

The data revolution offers enormous benefits.

Philanthropy can ensure they're evenly felt.

At its core, data is information – generated by people, for people, and about people and the world around us. Over the next few years, as the amount of data produced grows exponentially, access to – and the ability to benefit from – this information will become an increasingly important, even critical, facet of life.

When the infrastructure to capture, manage, and share data is thoughtfully implemented, it can drive value far greater than the sum of its parts, by allowing people to do things like register for a driver's license, apply for a loan, and choose to share their medical or education history with a few clicks of a button. These capabilities can improve quality of life in

meaningful ways, especially for those living in resource-strained regions, where, traditionally, completing any one of these activities could take hours or even days.

However, with such promise comes significant risks. Data infrastructure can just as easily result in exclusion, concentration of power, breaches of privacy, erosion of trust, and corroding social norms. Over the past few years, with the recent generative AI “leap,” both the opportunities – and the risks – have become even more salient.

History has reached a tipping point.

The decisions made today will largely determine whether the data revolution results in a digital future that promotes and protects people’s rights, builds trust, and drives inclusive growth. It is possible to mitigate harms, while simultaneously advancing progress and improving quality of life. But, to make this vision a reality, concerted action is critical. With an ability to support bold and creative solutions that can have cascading global impact, philanthropy can – and should – assert itself in this endeavor for equitable development.

Good digital foundations are key to an equitable, more prosperous future.

As digital transformation accelerates across the world, the global community has an extraordinary – and pressing – opportunity to harness its potential. In the coming years, digitalization has the potential to serve as a driver of wellbeing and inclusion – but only for those who are able to meaningfully benefit from it. To ensure these benefits are evenly felt, especially for those living in low-income countries, the following foundations must be fully in place:

- 1. Connectivity and usage.** As one of the foundations for digital inclusion, widespread internet access is crucial. Over the past decade, there have been important strides toward global connectivity. Yet, the digital divide, though declining, is still particularly acute in low-income countries (and most pronounced in Africa). An estimated 63% of Africans remain effectively offline, with women, rural, and marginalized communities affected disproportionately. Some 38% of the global population lives within areas covered by broadband internet but are not using it, due to barriers such as affordability, low internet speed, and lack of relevant content and useful services.

2. Data infrastructure. The platforms and protocols that together enable data to be generated and interoperable can fuel public and private sector innovation. And, at the same time, support the use of generative AI to solve pressing global challenges. Yet, today, there is a lack of relevant, representative data, in large part due to gaps in data infrastructure. For example, some 850 million people lack the official identity required to transact in the digital economy, and, of the 7,500+ languages used every day around the world, the vast majority of data training AI models is in the seven “major” languages.

3. Digital skills. To ensure that digital investments drive economic growth, it is necessary to invest in the local workforce. In doing so, digitalization can create jobs, and these individuals can help create context-relevant solutions to real world problems. While most easily understood in terms of qualified engineering and technical talent, diverse talent is needed to fully capitalize on the data revolution. Again, this skills divide is most prevalent in low-income countries, as exemplified by the fact that only 2.3% of GitHub’s active users – a proxy for skilled software developers – are based in Africa.

These foundations are critical to fostering an inclusive digital ecosystem. Fortunately, significant efforts are already underway to solve gaps in connectivity. While there is still progress to be made, today, an estimated 67% of the global population has access to the internet, up from only 38% in 2014.

On the other hand, data infrastructure – and the digital skills to harness it - need urgent attention. Inclusive data infrastructure not only increases the value of growing connectivity but, when governed well, reduces the potential for exclusion, concentration of power, and risks to privacy by broadening access to – and benefit – from data.

Philanthropy and grant funds are particularly well-positioned to scale good data infrastructure. Unlike traditional infrastructure, such as roads, bridges, and undersea fiber optic cables, which rely on debt financing and must be built in town after town, data infrastructure is imminently scalable. Investments in open standards and protocols can be leveraged and utilized across geographies and needs.

Targeted investment in data infrastructure and good governance will accelerate the generation of representative, relevant data and enable its usage to solve real-world problems, which would have profound development and social impact. Supporting people-first data ecosystems would reduce the risk of exclusionary practices and monopolistic tendencies and, instead, create the conditions for inclusive growth, innovation, and competitive digital markets. Importantly, investments in data infrastructure that favor data portability and sharing will give more actors – including individuals – direct benefit from the data revolution.

Countries that have invested in and nurtured strong data infrastructure and ecosystems are already reaping dividends in terms of broad-based social and economic impact. For example, India recently enabled voice-based payment transfers on its Universal Payments Interface (UPI). This evolution, powered by the underlying identity and payments systems and coupled with investment in local language datasets, will make financial transactions far easier for the almost [25% of the country's population](#) that remains illiterate. Additionally, the economic benefits are immense, with UPI facilitating more than [13 billion financial transactions](#) in April 2024 alone. This example demonstrates the power of data - and data infrastructure - in solving real-world problems.

Yet, a number of barriers – ranging from system design to policy environments – still exist.

When it comes to replicating these types of results across countries, governments often face a common set of challenges with profound implications for both public and private sector data-driven innovation. To advance a future where data is generated and harnessed to promote benefits, participation, and trust for people across the world, these barriers must be overcome. In particular:

- **Legacy systems:** Rewiring existing older systems to fit new standards or protocols is difficult. Many governments have multi-year, if not decades-long, contracts with vendors, making it difficult and costly to spin up more modern infrastructure.
- **Incumbent interests:** Shifting the incentives that drive incumbents requires extraordinary political leadership.
- **Administrative hurdles:** Aligning a technology approach and policy framework across government agencies is complex, a challenge exacerbated by competing priorities, and even more so, within low-resourced governments.

- **Gaps in global cooperation:** Figuring out how to simultaneously drive inclusion, advance people's rights, and stimulate innovation economies is a huge challenge. No single country has managed it. At the same time, global efforts to equitably advance digital transformation are siloed, hindering collective progress.

Because private philanthropy is free of many of the constraints faced by governments and often purports a higher tolerance for risk or greater patience for impact, it can play a critical role in bridging these challenges.

A blueprint for advancing data infrastructure can help drive collective impact.

For philanthropic efforts to drive meaningful impact, concerted and urgent action is crucial. Scaling data infrastructure will require a relentless focus on a shared vision of data ecosystems that maximize people's participation, agency, choice, and trust.

Success requires increased cooperation to strengthen open-source solutions, test and scale new models of data stewardship, and de-risk adoption. And, most importantly, it will require a movement toward policies, tools, and practices that give people transparency and rights over data.

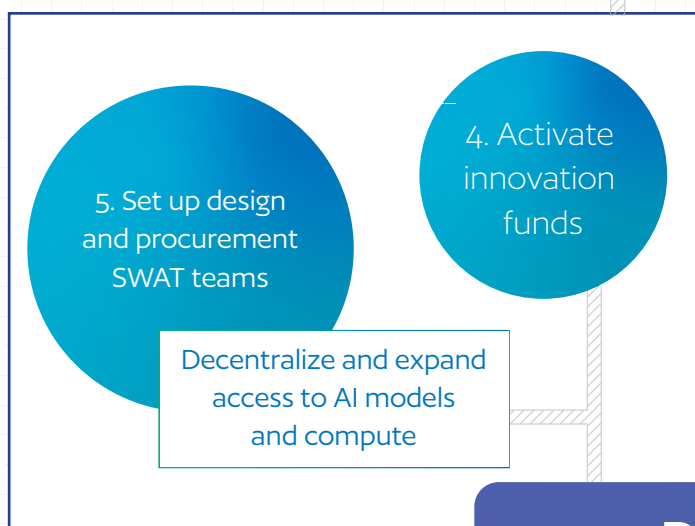
Collective action can ensure the power of data is leveraged to drive equitable development for individuals and communities across the world. In the era of data infrastructure, philanthropy can play a number of different roles, each crucial to advancing this vision.

- **Scorekeeper:** Develop principles and metrics for the ways in which data infrastructure affects development and track them over time as a credible party independent of any one interest group.
- **Accelerator:** Provide financing and technical assistance to early-stage projects, enabling them to test proof of concept and early scaling.

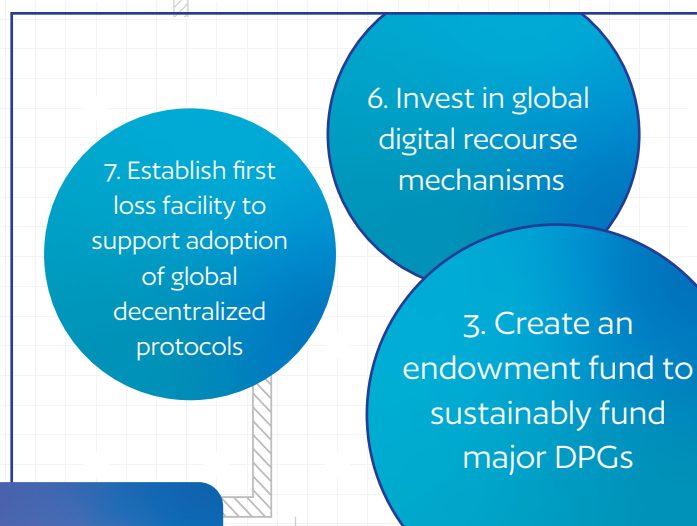
- **De-risker:** Carry early-stage risks that are not easily defined or priced until there is more experience.
- **Orchestrator:** Convene and align new data ecosystems in which diverse players play different roles.

At the Digital Impact Alliance, we have developed a blueprint for advancing data infrastructure, which combines these four roles with “big bets” that – when collectively actioned – will not only protect people’s rights, but also promote trust and ensure benefits are evenly felt. We have outlined more details on seven of the big bets, as indicated in the blueprint below.

ACCELERATOR

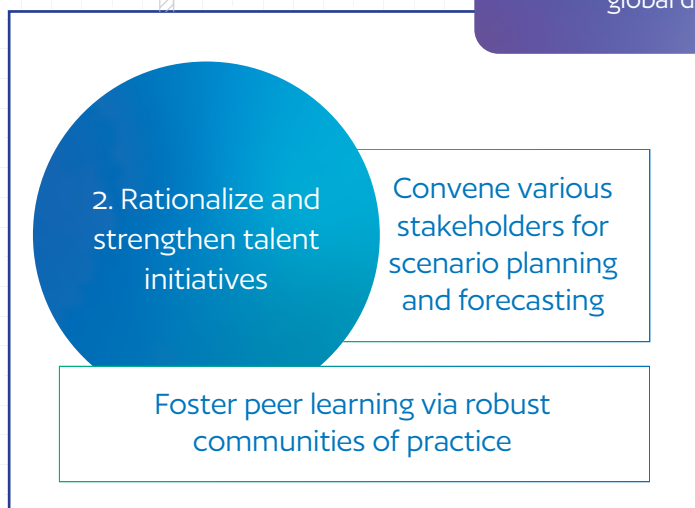


DE-RISKER



Data Infrastructure

To foster equitable global development



ORCHESTRATOR

SCOREKEEPER

1. Establish global metrics of progress

[Philanthropy as a Scorekeeper]

The Idea. A common set of indicators against which to measure progress and benchmark performance.

The Challenge. Today, there are significant gaps in standard, systematically collected measures of digitalization. To the extent there are metrics, they skew heavily toward access and usage of connectivity and, to a lesser extent, digitally enabled services. Beyond those, there is little consensus and a fragmented set of tools attempting to measure people's trust or experience, the degree of competition in the marketplace, or meaningful enactment of data protections. This lack of a shared understanding of the causal link between approaches to digitalization and ultimate outcomes undermines the opportunity to steadily and relentlessly iterate for ever-more inclusive and trustworthy systems and services.

This problem has not gone unnoticed. Global funders and development partners are actively trying to fill this gap, albeit with bespoke assessment tools such as USAID's Digital Economy Country Assessment and the World Bank's Digital Economy for Africa country assessments. These do not offer apples-to-apples comparison as there are definitional differences in terms like "transparency" and "privacy." Implementing government partners are also keen to have better measurements in place with clearer operational benchmarks and insights into citizen satisfaction with digital services.

The Solution. Improved metrics could guide financing, political resources, and practical implementations toward issues that need the most attention. Grant support could be effective in this endeavor, by encouraging existing tools to cohere around common definitions and establishing new metrics that shed light on outcomes for people. Importantly, this effort would need to calibrate several tensions, including cost effective methods for data collection, which could compromise accuracy; operational measures needed by national government actors, but which may not be sufficient to global financing and development partners; and the choice between an entirely new tool for metrics versus shaping many existing ones.

2. Rationalize and strengthen existing talent pipeline initiatives to build local talent ecosystems

[Philanthropy as an orchestrator]

The Idea. Leverage public-private partnerships to build diverse workforce readiness so that investments into data ecosystems boost innovation economies.

The Challenge. Today, many governments remain hesitant or unable to implement data infrastructure in partnership with local companies due to the digital skills gap. As a result, governments are more likely to choose proprietary software offered by global companies, thus effectively bypassing meaningful impact on the local workforce and job growth. This limits the growth of job-intensive open data ecosystems.

The Solution. Implementing data infrastructure that leverages open-source code and open standards – aka. open data infrastructure – can increase opportunities for IT workers, students, and entrepreneurs to design, customize, and build on-top of data infrastructure. A more open and inclusive digital environment can help create new digital jobs and spur entrepreneurs to create local solutions to local problems through new data-driven digital services.

Yet, while it sets the foundation, open data infrastructure does not automatically create skills and jobs. This is why public-private partnerships are critical. By leveraging these partnerships to develop and deploy data infrastructure, implementers can help transfer skills and knowledge to local actors who can maintain these systems over the long term. Mentoring programs, internship opportunities, and more direct dialogue between government and local companies related to technical needs can help foster a generation of young talent with the relevant skills and flexibility required to maintain data infrastructure locally. These initiatives can model the good practices of open-source program offices (OSPOs), which have successfully organized and equipped talent to contribute to open-source implementations for governments, UN agencies, and others.

3. Create an endowment fund to sustain funding for major open-source solutions

[Philanthropy as a de-risker]

The Idea. A time-limited endowment sufficient to sustain funding to strengthen and evolve the major open-source products until market adoption takes off or competing products take hold.



The Challenge. Open-source solutions can accelerate adoption of data infrastructure, particularly for those countries and organizations that do not have the technical and engineering capacity in-house. For example, DIGIT, MOSIP, and DHIS2 are all open-source products that are maintained by a small team responsible for looking after the code and advising on their use (eGov Foundation, IIIT-Bangalore, and University of Oslo, respectively). These teams have relied entirely on unpredictable grant funding to sustain their work. Time-bound investment is needed to help them get product adoption to a tipping point such that clients start realizing economic value from their use. And, in turn, can contribute to the ongoing maintenance.

The Solution. A large philanthropic effort could help reach this tipping point. An endowment could create a decades-long ability to fund the major open-source product teams, and relevant knowledge creation about their use and value, until a point that adoption is high enough to sustain those teams. Such an endowment would have to be structured in a way that: channels funds to the most promising product teams to create some competition in the marketplace, while also extending long-term support to create continuity.

4. Activate innovation funds to test and scale new models of data stewardship

[Philanthropy as an accelerator]

The Idea. A blended finance vehicle (which can offer first loss, recoverable grants, and subsidized loans) to support innovative models of data stewardship until their business models allow them to achieve financial sustainability.

The Challenge. There is an emerging class of organizations that are filling data deficits, such as collecting and sharing minority language data for AI models, granular earth observation data for city planning, and object identifiers for enhanced trade. Some are doing so with revenue streams that cover costs, and with legal forms and governance structures that prevent profit maximizing behavior. These include data trusts and data fiduciaries like [PLACE](#), [Source Cooperative](#), and [GLEIF](#).

Yet, these organizations are all grappling with a similar set of challenges: they need start-up capital to a point of operational or financial sustainability. Further, they need a strong community to learn from one another on issues of governance, data access rights, and much more.

The Solution. Social impact funds have a long history of structuring blended finance vehicles that can support the proof and scale of such a class of enterprise. Using a combination of grant funds, recoverable grants, long-term debt, and other instruments, it becomes far more cost-effective to scale these models of data stewardship than pure grant financing alone. In short, these new models, if successful, can rapidly scale across borders and with limited government involvement to fill data gaps that are urgently needed for relevant AI and entrepreneurial activity.

Philanthropic efforts have an opportunity to prove the case that new models of data stewardship not only meaningfully unlock data for social and economic progress, but that they can do so in financially sustainable ways. Making innovation funds available is particularly important for these innovative models to support their scale. And, as demonstrated in social impact investing, it is useful to provide other means of support for navigating legal, human resource, and other needs. Additionally, innovation funds could be even more powerful when paired with new approaches to people-centric data management, as shown by the [Data Empowerment Fund](#) and other initiatives.

5. Set up design and procurement SWAT teams

[Philanthropy as an accelerator]

The Idea. National and regional teams trained to advise governments on how to leverage existing digital assets for growth and procure solutions that maximize public value.

The Challenge. Governments around the world are major procurers of digital systems that, when designed well, can ensure data infrastructure is inclusive, developed with modularity and extensibility, and embedded with secure and transparent data exchange features such that many stakeholders can benefit. Most public acquisition and procurement processes are not well adapted to take advantage of the opportunities digital systems offer for re-use and scalability. The result is expensive, proprietary solutions that limit governments' ability to leverage their investments in data infrastructure for innovation across sectors.



Some organizations are demonstrating the value of pre-procurement advisory services. Africanenda is one such example in the financial inclusion arena, as are the World Bank-sponsored Public-Private Partnership units that are embedded within governments to help facilitate investments with the private sector. Similar efforts with broad financial support could meaningfully inform better procurement and encourage maximizing the use of existing solutions well beyond financial systems.

The Solution. Create a network of advisory units that can: provide guidance on best practices for re-use of existing solutions and new procurement; encourage the adoption of clauses and stipulations in terms of reference, including use of open standards; and develop tools that help governments understand issues such as total cost of ownership. These teams would also serve as hands-on support to governments navigating the use of open-source solutions.

6. Invest in global digital recourse mechanisms

[Philanthropy as a de-risker]

The Idea. A global protocol to improve the handling of grievances, complaints, and disputes relating to digital services through online dispute resolution offered as a public good.

The Challenge. Traditional methods of recourse and grievance redressal methods are costly, labor intensive, and at best slow, while at worst unresponsive. Instilling the confidence that errors can and will be corrected in a timely and efficient manner is critical to making the services built on top of foundational data infrastructure both trusted and trustworthy.

The solution. Normalizing high-quality approaches to online dispute resolution would improve accessibility for people who may not have easy access to traditional enforcement systems due to geographic, financial, and / or other barriers. Importantly, standardized online dispute resolution platforms would provide a neutral environment for resolving disputes, which can help parties feel more comfortable and willing to engage in the process. Particularly when enabled by AI, which can review evidence and arbitrate, online dispute resolution can greatly improve the turnaround time and fairness of resolving citizens' concerns.



7. Establish a first loss facility to support adoption of global decentralized protocols

[Philanthropy as a de-risker]

The Idea. A specialized global fund that can underwrite the risks for end users (and potentially governments) when using foundational open-source infrastructure solutions.

The Challenge. Decentralized, peer-to-peer data-sharing protocols, such as Beckn and Perseus, can reduce the friction and costs associated with transactions across all sectors, opening markets that would otherwise be captured by proprietary platforms because of data economies' network effect. Yet, the absence of an intermediary to act as guarantor for the transactions can slow uptake, particularly in digital commerce.

Even if endowed to provide ongoing support for software maintenance or protocol development, the philanthropic foundations that typically coordinate networks of volunteer developers often lack the capacity to take on risk arising from failure to deliver on any particular implementations, especially in the absence of a capacitated scheme manager. This may be because liability is undefined or unenforceable. The result is to deter potential users beyond early adopters from using and/or even trying.

The Solution. A first loss facility could support dispute resolution processes by stepping in to cover consumer losses in important use cases. In addition, a specialized global fund that can underwrite the risks for end users (and potentially governments) when using foundational open-source public goods could help overcome the "trust gap" and spur the creation of third-party verification services. Such a facility could also provide frameworks for good practices, audit operations against good practice standards, and onboard partners into the network. The manager of the fund would require specialized capacity at the intersection of technology and risk underwriting.

While these big bets offer huge opportunities for collective impact, there are many ways philanthropy can make a difference.

Philanthropy has a clear role to play in fostering positive data infrastructure, and while this list of big bets provides a strong foundation, it is only the beginning. Other opportunities include cohering and normalizing standards and protocols, pushing innovative models to broaden compute, and facilitating peer-learning and knowledge exchange.

Data infrastructure, when thoughtfully designed, implemented, and governed to protect and uplift people's rights and wellbeing, can be transformative as a driver of economic and social progress. Yet, to fully realize the benefits, collective will and concerted action are needed to ensure that everyone, everywhere can benefit from the power of data. With its emphasis on targeted grant funding, philanthropy is uniquely positioned to seize this opportunity. By doing so, it can advance a world where data infrastructure not only enables people to participate in digital society, but also promotes trust, agency, and inclusion for individuals and communities globally.

So, what role will you – philanthropy leaders – choose to play?

This paper outlines a number of opportunities specifically for philanthropy, and more broadly, the global community. The Digital Impact Alliance recognizes there are more ways than outlined to drive foundational data infrastructure. We welcome your input to shape them alongside the big bets in our blueprint. Please contact us at info@dial.global