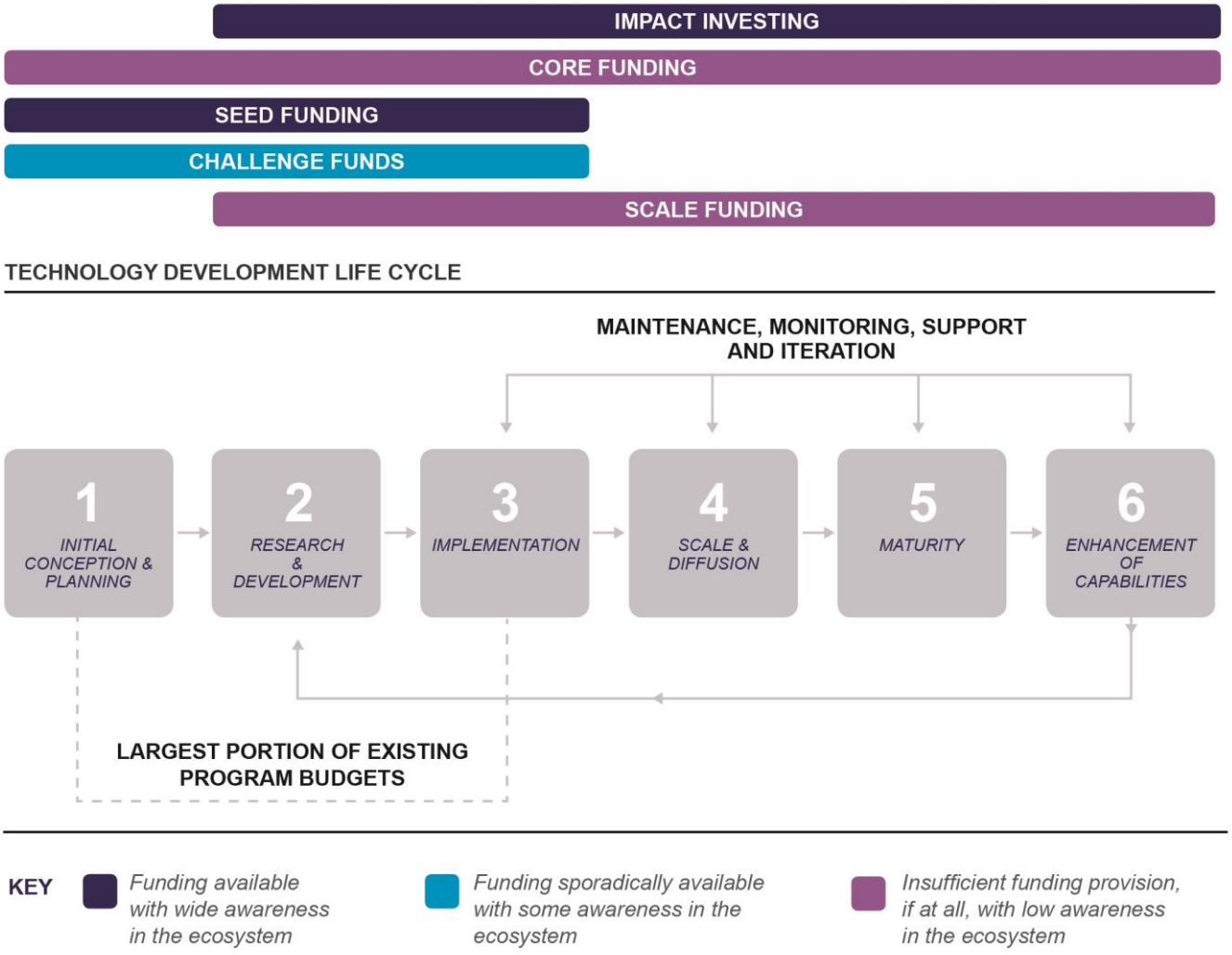
Figure 5 below presents key informants' perceptions of the stages of the tech development life cycle covered by each type of funding.

17 'Diffusion' refers to other stakeholders both adopting and adapting/improving the solution.

18 David Thomas (2017). Let's fund teams, not projects. *GOV.UK*. Available at: https://defradigital.blog.gov.uk/2017/09/19/lets-fund-teams-not-projects/.

19 Challenge funds "provide financial contributions in the smallest possible effective amount to socially or environmentally worthwhile projects that are delivered by the private sector. The fund is a versatile instrument – a distinctive smart subsidy – that reduces the risks and costs of private investment while 'challenging' the private sector to innovate for the public good." United Nations Development Program (UNDP) (2017). Enterprise Challenge Funds. Available at: http://www.undp.org/content/sdfinance/en/home/solutions/enterprise-challenge-fund.html.

Figure 5: Sources, availability and awareness[20] of different forms of funding mapped to the technology life cycle



[20] The spread of knowledge regarding from whom and how to receive these forms of funding.

3.3 Design of digital solutions

Box 4: Key takeaways

1. *The majority (81%) of tech specialist key informants indicated a preference for using open source software components as a starting point when designing digital solutions. However, these key informants noted challenges related to the cost of configuring and using open source solutions, the quality of open source solutions available, and the sustainability of business models for tech companies providing open source solutions.*
2. *A number of challenges emerge in the design and delivery of digital solutions, including lack of, or limited access to infrastructure; lack of planning and coordination across stakeholder groups; insufficient consideration to designing for the local context; and, funding cycles that are disconnected and from tech development cycles.*

A key focus of DIAL's strategy is the effective and efficient design of digital solutions. To understand factors that contribute to, or detract from, the effective and efficient design of digital solutions, the study investigated the extent to which open source software components are used to design digital solutions, as well as the challenges that undermine the design process. These are investigated in turn below.

3.3.1 Using open source as a starting point to design digital solutions

Among **tech specialist** key informants, 13 (81%) reported using open source software components as a starting point when developing digital solutions.[21] [22]These respondents reported looking for 'best of breed' open source software, which they then developed on top of or connected to other software to deliver the desired digital solution. Among these key informants, the most frequently cited examples of open source software components included Java, CommCare, OpenMRS, Django, RapidPro, and Open Data Kit (ODK). The use of these software components is determined by the type of initiative, the needs of the program or project, and which stakeholders are involved.

While these key informants were proponents of using open source software components, they did note a few key concerns and challenges. For instance, they noted that there are considerable costs related to the use of open source tools (specifically the costs to configure and maintain the solutions), which are often not fully understood by other stakeholders in the digital ecosystem.

Tech specialists also communicated a concern over the quality of open source software components available. A few key informants noted that some open source tools are only updated and adapted when grant funding becomes available. Furthermore, pursuing funding opportunities for this purpose can be

[21] This question was posed to every tech specialist key informant.

[22] Interestingly, this percentage is considerably higher than found in earlier research done by DIAL in 2015, where only 25% of digital service providers reported using at least some open source software.

time-consuming.[23] [24] Consequently, open source software may lag behind proprietary solutions in terms of quality, and may require extensive adjustments to build off of the software. This is why one tech specialist key informant noted that their organization *does not* use open source software components. The final concern expressed by these key informants is related to the sustainability of developing and providing open source software components. Many tech specialists noted that it can be difficult for small technology businesses to sustainably develop open source technology for the international development sector. This is due to the limited market size and difficult requirements from donors around open source. Consequently, these organizations frequently need to identify other revenue source or face being driven out of the market place.

3.3.2 Design challenges

When designing digital solutions, whether based on open source software components or custom solutions, key informants emphasized four main challenges. These challenges are summarized below.

Lack of and limited access to infrastructure

NGO and tech specialist key informants noted the challenge of designing digital solutions for end-user and partner-facing service delivery in environments where access to electricity is limited or unreliable. For instance, it may not be sensible to digitally provide information to, or seek feedback from, beneficiaries in environments where they may not even be able to charge their phones consistently.

Using digital technologies is also a challenge in environments where mobile and internet connectivity is limited. This gap is most pronounced in rural areas where infrastructure may not yet exist. Furthermore, even where this infrastructure does exist, network performance is sometimes low and connections can

Box 5: Challenges to scaling and sustaining digital solutions

Moving beyond the initial design of digital solutions, the study investigated the potential for scaling and sustaining these solutions. **Donor** key informants reported a high desire for scaling and systems adaptability through interoperable solutions. This is consistent with the survey findings, as 75% of funder respondents indicated that their organizations prefer funding solutions that build on or scale existing solutions. However, key informants across stakeholder groups noted that digital solutions are generally not scaled or sustained to the desired extent and experience the following challenges:

Organizational size and lock of coordination as a barrier to scaling: Key informants from large international organizations noted that competing priorities and timelines across the organization undermine the use of technology solutions across the organization and across programs.

Knowledge and Capacity: Varying levels of comfort with technology within organizations means that some program offices are slow to integrate tech solutions.

Technology plays a supporting role: Technology is not central to the program design, but is considered an enabling element, which means it isn't appropriately planned for or resourced.

Project specific designs: The project-specificity of digital solutions means that they are not easily applied in different programs and contexts, which limits the potential to scale and sustain these solutions beyond their initial intended use.

In response to these challenges, key informants noted three key factors which may promote the scalability and sustainability of digital solutions: 1) having an **organizational strategy to promote digital and technology** solutions; 2) upfront consideration to the **broader applicability of digital solutions**; and, 3) **use platform solutions** and rely on bespoke solutions only in exceptional circumstances. These steps would create an organizational mandate for the sustainable integration and use of technology and encourage organizations to adopt and adapt scalable and sustainable solutions.

[23] David McCann and Michael Downey (2017). Can Open Source Deliver the Dream of Digital Development? Available at: https://digitalimpactalliance.org/can-open-source-deliver-dream-digital-development/.

be unreliable. Due to these difficulties, NGO, tech specialists and government key informants emphasized the importance of designing technology solutions that are suitable for low-tech environments, as well as the importance of recognizing the conditions in which technology may not be suitable at all.

Tech specialists also noted the challenge related to the foundational infrastructure necessary to develop digital solutions and make technologies interoperable. This includes common standards and protocols to enable different programs to exchange and interpret data. These key informants noted that not enough work is being done in this area, partly because these solutions are viewed as less "sexy" by funders. As a consequence of this gap, there is limited ongoing maintenance of the infrastructure necessary to ensure that digital solutions are interoperable and sustainable.

Lack of integrated planning and decision making across stakeholder groups

Lack of integrated planning and decision making across stakeholder groups also undermines the design of digital solutions and the potential scalability and sustainability of solutions. **Tech specialists** noted that they are seldom included in the planning and design phase, when the decision is taken to integrate technology solutions into programs. Consequently, funders and implementers may have unrealistic expectations regarding the use of technology and appropriate technology solutions for the program's context. This can result in unrealistic budgets and timeframes for the design and development of solutions, as well as solutions that are inappropriate for the program's needs and context, a challenge which has been documented elsewhere. For example, one tech specialist noted that program implementers may specify the use of a messenger platform like WhatsApp for communicating with program beneficiaries which may make sense from an implementer technical perspective. However, if the process included beneficiaries they would have learned that using IVR, SMS or USSD may be more appropriate given the literacy levels. Similarly, the decision makers might have learned from MNOs that those type of services are predominantly used by targeted beneficiaries.

NGO, government, and tech specialist key informants also noted the lack of engagement with governments and other local stakeholders as a key challenge during the design process. This undermines the potential to design solutions for local ownership, ultimately undermining the solution's sustainability.

Challenges in designing for the local context

Tech specialist key informants emphasized the importance of designing with the local context in mind, but noted important barriers to doing so. According to these key informants, clients too often approach technologists with ideas that have been developed in a boardroom without going through the process of validating the idea with the end users. Even when a research phase has been accounted for, there is often limited time and budget allocated to allow for a rigorous user-centered design process. Furthermore, when changes are necessary, inflexible grant agreements can prevent adaptations to the solutions. This can result in technology solutions that are ill suited to the reality and needs of the given context.

[24] Similar views are captured in Nadia Eghbal. Roads and Bridges: The Unseen Labor Behind Our Digital Infrastructure. *Ford Foundation*. Available: https://www.fordfoundation.org/media/2976/roads-and-bridges-the-unseen-labor-behind-our-digital-infrastructure.pdf.

Funding cycles are disconnected from tech development cycles

Since funding in this study is largely referring to Donors and Foundations, rather than private capital investment, there are unique challenges related to how these Funders operate. For one, due to the fact that tech specialists are seldom engaged in the planning phase for technology, **tech specialist** key informants noted that budgets and timeframes are often inappropriate for the desired tech solutions, as described in detail in section 3.2.2 above. Consequently, in some cases a solution is only fully developed toward the end of funding or a program, resulting in limited usage of the solution. Secondly, as noted above, the focus on time-bound, project-based solutions often leads to duplication and wasted efforts as projects end and their tools often don't survive.

3.4 Capacity to use digital data

Box 6: Key takeaways

1. *Key informants recognize the value of using data for evidence-based decision-making. However, where digital data is used to support service delivery, this is largely limited to M&E data and donor-commissioned research.*
2. *Key informants and survey respondents predominantly use open data sources. Few reported using proprietary data, unless an initiative is specifically designed and funded to do so. This is because this data is perceived as costly or unnecessary by implementers.*

DIAL defines digital data as data generated by mobile, satellite and digital devices,[25] and the DIAL Data for Development (D4D) team is focused on improving the use of this data to inform and strengthen non-profit, humanitarian and public-sector decision-making. This section explores findings related to these sectors' current use of this data and its capacity to do so. These findings recognize that there are different types of digital data, most notably 'internal' data, or data generated by the organization or tool itself, generally for internal purposes. Digital data also includes 'external' data, collected or generated by third-party entities, either for commercial (e.g., MNOs) or public (e.g., census bureaus) purposes. Another distinction, like the ICT4D Typology above, is whether the digital data is being used for internal purposes, like M&E and grant-tracking, or for external purposes, like data for citizen engagement. These are explored below.

3.4.1 Use of digital data internally

Across all stakeholder groups, there is a recognition of the value of using data for evidence-based decision-making. This is consistent with the findings of a recent ICT4D study conducted by CRS, which found that 82% of respondents rated timely data and 81% rated higher quality data as very important when asked about the degree to which digital tools benefit certain aspects of aid and/or development programs.[26]

[25] Digital Impact Alliance and Altai Consulting. (2018). Leveraging Data for Development to Achieve Your Triple Bottom Line

[26] Catholic Relief Services. Innovate. Connect. Transform. Development community perceptions of ICT4D.

While the majority of key informants reported using digital data, the use of digital data is most common among NGOs and tech specialists. **NGO** key informants predominantly use digital data for M&E. While this is predominantly used for reporting to donors, all of these key informants cited the importance of using it to inform program improvement. Indeed, both **international and grassroots NGO** key informants reported that collecting and analyzing data digitally is useful for them to track progress towards their targets, to identify how to improve their efficiency and effectiveness, to ensure accountability by gathering feedback from communities, and, in humanitarian contexts, for planning emergency responses. For many of the NGO key informants, internal data is generated through mobile data collection. However, an important consideration in collecting mobile data is the trust relationship with beneficiaries. A number of key informants thought "there should be a level of disclosure to the community to understand what is being done with the data."

"There is a lot of lip service to data-driven decision making – this is more a capacity issue rather than a digital issue"

\- Large NGO

However, some key informants, particularly grassroots NGOs and country teams of international NGOs, reported that their staff still need convincing of the value of digital data collection and analytics, which is either due to capacity constraints and/or a perception of it being burdensome.

Funders' reported use of data is low. Funder key informants indicated that they receive M&E data from their grantees, but any data generated by funders themselves is usually through commissioned research that is then made publicly available. In response to this, one foundation reported that they are developing a new strategy that includes the formation of a new data and technology team, which will be both externally and internally facing. This will involve engaging with M&E data and driving the use of their own data, both for the public good and for program improvement. This will also include developing a data policy and internal data principles.

One **government** key informant reported that their department received external support to develop a digital system to track school performance, including resources provided to schools, curriculum coverage, whether teachers are completing the syllabus, and learner performance data. This key informant noted that this is an important system because it allows their institution to make critical resource allocation decisions. Despite this example, government key informants indicated that their use of internal data is generally low. They did, however, note that they are able to leverage national bureaus of statistics and research commissioned by specific government departments to access data that informs their

Box 7: Broader capacity gaps: use of technology

The study found broader capacity gaps in the digital ecosystem. All key informants cited capacity to select and use technology as one of most significant challenges they face. Namely, NGOs, funders and governments all face low levels of digital literacy within their organizations; there is sometimes little understanding of what is possible through digital solutions, and familiarity with existing solutions is often limited. One tech specialist explained that this may be because organizations are new to using digital solutions or have tried a few projects at a small scale and are less aware of the complexities that come with larger deployments. This limited understanding of digital solutions ultimately has an impact on the way in which solutions are selected, funded and implemented.

resource allocation, and this data is also often made publicly available.

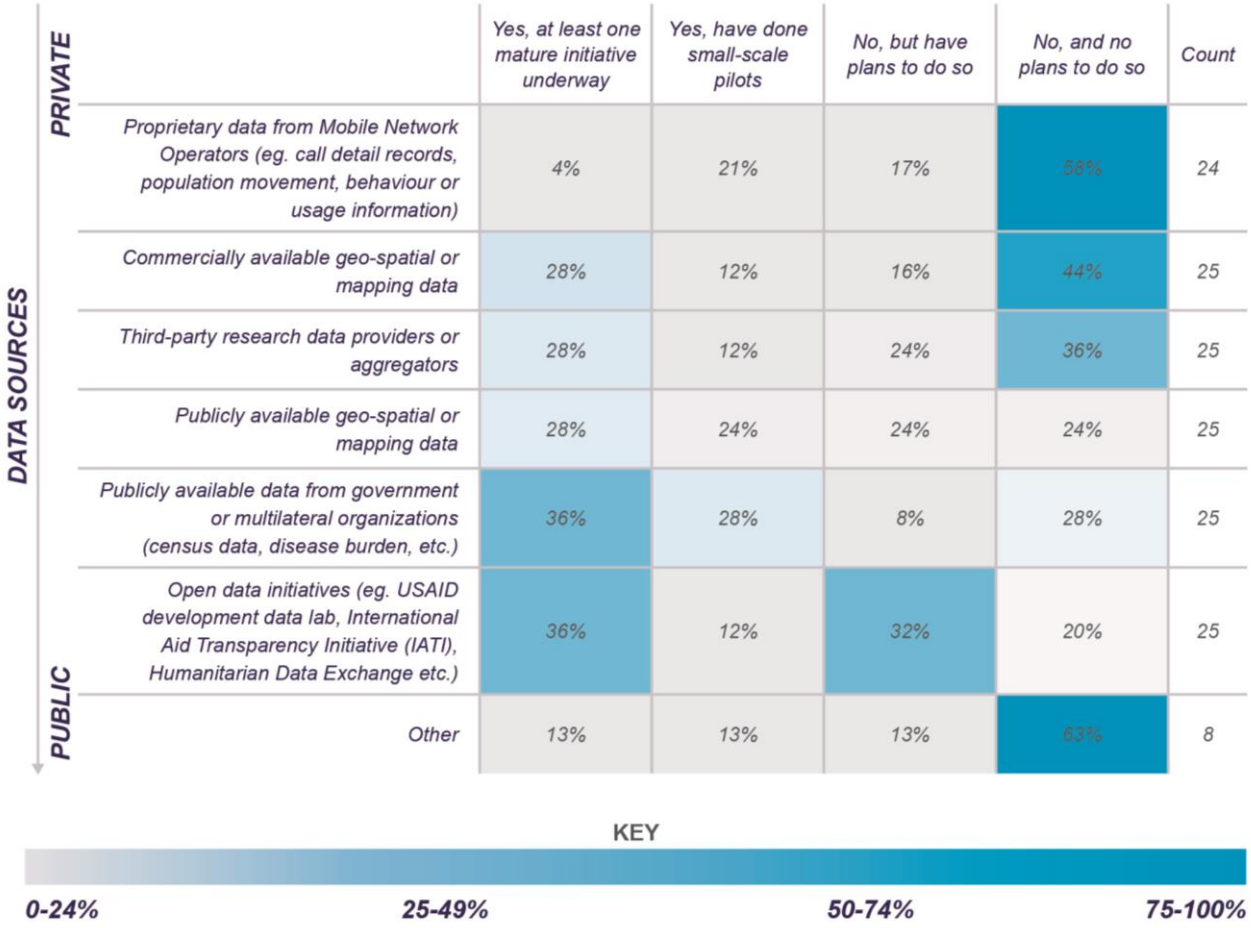
Finally, apart from using data to develop and maintain digital solutions**, tech specialists** predominantly *support* their clients and partners in using digital data for improved decision making.

3.4.2 Use of external data: open data and proprietary data

External data, or data collected or generated by a third party, is largely of two types. The first is open data, which refers to data that are free to the public to use. The second type is proprietary data, or data that are held by private sector parties like MNOs and potentially available for purchase. The majority of the key informants reported that they either use or support the use of open data.

Almost all **NGO** key informants reported that they use open data sources, such as the World Bank Open Data, International Aid Transparency Initiative (IATI) data, as well as data published by national bureaus of statistics and government ministries. This is consistent with survey results, which found that 52% of NGO respondents report using publicly available geospatial and mapping data, 64% report using publicly available data from government or multilateral organizations, and 48% report using other open data initiatives. This is indicated in Figure 6 below. Some small NGO key informants expressed concerns that the specific data they require is not publicly available. In some cases this is an availability issue, while in others it may be due to a lack of awareness of what open data sources exist. Respondents from all stakeholder groups mentioned the concern that some publicly available data, as well as some data provided by partners, can be incomplete or inaccurate and that they need to treat it with caution.

Figure 6: Use of different external data sources (NGO survey responses)[27]



Genesis Analytics, Survey of the digital ecosystem (2018)

In contrast, few key informants reported using proprietary data[28] sources, with most respondents stating a preference for open data when external data was used. Consistent with this finding, 58% of NGO survey respondents report that they have not used MNO data, while 44% reported not using proprietary or commercially available geospatial or mapping data. Importantly, these respondents indicated that they have *no plans to use* these data sources, as shown in Figure 6 above. However, one NGO survey respondent whose organization had used geospatial data noted, "geospatial data was used for locations and distance of beneficiaries from food distribution points, and it was very useful for management to make decisions on establishing the number and location of distribution points."

Most key informants from **smaller NGOs** reported that they didn't see the value in accessing this type of data, given the costs associated with doing so or the data analytics skills required to analyze it. This was

[27] As indicated in the final column, the n for 'Other' is 8. As a result, the finding of 63% under 'No, and no plans to do so,' is an insignificant result. While respondents who selected the 'Other' option were asked to specify the data sources, none of the respondents provided a relevant response to this question. However, in future studies, it may be worth investigating the 'other' data sources that stakeholders use, which are not currently reflected as options.

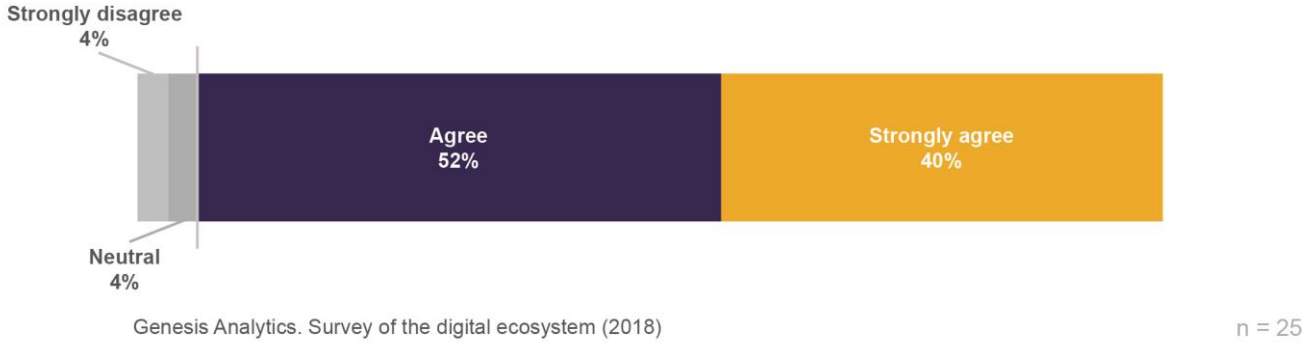
[28] This includes external data that either belongs to a particular organization or can be purchased commercially.

consistent with recent DIAL research that found that governments and NGOs are unfamiliar with MNO data and what this data can be used to do.[29] However, the rate of proprietary MNO data use is likely to grow – while only 4% of survey respondents have a mature initiative using this type of data underway, 21% have done some small-scale pilots and 17% have plans to do so. NGO key informants did note that they are aware that if proprietary data is needed, this needs to be built into funding applications.

However, while most survey respondents and key informants reported that they have not used proprietary data, some key informants from **donors** and **large NGOs** reported accessing proprietary data for specific interventions, and where partnerships were in place to do so.[30]

Despite these findings, 92% of NGO survey respondents agreed with the phrase 'Digital data like mobile, geo-spatial or app usage data can add value to my programming,' as shown in Figure 7 below. This may relate to respondents' understanding of these data sources as well as their capacity to consume these types of data. While respondents perceive the value of this data, they may not understand how to use them, resulting in the low reported usage indicated in Figure 6 above.

Figure 7: NGO survey respondents agree that digital data can add value to their programming



Finally, while most key informants reported conducting data analysis internally, this is largely for basic data analytics and many key informants noted gaps in analyzing qualitative data. These key informants emphasized that becoming more data-centric is a rising priority in ICT4D and requires leadership support, the right tools, skills and standard practices.

"Even if we could access that type of data, I'm not sure we have the skills necessary to analyze it."
- Small NGO

3.5 Principles for Digital Development

[29] Digital Impact Alliance and Altai Consulting. (2018). Leveraging Data for Development to Achieve Your Triple Bottom Line

[30] Some examples of the work CRS is doing with GIS technology are available here: https://www.crs.org/our-work-overseas/program-areas/health/4children/gis-tool-meeting-development-goals

Box 8: Key takeaways

1. *There is generally high awareness of the Principles for Digital Development, with 77% of the survey respondents and 65% of the key informants aware of them.*
2. *Key informants agreed that the Principles for Digital Development present a useful framework to guide tech-enabled development work.*
3. *Key informants find the Digital Principles hard to implement and expressed a desire for more practical implementation guidance and practical examples from which to learn.*

The Principles for Digital Development are nine living guidelines intended to help integrate best practices into technology-enabled programs. The Digital Principles[31] were created in a community-driven effort, the result of many lessons learned from the use of ICT in development projects. Since 2016, DIAL has been the steward of the Digital Principles, promoting them, developing resources and guidance, and managing a Community of Practice.[32] As of July 2018, 121 organizations from around the world have endorsed the Digital Principles – this includes UN agencies, global bilateral donors and private foundations, as well as smaller locally-based organizations.

3.5.1 Awareness and Perceived Value of Digital Principles

"The Principles provide structured reminders to refer to as development, user research and training take place. They drive development choices, heavily influencing decisions about components and licensing. With respect to users and partners, they often keep us more agile, as we cannot adhere to the principles without actively seeking out user input, feedback and validation."

- Survey respondent

Seventy-seven percent (77%) of the survey respondents and 65% of the key informants reported that they are aware of the Digital Principles. Awareness of the Digital Principles was skewed toward global organizations (and their local counterparts) versus local organizations (including government and local NGOs/implementers). Eighty-six percent (86%) of key informants who reported that they were not aware of the principles were focused at national level. This finding is consistent with other findings across the study, where local-level and Global South key informants often reported feeling disconnected from global ICT4D conversations.

Key informants expressed a general appreciation for the Principles as a framework for creating consensus on how to approach tech and digital solutions in a development context. They believe this enables a mutual understanding of how to proceed, while also validating and confirming the key tasks that need to happen for the benefit of all stakeholders.

Among those key informants who were aware of the Principles, the only source of contention noted was related to the promotion of open source.[33] According to these key informants, open source is inappropriate

[31] Principles for Digital Development. Available: https://digitalprinciples.org/

[32] https://digitalprinciples.org/community/

[33] The sixth Principle specifies, "Use Open Standards, Open Data, Open Source, and Open Innovation." Principles for Digital Development. Available: https://digitalprinciples.org/principle/use-open-standards-open-data-open-source-and-open-innovation/.

in certain circumstances, and technology needs to be identified and deployed in an appropriate way for each context.

3.5.2 Endorsement and implementation experiences

Of those organizations that were interviewed, there were differing levels of implementation experiences and challenges. Some key informants noted that their organizations have used the Digital Principles as a guiding framework from which they have developed further internal processes and tools. In contrast, some organizations have simply endorsed the Principles because they provide the necessary framework to 'guide' the organization and its staff, but that they are not reflected upon regularly.

Despite these perceptions toward the Digital Principles, the majority of survey respondents indicated that they are confident or very confident in their organization's capacity to integrate/implement the Digital Principles. This is indicated in Figure 8 below.

Some key informants across stakeholder groups mentioned that in absence of more specific implementation guidance, the value of the Principles is limited. For instance, one key informant noted, "it's a good discussion but there's no implementation plan so it's hard to get on board." Box 9 discusses further challenges in implementing the Digital Principles.

Box 9: Challenges experienced in implementing the Digital Principles

Many funders and large NGOs have endorsed and are attempting to implement the Principles whole-heartedly. However, while funders are encouraging and/or requiring partners to apply the Principles in their work, many organizations raised concerns regarding the challenges in doing so on the ground, including:

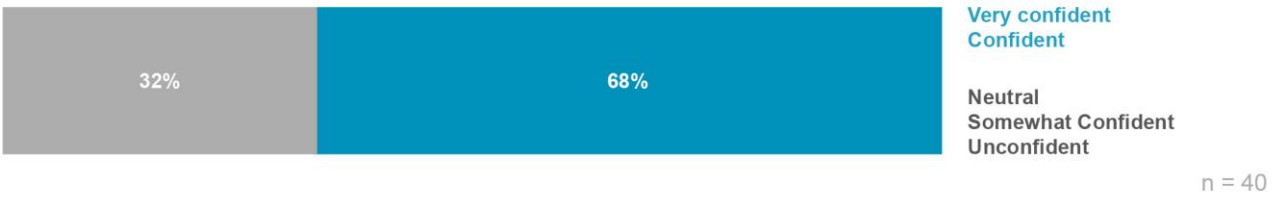
Financial resources are required to support the implementation and expansion of digital solutions using the practices recommended, such as "Design with the User," "Understand the Ecosystem," "Re-use and Improve," and "Be Collaborative," and many of these are undermined by funding limitations.

Capacity and lack of digital literacy poses major challenges and are critically required across the ecosystem to ensure that the Digital Principles can be and are implemented. This feedback from key informants is interesting given the majority of survey respondents reported that they are confident in their organization's capacity to integrate/implement the Digital Principles (shown in Figure 8).

Decentralization of large institutions can cause major challenges in implementing the Digital Principles until they are embedded into the core culture of an organization.

Lack of general appreciation for **stakeholder consultation** for planning and design.

Figure 8: Percentage (%) of survey respondents confident in their organization's capacity to integrate/implement the Digital Principles



Genesis Analytics, Survey of the digital ecosystem (2018)

It is important to note that the Principles for Digital Development website was re-launched in October 2017 with more information, tools, and implementation-focused guidance. However, based on the input from the key informants, these are not widely known.

4 Ecosystem opportunities

The insights generated across the data provide a look at what opportunities exist to support the expansion of the use of digital for development across the ecosystem. These opportunities can be broadly grouped according to the following thematic areas: advocacy and convening, capacity-building, and infrastructure.

4.1 Advocacy and Convening

The stakeholders engaged in this study each play a unique role in the ICT4D ecosystem: funders provide financial inputs to support the use and delivery of digital services, tech specialists provide the technical expertise necessary to design and build these digital solutions and NGOs and governments are integrating digital solutions to support their programs and operations. These roles could come together to form a substantial set of the inputs, supply and supporting functions of ICT4D, however there are not sufficient mechanism to do so hence a missing role in Advocacy and Convening

Advocacy

In light of these gaps, stakeholders explained the importance of advocacy for good practice. Key informants, for example, reported that there is a shortage of stakeholders advocating for more funding and better-suited funding models for digital services.

Increased advocacy efforts in the ecosystem would elevate the voices of less powerful ecosystem actors, such as small **NGOs and tech specialists**. In doing so, this would offset the power imbalance between these actors and funders; large and small actors; and clients and service providers. This would allow for a healthier exchange of views and information and a better-informed ecosystem.

Key informants also noted that the ICT4D space does not need more technology. Rather, there should be greater focus on scaling existing solutions and investing in the integration and interoperability of existing solutions. This is also important in light of the study finding that there is a gap in funding for scaling

solutions. Consequently, there is a space for advocacy efforts to emphasize the importance of supporting existing, proven technologies and solutions.

Finally, the lack of and limited engagement from government, MNOs, and other private sector stakeholders in this study indicates that these stakeholder groups may not be engaged in ICT4D or that terms like ICT4D are still too new or niche for them to be widely understood or embedded. Increased advocacy could create a shared understanding and approaches among relevant stakeholders across the ecosystem.

Convening

Convening these broad stakeholders would also assist with many of the ecosystem challenges identified throughout the study. Most notably, key informants identified that **government** stakeholders are disengaged from the digital ecosystem. This is in part because governments are either perceived as too bureaucratic to work with, or because governments are a "forgotten user" entirely, and therefore are not engaged by other stakeholders. In some instances, however, it is because governments may not be interested in some instances, or simply may not understand their role in the ecosystem. Importantly, stakeholders explained that a concerted effort to engage governments as part of the digital ecosystem would promote the scalability and sustainability of digital solutions.

Another way in which the disconnect across stakeholder groups manifests is as a result of the divide between stakeholders located in the Global North and Global South. While stakeholders in the Global North frequently convene to discuss and learn about experiences and challenges in the digital ecosystem, it can be difficult or prohibitively expensive for stakeholders in the Global South to attend these convenings. Additionally, stakeholders in the Global South noted that, because those in the Global North are often a step ahead in terms of communication technology and infrastructure, it can be difficult to engage on ICT4D challenges when they are driven by the trends in the Global North.

Having access to digital forums could help close the divide. All of the forums are for a community based in Washington DC or the US, or London. Events like those exacerbate the digital divide. These ICT4D events should be digital and inclusive. That would help the rest of the community participate and bring in voices and diversity that needs to be valued and heard.

- NGO (survey)

As part of this effort, it is also helpful to encourage and support local and regional convening and collaboration efforts in the Global South. These engagements elevate the voice of those located in the Global South and allows these stakeholders to identify and engage on common experiences and challenges. One expert in the field reported that the Technology Salons in Ghana, South Africa, Kenya and Zambia are South-led, with Ghana and South Africa focused specifically on local conversations.[34] Another example of South-led convening effort is DevCafe's Innovations in Evaluation series,[35] which

[34] Wayan Vota. Email to research team, July 25, 2018. Wayan Vota is a digital development entrepreneur. Learn more about Wayan here: http://wayan.com/.

[35] Linda Raftree. Email to research team, July 26, 2018. Linda Raftree is an independent consultant with extensive experience in ICT4D. Learn more about Linda here: https://lindaraftree.com/about/.

takes place in Indonesia, but offers online participation, which helps make the event accessible to those who otherwise would not be able to attend.

Communities of practice and broader convening efforts to bridge activities and understanding across stakeholder groups and regions would assist in resolving many of the challenges identified in this study. However, many stakeholders noted that this convening role has not been sufficiently filled. Convening these stakeholders would assist in developing appropriate and sustainable digital solutions, allow stakeholders to engage and identify suitable funding models, and create awareness around the digital solutions and digital data available to support programs and interventions. These discussions can then be captured and shared to a wider audience.

4.2 Capacity-building

This study has also revealed critically important capacity gaps across stakeholder groups.

The first major gap relates to the organizational capacity to use digital data, either for internal purposes or for service delivery. Some key informants reported that they still need to convince staff of the value of digital data collection and analytics. Other key informants noted that while their organizations are using digital data, there is still work to be done in analyzing and visualizing digital data.

"We have acknowledged we are seen as leaders in innovation, but we have no data to support this. So when people ask us for things, we go ask you [consultants]. That doesn't allow us to be a good player and because we have no data and do none of our own analysis, we are not keeping up with the tides and see that as a problem."

- Foundation

The second gaps include organizations' and governments' capacity to use digital solutions to serve vulnerable populations and the capacity to identify and select appropriate digital solutions. These problems go hand-in-hand: with poor understanding of digital solutions leading to poor solution selection the leading to challenges in using new technologies then leading to reduced support for future technology investments. Through an increased in internal capacity the cycle of failure can be slowed.

These gaps in organizational capacity indicate the need for concerted capacity-building efforts in the digital ecosystem. Increased focus on capacity-building combine with increased convening efforts would allow different stakeholders to come together to share knowledge and skills relevant to the digital ecosystem.

4.3 Infrastructure

Infrastructure was noted as a key challenge by nearly every key informant engaged as part of this study, as well as by survey respondents. This included many different stages and types of infrastructure. While solving many of the infrastructure challenges is outside the remit of ICT4D, these challenges need to be incorporated into solution selection.

Firstly, stakeholders were concerned with limited and unreliable power infrastructure in rural areas limiting beneficiaries' and partners' ability to routinely access digital solutions.

Secondly, stakeholders were concerned about issues with mobile and internet connectivity. This gap is most pronounced in rural areas where infrastructure may not yet exist or is unreliable. Even where this infrastructure does exist, a number of key informants across stakeholder groups noted that network performance is sometimes low and connections can be unreliable. These gaps in infrastructure require stakeholders to think about ways to integrate technology solutions in low connectivity environments and work around for online/offline options. These challenges may also lead to technology solutions not being pursued or projects being abandoned. If digital solutions are pursued in these contexts without these binding constraints being addressed, there is a risk of widening the digital divide. This may ultimately limit the development and advancement of ICT4D.

Finally, **tech specialists** were concerned about the lack of integrated and interoperable tech stacks. This is mostly a funding challenge, as key informants noted that there is limited availability of funding for these types of less 'sexy' solutions. However, infrastructure to support the integration and interoperability of tech stacks provides the foundation to support optimal functioning of ICT4D solutions.

Provision of reliable infrastructure is a key supporting function necessary to ensure that ICT4D initiatives are effectively and sustainably deployed. This is important both as an explicit goal of the SDGs but also as a means to implement and achieve other SDGs.

5 Call to action

5.1 Ecosystem opportunities

Reflect on the role that your organization can play in one or more of the ecosystem opportunity areas to help make a more inclusive digital ecosystem a reality.

Section 4 above highlighted that there are three major areas of activities that are necessary to mitigate counter-productive activities and improve the functioning of the digital ecosystem to better serve underserved populations. These include advocacy and convening; capacity-building and infrastructure development. These provide relevant stakeholders with opportunities to build a more inclusive digital society.

5.2 Promotion of the Digital Principles

Do you believe your organization embodies the Digital Principles in practice? Become a global champion!

For the Digital Principles to be seen as a critical guiding framework across the digital development sector, it is essential that they are upheld and promoted by competent champions and partners across the ecosystem. This means that organizations that have endorsed the Principles must be seen to be supporting the Principles in all aspects of their work. This includes ensuring that funded programs and technical assistance uphold the Principles wholeheartedly. Documentation and evidence of how the Principles have helped them improve, such as a cost-benefit analyses, would be invaluable.

6 Implications for DIAL

As part of the validation workshops, DIAL and Genesis arrived at several conclusions regarding future evaluations and additional research to address the gaps in and findings of this study.

DIAL will consider alternative approaches to measure progress and engage with the digital development ecosystem in the future, including:

- Partner with organizations conducting similar studies to leverage resources.
- Administer research as an adjunct to DIAL hosted events to maximize participation.
- Refine our ecosystem stakeholder mapping to understand the makeup of relevant stakeholder groups; how DIAL can effectively engage each of these groups; and what changes DIAL expects to see in these groups. Specific emphasis will be paid to including the Latin America and Asia regions, which were underrepresented in this study.
- Research and articulate the return on investment (ROI) and social return on investment (SROI) on digital development. Publishing research on this could stimulate demand.
- Investigate alternative primary research methods to engage governments in developing countries, especially given the challenges this study experienced in engaging governments.
- Document implementation case studies per stakeholder group, giving guidelines for working with other actors in the ecosystem.
- Continue updating and sharing toolkits for organizations to train their staff on how to use the Digital Principles in their daily work.
- Review DIAL's distribution strategy to understand the reach and uptake of our products, and more importantly, to note the actors and areas that DIAL is not serving.
- Launch a shared Learning Agenda that will provide additional evidence and research to inform our program development in key areas.

DIAL teams have already begun to integrate the findings of this research into program design. We will continue to share these findings widely and promote this document as a public good for the digital development ecosystem.

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