



# Digital Transformation for Development

A program of action on techno-institutional and human capabilities for LDCs

Anita Gurumurthy, Nandini Chami and Amoha Sharma

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# Digital Transformation for Development

## - A program of action on techno-institutional and human capabilities for LDCs

### 1. Introduction

Termed a “*movement*”, not a “*moment*”,<sup>1</sup> the Doha Programme of Action for the Least Developed Countries 2022-2031 (Doha PoA) adopted by the UN General Assembly in April 2022,<sup>2</sup> highlights that the Least Developed Countries (LDCs) – with limited infrastructure, and human and institutional capacities – are unable to benefit from the technological revolution, and may get locked in the low equilibrium trap. In order to leverage the power of Science, Technology and Innovation (STI) to fight against multidimensional vulnerabilities and achieve Sustainable Development Goals (SDGs), the Doha PoA aims to “*substantially increase investment from all sources in research and development, as well as human and institutional capacity-building, for least developed countries within an international enabling environment*”. In a further fillip to LDCs, the UN Secretary-General (UNSG), in his briefing to the General Assembly on ‘*Priorities for 2023*’, called for a radical transformation of the global financial architecture and systemic reforms in multilateralism, centering the needs of the communities and countries of the global South, starting with the LDC Summit.<sup>3</sup>

The Report of the UNSG’s High-level Panel on Digital Cooperation also highlights that with investment in universal access to connectivity, digital public goods, and human rights-based regulation of data and AI technologies, the digital transition can be successfully leveraged for people and the planet.<sup>4,5</sup>

Rapid digitalization in the post-pandemic context has exacerbated global disparities, and LDCs are being left behind.<sup>6</sup> Against this backdrop, if LDCs are to leverage digital transformation for their autonomous pathways to development and realize Agenda 2030, radical shifts are needed at the multilateral level with corresponding roadmaps for contextually relevant digital transformation at national levels. At the heart of this process is the question of catalyzing human and techno-institutional capabilities, that is, the “*ability of individuals, firms and societies to innovate, adopt technologies, (and) manage transformative changes*”.<sup>7</sup>

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<sup>1</sup> United Nations. (n.d.). *Doha programme of action for the least developed countries approved ahead of LDC5 conference*. United Nations. Retrieved March 3, 2023, from <https://www.un.org/ohrrls/news/doha-programme-action-least-developed-countries-approved-ahead-ldc5-conference>

<sup>2</sup> United Nations Digital Library. (2022). *Doha programme of action for the least developed countries: Resolution/adopted by the General Assembly*. United Nations. Retrieved February 14, 2023, from <https://digitallibrary.un.org/record/3968043?ln=en>

<sup>3</sup> United Nations Secretary-General. (2023, February). *Secretary-General’s briefing to the General Assembly on priorities for 2023*. United Nations. Retrieved February 16, 2023, from <https://www.un.org/sg/en/content/sg/statement/2023-02-06/secretary-generals-briefing-the-general-assembly-priorities-for-2023-scroll-down-for-bilingual-delivered-all-english-and-all-french-versions>

<sup>4</sup> UN Secretary-General’s High-level Panel on Digital Cooperation. (2019). *The age of digital interdependence*. United Nations. Retrieved February 16, 2023, from <https://www.un.org/en/pdfs/DigitalCooperation-report-for%20web.pdf>

<sup>5</sup> United Nations Environment Programme. (n.d.). *Digital transformation*. United Nations. Retrieved February 17, 2023, from <https://www.unep.org/explore-topics/technology/what-we-do/digital-transformation>

<sup>6</sup> United Nations Conference on Trade and Development. (2022, February 16). *Recovering from COVID-19 in an increasingly digital economy: Implications for sustainable development - Note by the UNCTAD Secretariat*. United Nations. Retrieved February 10, 2023, from [https://unctad.org/system/files/official-document/tdb\\_ed5d2\\_en.pdf](https://unctad.org/system/files/official-document/tdb_ed5d2_en.pdf)

<sup>7</sup> Nübler, I. (Forthcoming) *A human-based approach to harness STI for SDGs*. Working paper. ILO. Geneva.

In the below sections, we examine the challenges that currently prevent LDCs from harnessing a capabilities-based approach to leveraging the digital transformation, and then move on to outlining critical strategies for action at the multilateral and national levels that can effectively respond to the same.

## 2. Current Challenges

### 2.1. Lack of financing for public digital innovation

LDCs face resource constraints in financing public digital innovation. Past initiatives such as the Tech Access Partnership implemented by the UN Technology Bank have not taken off despite their ambition precisely because of funding and other programmatic challenges.<sup>8</sup> This is part of a larger problem of the lack of Official Development Assistance (ODA) flows. As recognized by the Organization for Economic Cooperation and Development (OECD),<sup>9</sup> LDCs depend heavily on ODA, and aid remains a lifeline; however, their research on ODA and other official flows indicate that:

- The share of ODA flows to LDCs has decreased from 70% to 60% over the period from 2000-01 to 2018-19.
- Development Assistance Committee (DAC) countries gave 0.09% of their combined Gross National Income to LDCs in 2019, which falls short of the UN target of 0.15%.
- Private flows from DAC countries represented merely 1% of the total financing.

The response of the multilateral system to plugging this gap in public financing for digital innovation capabilities has been to promote multi-stakeholder alliances that can enable the emergence of public-private partnerships for open digital innovation in developing countries and the LDCs. The UN's flagship Digital Public Goods Alliance (DPGA), set up in 2019 by the governments of Norway and Sierra Leone, the Indian Software Product Industry Roundtable (iSPIRT) and UNICEF, exemplifies this approach. The limitations of such an orientation from a capabilities standpoint are highlighted in Box 1.

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<sup>8</sup> Gombe, S. (2021, May 04). An introduction to the UN Technology Bank for the least developed countries. *South Views*. No. 216. South Centre. Retrieved March 03, 2023, from <https://www.southcentre.int/wp-content/uploads/2021/05/SouthViews-Gombe.pdf>

<sup>9</sup> OECD. (2022). *External finance to least developed countries (LDCs): A snapshot*. OECD Publishing. Paris. Retrieved February 17, 2023, from [https://www.oecd.org/dac/LDCs\\_external\\_finance\\_2022.pdf](https://www.oecd.org/dac/LDCs_external_finance_2022.pdf)

### **Box 1. Limitations of the DPGA's multi-stakeholder approach to building digital innovation capabilities in the LDCs**

With adaptability, re-usability, and re-programmability<sup>10</sup> as their crucial features, Digital Public Goods (DPGs)<sup>11</sup> are seen to unlock the full potential of digital technologies and data<sup>12</sup> and address a multitude of challenges, including those of rising inequalities.<sup>13</sup>

DPGA seeks to enable digital innovation in the Lower Middle Income Countries (LMICs) and LDCs through a global registry of software, platform standards, data and artificial intelligence (AI) models that meet its baseline standards of openness, privacy compliance, and adherence to the 'do no harm' principle. The idea is that public and private sector stakeholders from anywhere in the world can access the registry and innovate on top of these basic building blocks. Governments in the global South can thus explore the establishment of multi-stakeholder partnerships to construct innovation communities around these DPGs.

#### **Open innovation systems are exploited by market actors; they don't build domestic capability**

Modular Open Source Identity Platform (MOSIP) – listed in the registry of the UN DPGA – is an open source, open standards-based identity platform to support digital identity-linked products and services. It is touted as an exemplar for effective, low-cost digital identification systems and customized ID solutions for African countries. What goes unstated, however, is that while multinational firms free ride on this open ecosystem for building their government clientele, the domestic digital sector in African countries has not really received a boost.<sup>14</sup>

#### **Hype around DPGs detracts attention from the need for guardrails to prevent their enclosure**

The open digital payments standard – Unified Payments Interface (UPI) – developed by the National Payments Corporation of India (NPCI) in 2016<sup>15</sup> was initially intended to enable the development of the digital payments services sector in India by enabling interoperability in all financial transactions at low cost, thus promoting digital inclusion. The government also developed the Bharat Interface for Money (BHIM) UPI app to enable users to make direct bank payments.<sup>16</sup> Private sector players have also built their own digital payments apps on top of the UPI. This readily available infrastructure, without any transaction fees (to banks or the government), has enabled a free-riding environment. Apps such as Paytm (backed by Ant Financial and Softbank) and Google Pay currently control over 80% of UPI transactions, benefitting from regulatory loopholes to maintain their market

<sup>10</sup> Nicholson, B., Nielsen, P., Sahay, S., & Sæbø, J.I. (2022). Digital public goods platforms for development: The challenge of scaling. *The Information Society* Vol. 38, No. 5, 364-376. <https://doi.org/10.1080/01972243.2022.2105999>

<sup>11</sup> Defined as "open source software, open data, open artificial intelligence models, open standards, and open content that adhere to privacy and other applicable international and domestic laws, standards and best practices, and do no harm" by the UNSG's Roadmap for Digital Cooperation. United Nations Secretary-General. (2020, June). *Report of the Secretary-General: Roadmap for Digital Cooperation*. United Nations. Retrieved February 10, 2023, from [https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap\\_for\\_Digital\\_Cooperation\\_EN.pdf](https://www.un.org/en/content/digital-cooperation-roadmap/assets/pdf/Roadmap_for_Digital_Cooperation_EN.pdf)

<sup>12</sup> *ibid.*

<sup>13</sup> United Nations. (2021, August 30). *Digital public infrastructure can help solve global woes, Secretary-General tells ministerial event*. United Nations. Retrieved February 10, 2023, from <https://press.un.org/en/2021/sgsm20871.doc.htm>

<sup>14</sup> Gurumurthy, A., Chami, N., & Mahindru, T. (2022, May). *Digital public goods for an inclusive digital future: A roadmap towards 2030*. IT for Change. Retrieved March 03, 2023, from <https://sdgs.un.org/sites/default/files/2022-05/2.1.1-45-Gurumurthy%20Digital%20Public%20Goods.pdf>

<sup>15</sup> National Payments Corporation of India. (n.d.). *India's Unified Payment Gateway for real-time payment transactions*. Retrieved February 13, 2023, from <https://www.npci.org.in/PDF/npci/upi/Product-Booklet.pdf>

<sup>16</sup> Bharat Interface for Money. (n.d.). *Who We Are*. Retrieved February 13, 2023, from <https://www.bhimupi.org.in/who-we-are>

share,<sup>17</sup> whereas BHIM developed by NPCI has a smaller share.<sup>18</sup> In the absence of conditionalities and guardrails, dominant market players in the digital payments ecosystem are able to exploit the UPI protocol for their commercial gain, without any reciprocal obligation to contribute to domestic digital innovation capabilities.

**Over-reliance on multi-stakeholder Public-Private-Partnership (PPP) models for digital innovation can entrench infrastructure capability deficits**

The enmeshment of the private sector in core policy spheres such as health, agriculture, etc., is a cause for concern in the promotion and adoption of DPGs.<sup>19</sup> Of the 142 DPGs showcased in the DPGA registry, 72 are relevant to SDG 3 (Good Health and Well-Being).<sup>20</sup> The lack of global guidelines for processing of sensitive personal data in the deployment of health sector DPGs brings risks for data privacy, security, transparency, and accountability. The sharing of patient data by UK's National Health Service (NHS) with corporations such as McKinsey & Company, KPMG<sup>21</sup>, as well as data analytics outfit Palantir, has been widely critiqued in the UK.<sup>22</sup> Private control over public data infrastructures can also undermine accountability of public services<sup>23</sup> and lead to corporatization of hitherto state-led functions.<sup>24</sup> Unfortunately, public awareness is lacking in developing countries about the systemic implications of data sharing by public institutions with foreign firms, and the longer term capability deficit it creates for local public systems.

## 2.2. Trade and Intellectual Property (IP) regimes that prevent the emergence of robust domestic digital economies

The United Nations Conference on Trade and Development (UNCTAD) acknowledges that “*technological capabilities are an indispensable component of the productive capacities needed by economies to climb up the economic development ladder*”.<sup>25</sup> Today, the social and economic benefits of technological advancements are concentrated in developed countries.<sup>26</sup> Excessive IP protection in developed countries, including patent thickets and patent fencing disallows the use of frontier technologies, including data and AI technologies, by

<sup>17</sup> ET Bureau. (2023, January 20). *Free-riding UPI apps eating rivals' lunch*. The Economic Times. Retrieved February 13, 2023, from <https://economictimes.indiatimes.com/opinion/et-editorial/free-riding-upi-apps-eating-rivals-lunch/articleshow/97182693.cms>

<sup>18</sup> Matthan, R., & Ramann, S. (2022, October 26). *Financing digital public infrastructure: The India story*. Observer Research Foundation. Retrieved March 3, 2023, from <https://www.orfonline.org/expert-speak/financing-digital-public-infrastructure/>

<sup>19</sup> Capasso, M., & Umbrello, S. (2021, November). *Big tech corporations and AI: A social license to operate and multi-stakeholder partnerships in the digital age*. PhilPapers. Retrieved February 13, 2023, from <https://philpapers.org/archive/CAPBTC-3.pdf>

<sup>20</sup> Digital Public Goods Alliance. (n.d.). *Registry*. Retrieved March 03, 2023, from <https://digitalpublicgoods.net/registry/>

<sup>21</sup> Murgia, M., & Harlow, M. (2021, July). *NHS shares English hospital data with dozens of companies*. Financial Times. Retrieved February 18, 2023, from <https://www.ft.com/content/6f9f6f1f-e2d1-4646-b5ec-7d704e45149e>

<sup>22</sup> Privacy International. (2020, October 29). *All roads lead to Palantir: A review of how the data analytics company has embedded itself throughout the UK*. Retrieved February 20, 2023, from <https://privacyinternational.org/report/4271/all-roads-lead-palantir>

<sup>23</sup> Downey, A. (2020, November 25). *Private data contracts risk 'undermining core values of NHS'*. digitalhealth. Retrieved March 03, 2023, from <https://www.digitalhealth.net/2020/11/data-contracts-with-palantir-risk-undermining-core-values-of-nhs/>

<sup>24</sup> Mann, L., & Iazzolino, G. (2021, July 21). *From development state to corporate leviathan: Historicizing the infrastructural performativity of digital platforms with Kenyan agriculture*. Wiley Online Library. Retrieved March 03, 2023, from <https://onlinelibrary.wiley.com/doi/10.1111/dech.12671>

<sup>25</sup> UNCTAD. (2020). *The Least Developed Countries Report 2020 – Productive capacities for the new decade*. United Nations. Retrieved February 20, 2023, from [https://unctad.org/system/files/official-document/ldcr2020\\_en.pdf](https://unctad.org/system/files/official-document/ldcr2020_en.pdf)

<sup>26</sup> Utoikamanu, F. (2018, December). *Closing the technology gap in least developed countries*. UN Chronicle. Nos. 3 & 4 Vol. LV, "New Technologies: Where To?". Retrieved February 20, 2023, from <https://www.un.org/en/chronicle/article/closing-technology-gap-least-developed-countries>

LDCs in areas such as health and agriculture, impeding their sustainable development.<sup>27</sup> Prohibitions on source code disclosure, witnessed in recent trade agreements,<sup>28</sup> further restrict technology transfer.<sup>29</sup>

The extension of property rights to ideas has created artificial scarcity and the rise of intellectual monopolies,<sup>30</sup> resulting in a rentier economy with high intangible barriers. For instance, global payments for the use of foreign IPR increased exponentially – to approximately USD 367 billion in 2015 (from less than USD 50 billion in 1995)<sup>31</sup> – a reflection of the increased fencing by the ‘intangible haves’ against the ‘intangible have-nots’.

This already unfair and unjust geoeconomic playing field presents near-insurmountable barriers in the data epoch, with trade secrets and patent regimes in data and AI emboldening first-mover transnational digital corporations to enclose the social commons of data in perpetuity, and monopolize the intelligence capital generated from its processing.<sup>32</sup>

With a view to narrow the innovation gap, the UN is championing the creation of global data public goods in different sectors. The implicit assumption here seems to be that data contributors will largely be governments (pooling open government datasets) and data innovators will be private sector institutions. Unfortunately, this does not account for the manner in which the IP regime is (mis)used by corporations. For instance, the report of the High-level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome<sup>33</sup> (FSN Expert Panel) recommends the establishment of a global data trust in the food security and nutrition domain to enable data discoverability, promote data reuse, and encourage open innovation, while protecting privacy and preserving IP rights.

The recommendations of the FSN Expert Panel miss the critical problem that the failure to establish boundaries for access and use of such global data public goods will only result in the capture of public value of the data. This could happen in two ways. Firstly, through private sector cannibalization of ‘free-for-all’ data, and secondly, through unidirectional data flows from public data pools to private enclosures, as illustrated in the infamous case of Regeneron. Using digital gene sequences of the Ebola virus from an open gene bank (without the permission of Guinea from where the sample originated), the company developed and patented

<sup>27</sup> UNCTAD. (2021). *Technology and Innovation Report 2021 – Catching technological waves – Innovation with equity*. United Nations. Retrieved February 20, 2023, from [https://unctad.org/system/files/official-document/tir2020\\_en.pdf](https://unctad.org/system/files/official-document/tir2020_en.pdf)

<sup>28</sup> Dorobantu, C., Ostmann, F., & Hitrova, C. (2021, July 23). Source code disclosure: A primer for trade negotiators. In I. Borchert & L. A. Winters (Eds.), *Addressing Impediments to Digital Trade* (pp. 105-140). London: CEPR Press. Retrieved February 20, 2023, from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3877039](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3877039)

<sup>29</sup> James, D. (2020, July 08). *Digital Trade Rules – A disastrous new constitution for the global economy, by and for Big Tech*. Rosa Luxemburg Stiftung. Retrieved February 20, 2023, from <https://www.rosalux.eu/en/article/1742.digital-trade-rules.html>

<sup>30</sup> Lindsey, B., & Takash, D. (2019, September). *Why “Intellectual Property” is a Misnomer*. Niskanen Center. Retrieved February 20, 2023, from [https://www.niskanencenter.org/wp-content/uploads/2019/09/LT\\_IPMisnomer-2-1.pdf](https://www.niskanencenter.org/wp-content/uploads/2019/09/LT_IPMisnomer-2-1.pdf)

<sup>31</sup> UNCTAD. (2018). *Trade and Development Report 2018 – Power, platforms and the free trade delusion*. United Nations. Retrieved February 20, 2023, from [https://unctad.org/system/files/official-document/tdr2018\\_en.pdf](https://unctad.org/system/files/official-document/tdr2018_en.pdf)

<sup>32</sup> Gurumurthy, A. & Chami, N. (2022, January). *Governing the resource of data: To what end and for whom? Conceptual building blocks of a semi-commons approach*. Working Paper 23 Data Governance Network anchored by IDFC Institute. IT for Change. Retrieved March 03, 2023, from <https://itforchange.net/sites/default/files/1741/WP23-Governing-the-Resource-of-Data-AG-NC.pdf>

<sup>33</sup> HLPE. (2022). *Data collection and analysis tools for food security and nutrition: Towards enhancing effective, inclusive, evidence-informed, decision making*. A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome. Retrieved February 17, 2023, from <https://www.fao.org/3/cc1865en/cc1865en.pdf>



a drug, raking in millions of dollars, without any reciprocal contribution to society.<sup>34</sup> Considering that there is no multilateral agreement on benefit sharing from the downstream uses of digital genetic sequence information/genetic data, there is also no option for Guinea to demand access to monetary or non-monetary benefits derived from the intelligence capital produced out of the genetic data resources of its people.<sup>35</sup>

The development of robust and equitable digital economies hence necessitates the restriction of the ambit of IPRs – to prevent enclosure of data.<sup>36</sup> It also calls for a rethink of global knowledge regimes vis-a-vis data-based ‘intelligence resources’ vital for the creation of public and social value.

### 2.3. Absence of human-centered approach to digital transformation

Even as “*technology fosters the creation of new jobs*”, it also precipitates “*their destruction*”.<sup>37</sup> Labor market changes in the face of digitalization such as automation of jobs and rise in gig work highlight associated vulnerabilities including risks of unemployment and a lack of social protection. A plethora of initiatives are being launched by the multilateral system and global philanthropies to bridge skill gaps and prepare populations in the LDCs for a new future of work. Development- and trade-related cooperation has also emerged as a preferred route for such efforts. The Indo-Pacific Economic Framework for Prosperity (IPEF) Upskilling Initiative<sup>38</sup> is one example. Limiting the idea of skilling to the training of developing country populations for low-skill jobs in low-value segments of digital value chains, the initiative adopts a reductionist approach to building human capabilities.<sup>39</sup>

To move beyond narrow visions of human capability that sidestep the connections between global labor hierarchies and the uneven geographies of development in the digital age, the multilateral system and governments in the global South need to take a leaf out of the ILO’s Centenary Declaration. This Declaration emphasizes a “*human-centered approach to the future of work, which puts workers’ rights and the needs, aspirations, and rights of all people at the heart of economic, social, and environmental policies*”.<sup>40</sup> The Declaration states that the ILO must direct its efforts to developing effective policies aimed at generating

<sup>34</sup> Hammond, E. (2020, December). *Access and benefit sharing for pathogens: An overview of the issues facing the 2021 World Health Assembly and WHO Executive Board*. Third World Network. Retrieved March 03, 2023, from [https://www.twn.my/title2/briefing\\_papers/twn/ABS%20pathogens%20TWNBP%20Dec2020%20Hammond.pdf](https://www.twn.my/title2/briefing_papers/twn/ABS%20pathogens%20TWNBP%20Dec2020%20Hammond.pdf)

<sup>35</sup> UNEP. *A solution on benefit-sharing from the use of digital sequence information is currently under evolution*. See, Decision adopted by the Conference of the Parties to the Convention on Biological Diversity. (2022, December 19). Convention on Biological Diversity. Retrieved March 03, 2023, from <https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-09-en.pdf>

<sup>36</sup> Gurumurthy, A. & Chami, N. (2023, January). *The Global Debate on Food Security Data: More Open-washing?* Bot Populi. Retrieved February 14, 2023, from <https://botpopuli.net/harnessing-the-data-revolution-for-world-food-security-is-a-global-public-good-approach-good-enough/>

<sup>37</sup> Immervol, H., MacDonald, D., Rovenskaya, E. & Ilmola, L. (n.d.). *Social protection in the face of digitalisation and labour market transformations*. OECD iLibrary. Retrieved February 20, 2023, from <https://www.oecd-ilibrary.org/sites/3f4ef6f1-en/index.html?itemId=/content/component/3f4ef6f1-en>

<sup>38</sup> *Fact Sheet: IPEF Upskilling Initiative*. (n.d.). Ministry of Commerce and Industry. Retrieved February 20, 2023, from <https://www.commerce.gov/sites/default/files/2022-09/IPEF-Upskilling-Fact-Sheet.pdf>

<sup>39</sup> IT for Change. (2022, December). *Statement rejecting pink-washing in the Indo-Pacific Economic Framework*. IT for Change. Retrieved March 03, 2023, from <https://itforchange.net/statement-rejecting-pinkwashing-indo-pacific-economic-framework>

<sup>40</sup> *ILO Centenary Declaration for the Future of Work*. (2019, June). ILO. Retrieved February 20, 2023, from [https://www.ilo.org/wcmsp5/groups/public/@ed\\_norm/@relconf/documents/meetingdocument/wcms\\_711674.pdf](https://www.ilo.org/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_711674.pdf)

productive and freely chosen employment and decent work opportunities for all, in particular facilitating the transition from education and training to work.

As a counter to the existing exploitative, monopolistic, and data-extractivist platforms – leading to a “*race to the bottom*”<sup>41</sup> for workers – public platform infrastructures that promote collectivist and cooperativist enterprises are critical. Such infrastructures can galvanize sustainable production and equitable redistribution in the local economy. See Box 2 on an initiative of the Government of Kerala (India) focusing on the state’s agricultural sector.

### **Box 2. Kerala Food Platform: A public platform model for local agricultural economies**

Kerala Food Platform (KFP), a platform ecosystem focused on the production and distribution of safe-to-eat organic food, is being developed by the Government of Kerala in India. The experiment seeks to leverage the value of data to support the state’s extensive network of agricultural and labor cooperative institutions and equip them to participate in the digitalizing economy. The intent is to provide all cooperatives a suite of publicly created basic digital services for membership records management, business process tracking, and leveraging data-based analytics of cooperative operations for activity planning, monitoring, revenue forecasting, and risk management. Private players will also be on-boarded and given access to the aggregate data for creating useful digital products and services, backed by access and re-use conditionalities that prevent the consolidation of intellectual monopolies.

The pathways envisioned for data value creation and distribution through KFP’s ecosystem include equitable data value distribution (data aggregated from cooperative institutions to be governed as a knowledge commons), generative value creation (framework for data ownership/trusteeship in cooperative institutions and provision of agriculture data access to state agencies for public policy decision-making), and checks against data extractivism and violation of privacy rights.

A rapidly unraveling digital society requires an effective response to rein in human rights violations of transnational corporations in the digital economy. Labor rights violations in platform labor markets and datafying workplaces, wrongful exclusion of citizens from automated welfare systems, evisceration of the right to democracy due to the weaponization of social media for political polarization and propaganda warfare, and unethical profiling by Northern data businesses of populations in the South, reflect the new challenges for human rights in the digital order. The regulatory power of LDCs is often curtailed because transnational digital corporations, with their dispersed and virtualized global operations, typically have no physical presence in these jurisdictions.<sup>42</sup> Also, without an effective taxation regime to contain base erosion

<sup>41</sup> Immervol, H., MacDonald, D., Rovenskaya, E. & Ilmola, L., op. cit.

<sup>42</sup> *World employment and social outlook - The role of digital labour platforms in transforming the world of work.* (2021). ILO. Retrieved March 03, 2023, from [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_771749.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_771749.pdf)

and profit shifting,<sup>43</sup> LDCs are trapped in a fiscal crisis, unable to fulfill the Economic Social and Cultural Rights (ESCR) obligations towards their people.<sup>44</sup>

A human-centered approach also requires us to address the environmental ramifications of data and AI technologies. The modularization of global value chains and the increasing shift to knowledge-intensive industries has not really made a positive dent on our ecological footprint.<sup>45</sup> Research suggests that the material investment in network-data hardware development has increased greenhouse gas emissions, while mining for minerals in electronics has led to ecological destruction in some of the poorest parts of the planet, furthering a corporate-controlled production and consumption model of digital commerce that is unsustainable.<sup>46</sup> The commitments of Big Tech to carbon neutrality have often ended up as eyewash.<sup>47</sup> As envisaged in the Declaration of the European Green Digital Coalition Members, the deployment of solutions minimizing corporations' environmental footprint is essential to tackle adverse environmental and social impact.<sup>48</sup>

A human-centered approach to the design, development, deployment, and use of technologies that centers human well-being, human rights, and dignity<sup>49</sup> will enhance the capabilities of people, enabling them to benefit from the opportunities of a changing world.<sup>50</sup>

### 3. A Program of Action

Today, a handful of corporate platforms, as the essential infrastructures of interconnection, are transforming economic, social, and political spheres of activity. Their modus operandi is to evacuate local pockets of capital formation, with a systematic deskilling and erasure of contextual knowledge.<sup>51</sup> Turning this tide calls for increased investment in human and knowledge capital, public digital infrastructure underpinning critical economic and social sectors, and research and development cultures that propel public digital innovation ecosystems so that value generated from frontier data and AI technologies is ploughed back into the local

<sup>43</sup> Chowdhary, A.M., & Diasso, S.B. (n.d.). *Taxing big tech: Policy options for developing countries*. IT for Change. Retrieved March 03, 2023, from <https://projects.itforchange.net/state-of-big-tech/taxing-big-tech-policy-options-for-developing-countries/>

<sup>44</sup> A fair and equitable tax system to better social spheres (for instance in the Philippines, the revenue from the tax on tobacco and alcohol was used to increase the number of persons receiving free health insurance) can assist in redistributive justice. See, *Taxes & government revenue*. (n.d.). World Bank. Retrieved February 21, 2023, from <https://www.worldbank.org/en/topic/taxes-and-government-revenue#1>

<sup>45</sup> Kwet, M. (2022, May 31). *Digital ecosocialism - Breaking the power of big tech*. Longreads. Retrieved March 03, 2023, from <https://longreads.tni.org/digital-ecosocialism>

<sup>46</sup> Gurumurthy, A. & Chami, N. (2022, August). *Taming the intelligent corporation - Why the data paradigm necessitates a re-think of responsible business conduct obligations of MNEs*. IT for Change. Retrieved March 03, 2023, from [https://itforchange.net/sites/default/files/add/ITFC\\_TheIntelligentCorporation.pdf](https://itforchange.net/sites/default/files/add/ITFC_TheIntelligentCorporation.pdf)

<sup>47</sup> Nobrega, C., & Varon, J. (2021). *Big tech goes green(washing): Feminist lenses to unveil new tools in the master's houses* in Global Information Society Watch 2020 - Technology, the environment and a sustainable world: Responses from the global South. Association for Progressive Communications and Swedish International Development Cooperation Agency. Retrieved March 03, 2023, from [https://giswatch.org/sites/default/files/giswatch\\_2020\\_english\\_0.pdf](https://giswatch.org/sites/default/files/giswatch_2020_english_0.pdf)

<sup>48</sup> *Declaration of the European Green Digital Coalition members*. (2021, March 19). European Commission. Retrieved February 20, 2023, from [https://ec.europa.eu/information\\_society/newsroom/image/document/2021-12/european\\_green\\_digital\\_coalition\\_declaration\\_-\\_final\\_-\\_digital\\_day\\_2021\\_E592503B-D1CC-A599-5EF97E6891B038DF\\_74943.pdf](https://ec.europa.eu/information_society/newsroom/image/document/2021-12/european_green_digital_coalition_declaration_-_final_-_digital_day_2021_E592503B-D1CC-A599-5EF97E6891B038DF_74943.pdf)

<sup>49</sup> Nübler, I. op. cit.

<sup>50</sup> ILO centenary declaration for the future of work. op. cit.

<sup>51</sup> Mann, L., & Iazzolino, G. (2019, March). *See, Nudge, Control and Profit: Digital Platforms as Privatized Epistemic Infrastructures*. Platform Politick: A Series. IT for Change. Retrieved February 24, 2023, from <https://projects.itforchange.net/platformpolitics/wp-content/uploads/2019/03/Digital-Platforms-as-Privatized-Epistemic-Infrastructures-5thMarch.pdf>

economy. The ability of individuals and communities to enjoy a life of human flourishing in the global South is contingent on this deep-seated structural shift.

Structural transformation – understood as the movement from low-value to high-value segments of global value chains –<sup>52</sup> hinges on both human and techno-institutional capabilities. There is no such thing as a purely technical digital infrastructure development strategy as digital infrastructure acquires strategic significance only when it is tied to an economic policy framework that centers “the role of infrastructure in enabling and supporting central human capabilities that build adaptive capacity and improve human well-being”.<sup>53</sup> To claim digitalization as a force for change, LDCs need multilateral support in the form of a program of action that is able to recognize techno-institutional and human capabilities as two sides of the development coin. We now proceed to offer some specific suggestions on how a concerted set of steps need to be urgently taken at the multilateral level, in order to set in motion such a program of action.

### 3.1. Public financing for infrastructure

ODA and international public finance are essential to close the technological gap that manifests as the development divide<sup>54</sup> and the risk of LDCs being left behind in the Fourth Industrial Revolution.<sup>55</sup>

3.1.1. The mid-term SDGs review must commit to dedicated ODA for public platform, data and AI infrastructure development which ensures that 50% value from the digital economy accrues to the bottom 50% nationally and globally, by 2030.

3.1.2. International financial institutions should provide dedicated support for a new public digital infrastructure work program. This can build on an assessment of how to strengthen the UN Technology Bank for LDCs.

### 3.2. Governance of global digital public goods and global data pools

The governance deficit in digital public goods and global data pools that are being set up in the multilateral system needs urgent remedy to ensure they promote public interest innovation in the global South, rather than aiding private sector capture.

3.2.1. The DPG standard of the UN DPGA<sup>56</sup> requires overhaul in order to ensure that in addition to the ‘do-no-harm’ principle, a ‘no free-riding’ principle becomes an integral baseline of DPG adoption and re-use, with the establishment of appropriate access and use conditionalities in commercial and non-commercial uses of open standards, open data, and open AI models.<sup>57</sup>

<sup>52</sup> *ibid.*

<sup>53</sup> Clark S.S., Seager, T.P., & Chester, M.V. (2018, June). A capabilities approach to the prioritization of critical infrastructure. *Environment Systems and Decisions*, 38(3), 339-352. <https://doi.org/10.1007/s10669-018-9691-8>

<sup>54</sup> United Nations Department of Economic and Social Affairs. (2018). *World Economic and Social Survey 2018 - Frontier technologies for sustainable development*. United Nations. Retrieved February 21, 2023, from [https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESS2018\\_full\\_web.pdf](https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/WESS2018_full_web.pdf)

<sup>55</sup> The Least Developed Countries Report 2020 – Productive capacities for the new decade. *op. cit.*

<sup>56</sup> *Digital Public Goods Standard*. (n.d.). Digital Public Goods Alliance. Retrieved February 24, 2023, from <https://digitalpublicgoods.net/standard/>

<sup>57</sup> Gurumurthy, A., Chami, N., & Mahindru, T. (IT for Change). *op. cit.*

3.2.2. The establishment of global data pools in different sectors should be backed by robust institutional governance mechanisms that respect the data sovereignty of countries as integral to their development sovereignty. A multilateral data stewardship mechanism is necessary to enforce rules for harm prevention (such as privacy, protection of the right against individual and collective profiling, purpose and use limitations), and for equitable and fair distribution of benefits to the communities from whom the data was sourced, through a mechanism grounded in the public trust doctrine, akin to the Nagoya Protocol. Such a mechanism could enforce obligations for benefit sharing (through compulsory licensing requirements on downstream innovations) and reciprocal data sharing (akin to what is attempted in the EU's proposed common data space in health) on private sector actors using such data pools.

### **3.3. Effective governance of transnational digital corporations**

At the international level, there needs to be an effective governance framework for holding transnational digital corporations accountable. This requires the reform of global taxation, trade, and IP regimes as well as effective enforcement of the human rights obligations of business enterprises.

3.3.1. Instead of the OECD Two-Pillar Digital Taxation Solution, which many countries in the global South have critiqued for not doing enough to address the existing base erosion and profit-shifting concerns in the global digital economy, the proposal of the UN Taxation Committee in April 2021 – to permit the inclusion of income from automated digital services in bilateral tax treaties – needs to be adopted in global taxation reform. The latter proposal has an edge over the OECD solution as there is no threshold limitation, which means that taxation can equip a government to “gain a share of the entire profit deriving from the jurisdiction instead of a small share of the non-routine profit as in Pillar One”.<sup>58</sup>

3.3.2. Trade regimes should not intrude on the policy sovereignty of countries in the global South to determine their own autonomous pathways to data-enabled economic development. This means that a ‘free-data-flows-with-trust’ approach mooted by the US and its allies cannot become the global norm by default for all countries.<sup>59</sup> Also, in the guise of digital trade, LDCs should not be forced to accept trade agreements that prevent them from exercising their legitimate right to enforce compulsory licensing, technology transfer, and public scrutiny of innovations from multinational digital companies accessing their markets.

3.3.3. IP regimes must be overhauled to ensure that corporations are not exercising an over-broad application of trade secrets to unfairly enclose data resources in perpetuity. There is a push from

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<sup>58</sup> Chowdhary, A.M., & Diasso, S.B.op. cit.

<sup>59</sup> IT for Change. *Cross-border 'Data flow with data rights': Going beyond the 'Data Free Flow With Trust' (DFFT) framework to include economic rights to data.* (2022, September). IT for Change. Retrieved February 21, 2023, from <https://itforchange.net/sites/default/files/2208/Cross-Border%20%E2%80%98Data%20Flow%20With%20Data%20Rights%E2%80%99.pdf>

certain Northern countries and their corporate lobbies for sui-generis rights in data and AI that balance innovator and community rights. While this issue may be important, no new class of IPR should be instituted for data and AI innovations until the bigger question of a global data constitutionalism (elaborated in the point below) is first addressed.

3.3.4. The UN Global Digital Compact must call for a new treaty on human rights in the digital epoch, with robust enforcement mechanisms for corporate accountability for human rights violations in the digital economy, including ESCR obligations.

### **3.4. A new data constitutionalism grounded in development sovereignty**

Regulation of cross-border data flows through trade agreements risks prioritization of the interests of developed countries' corporations.<sup>60</sup> The question of data governance remains an urgent imperative for global policy.

3.4.1. A new global digital constitutionalism that recognizes a) aggregate data as knowledge commons, b) the *a priori* claims that 'source communities' – communities from whose interactions and territories data is aggregated – have over such commons, and c) the equal right of all members of communities in stewarding the use of community data and obtaining an equitable share in its benefits, is urgently needed.<sup>61</sup> Such an international data order based on sovereign equality of all countries and peoples for the realization of human rights in the digital age, including the right to development, also requires multilateral development cooperation mechanisms for public infrastructural development in the LDCs.

3.4.2. To realize the SDG vision of sustainable industrialization and innovation,<sup>62</sup> building the capabilities of countries to develop public platform infrastructures that undergird alternative enterprise models is key.

### **3.5. A human-centered agenda for the future of work**

A new regime of labor rights that specifically accords protection to workers in the digital economy is vital.

3.5.1. A "*human-centered agenda for the future of work*" as put forth by the ILO needs to be implemented, i.e., where people and their work are placed at the center of policy and business. ILO's agenda envisions increased investment in people's capabilities through learning ecosystems (that provide for skilling, reskilling, and upskilling) and universal social protection. This requires supplementation by a Universal Basic Income (where all workers, regardless of employment status,

<sup>60</sup> UNCTAD. *Digital Economy Report 2021: Cross-border data flows and development: For whom the data flow.* (2021). United Nations. Retrieved February 22, 2023, from [https://unctad.org/system/files/official-document/der2021\\_en.pdf](https://unctad.org/system/files/official-document/der2021_en.pdf)

<sup>61</sup> Gurumurthy, A., & Chami, N. (Forthcoming). *A global digital compact for gender equality: Charter of feminist demands from the global South.*

<sup>62</sup> *Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation.* (n.d.). United Nations. Retrieved February 25, 2023, from <https://www.un.org/sustainabledevelopment/infrastructure-industrialization/>

are entitled to an adequate living wage)<sup>63</sup> and the preservation of foundational labor guarantees in the new digitalized workplace.

### **3.6. Supporting the evolution of policy system capabilities in the LDCs**

The lack of financial and technical resources in the LDCs means that their policy systems often lack the necessary agility to scan new horizons of digital and data innovation, track good practices in regulation across the globe, and explore appropriate cooperation mechanisms for public digital infrastructure development.

3.6.1. Key priorities for LDCs in digital ecosystem development include context-appropriate national digital economy roadmaps, technology standards, data governance and domestic digital economy regulation, and new data rights for individual and collective autonomy.

3.6.2. The Technology Bank should be equipped with the requisite public financing and dedicated staffing capacity to create a new work program on digital infrastructure and human capabilities development. This new work program must systematically produce research and capacity-building modules grounded in a capabilities approach to domestic digital economy development.

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<sup>63</sup> *Work for a brighter future – Global Commission on the Future of Work.* (2019). ILO. Retrieved. February 22, 2023, from [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms\\_662410.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_662410.pdf)