

Digital Impact Alliance

Leave No One Behind (LNOB)

Leadership Series Brief #2

July 2021

The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs)¹ are built around the promise to leave no one behind (LNOB)—specifically, to eradicate poverty in all its forms, end discrimination and exclusion, and reduce inequalities and vulnerabilities.² International development and humanitarian organizations are increasingly leveraging new digital approaches to extend or enhance delivery.³ However, the persistent digital divide throughout the world threatens to derail these efforts by amplifying existing inequality, opening up new development needs, and posing new risks that development actors might inadvertently do harm by leaving behind the most marginalized.⁴

The Secretary-General's Roadmap for Digital Cooperation underlines the need for "design that respects the needs of all people, including those with disabilities, as well as addressing intersectionality, social norms, language barriers, structural barriers and risks, recognizing the importance of locally relevant content."⁵

Significant program-level research and guidance on inclusion,⁶ such as the Principles for Digital Development⁷ and the Signal Code,⁸ set out rights and duties around avoiding the threats and harms that



About DIAL's Leadership Brief Series

This series synthesizes existing learning and presents digestible takeaways for senior digital development leaders investing and innovating at a systems level. They cover key topics from DIAL's issue portfolio and may be updated from time to time.

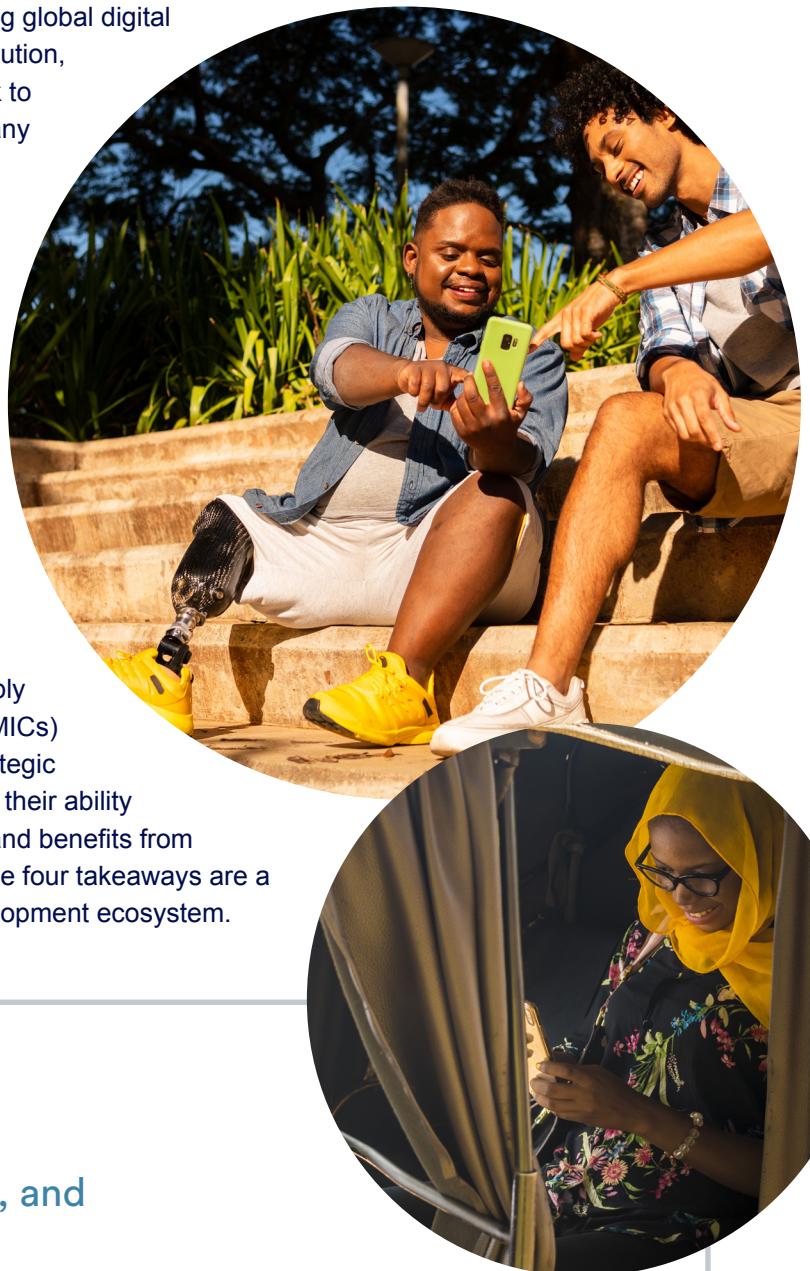
might arise from the implementation of digital technologies. But even as we've tried to use an LNOB lens in our own digital transformation work, the Digital Impact Alliance (DIAL) has grappled with its practical application in the communities, principles and practices, and evidence bases we help build at the level of the global digital development ecosystem.⁹ We have found few resources to help us understand potential pitfalls, improve our practice, and reduce or mitigate risks.

For the second in our series of Leadership Briefs, we share some insights on how to apply the principle of LNOB at the systems level, based on a literature review, consultations, and key informant interviews carried out in 2020. This brief focuses on the impact of "strategic investments in digital," such as those that:

- cover multiple initiatives across geographies, sectors, or target populations;
- are removed from direct project decision-making, such as in the grantor or fund management role; or
- do not have direct links with communities impacted by investment decisions.¹⁰

Examples of such investments might include creating global digital innovation funds, setting policy across a global institution, and developing or implementing principles that seek to provide guidance and influence practices across many organizations. These activities are typically led by multilaterals, donors, national governments, and initiatives like DIAL, and can drive inclusive digital development practices — or can inadvertently institutionalize bias, exacerbate inequalities or disincentivize learning about the impact of digital systems.

This Leadership Brief includes four takeaways on LNOB for strategic investors in digital: prioritize representation; ensure careful risk-benefit analysis prior to action; invest in evidence, feedback, and accountability mechanisms; and fund digital literacy and capacity across the digital development ecosystem. All of these takeaways apply both to work in low and middle income countries (LMICs) on the ground that is supported and directed by strategic investors in digital, and to investors themselves and their ability to assess, understand, and mitigate potential risks and benefits from their actions. While we still have much to learn, these four takeaways are a good starting point for a more equitable digital development ecosystem.



Takeaways

- Prioritize representation
- Invest in evidence, feedback, and accountability mechanisms
- Ensure careful risk-benefit analysis prior to action
- Fund digital literacy and capacity across the digital development ecosystem

BOX 1: Definitions

- **Digital Development Ecosystem** – An interconnected web of actors working cross-functionally toward digital inclusion. DIAL recognizes that the digital ecosystem is more complex than this and its true promise likely lies in engaging more widely with excluded voices.¹¹
- **Digital divide** – The distinction between those who have internet access and are able to make use of new services offered on the internet and those who are excluded from these services.¹²
- **Intersectionality** – A term coined by Kimberlé Crenshaw that describes the interconnected nature of social categories such as race, class, and gender as they apply to a given individual or group, which can create or reinforce overlapping and interdependent systems of discrimination or disadvantage.¹³
- **Least developed countries (LDCs)** – A United Nations classification of “low-income countries confronting severe structural impediments to sustainable development.”¹⁴ They are highly vulnerable to economic and environmental shocks and have low levels of human assets. LDCs have exclusive access to certain international support measures, especially development assistance and trade.¹⁵
- **Leave no one behind (LNOB)** “[T]he central, transformative promise of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs). It represents the unequivocal commitment of all UN Member States to eradicate poverty in all its forms, end discrimination and exclusion, and reduce the inequalities and vulnerabilities that leave people behind and undermine the potential of individuals and of humanity as a whole.”¹⁶
- **LMICs** – Low- and middle-income countries.
- **Marginalized** – A socially constructed status in which a society labels certain individuals or groups of individuals as outside of the norm and, therefore, treats them as peripheral or insignificant.
- **National digital transformation** – As an outcome, it refers to the economic and societal effects of digitization and digitalization. As a process, it refers to the ways digital is disrupting and reinventing traditional services, sectors, businesses, economies, and societies, and challenging ideas of how economic and social activities are organized and enacted.¹⁷
- **Strategic investors in digital** – Investors that cover multiple initiatives across geographies, sectors, or target populations; are removed from direct project decision-making, such as in the grantor or fund management role; or do not have direct links with communities impacted by investment decisions.
- **Tokenism** – “[T]he practice of doing something (such as hiring a person who belongs to a minority group) only to prevent criticism and give the appearance that people are being treated fairly.”¹⁸

Takeaway #1: Prioritize representation

Strategic investments in digital should seek to reflect the needs and concerns of the most marginalized at all stages of the program cycle. Strategic investors in digital can help achieve this goal by encouraging their partners and grantees to both research and consult the users they are working to serve at the program level. For example, they could make the steps outlined in the “Design With the User” Digital Principle¹⁹ required and resourced, and they could make space for changes to projects based on the feedback they get from users. Evidence suggests that this can lead to far more effective and impactful approaches.²⁰ For example, investments in smart-agriculture solutions are more effective when solutions are designed with the user’s participation.²¹ Strategic investors in digital could also benefit from direct feedback from the communities their investments seek to serve.²²

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A more diverse workforce and building more direct community involvement in governance might also lead to change. While clear statistics are hard to come by, there appears to be a real need for greater diversity and inclusion in the international development and aid sectors.²³ This problem is more obvious and widely known in the private sector, particularly at Silicon Valley technology firms and social media companies that increasingly dominate the technology landscape.²⁴ The same is true at technology firms based in LMICs, where men are 2.7 times more likely to work in the digital sector and 7.6 times more likely to work in jobs that require ICT skills.²⁵ When diverse life experiences are not represented on teams, poor design decisions often fail to recognize even basic aspects of lifestyles outside a narrow white, male, heterosexual, non-disabled, educated norm. For example, Joy Buolamwini has shown that systems coded by mainly white engineers encode racial bias.²⁶

The same dynamics are present in the digital development space, with the added dimensions of colonial and global power imbalances. Improving the diversity of our own institutions in more than a tokenized way and elevating and consulting members and leaders of marginalized communities can help inform technology investments with expertise around how to avoid bias and stereotyping being encoded in our tools and our organizations.²⁷



BOX 2: Spotlight on the digital divide

The digital divide refers to the widening gulf between those who have access to digital connectivity, devices, information, and systems, and those who do not. Globally, two-thirds of people now own a mobile phone, and more than half are using the internet.²⁸ Yet progress is unevenly distributed: device affordability varies widely from one country to another,²⁹ internet access at home in urban areas is twice as high as in rural areas, significant gender disparities persist in mobile phone ownership, and ICT services are relatively more expensive in LDCs than in rich countries.³⁰

It is estimated that 50% of the world's population—disproportionately the poorest and most vulnerable—do not have access to digital services. Characteristics that may make a person or a community more marginalized, more vulnerable, and less likely to be online include gender, poverty, age, the rural/urban divide, language, education level, race and ethnicity, migration status, disability, sexual orientation, gender identity and expression, and sex characteristics. These characteristics and identities are complex, overlapping, and may change over time.

Intersectionality describes how a person's identities may combine to compound discrimination or privilege. For example, poor women are far less likely to have access to a mobile phone than poor men, and poor women of minority groups less likely still.³¹



The intersection of technology and marginalized identities must be engaged with thoughtfully and respectfully, recognizing that what may be welcome recognition and appropriate support for one group might be unwelcome attention for another, bringing risks of surveillance and targeting. A multichannel approach to digital delivery and consent, including analogue options and a realistic option to decline, is critical so that people and communities can make the most appropriate choices for themselves.

Takeaway #2:

Invest in evidence, feedback, and accountability mechanisms

Despite decades of practice, the evidence base around the impact of digital development work remains uneven across sectors and is focused on pilots, making it hard to predict the potential impact of larger programs.³² Less than 10% of the evaluations found in one study examined the impact on “disadvantaged groups.”³³ Investing in this field and requiring the evaluation of all digital programs and projects using relevant criteria, such as the Principles for Digital Development’s evaluation approach³⁴ or SIMLab’s OECD-DAC-based evaluation criteria for digital projects,³⁵ can help us better understand what works and what doesn’t and avoid unintended negative consequences of digital programs.

Real accountability for harms caused by digital technology in aid and development programs is rare. This is due to a range of factors, including the way that digital technology platforms often bridge jurisdictions; the impact of platform terms of service, which often shield technology companies from liability; the power imbalances and legal immunities that characterize much of the development and aid sector; and the short-term nature of many programs.³⁶ Despite frequent calls for enforceable rights for communities impacted by digital humanitarian practice,³⁷ the possibility of such accountability seems remote. Yet, as the Signal Code sets out:

...individuals and communities have a right to establish the existence of and access to personal data collected about themselves. All people have a right to redress from relevant parties when harm was caused as a result of either data collected about them or the way in which data pertaining to them were collected, processed, or used.³⁸

Feedback mechanisms, critical incident reporting, and whistleblower programs are a critical first step and becoming increasingly important. Strategic investors in digital can do more to ensure that they are prioritizing robust, real-time feedback mechanisms³⁹ so that harms, challenges, and positive impressions can actually inform decision-making at the program level. While digital systems can be used to implement digital feedback loops,⁴⁰ analog equivalents alongside them are critical to ensure that digital access is not a barrier to responding.⁴¹ For strategic investors in digital, having the door open to feedback from all sources is an important step. This can include investing in local researchers, the media, and other parts of civil society that might help research and document the impacts of digital systems on marginalized groups.⁴²

Incentivizing shared learning, and funding the synthesis and analysis of that learning into actionable insights for the whole sector might be the next step and could radically transform practice over time. For example, following failures by the humanitarian sector during the Rwandan genocide in 1994, a group of agencies and donors came together to create the Active Learning Network for Accountability and Performance (ALNAP). Now a network of more than 100 organizations, ALNAP collates evaluation reports, conducts original research, and synthesizes learning across the sector to provide actionable advice on what works, what doesn’t, and how humanitarian aid must improve.⁴³ Along with other accountability and learning initiatives across the aid sector, ALNAP has influenced improvements in practice and a greater sense of accountability to affected populations, and contributed to professionalization. A similar initiative could transform the practice of digital development.





Takeaway #3:

Ensure careful risk-benefit analysis prior to action

In both humanitarian and development programs, “the absence of clear policies, frameworks, due diligence checks, and risk-benefits assessments... leaves vulnerable populations open to risk and potentially to harm.”⁴⁴ Without effective regulation of digital technology in most jurisdictions,⁴⁵ the onus is on implementers and strategic investors in digital who shape the work of the field to implement guardrails themselves. Strategic investors in digital should incentivize the use of risk-benefit analysis practices in digital development work to try to mitigate impacts on marginalized groups and better understand harms when they do happen. This includes building design and assessment phases into digital program funding cycles and requiring grantees to complete community consultations and risk assessments.⁴⁶

Where possible, strategic investors in digital can support and utilize informed, independent reviews of digital and data science systems and projects, similar to institutional review boards (IRBs)⁴⁷ or the UN OCHA Centre for Humanitarian Data Peer Review process.⁴⁸ Significant resources exist to support understanding the ecosystem⁴⁹ in which an investment is going to be made, assessing potential harms from digital technologies,⁵⁰ and balancing those potential harms against potential benefits.⁵¹ Guidance exists on participatory ways of involving marginalized groups in this work.⁵² Strengthening policies and understanding around informed consent could help enable community members to better determine and express their own risk assessment.⁵³ It is imperative to normalize deciding *not* to undertake a program if the benefits do not outweigh the potential risks.

BOX 3: Toward a typology of digital risks

Many taxonomies and frameworks attempt to identify the types of risks and harms that might arise from digital development projects, but more research and evidence is needed to better understand the extent and typology of these risks.⁵⁴ A high-level list might include:

- **Risks of exclusion or self-exclusion, leading to harms such as opportunity or economic loss or harms to human rights:** People may be unable to access digitally enabled services or may be missing from datasets; or they may opt out of digitally enabled services, often due to lack of trust.
- **Risks of harm caused directly by digitally enabled services:** New or untested digital systems may fail to work or work in ways that cause harm. There are also risks arising from data misuse or mishandling, and risks stemming from the fact that public- or private-sector platforms may have priorities other than the well-being of the people using the services.
- **Increased risk of exposure to new, digital harms, or older, offline harms manifested in digital realms:** As people and systems enter the digital world, new risks of exploitation, targeting, and misinformation arise.

Alongside these drivers or catalysts of harm, the Oxford cyber-harms framework⁵⁵ lists a taxonomy of five cyber-harms:

- Physical or digital harm (i.e., harm describing a physical or digital negative effect on someone or something)
- Economic harm (i.e., harm that relates to negative financial or economic consequences)
- Psychological harm (i.e., harm that focuses on an individual and their mental well-being and psyche)
- Reputational harm (i.e., harm pertaining to the general opinion held about an entity)
- Social and societal harm (i.e., a harm that may result in a social context or society more broadly)

Takeaway #4:

Fund digital literacy and capacity across the digital development ecosystem

Digital development practitioners must consult communities, understand and mitigate risks and harms to marginalized groups, and gather evidence of impact if they are to leave no one behind. Yet nonprofits, international organizations, governments, and donors report deficits in their own digital literacy and capacity. These deficits reduce their ability to understand how people from marginalized groups encounter technologies and systems, and control for risks and harms to them.

Digital development learning resources are largely supply-driven,⁵⁶ unevenly rolled out, and rarely translated into working languages appropriate to LMICs.⁵⁷ While frameworks like the Principles for Digital Development exist to help produce better-designed digital projects, such frameworks alone do not confer digital literacy. For example, they do not teach development specialists how to manage practical challenges, such as weighing the benefits of cloud-hosted versus local data storage.

Program design and risk analysis phases are critical opportunities for review, learning, and risk-mitigation on the fly, so it is important to leave adequate time for them in the program plan.

Even where centralized digital practices exist, program-level teams may lack the “knowledge, capacity, systems and budgets”⁵⁸ to enact standardized approaches to technologies as commonplace as social media or safely manage data and systematically safeguard marginalized people. Digital development business models rarely support the long-term retention of staff with digital skills in the face of private-sector competition. This is true of organizations headquartered in high-income countries and is exacerbated for those based in LMICs.

In this context, development specialists often rely on technologists to understand and flag threats to marginalized groups — yet those technologists may not understand potential real-world risks in those contexts. For both groups, increased investment in literacy around digital justice and safeguarding issues is warranted.

Program design and risk analysis phases are critical opportunities for review, learning, and risk-mitigation on the fly, so it is important to leave adequate time for them in the program plan. Concerted investment in digital capacity, training, and systems strengthening is required as part of digital project funding. As an important interim step, it is critical to support the rollout of localized or, at a minimum, machine-readable, easily translatable resources on digital capacity to better enable their use by staff in LMICs whose working languages are poorly represented.



Endnotes

- 1 *The 17 goals | sustainable development.* (n.d.). Retrieved June 26, 2021, from <https://sdgs.un.org/goals>
- 2 *Unsdg | leave no one behind.* (n.d.). Retrieved June 26, 2021, from <https://unsgd.un.org/2030-agenda/universal-values/leave-no-one-behind>
- 3 See, for example, Heeks, R. (2020). ICT4D 3.0? Part 1—The components of an emerging “digital-for-development” paradigm. *The Electronic Journal of Information Systems in Developing Countries*, 86(3).
- 4 See box 2.
- 5 United Nations General Assembly. (2020). *Road map for digital cooperation: Implementation of the recommendations of the High-level Panel on Digital Cooperation* [Report of the Secretary General]. United Nations. https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf
- 6 For example, see Digital Safeguarding for Migrating and Displaced Children: An overview of the current context and trends, potential risks and practical next steps. (2020). Save the Children. 2020
- 7 Principles for Digital Development website. (n.d.). Retrieved May 5, 2021, from <https://digitalprinciples.org/>
- 8 *The signal code: A rights based approach to information during crisis.* (n.d.). The Signal Code. Retrieved April 16, 2021, from <https://signalcode.org/>
- 9 For more on our work, and our understanding of the digital ecosystem, see our 2021-2026 Strategy, Digital Beacons <https://digitalimpactalliance.org/research/dial-2021-2026-strategic-plan-digital-beacons/>
- 10 Not an exhaustive list.
- 11 *DIAL Baseline Ecosystem Study.* (2018). Digital Impact Alliance. <https://digitalimpactalliance.org/research/digital-impact-alliance-2018-baseline-ecosystem-study/>
- 12 *Tvetipedia glossary.* (n.d.). Retrieved July 2, 2021, from <https://unevoc.unesco.org/home/TVETipedia+Glossary/filt=all/id=704>
- 13 Crenshaw, Kimberlé, “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,” University of Chicago Legal Forum: Vol. 1989: Iss. 1, Article 8. Available at: <http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8>
- 14 *Least developed countries (Ldc) | department of economic and social affairs.* (2010, September 23). <https://www.un.org/development/desa/dpad/least-developed-country-category.html/>
- 15 United Nations LDC Portal: Support measures portal for least developed countries (n.d.) retrieved July 2, 2021, from <https://www.un.org/ldcportal>
- 16 See above at footnote 2
- 17 *Accelerating National Digital Transformation* (Brief #1; Leadership Series). (2020). Digital Impact Alliance.
- 18 What is tokenism, and why does it matter in the workplace? (2018, February 26). *Vanderbilt Business School.* <https://business.vanderbilt.edu/news/2018/02/26/tokenism-in-the-workplace/>
- 19 *Design with the user | principles for digital development.* (n.d.). Retrieved June 26, 2021, from <https://digitalprinciples.org/principle/design-with-the-user/>
- 20 Better outcomes. (n.d.). Feedback Labs. Retrieved June 25, 2021, from <https://feedbacklabs.org/why-feedback-matters/better-outcomes/>
- 21 See, for example, Bernier, Q., Meinzen-Dick, R., Kristjanson, P., Haglund, E., Kovarik, C., Bryan, E., Ringler, C., & Silvestri, S. (2015). *Gender and Institutional Aspects of Climate-Smart Agricultural Practices: Evidence from Kenya.* (CCAFS Working Paper No. 79.). CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS); and Food and Agriculture Organization of the United Nations. (2014). Gender in Climate-smart Agriculture, in Climate-smart agriculture sourcebook. p. 20-21
- 22 See Takeaway 3, below.
- 23 See, for example, Anonymous. (2020, June 15). *The aid sector must do more to tackle its white supremacy problem.* The Guardian. <http://www.theguardian.com/global-development/2020/jun/15/the-aid-sector-must-do-more-to-tackle-its-white-supremacy-problem>; Bruce-Raeburn, A. (2018, July 27). *Opinion: International development has a race problem.* Devex. <https://www.devex.com/news/opinion-international-development-has-a-race-problem-94840>
- 24 For example, less than 3% of the workforce at Uber, Twitter, Google and Facebook identify as Black. Lockhart, P. R. (2018, May 4). *The digital revolution is leaving black people behind.* Vox. <https://www.vox.com/technology/2018/5/4/17318522/state-of-black-america-2018-national-urban-league-silicon-valley-race> Given the dominance of Silicon Valley-based firms, this imbalance is particularly impactful for how these powerful platforms interact with issues affecting marginalized communities around the world.
- 25 *Women wavemakers: Practical strategies for closing the gender gap in tech.* (2018). Retrieved June 27, 2021, from <https://blogs.worldbank.org/voices/women-wavemakers-practical-strategies-closing-gender-gap-tech>
- 26 Buolamwini, J. (2018). *Gender shades.* MIT Media Lab. Retrieved June 25, 2021, from <https://www.media.mit.edu/publications/full-gender-shades-thesis-17/>
- 27 For example, in some US cities, communities of color participate in special commissions and public hearings to help set guidelines and provide scrutiny for public use of digital technology. Bernholz 2021, p.26. See also Data2X. (2019). *Big data, big impact?* Towards gender-sensitive data systems. <https://ictlogy.net/bibliography/reports/projects.php?idp=4028>, p7
- 28 Hernandez, K., & Roberts, T. (2018). *Leaving No One Behind in a Digital World* (K4D Emerging Issues Report). Institute of Development Studies, p3
- 29 *From luxury to lifeline: Reducing the cost of mobile devices to reach universal internet access.* (n.d.). World Wide Web Foundation. Retrieved June 28, 2021, from <https://webfoundation.org/research/from-luxury-to-lifeline-reducing-the-cost-of-mobile-devices-to-reach-universal-internet-access/>
- 30 *Global strategy: Leaving no one behind in the digital era—Un capital development fund (UNCDF).* (2019). Retrieved June 27, 2021, from <https://www.unCDF.org/article/4931/global-strategy-leaving-no-one-behind-in-the-digital-era>
- 31 *Mobile Gender Gap Report*, 2020, GSMA

32 Brown, A. N., & Skelly, H. J. (2019). How much evidence is there really? Mapping the evidence base for ICT4D interventions. *Information Technologies & International Development*, 15(0), 18.

33 *Ibid.*, p29

34 Forthcoming, 2021

35 SIMLab's framework for monitoring and evaluating inclusive technologies in social change projects. (2017). SIMLab. Retrieved April 27, 2021, from <http://simlab.org/resources/mandeoftech/>

36 See, for example, Kaurin, D. (2019). *Data Protection and Digital Agency for Refugees* (No. 12; World Refugee Council Research Paper). Centre for International Governance Innovation. <https://www.cigionline.org/static/documents/documents/WRC%20Research%20Paper%20no.12.pdf>; McDonald, S. (2019). *From Space to Supply Chain: Humanitarian Data Governance*. Self-published. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3436179

37 Failures of accountability for breaches of responsible data practice and cyber-security failings have frequently been reported by the New Humanitarian, and provide an overview of some of the actors and arguments. Retrieved July 2, 2021, from <https://www.thenewhumanitarian.org/opinion/2021/6/21/rohingya-data-protection-and-UN-betrayal#related-reports>

38 Signal Code, n.d.

39 Walovitch, J. (2014). Effective feedback in humanitarian contexts—Cda. CDA Collaborative. Retrieved June 10, 2021, from <https://www.cdacollaborative.org/publication/closing-the-loop-effective-feedback-in-humanitarian-contexts-practitioner-guidance/>

40 *A guide to digital feedback loops*. (2019, May 20). <https://www.usaid.gov/digital-development/digital-feedback-loops>

41 *Practitioner resources · feedback mechanisms*. (n.d.). Retrieved May 5, 2021, from <http://feedbackmechanisms.org/resources/>

42 See, for example, the MacArthur Foundation's Technology in the Public Interest program. *Identifying injustice, inequity perpetuated by new tech*. (2021). Retrieved May 5, 2021, from <https://www.macfound.org/press/perspectives/identifying-injustice,-inequity-perpetuated-by-new-tech> DIAL will publish a paper on 'whole of society' approaches to digital transformation in early 2022.

43 *Why alnap? | alnap*. (n.d.). Retrieved June 27, 2021, from <https://www.alnap.org/why-alnap>

44 *Digital Safeguarding for Migrating and Displaced Children*, 2020, p 22

45 According to UNCTAD, 19% of countries have no data protection and privacy legislation at all - 40% among LDCs. *Data protection and privacy legislation worldwide | UNCTAD*. (n.d.). Retrieved April 27, 2021, from <https://unctad.org/page/data-protection-and-privacy-legislation-worldwide>

46 If the field were better-equipped, it would be advisable to encourage grantees and partners to include digital risk analysis and safeguarding requirements in job descriptions, trainings, and other existing systems designed to strengthen protection for marginalized groups in analog programs. Yet due to systematic under-investment in digital capacity in international digital development, this is not yet a realistic recommendation. See Takeaway 4.

47 For example, see American University's IRB page: <https://www.american.edu/irb> retrieved June 26, 2021

48 *The Centre's predictive analytics focus: Models, peer review, community – The Centre for Humanitarian Data*. (n.d.). Retrieved June 27, 2021, from <https://centre.humdata.org/the-centres-predictive-analytics-focus-models-peer-review-community/>

49 Understand the existing ecosystem. Principles for Digital Development (n.d.) Retrieved July 2, 2021, from <https://digitalprinciples.org/principle/understand-the-existing-ecosystem>

50 See Box 3.

51 Risks, harms and benefits assessment. UN Global Pulse (2017, March 24). <https://www.unglobalpulse.org/policy/risk-assessment>

52 See, for example, Our Data Bodies has conducted research and produced a workbook of education activities focused on data, surveillance, and community safety to co-create and share knowledge, analyses, and tools for data justice and data access for equity. Lewis, T., Gangadharan, S. P., Saba, M., Petty, T. (2018). Digital defense playbook: Community power tools for reclaiming data. Detroit: Our Data Bodies. Similarly, tools such as Inclusive and Appoltion are products of a new model of innovation centered on marginalized racial and ethnic groups. *Black trans creators in silicon valley are imagining new worlds*. (n.d.). Bitch Media. Retrieved July 2, 2021, from <https://www.bitchmedia.org/article/feature/black-retribution-in-tech>

53 Rethinking informed consent in the digital age. (2016, November 2). *Wait... What?* <https://lindarafree.com/2016/11/02/rethinking-informed-consent-in-the-digital-age/>

54 See Takeaway 3 and, for example: Types of harm—Azure application architecture guide. Retrieved May 8, 2021, from <https://docs.microsoft.com/en-us/azure/architecture/guide/responsible-innovation/harms-modeling/type-of-harm>; Sandvik et al. *Do no harm: A taxonomy of the challenges of humanitarian experimentation*. October 2017. International Review of the Red Cross; Digital Safeguarding for Migrating and Displaced Children (2020).

55 Agrafiotis, I., Nurse, J. R. C., Goldsmith, M., Creese, S., & Upton, D. (2018). A taxonomy of cyber-harms: Defining the impacts of cyber-attacks and understanding how they propagate. *Journal of Cybersecurity*, 4(1). <https://doi.org/10.1093/cybsec/tyy006>

56 United Nations General Assembly. (2020). *Road map for digital cooperation: Implementation of the recommendations of the High-level Panel on Digital Cooperation [Report of the Secretary General]*. United Nations. https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf p.12

57 *Digital Safeguarding for Migrating and Displaced Children*, 2020 p 9

58 *Ibid.*