

# **Bridging digital divides:**

## A framework for digital cooperation

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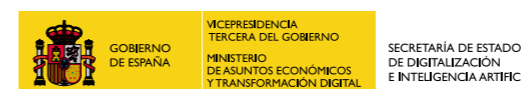
# About Digital Future Society

Digital Future Society is a non-profit transnational initiative that engages policymakers, civil society organisations, academic experts and entrepreneurs from around the world to explore, experiment and explain how technologies can be designed, used and governed in ways that create the conditions for a more inclusive and equitable society.

Our aim is to help policymakers identify, understand and prioritise key challenges and opportunities now and in the next ten years under key themes including public innovation, digital trust and equitable growth.

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# Executive Summary

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As the internet transforms every sector of the global economy, paradigm shifts like the growing data economy, the spectre of automation, and the ubiquity of interconnected objects, are challenging our understanding of the digital divide. No longer simply about the ability to access ICTs like the internet, the traditional singular definition of “digital divide”<sup>1</sup> has evolved to encapsulate the multifaceted gaps between levels of economic opportunity, security, personal agency, skills and knowledge, and individual and collective agency available to some and not to others.

Moreover, in a global context of digital transformation, digital divides can be found even in the world’s most developed countries. Despite having access, considerable segments of populations in rich nations are left behind as access to ICTs and the internet and digital literacy fail to advance at the same speed. Globally, over 750 million people still live in areas that are not covered by mobile broadband. While closing this “coverage gap” remains a priority, it is important to recognise that a much larger “usage gap” exists with more than 3.3 billion people living in areas covered by mobile broadband networks but who are not using mobile internet services.<sup>2</sup> Thinking in terms of digital divides (plural) is one way this report acknowledges the complexities of digital inequality in all its forms.

Faced with a tangled plurality of digital divides, access and technology provision can only ever be partial solutions. Digital literacy can fill this gap by granting citizens the agency and confidence required to fully reap technology’s benefits and to participate more fully in an increasingly digital society. A recent GSMAi survey found that in low- and middle-income countries, literacy and digital skills are the main factors limiting mobile internet use among those who are aware of it.<sup>3</sup> The concept comprises both digital skills — the ability to use ICTs and the internet to one’s own advantage — and digital understanding, which refers to an awareness of what goes on “behind the screen.”

The goal of this report is to provide policymakers and other players acting in the global public interest with essential knowledge to understand both the societal impact and multifaceted nature of digital divides, as well as practical guidance and tools to implement initiatives that bridge digital literacy gaps more effectively.

The key contributions of this report to the digital divide debate are two-fold. First, it proposes an updated multi-stakeholder framework for digital cooperation, comprised of civil society, research institutions, international organisations, as well as the public and private sectors. The framework is then used as a lens to explore four international case studies, which allows for a clearer understanding of how it works in practice. Secondly, in the form of a three-phase roadmap, the report provides guidance on how to apply the digital cooperation framework when implementing initiatives to bridge digital divides.

The ultimate ambition of this document is to support sustainable multi-stakeholder ecosystems, equipped with built-in resilience to digital divides in order to promote equitable growth. This is only possible under two conditions: if digital divides are treated as complex social challenges instead of a matter of technology access alone, and if a diverse set of players is engaged in shaping collaborative solutions.

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<sup>1</sup> Internet Society 2017

<sup>2</sup> Bahia and Suardi 2019

<sup>3</sup> Ibid.

# Glossary

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# Glossary

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## Access

The ability to connect to the internet through devices such as computers or mobile phones, and to use internet-based services like social media or email.



## Community network

Broadly defined as smaller-scale telecommunication infrastructure deployed and operated by citizens to meet their own communication needs.<sup>4</sup> Community networks are often deployed to spread connectivity to areas in which it is unavailable or unaffordable and therefore inaccessible.



## Digital cooperation

A multi-stakeholder collaboration that seeks to address the social, ethical, legal, and economic impacts of digital technologies in order to maximise their benefits and minimise their harm.<sup>5</sup>



## Digital divide

Traditionally refers to the gap between those with access to digital devices, the internet, and other information and communication technologies (ICT), and those without.

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<sup>4</sup> Internet Society 2018

<sup>5</sup> UN Secretary-General's High-level Panel on Digital Cooperation 2019



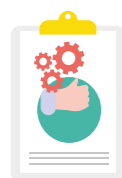
### Digital divides

This report uses the plural form to refer to the multi-faceted and complex nature of the digital divide beyond access to ICTs, such as gaps in digital literacy.



### Digital literacy

The skills and abilities needed to access and use digital devices, the internet and other ICTs confidently, safely, and effectively. This report uses the term to denote the result of combining digital skills and digital understanding.



### Digital skills

The skills needed to use information and communication technologies to one's own advantage while reducing the potential harm coming from misuse or lack of literacy.<sup>6</sup>



### Digital understanding

A profound comprehension of how digital products, services and business models function beyond the operational level or user interface. For instance, using a social network to share professional content is a digital skill, while comprehending the platform's privacy policy is a form of digital understanding.



### ICT

Abbreviation for information and communication technology. Refers to the use of computers and other systems to collect, store, use, and send data electronically.



### Quadruple helix

An innovation and collaboration model composed of four elements: the private sector, public sector, academia, and civil society. In this model, citizens are key in defining the requirements instead of being passive recipients of innovations created in private labs.

# Introduction

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## Building a digital society that empowers all

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Until recently, policymakers and the private sector have prioritised tackling the digital divide in terms of access.<sup>7</sup> Yet their motivations, available resources and approaches tend to differ. A multinational telecom might focus on opening new markets by connecting rural populations to broadband networks using their physical infrastructure. For a major social media company, “closing the digital gap” could mean ensuring everyone on Earth uses their platform. For many governments, it means offering more efficient public services. Regardless of the underlying motivation, access to ICT is a necessary but insufficient step towards bridging digital divides and achieving equitable growth.<sup>8</sup>

A recent United Nations report shows that the proportion of people online in the developing world grew from 14.5% in 2008 to 45.3% in 2018.<sup>9</sup> Over the next seven years, 1.4 billion people will start using the mobile internet for the first time, bringing the total number of mobile internet subscribers globally to 5 billion by 2025 (over 60% of the world’s population).<sup>10</sup> In some areas, however, this progress is now slowing.<sup>11</sup> Internet pioneer Vint Cerf recently claimed that even in the most connected and developed countries, “significant pockets of disconnection” remain.<sup>12</sup> Although internet access might be available, barriers persist for many whose connection is poor or too expensive, or that lack the skills to reap the benefits of digitalisation.

### A global call for digital cooperation

A mismatch of scope, resources, priorities, and knowledge when it comes to narrowing digital divides creates complexities in policy design. Whereas public administrations are often forced to stretch resources and limited technical knowledge to serve entire populations, private sector actors are equipped with the know-how and the agility to build technically complex products for micro-targeted segments of a population or deploy global platforms at scale. Initiatives driven by civil society organisations might have the capacity to respond to social needs and interests but struggle to scale initiatives without support or visibility. Their complementary role is where impactful solutions to digital divides can be found in the form of digital cooperation.

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<sup>7</sup> World Economic Forum 2016

<sup>8</sup> UN Secretary-General’s High-level Panel on Digital Cooperation 2019

<sup>9</sup> Lieberman 2019

<sup>10</sup> GSMA Mobile Economy 2019

<sup>11</sup> World Wide Web Foundation 2018

<sup>12</sup> Lieberman 2019

**The United Nations Secretary-General's High-level Panel defines digital cooperation as “working together to address the social, ethical, legal and economic impact of digital technologies in order to maximise their benefits and minimise their harm.”<sup>13</sup>**

Given the multifaceted and highly complex nature of the digital divide, “closing it” is an endeavour too big for any one entity to face alone.<sup>14</sup> On the other hand, the collaboration of public, private, academic and civil society actors can be a powerful catalyst in closing many kinds of digital divides.

Furthermore, multi-stakeholder partnerships have a high impact potential when it comes to equitable growth. Economist Dominik Hartmann affirms that without cooperation between the government, private sectors and society in general, many huge social projects and the establishment of investments to enhance human development (in education and health, for instance) may not be possible.<sup>15</sup> All elements of the economy and society need to complement each other to form prolific innovation systems that can lead to structural change, equitable growth, and human development.

## Aim

This report examines how public, private, research and civil society entities across the world can collaborate to bridge digital divides, with a focus on creating the conditions for increasing the number of individuals who benefit from digital transformation.

It addresses policymakers worldwide, at all levels of government — national, regional and municipal — seeking to reduce digital gaps. In contrast to private interests in advancing digital transformation, policymakers have a responsibility to lead as representatives of the common interest and are uniquely placed to convene relevant actors around a shared vision. Although the public sector is the primary audience of this report by virtue of this mandate, stakeholders from other sectors may also find it useful.

The report also aims to offer value to small and medium-sized enterprises (SMEs), industry leaders, and other private sector actors concerned with social impact aspects of digital transformation. It can also be useful to members of civil society organisations who want to strengthen their role in digital cooperation initiatives. Finally, the report aims to highlight the contribution of the academic sector by showing how research institutions can play a vital role in making digital cooperation work.

## Scope

This report is based on a combination of desk research together with the expertise and outcomes of the Digital Future Society working group on equitable growth, composed of experts from the public and private sectors, civil society organisations, and academia. It makes the case for going beyond the traditional approach of providing access to ICTs and the internet in areas lagging in digitalisation, suggesting digital cooperation for digital literacy initiatives as a more effective tool to bridge digital divides.

### Why focus on digital literacy?

This report understands digital literacy as the result of combining digital skills with digital understanding. Building capacity in both areas can have positive cascading and reciprocal effects that address other forms of inequality, thereby promoting equitable growth. For instance, a digital skills programme tailored to women can empower them to find better employment. Similarly, encouraging non-internet users to understand the added value of being online can motivate them to find their way in the digital world.

Given the cultural, social and economic root causes that deepen digital literacy divides well beyond access, digital cooperation is proposed as a vehicle towards a more equitable and inclusive digital society. We purposefully limit our scope to addressing governance and planning gaps in digital literacy and provide novel insights to bridge them. The selected case studies present instructive ways to close digital literacy divides on four different continents and serve the purpose of illustrating what works and what doesn't in the context of digital cooperation. The aim is to show how the framework can be adapted to all contexts based on the understanding of shared challenges and opportunities.

<sup>13</sup> UN Secretary-General's High-level Panel on Digital Cooperation 2019

<sup>14</sup> Ibid.

<sup>15</sup> Haisler 2019

<sup>15</sup> Hartmann 2014



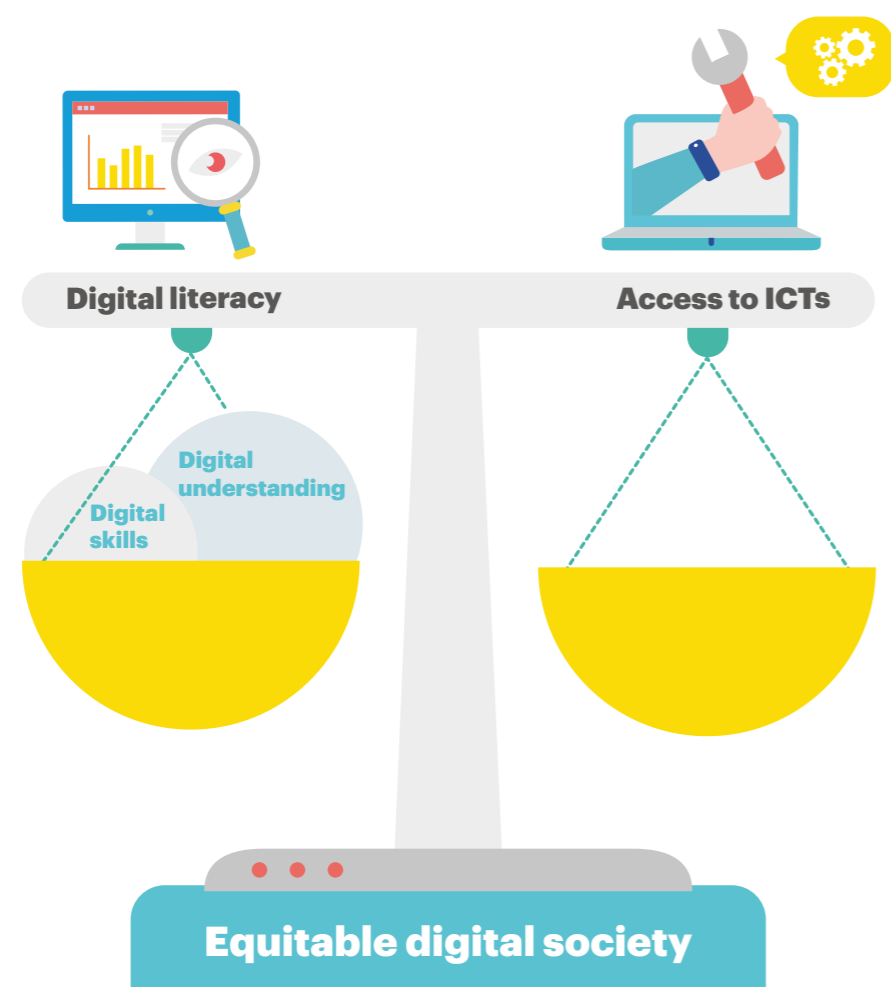


Figure 1: The elements of an equitable digital society. Image source: Digital Future Society and Futuribile

## Structure

The report begins by providing a brief overview of various digital divides to demonstrate how bridging them constitutes a much deeper and more complex problem than providing access to ICTs. Digital literacy is presented as the desired outcome of digital cooperation, ideally ensuring that the digitally excluded are not left further behind as the digital transformation gathers pace.

The second section proposes a framework for digital cooperation that leverages multi-stakeholder partnerships as an inclusive means to bridge digital divides, detailing the specific role of each stakeholder. Key success factors for digital cooperation as well as its associated risks are also presented in this section.

Next, four geographically varied case studies that emerged during the working group meetings are presented. The digital cooperation framework introduced in Section 2 is used to analyse each initiative, considering its context, the players involved in the partnership, as well as main challenges, impact and success factors.

The report concludes with a roadmap that policymakers seeking to tackle any kind of digital divide can use to successfully implement digital cooperation. The roadmap is designed to serve as a step-by-step guide to the implementation of the framework presented in this report and can be used as a practical tool that lives beyond the report itself.



## Rethinking the digital divide

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## A plurality of divides

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The term “digital divide” refers to inequalities in the access and use of ICT, which can exacerbate existing socio-economic disparities and create new forms of exclusion. First coined in the mid-1990s, the term has been evolving ever since.<sup>16</sup> Originally referring to a binary distinction between internet access and a lack thereof (first-level digital divide), digital divide discourse was focused on the availability of economic resources to connect to the internet or obtain ICTs.<sup>17</sup> The status of connected individuals and communities was not initially problematised; it was assumed by many that once connected, citizens would automatically reap the benefits the internet and other ICTs had to offer. While the reach of mobile networks has expanded significantly in recent years, there is still a “coverage gap” of over 750 million people who are without access to mobile internet services. There is also a “usage gap” with more than 3.3 billion people living in areas covered by mobile broadband networks but who are not using mobile internet services, indicating that whilst coverage is a necessary criterion, it alone cannot address the problem of digital exclusion.<sup>18</sup>

With time, the focus of digital divide research and discourse has shifted from material access to digital exclusion. Accounting for the role of contextual factors such as digital skills and understanding (referred to as second-level digital divide)<sup>19</sup> led to the current acknowledgement that a plurality of digital divides exists.

This shift is also justified by the evolution of ICT itself. Addressing internet access on its own might suffice in an entirely virtual world. Today, when ICTs are embedded everywhere in the physical world (often unbeknownst to citizens) and are increasingly experiential, the access-only approach fails to capture the full spectrum of inequalities produced. For example, there remains a persistent rural-urban gap in mobile internet access. Rural populations in low- and middle-income countries are 40% less likely to use mobile internet than urban populations.<sup>20</sup> Similarly, women are being left behind. Across low- and middle-income countries, women are 23% less likely than men to use mobile internet.<sup>21</sup> For this reason, it is preferable to refer to digital divides in plural, acknowledging that each is the result of multiple local, international, geopolitical, social and economic factors.

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<sup>16</sup> University of British Columbia 2011

<sup>17</sup> Mehra et al. 2004

<sup>18</sup> Bahia and Suardi 2019

<sup>19</sup> Van Deursen and Helsper 2017

<sup>20</sup> Bahia and Suardi 2019

<sup>21</sup> Rowntree 2019

The following infographic provides a snapshot of various digital divides and their root causes:

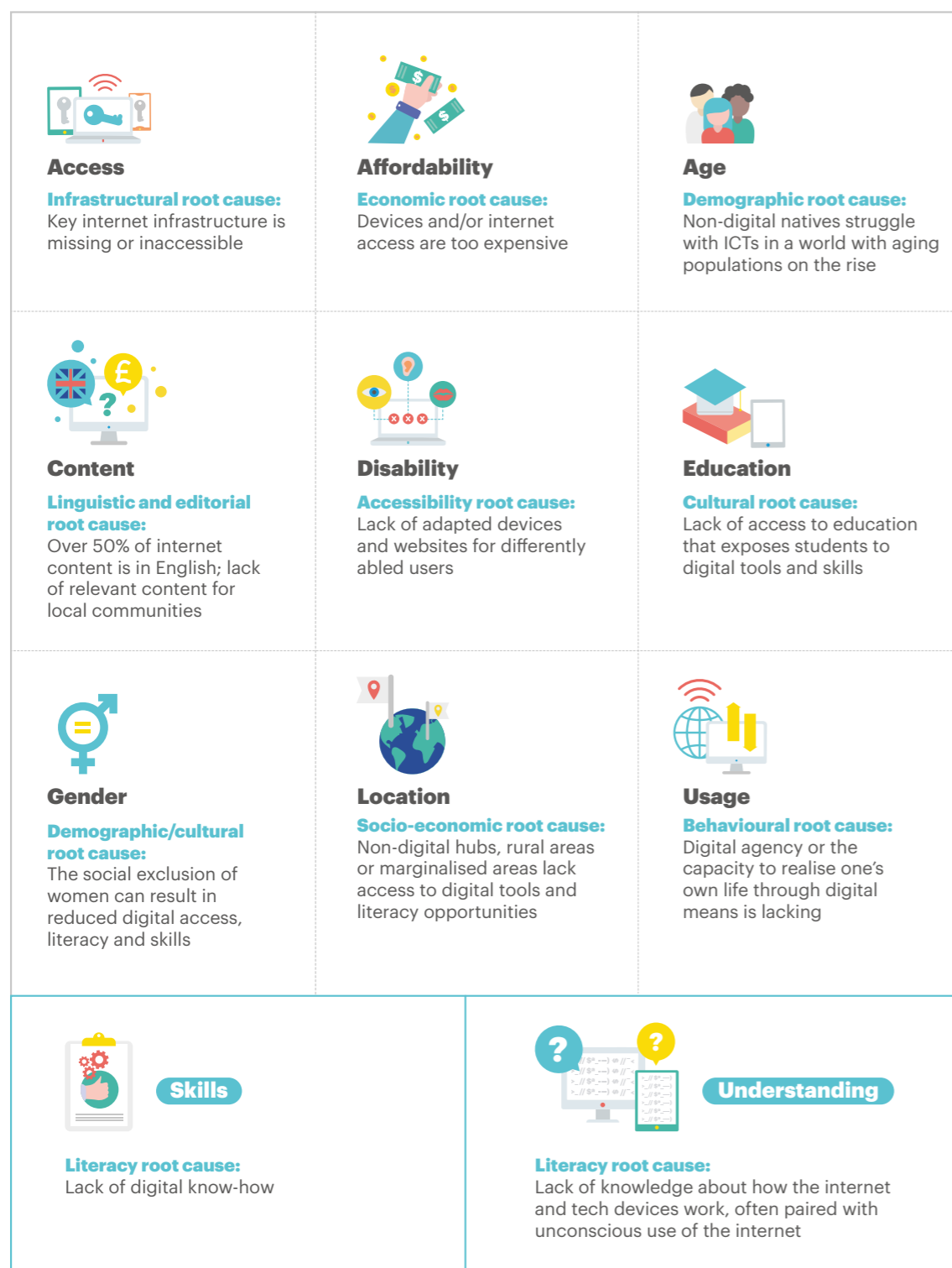


Figure 2: A plurality of 11 digital divides and their root causes. Image source: Digital Future Society and Futuribile

## Digital divides are also a “first world problem”

Digital divides — especially the digital literacy gap — affect the entire world to varying degrees. Overall in China and the US alone, the usage gap affects 41% of the population (or 575 million people) and 23% (or 76 million people) respectively. In Europe the usage gap is 26% of the population (or 193 million people), in Sub-Saharan Africa it is 41% and it grows to 56% in South Asia.<sup>22</sup> These gaps are not just a problem of the Global South. For instance, one in five inhabitants of the UK does not have basic digital skills.<sup>23</sup> Universities in the US have seen a decline in women graduating with computer science degrees, from 37.1% in 1984 to 18% in 2018.<sup>24</sup> The latest Digital Economy and Society Index (DESI) report from the European Commission shows disparities in digital skills across the European Union, with 43% of the EU population lacking sufficient digital skills and a reported 17% with none at all, meaning they have never or rarely used the internet.<sup>25</sup>

### Digital Economy and Society Index 2019 (DESI)

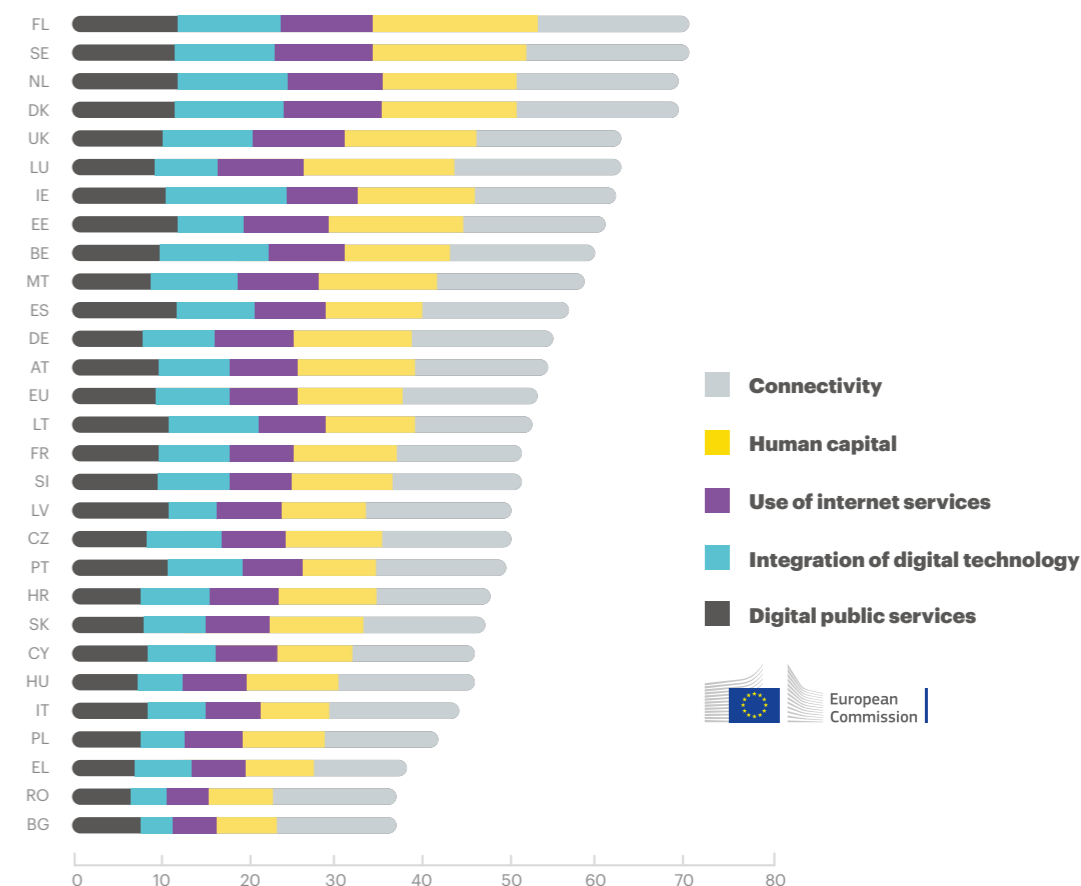


Figure 3: Digital divides across the European Union according to the 2019 DESI report. Image source: Digital Future Society and Futuribile

<sup>22</sup> GSMAi 2019

<sup>24</sup> Henn 2014

<sup>23</sup> Alston 2019

<sup>25</sup> European Commission Digital Economy and Society Index Report 2019

For this reason, policymakers even in the most developed countries should broaden their scope beyond promoting the adoption of digital solutions and focus on digital literacy. Philip Alston, UN rapporteur on extreme poverty, decries what he calls the “digital welfare state” in which crucial decisions to go digital have been taken by public institutions “without consultation” or “without any significant policy discussions taking place.”<sup>26</sup> Alston laments a lack of public accountability where digital technologies are employed to “surveil, target, harass and punish beneficiaries, especially the poorest and most vulnerable among them.”<sup>27</sup> The lack of digital literacy poses a significant threat to civil rights and equitable growth.

Almost half of the world’s population is still offline.<sup>28</sup> Although access is still a fundamental digital divide, providing it does not mean that individuals automatically become aware of the benefits of being connected, nor that they possess the understanding or skills to reap those benefits. Hence, as a starting point, stakeholders willing to address digital divides with a long-lasting impact should not view “closing the digital gap” solely as a problem of developing countries. Secondly, stakeholders and especially policymakers must think beyond tackling the access divide alone.

## Beyond access: the right to digital literacy

There is consensus in Information and Communication Technologies for Development (ICT4D) literature that technology access is an insufficient condition of development.<sup>29</sup> The return on investment (ROI) and societal impact of bridging digital gaps can be hampered by an overly technocentric approach. For example, in rural areas it can cost up to twice as much to deploy new base stations, which can be three times more expensive to run than in urban areas. Combined with lower revenue expectations, this presents a significant obstacle to extending the reach of commercially sustainable ICT infrastructure.<sup>30</sup> For this reason, improving access infrastructures and the availability of digital tools must be paired with digital awareness, education and digital inclusion of the target population.<sup>31</sup>

This report proposes to shift the focus from access to digital literacy. Digital literacy is a fundamental tool for exercising agency in any digital society; its absence puts citizens at risk of losing fundamental human rights such as freedom of opinion and expression, the right to work, or the right to education.<sup>32</sup> The shift requires an ecosystem approach that acknowledges

the complexity of the relationship between technology and society, as opposed to technology solutionism, which assumes that any social problem has a technological fix.<sup>33</sup> Digital cooperation underpinned by the expertise and viewpoints of diverse stakeholders is one way to ensure such complexities are captured.

It is important to understand two intertwined aspects of digital literacy: digital skills and digital understanding. Initiatives addressing each of these gaps do not require the large investments in equipment or infrastructure that are attainable only by big public or private actors. These digital divides can be tackled at any scale (local, regional, national, or international), and within a wide range of different budgets.

### Why digital skills matter

Digital skills can be defined as the skills needed to use information and communication technologies to one’s own advantage while reducing the potential harm coming from misuse or lack of literacy.<sup>34</sup> As more and more aspects of everyday life are digitalised, digital skills are an increasingly essential asset needed to thrive. At the individual level, digital skills can lead to social and economic wellbeing. For example, GSMA and Gallup show that mobile ownership combined with internet connectivity is associated with an improvement in peoples’ lives, as evidenced by increases in both average life evaluations and net positive emotions.<sup>35</sup> At a societal level, they create a more dynamic and competitive economy, as well as facilitate collective intelligence and digital social innovation.<sup>36</sup>

The digital skillset evolves in lockstep with technologies themselves, especially in terms of the interfaces driving user interaction. Initially, digital skills were related to the early internet and consisted of the ability to search for information on a computer. With the advent of Web 2.0, user-generated content and social media, creative and communication skills came into play. Interactions were made portable by laptops first, then smartphones and tablets later. The ubiquity of Internet of Things (IoT) devices and artificial-intelligence-driven applications add critical thinking and management skills to the essential digital skillset, and the interface has expanded from screens to include everyday objects (e.g. garments, means of transportation) and environments (e.g. the streets of the smart city). The International Telecommunication Union (ITU) refers to the work of Van Deursen et al. (2017) to show how digital skills can bring specific benefits:<sup>37</sup>

<sup>26</sup> Pilkington 2019

<sup>27</sup> Ibid.

<sup>28</sup> The ITU estimates that in 2018, 51.2% of the global population was using the internet; in developed countries, slow and steady growth has increased the percentage of the world’s population using the internet from 51.3% in 2005 to 80.9% in 2018. Developing countries saw more sustained growth with an increase from 7.7% in 2005 to 45.3% at the end of 2018.

<sup>29</sup> Heeks 2017

<sup>30</sup> Buckwell and Liberatore 2018

<sup>31</sup> Roberts and Hernandez 2019

<sup>32</sup> United Nations 1948

<sup>33</sup> Morozov 2013

<sup>34</sup> UNESCO 2018

<sup>35</sup> Crabtree et al. 2018

<sup>36</sup> Ozman and Gossart 2017

<sup>37</sup> ITU 2018

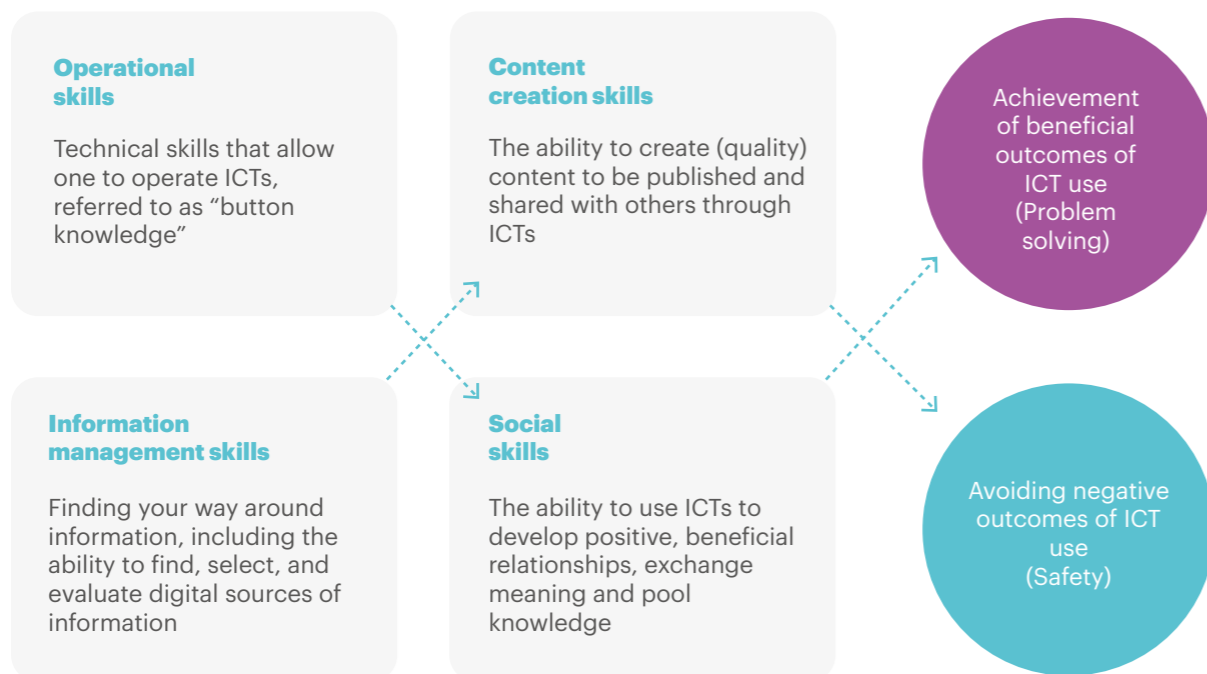


Figure 4: A breakdown of different digital skills and how they translate to societal participation and usage.  
Image source: ITU (adapted from Van Deursen et al. 2017)

The urgency of investing in digital education and acknowledging the versatility of digital skills is also evidenced by the evolution of the workplace; the European Commission estimates that by 2020 more than 90% of jobs in the European Union will require digital skills.<sup>38</sup> The automation of tasks and the digital transformation of traditional industries make digital skills a critical factor of employability for entire populations, not only for tech workers. Beyond employment, those who are left behind or without digital skills are at an even greater disadvantage, economically and socially.<sup>39</sup> Indeed, digital skills enable higher participation in the digital society in several ways:

- Economic: being savvy online consumers, obtaining recommendations, discounts.
- Educational: taking advantage of lifelong learning opportunities, online courses.
- Civic participation: benefitting from digital public services, discerning political content.
- Social participation: engaging in social activities beyond one's immediate network.

<sup>38</sup> European Commission 2013

<sup>39</sup> ITU 2018

## The importance of digital understanding

Despite its tremendous potential for increasing societal wellbeing, the digital transformation has, to a certain extent, taken the path of inequality. Decisions with a high impact on individuals are increasingly delegated to opaque and biased algorithms,<sup>40</sup> interfaces are disappearing into everyday objects,<sup>41</sup> and spaces — even public ones — are constantly monitored,<sup>42</sup> public services are migrating online, with citizens enjoying little agency over consent and options;<sup>43</sup> elections are swayed by misinformation and filter bubbles.<sup>44</sup>

If digital skills enable people to use ICT to improve their daily and professional lives, digital understanding plays the fundamental role of contextualising ICT. Digital understanding refers to individuals' comprehension of how the digital economy and infrastructures work.<sup>45</sup> It implies "an awareness of internet power structures, and an ability to question its impact on our choices, rights and lives".<sup>46</sup>

Digital understanding is also related to internet awareness. Results from a recent Pew Research Centre surveys in the U.S. and 11 emerging economies show that for many smartphone users, a messaging app or a social media platform has either nothing to do with the internet or IS the internet.<sup>47</sup> For non-internet users, research shows that a lack of understanding reinforces non-use of the internet in comparison to current users and lapsed users.<sup>48</sup> The consequence is deprivation from information that could help them improve their conditions.

In highly digitalised societies, digital understanding implies contextualised awareness of the extent to which a given digital product or service is relevant to a person's priorities and concerns. Such digital understanding is empowering, as it enables individuals and communities to cut their way through unlimited digital offerings. It also implies a deeper understanding of digital revenue models, the role of algorithms and privacy challenges. Digital understanding can increase individuals' and communities' agency over algorithmic bias, disinformation, and data breaches, which ultimately contributes to a more informed and inclusive society.

<sup>38</sup> European Commission 2013

<sup>39</sup> ITU 2018

<sup>40</sup> Angwin et al. 2016

<sup>41</sup> Canepeel 2000

<sup>42</sup> Devlin 2019

<sup>43</sup> La Quadrature du Net 2019

<sup>44</sup> Nkonde 2019

<sup>45</sup> Miller et al. 2018

<sup>46</sup> Ibid.

<sup>47</sup> Silver and Smith 2019

<sup>48</sup> Mwim and Kritzing 2016

# 2

## A framework for digital cooperation

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## Creating partnerships for the digital era

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Digital divides cannot be narrowed solely by the supply of internet access and digital devices. This section unpacks how creating a context for digital cooperation can lead to a more effective and sustainable response to the challenges posed worldwide by the increasing digitalisation of society. Such challenges demand an ecosystem approach that leverages the interdependencies between causes, social groups, economic interests, and contextualised knowledge that goes beyond technology provision while favouring citizens' empowerment. As the UN explains in The Age of Digital Interdependence report:

**“To capture the power of digital technologies we need to cooperate on the broader ecosystems that enable digital technologies to be used in an inclusive manner. This will require policy frameworks that directly support economic and social inclusion, special efforts to bring traditionally marginalised groups to the fore, important investments in both human capital and infrastructure, smart regulatory environments, and significant efforts to assist workers facing disruption from technology’s impact on their livelihoods.”<sup>49</sup>**

To do so, digital cooperation — “working together to address the social, ethical, legal and economic impact of digital technologies in order to maximise their benefits and minimise their harm” — is needed.<sup>50</sup> Because of its systemic and cross-sectorial approach, such a cooperation is a multi-stakeholder one. The UN details the digital cooperation concept with large-scale international partnerships in mind. This section aims to map out a framework through which the players of this collaborative ecosystem can contribute at different scales.

### Existing multi-stakeholder frameworks

There are many models available to policy-makers and players acting in the general interest aiming to help them set up partnerships. One of the most widely-used frameworks, the quadruple helix, sees government, industry, academia and civil participants work together to innovate.<sup>51</sup> The rationale is to co-create innovative solutions and drive structural changes far beyond the scope of what any one organisation or individual could do alone. By breaking the silo mentality of traditional corporate research labs, the quadruple helix creates a collaborative ecosystem with a shared vision, based on mutual interdependency instead of on

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<sup>49</sup> UN Secretary-General's High-level Panel on Digital Cooperation 2019

<sup>50</sup> Ibid.

<sup>51</sup> Chesbrough 2003



a single actor's predominance. Since bridging digital divides is a form of (social) innovation, the quadruple helix serves as a useful starting point, since it addresses the cultural, social and economic aspects of digital literacy. Regarding frameworks addressing digital divides specifically, the following model was developed:<sup>52</sup>

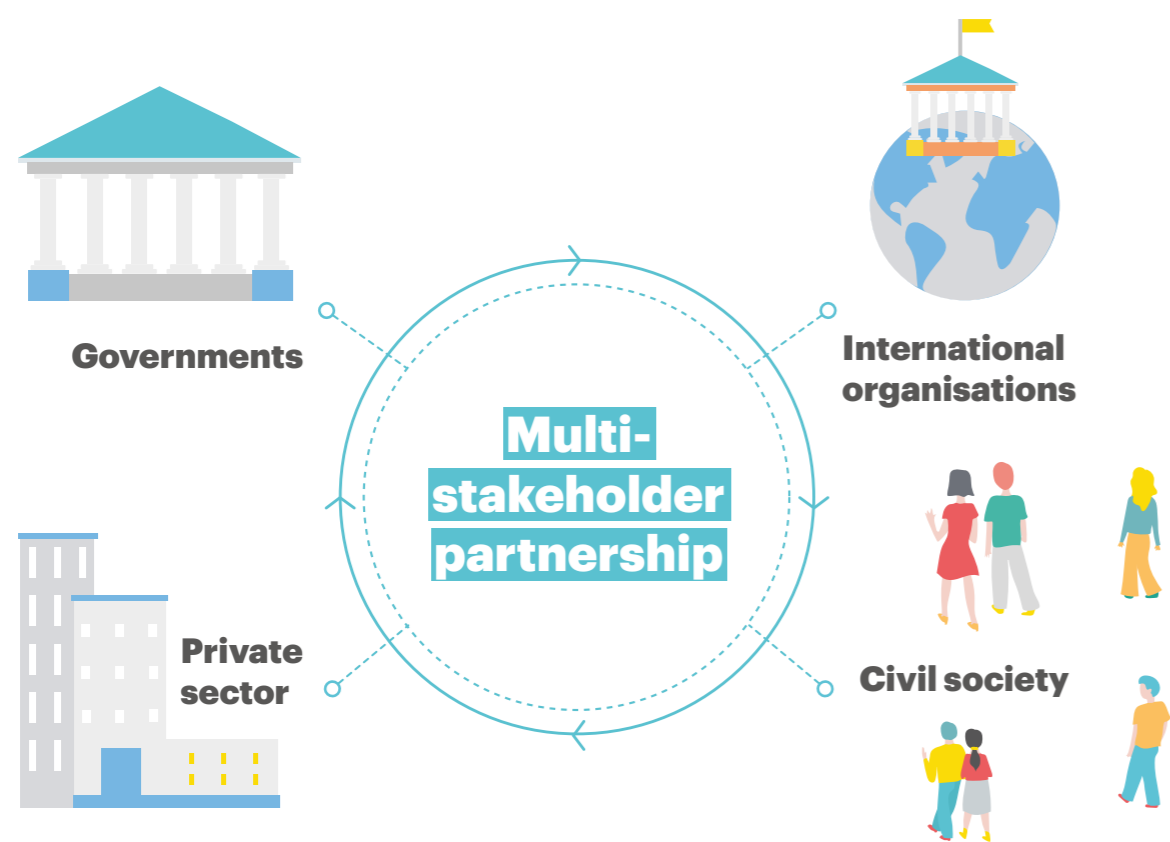


Figure 5: Complementary roles in a multi-stakeholder partnership. Image source: ITU

<sup>52</sup>ITU 2005

## A framework for digital cooperation

This report proposes to value the centrality of citizens orchestrated in the quadruple helix, and to complete it with international organisations because of the widespread diffusion of digital literacy divides. As pointed out in the Unpacking the High-Level Panel's Report on Digital Cooperation meeting, one of the biggest gaps in the current system is the disconnect between multi-stakeholder dialogue platforms like the Internet Governance Forum (IGF) and decision-making entities on national and international levels, where decision-makers still too often decide isolated in their silos.<sup>53</sup>



Figure 6: An updated framework designed to bridge digital divides through digital cooperation. Image source: Digital Future Society and Futuribile

<sup>53</sup> Geneva Internet Platform 2019

International organisations like the UN or OECD can complete a quadruple helix framework by bridging this knowledge gap and scaling best practices across countries.

Starting from the basis of the ITU framework, the addition of research organisations can be vital in understanding the context of a digital literacy initiative at both the international level (i.e. case studies literature, underlying theories) and at a local scale (i.e. field research, analysis of local datasets). Research entities can also perform impact tracking and document the initiative through scientific literature. Furthermore, their educational mandate makes them ideal partners in developing pedagogical means, as well as in providing infrastructures suitable for meetings and teaching, plus mentorship and incubation programmes. Finally, the participation of researchers can bridge the gap between sectors of the population that are highly educated in digital matters and those who are less equipped to face the digital transformation, by creating valuable knowledge exchange opportunities.

## The vital role of civil society


Civil society stakeholders include third sector entities, community partners, or citizen groups. Social enterprises are classified in this stakeholder group and not in the private sector due to their mandate to pursue social purpose over profit.

Digital divides are always intrinsically tied to the characteristics of their location. As those best placed to understand the complexities of a local issue, build trust with target audiences or to help adapt a scaling project to a specific reality, local civil society partners are key to the successful delivery of any project. Addressing problems that are perceived as such, instead of imposing top-down “solutions” with little grasp of demand, can motivate citizens to participate in initiatives. Often, such motivation is not directly linked with technology, but with other social and economic reasons: getting a job, accessing education, launching a business, communicating with relatives elsewhere, preserving local knowledge, or accessing low-tech alternatives to expensive equipment or medicines. Once the problem is framed together with the community, then public and private actors can collaborate on implementing the co-created solution, in constant dialogue with international organisations and research institutions.<sup>54</sup> This community-centric approach optimises the multi-stakeholder digital collaboration framework and avoids recurring flaws. For instance, the private sector lacks incentives to effectively design digital products and services for those who cannot afford to meet market thresholds. Despite their rich tacit knowledge about local needs and benefits, civil society organisations may be unable to structure, sustain or scale that understanding.

The digital cooperation framework proposed in this section combines two powerful models from the worlds of international cooperation and innovation. Its core value proposition is organising multidisciplinary and cross-sectoral cooperation towards the distribution of equal opportunities to the largest number of citizens. The multi-stakeholder schema and the centrality of civil society guarantee that such distribution is valued and well-received by beneficiaries and that an ecosystem of opportunities is in place. Shifting focus from technology provision to co-design of digital literacy programmes points toward long-term sustainability and resilience through digital cooperation.

## Making digital cooperation work: key success factors

Having “the right people in the room” is only one aspect of a successful digital cooperation approach to bridging digital divides. Regardless of the scale, budget or location of an initiative, four fundamental factors are indicative of success. These factors will be identified in the case studies presented in Section 3 and form the basis of the roadmap presented in Section 4.



**Key success factors**

<b>Contextualisation</b>	Pair quantitative data about demography, education levels, occupational sectors, and poverty, with first-hand knowledge of how digital divides are experienced (unperceived) by citizens in the area.
<b>Shared vision</b>	Each stakeholder and target group needs to be represented in and able to contribute to the design process.
<b>Human-centric approach</b>	Do not assume that the simple availability of new digital opportunities or tools will result in adoption. Respect the fundamental values of privacy, participation and diversity.
<b>Inclusion</b>	Put mechanisms in place to truly understand and address the sets of population that are lagging behind or completely excluded.

Figure 7: Digital cooperation success factors. Image source: Digital Future Society and Futuribile



Such factors concern the approach and the values that should guide the design and implementation of the initiative. First and foremost, they are valuable as a risk management strategy since their application reduces the probability of unintended negative social consequences. The main related risk factors are summarised in the following infographic.



<b>Risk factors</b>	
<b>Bias</b>	Can severely hamper participation because the problems it solves are not perceived as such by the target population, or the way it is communicated does not resonate with potential partners and citizens, or it assumes a certain level of knowledge that is not there.
<b>Top-down approach</b>	Can reduce the motivation of key stakeholders, build unintended bureaucratic barriers to participation or make it impossible for target populations to appropriate the initiative and embed it seamlessly in their own vision.
<b>Techno-solutionism</b>	Can lead to the investment of resources in programmes or tools that do not reach target populations, are too hard to understand or repair, or create superfluous solutions with few adopters.
<b>Exclusion</b>	Failing to address inclusion risks to benefit populations that are already privileged, with the counterproductive effect of widening digital divides.

Figure 8: Digital cooperation risk factors. Image source: Digital Future Society and Futuribile

Ambitious players can use the four success factors to guide their strategy towards long-term social impact. These factors shift the scope of digital cooperation from making information, skills and knowledge available to building an ecosystem around their implementation. They replace a linear, top-down model with a resilient and collaborative one.

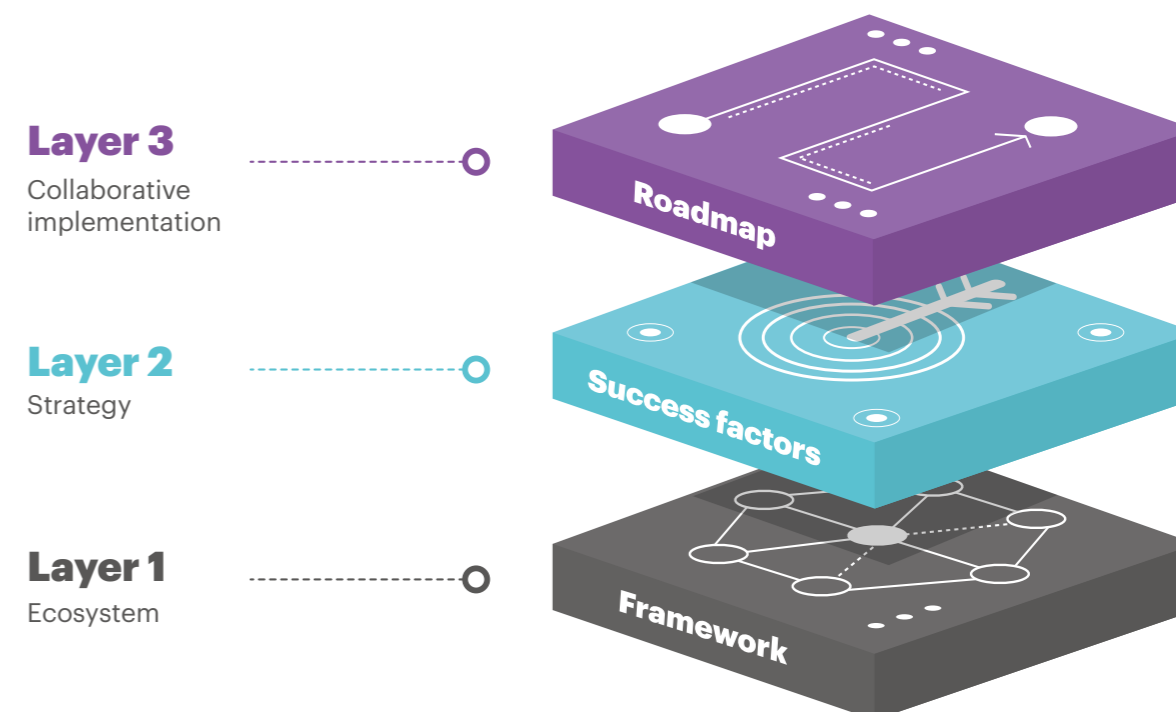


Figure 9: Three layers of digital cooperation. Image source: Digital Future Society and Futuribile

# 3

## Case studies

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## Four initiatives to bridge the digital literacy divide

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The following section presents four digital literacy case studies identified by the working group that concern multi-stakeholder digital literacy initiatives in developed and developing countries. The four examples illustrate different scales and contexts of intervention. Their common denominator is the collaborative, strategic ecosystem approach: each leading organisation relied on a multi-stakeholder digital cooperation process. Furthermore, each example shows how ICT access alone does not bridge the digital divide completely. Access must always be explained in a way that is meaningful to the intended beneficiaries, as the Kenyan case illustrates. It must also be paired with skills in order to obtain socioeconomic advantages, as the Colombian and Australian cases show. Finally, access must be adapted to digitally excluded users as demonstrated by the Indian case.

The case studies are:

- TunapandaNET community network (Kenya): a grassroots community-led initiative to skill low-income youth and educators. Scale: a local neighbourhood.
- Medellín Digital and Ruta N (Colombia): a city-led initiative to create a knowledge economy. Scale: city-wide, with impact at the national level.
- Digital Springboard (Australia): a private-led nation-wide initiative to provide basic digital skills for employment in Australia. Scale: national.
- Vision Empower - Karnataka State (India): a social enterprise aiming to address the digital skills divide for differently-abled students. Scale: regional.

The digital cooperation framework is applied as an analytical lens to map out the weight and role of each participant. Each case study substantiates the framework presented in the previous section, exemplifying how each stakeholder's role can be implemented, and how the absence of one of them can pose challenges or reduce the impact of the entire initiative. The key success factors highlighted in Section 2 are also present in each digital cooperation example.

## TunapandaNET community network

### Grassroots community-led initiative to skill low-income youth and educators

Kenya 

Scale: Neighbourhood



Figure 10: The TunapandaNET digital cooperation model. Image source: Digital Future Society and Futuribile

#### The context

Kenya's long-term national plan, Vision 2030, aims to transform the nation into "a newly-industrialising, middle-income country providing a high quality of life to all its citizens in a clean and secure environment."<sup>55</sup> ICT is a core part of the plan. Recent data from the National Communications Authority indicates a mobile penetration level of 94.3%, with 8% growth in mobile data subscriptions. Still, challenges such as the high cost of internet access, lack of infrastructure, absence of locally relevant content and a lack of ICT skills are barriers to effective ICT use in rural areas and informal settlements. This case study takes place in Kibera, Nairobi's largest slum.<sup>56</sup> Most of its 500,000 residents live on less than a dollar a day.

Despite the meagre income, the internet is mainly used for communication and entertainment, and not for economic empowerment. Rarely do those living in slum areas have access to computers apart from youth who may frequent cyber cafes, mostly to play games and use social media. Residents of Kibera face a lack of skills and awareness of the value of ICTs. Most online content is from developed countries and many users, especially educators and women, do not identify with it.

#### The initiative

TunapandaNET is a community network that has been operating in Kibera since 2015. A community network is a grassroots and community-owned information infrastructure that uses low-cost Wi-Fi equipment on unlicensed spectrum of 2.4 GHz and 5.8 GHz. The network was first developed as a tool to amplify the reach of the Tunapanda Institute, a non-profit social enterprise that runs intensive three-month technology, multimedia design, and business training courses for young people in extreme low-income environments. The Institute also developed Swag, open-source software running on the web and Android. In addition to providing offline educational content, the platform incentivises local content production. TunapandaNET was established to connect the institute to three partner facilities via a wireless mesh network, enabling young people to access the Swag e-learning platform from outside the institute's physical premises. The community network also provides digital skills training for teachers to implement the e-learning platform in affiliated schools.

#### Impact

- So far, TunapandaNET has connected 7 educational centres and is aiming for 13.
- In the past five years, more than 400 trainees graduated from the Tunapanda Institute.
- The initiative is changing local mindsets. Young people no longer see the internet as a leisure activity and people are interested in how they can access educational resources and jobs.
- Currently, KICTANet is working with teachers from the connected schools to digitise their curriculum.
- Engagement with school administrators revealed their interest in building an online presence for their schools that would bolster fundraising efforts.

<sup>55</sup> Kenya Vision 2030 (n.d.)

<sup>56</sup> GISWatch 2018

### Takeaways: key success factors

**Being part of an international community of practice.** Although each community network experience is unique, there is much the different initiatives can learn from each other. The game-changing moment for TunapandaNET was getting access to knowledge and support from organisations with experience in community networks. Besides assistance with setting up the network and solving technical issues, organisers could compare their problems with those encountered in other parts of the world. Moreover, being part of a larger conversation is extremely helpful in defining the identity of a project and in gaining visibility.

**Human-centric approach.** Attracting early users to the Swag e-learning platform proved extremely challenging. By changing the approach to invest more time and resources in understanding the real needs of the local population, TunapandaNET could gain local credibility and interest. They found that more than an interest in increasing their digital skills, some of the key challenges for the population were access to computers and lack of knowledge on how access to connectivity could help them increase their earnings. Enabling the population to express their voice led to the creation of local language content, which is more responsive to everyday needs and helps drive awareness of ICT benefits beyond entertainment.

## Medellín Digital and Ruta N

### A city's quest to create and attract digital talent

**Medellín, Colombia** 

**Scale:** City

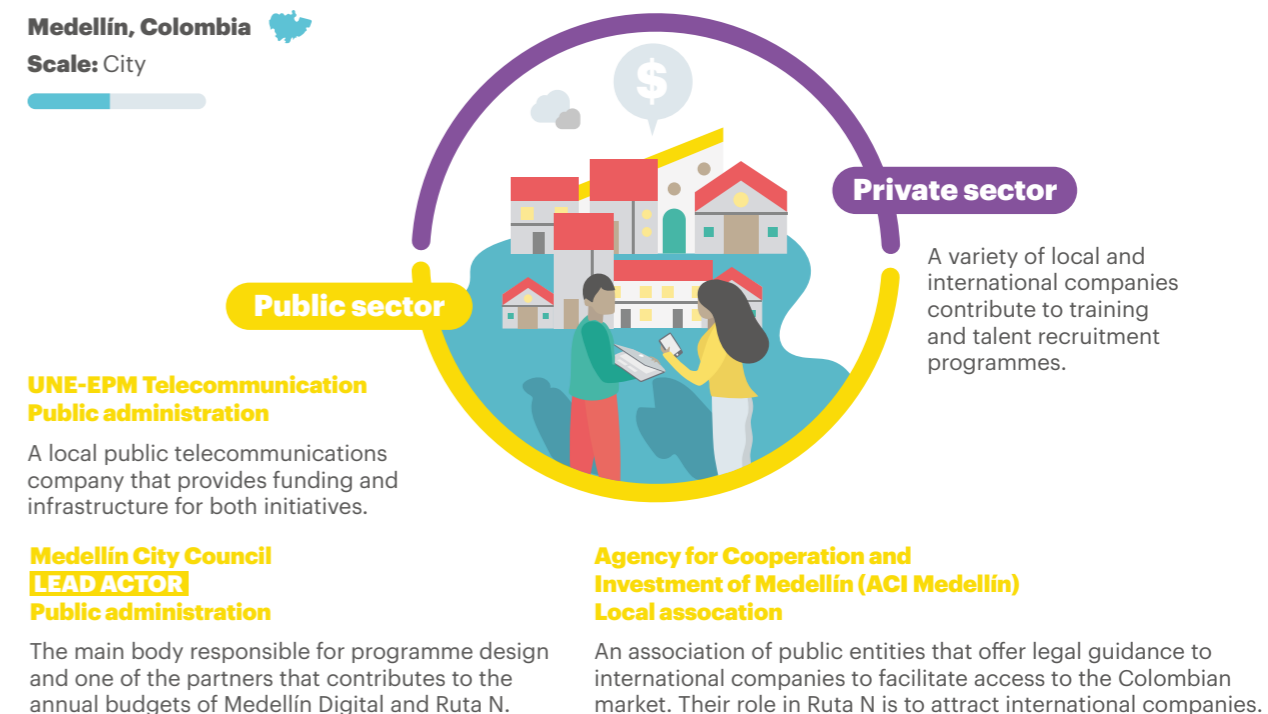


Figure 11: The Medellín digital cooperation model. Image source: Digital Future Society and Futuribile

### The context

Once characterised as a cartel city, the second largest city in Colombia has undergone a drastic transformation. The local government has undertaken large infrastructure projects and empowered citizens to take ownership of the city by reinforcing its institutional fabric. Medellín's proactivity in tackling the digital divide is due to strong multi-stakeholder partnerships in ICT strategy development. According to the national ministry of ICT, these strategies have reinforced local uptake of technology: more than 50% of Medellín's population uses the internet regularly, which is 15% higher than the national average.<sup>57</sup>

<sup>57</sup> Guangzhou International Award for Urban Innovation 2012

## The initiative

The municipality of Medellín and public enterprise UNE-EPM Telecommunication partnered in the creation of the innovation agency Ruta N and the IT development project Medellín Digital. As both initiatives aim to advance the digital capabilities of citizens and businesses, their actions cross-feed each other. Their specific focus areas differ, however. While Medellín Digital seeks to raise awareness about the benefits of ICT use, Ruta N addresses the digital skills gap by providing training and access to resources by partnering with local and international companies.<sup>58</sup>

### Medellín Digital: digital literacy

Created in 2007, Medellín Digital aims to use ICT to improve digital literacy and adoption, especially in underserved areas, by providing access and education through existing institutions such as public libraries, schools and community centres. Other strategies include building hubs called telecentros and Puntos Comunes: meeting places where citizens living in vulnerable areas can access technological resources. Additionally, the city's Entrepreneurial Literacy Plan trains local entrepreneurs in ICT use to strengthen their businesses. The plan also provides existing business centres with free internet access along with workshops and talks. Medellín Digital expects that by 2020, 75% of the city's population will be internet users due in part to their efforts.

### Ruta N: highly skilled talent

Founded in 2011, Ruta N defines itself as an innovation enabler. Its main objective is to promote job growth, skilling and nurturing digital talent by engaging international companies. Its long-term ambitions include targeted programmes to educate children in IT and STEM (Science, Technology, Engineering and Mathematics), while short-term strategies include fast-track training programs in partnership with specialised private companies. Through its Talent 4IR programme, Ruta N is currently building an open talent management ecosystem at the city level, through public-private collaborations that also include third sector organisations. At current growth rates, Ruta N expects to create at least 19,000 "fourth industrial revolution" jobs by 2021.

## Impact

According to a 2012 report, in five years:

- 1.5 million people have benefitted from Medellín Digital.
- Over 20 public spaces have free wi-fi access.
- More than 20,000 entrepreneurs have attended talks and workshops on technology and improved skills in website design, digital marketing strategies, and online taxpaying.
- Medellín Digital has intervened in over 240 local schools and over 350,000 elementary school students have benefitted from the use of ICT in classrooms.

- Horizontes, a programme designed to help 6th to 11th-grade students develop critical thinking and problem-solving skills, resulted in more than 7,000 underprivileged students joining programmes in the tech sector.
- The organisation estimates that more than 300 foreign companies have created 7,300 jobs in IT, energy and healthcare.
- The Talento 4IR programme is financed by a public-private collaboration of public entities Ruta N, the mayor's office, and private companies Sura Asset Management and Comfama. The financing agreement enables the training of providers who in turn train individuals or organisations.

## Takeaways: key success factors

**Shared vision.** Medellín's proactivity in tackling the digital skills divide is due to strong partnerships in developing ICT strategies. The city of Medellín plays an active role in identifying problems, monitoring and measuring the skills divide, and aligning interests with the private sector. The success of both programmes is due to the shared vision adopted by all players, which forms the basis for a long-term digital cooperation. Collaborative partnerships are key in making a convincing case to attract private players to contribute to Medellín's growing knowledge economy.

**Creation of a thriving digital knowledge economy ecosystem.** Interdependence and mutual support are key in reinforcing the initiative partners' relationships. Together, they can meet objectives that would otherwise be out of reach for lack of resources and competencies, or that would take much longer. For instance, the strategy behind the talent management programme is defined by demand and seeks to supplement the educational system instead of replacing it by integrating universities into the cooperation model. At a national level, the Science Technology and Innovation fund and shared public-private digital strategy create a stable environment in which digital projects can thrive.

<sup>58</sup> Tholons 2011

## Digital Springboard

### A private-led initiative to provide basic digital skills for employment in Australia

**Australia**   
Scale: National

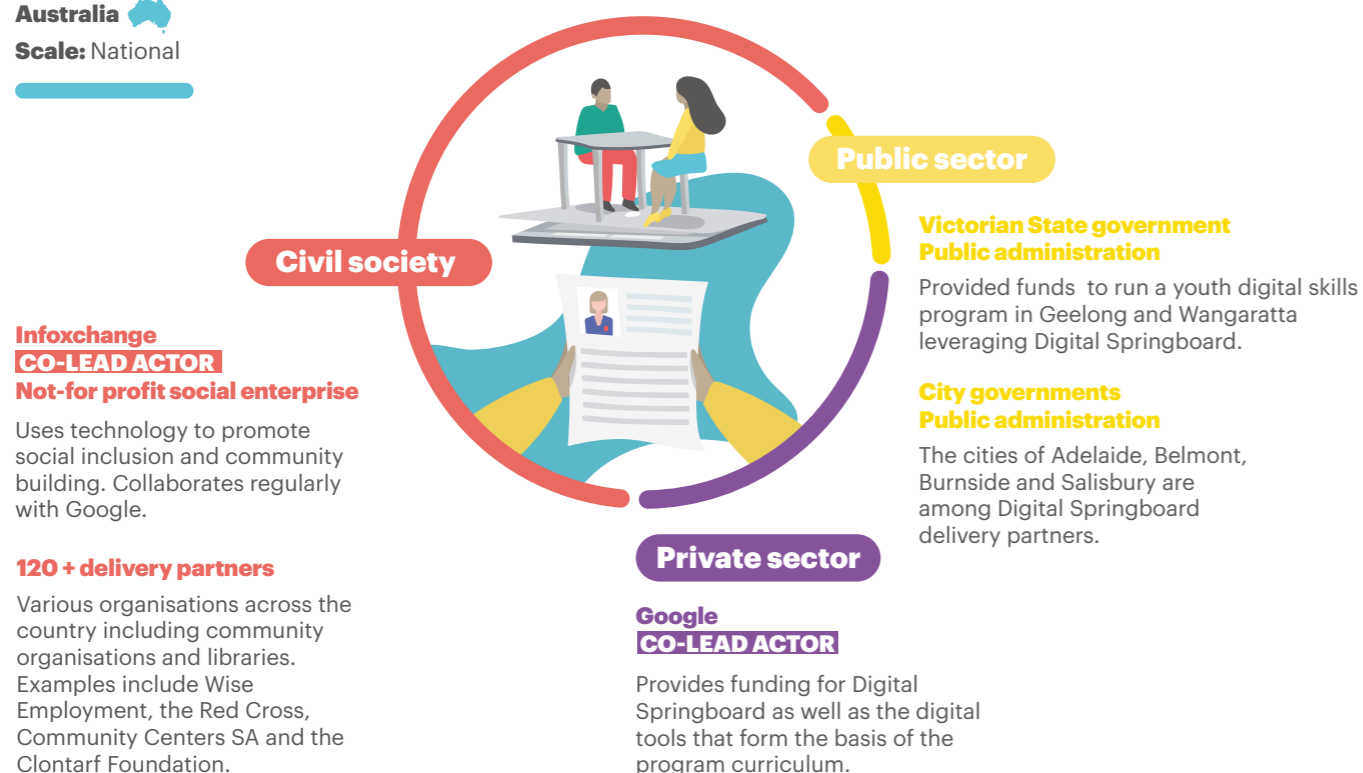


Figure 12: Digital Springboard digital cooperation model. Image source: Digital Future Society and Futuribile

#### The context

The Australian Digital Inclusion Index reports that gaps between digitally included and excluded Australians are substantial and widening for some groups.<sup>59</sup> Australians with low income, education and employment, as well as elderly and indigenous people are those more at risk of lagging. Data shows that while Australians report increasing interest in having continuous internet access, they struggle to keep up with new technologies, and relatively few users engage in more advanced activities like content production.

Nationally, all three components of digital ability (attitudes, basic skills and activities) have improved in each year since 2014. Although an increasing proportion of Australians are

engaging in a range of basic and more advanced internet activities, there remain significant attitudinal barriers to effective and rewarding internet participation. For instance, under half of all Australians think computers and technology give them more control over their lives and less than 40% feel they can keep up with a changing technological landscape.<sup>60</sup> This suggests addressing issues of digital ability should not simply target skill building but also seek to reduce anxieties about the use of digital technologies and build an understanding of the value of being online.

#### The initiative

Digital Springboard is a national joint initiative of the social enterprise Infoxchange and Google aimed at helping people to learn the digital skills they need to thrive in work and life. Courses are delivered face-to-face by local, trusted delivery partners including organisations ranging from smaller community groups, libraries to larger NGOs. Courses are designed for people who have some experience using computers, (basic digital literacy) and have a basic understanding of English. Through tangible, practical assistance that directly engages the community, Digital Springboard creates an opportunity to provide grassroots support to individuals and communities that boosts digital skills outcomes.

Infoxchange tailored and adapted the (Google) Digital Garage toolkit curriculum for the Australian audience and have been iterating the courses based on feedback received from participants via trainers, and trainers across the country. The Digital Springboard curriculum is based on 3 pillars:

- 1. Skills for work:** Build a CV, write a cover letter, create an online professional profile, interview skills, introduction to email, presentation skills
- 2. Skills to boost your career or business:** social media strategy, writing for social media, getting started with code, measuring success with Google Analytics
- 3. Skills for starting your own business (3-part series):** Getting started, bringing your business ideas to life, planning for success

#### Impact

- As of mid-August 2019, the programme has reached 8,789 participants across the country.
- For 2019, Infoxchange reports 81% and 80% improvement in knowledge and confidence, respectively. 59% of participants identify themselves as a person who is not currently working, and their average learning gain is 87%.
- Digital Springboard has 1,039 trainers across the country and more than 135 delivery partners.

<sup>59</sup> Thomas et al. 2019

<sup>60</sup> Ibid.



## Takeaways: key success factors

**Strong impact evaluation system in place.** Trainers are encouraged to use Digital Springboard participant feedback cards at their sessions. The feedback is mapped onto an interactive report which allows delivery partners to better understand which courses they're delivering and the impact that they are making in their communities and on specific demographic groups.

**Inclusion.** Although the initiative is centralised under the joint direction of Infoxchange and Google, its implementation is decentralised to a variety of partners with closer connections to beneficiaries. This diverse ecosystem of local delivery partners makes it easier to reach groups that might otherwise be marginalised. In terms of further engagement, Infoxchange attends community events such as the Local Community Services Association Connecting Communities Conference, presenting a possible opportunity for prospective partners to meet in person. The initiative also recruits partners that have been referred by existing Digital Springboard delivery partners.

## Vision Empower

### Social enterprise to bridge the skills divide for differently-abled students

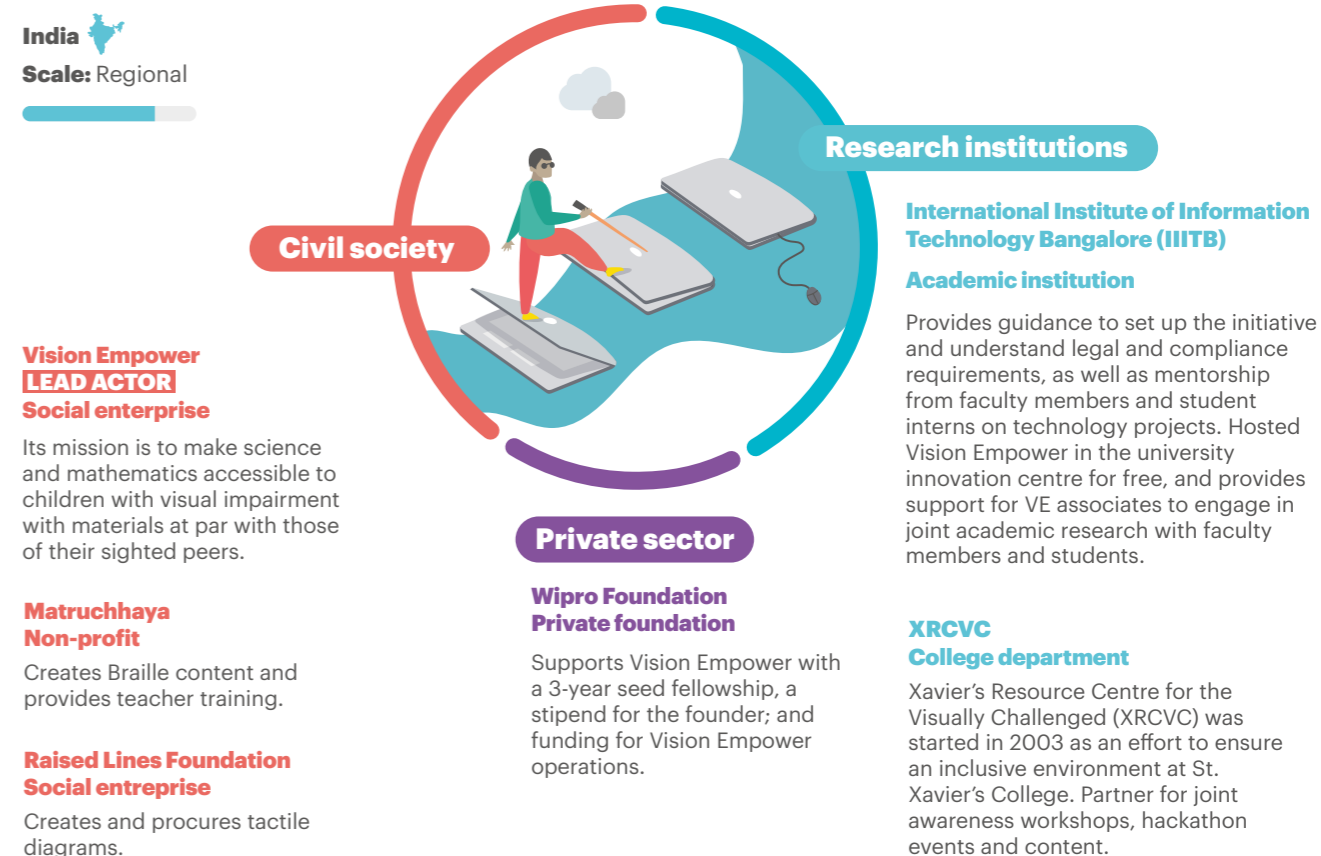


Figure 13: Vision Empower digital cooperation model. Image source: Digital Future Society and Futuribile

### The context

25% of the world's blind population lives in India, 30% of which have lost their sight before the age of 20. Nearly 70% of blind children go to school, but the majority has no access to education in science or maths after the age of 12. Bangalore, known as the Silicon Valley of India and is the country's major IT exporter, has one of the most highly educated tech workforces in the world. Yet in the state of Karnataka, where Bangalore is located, out of the 45 schools for blind and visually impaired children, only one offers STEM subjects beyond primary school.

## The initiative

Vidhya Y is the first blind student to graduate with an MSc in Digital Society from the International Institute of Information Technology Bangalore (IITB). She is also the first blind student to have studied maths at secondary school in the state of Karnataka. But despite being top of her class, Vidhya couldn't get a job. Companies wouldn't employ a blind graduate. Having fought adversity with hard work all her life, she decided to help others. Vidhya established the non-for-profit Vision Empower with the mission "to empower visually impaired children through inclusive education". Vision Empower has three main projects:

- Create and test an accessible online learning platform with customised science and math content for visually impaired students
- Deliver science and math textbooks in Braille to 5th-grade students
- Train teachers in experiential learning methods

Vision Empower created accessible course materials and trained teachers in a pilot programme at a regional school for the visually impaired. Working with the IITB, where Vision Empower is incubated, the organisation has developed and launched an accessible online Learning Management System (LMS), a platform to be used by teachers and students in special schools for persons with visual impairment. Given the scarcity of educational resources, the LMS has the potential to scale STEM access across the state and beyond by supplying appropriate content, teacher training and student material in an accessible format. Vision Empower is also involved in IITB research on audio IT interfaces like bots and voice applications. They recently partnered with I-STEM, a self-advocacy group of visually impaired Indian technology university students, to hold a hackathon where teams of sighted and visually impaired students worked together on accessible apps.

## Impact

Corporate social responsibility programmes have funded Vision Empower and provided volunteers to teach the children in a hands-on way. The next step in the Vision Empower's roadmap to bridge the divide is to convince public administrations and private companies to employ visually impaired graduates in STEM careers.

## Takeaways: key success factors

**Partnership with higher education institute.** Having the IITB as a key partner has allowed Vision Empower to quickly leverage knowledge and facilities that would have otherwise required enormous time and resources. Moreover, since education is its main mission, the campus serves as an ideal testbed for the programmes and tools developed by Vision Empower.

**Contextualisation.** Building on the founder's first-hand experience, Vision Empower had a deep understanding of the roadblocks and challenges that blind students face in accessing STEM education.

## Lessons learned

The case studies demonstrate how first and foremost, leading players need to build a strong knowledge base around the interplay of ICT-led opportunities and the context of intervention. Indeed, some interventions can look good on paper and can reach a certain degree of impact but be hampered by both a lack of data concerning the real-world situation, as well as few connections to players that can be key to adoption and long-term sustainability. In the cases of Medellín and Australia, the initiatives were successful because the leading organisation managed to frame the problem correctly together with local and international partners, thereby creating strong motivation and expectations around the initiative. Moreover, both cases managed to implement a measurement and monitoring strategy ahead of the initiative, guaranteeing a consistent, accountable and documented process. Such a strategy led to trust on the part of the local population and stakeholders and made it easier to attract investments (enhancing the scaling potential) and establish the initiative as a success story with national and international relevance. In the cases where the public sector was less proactive and informed, it was more challenging to scale the initiative impact and reap its benefits. In both the Kenyan and Indian experiences, the value of engaging the public sector is recognised, but it implemented in a later phase, demanding additional advocacy efforts that not initially built into the initiative.

The capacity to build a strong vision and identify a lead actor that motivates stakeholders is another important takeaway from the case studies. The public sector is often best-placed to align interests and create a common vision between stakeholders (private, academia, third sector). The shared vision is valuable regardless of the leading partner; it proved a key impact factor for Vision Empower and Australia, although in both cases the third sector was at the steering wheel. Nonetheless, when public powers are the main promoters of the vision, as in the case of Medellín, the initiative's direction is more likely to be perceived as neutral, since the driving force is mandated by the public interest. Each player has different interests and motives that are difficult to reconcile in a later stage, as shown by the case of Kenya.

Finally, developing a truly inclusive initiative proved challenging in each case study. This was due to a lack of data about marginalised social groups or a lack of strong representatives who could intervene on their behalf. In the case of Vision Empower, the initiative is impactful because an individual directly affected by the problem took the lead. The public sector must therefore target policies and digital cooperation to specific groups (gender, age, rural) by co-designing solutions with them from the very start. The value of co-design is exemplified by the Kenyan case, where it was a game-changer in enabling wider participation and creating a sense of belonging and community among the beneficiaries.



# 4

## A roadmap to bridge digital divides

## Introducing the digital cooperation roadmap

Multi-stakeholder digital cooperation is the most effective answer to tackling complex digital divides. The creation of a digital cooperation ecosystem is greatly facilitated by completing access with digital literacy measures. The case studies have shown how even for extremely localised actions, careful consideration of the stakeholders needed can make a great difference when it comes to impact.

Even when the goals of an initiative are clear and the vision is shared by all stakeholders, however, the next step to take is not always a certainty.

The purpose of this section is to present a roadmap outlining the strategic steps policymakers — or other stakeholders acting in the public interest — must undertake to build coherence into digital cooperation initiatives that aim to bridge digital literacy divides. Guidelines are provided for each step, bearing in mind that the scale and ambition of the initiative can vary, and that the road to adoption, return on investments and long-term impact requires a step-wise, ecosystem approach. Each stakeholder's role is carefully explained in each step, enabling alignment between the interests of all involved.

Ultimately, this section is designed to serve as a checklist that can be used during three different phases: the setup of the initiative, its implementation, and the scale-up phase. The most important phase is the first, as it prepares the ground for a holistic digital cooperation initiative.

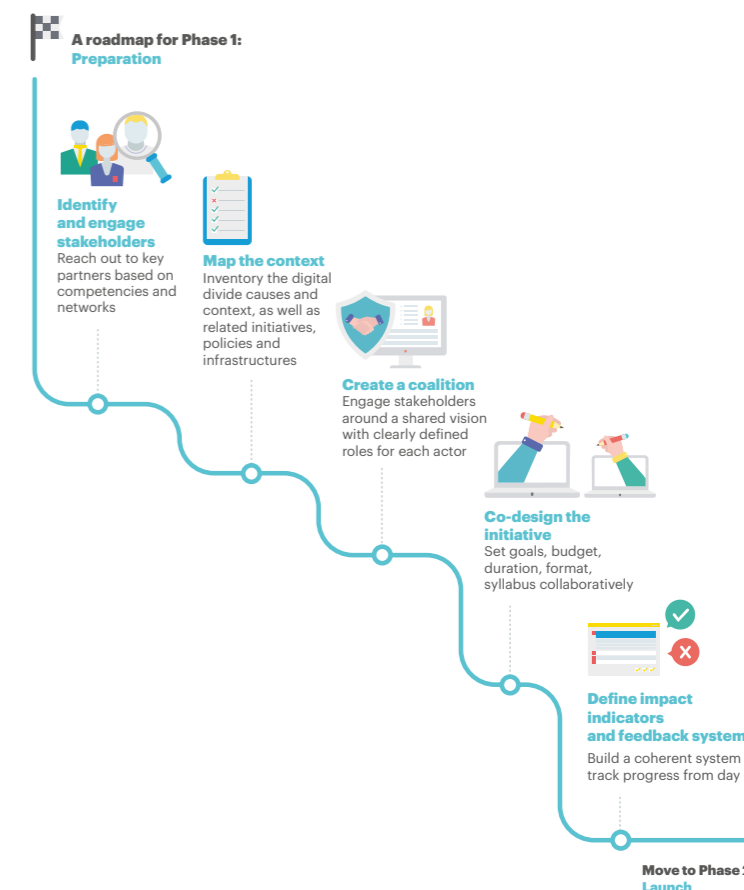


Figure 14: A roadmap to prepare a digital cooperation to bridge digital divides. Image source: Digital Future Society and Futuribile

## Phase 1: Preparing for digital cooperation

The goal of this phase is to implement a mechanism that incorporates the key success factors of a digital cooperation (contextualisation, shared vision, human-centric approach, and inclusion) from the very start. It is designed to ensure that all the relevant stakeholders are involved, motivated and aware of their role.

### 1. Identify and engage stakeholders

- Reach out to stakeholders that can play an active role in ideating, implementing and evaluating the initiative, making sure that all relevant sectors of a digital cooperation are represented
- Map their possible contribution and their motivation to do so

### 2. Map the local context

- Gather data and analyse not only local digital skills and digital understanding gaps, but also the socio-economic context underpinning the digital divide, (such as marginalised groups, internet access, employment sectors) and the projections about its evolution (i.e. upcoming structural or private investments in the area, employment trends, opening or closing of key industries, demographic trends, expected impact of climate change, etc.)
- Map existing initiatives (methodologies, stakeholders involved, learnings, equipment and facilities) or potential infrastructures that can host the initiative
- Inventory existing policies and programmes that concern the digital understanding and skills gaps and analyse how they can be leveraged to support the initiative

### 3. Create a coalition

- The coalition need not be necessarily formalised, but each member should have a strong motivation to participate
- Validate, reduce or expand initial stakeholder group based on learnings from Steps 1 and 2
- Agree on governance, responsibilities and shared vision

### 4. Co-design the initiative with the coalition

- Define the strategic short-term and long-term goals (expected results, number of people concerned, sustainability strategy beyond the initiative)
- Define timing, budget and incentives
- Conduct user research and engage representatives of the intended beneficiaries in co-designing the implementation format. Special attention should be paid to their motivations and communication style (this was a turning point for TunapandaNET).
- Create a syllabus: decide which digital understanding and skills gap to address, and how the educational programme will unfold
- Set clear roles and expectations for stakeholders and implementation channels
- Identify risks for implementation and have a contingency plan

### 5. Define impact indicators and a feedback system

- Define key performance indicators (KPIs) and how they are going to be measured
- Create a system to collect feedback from participants throughout the initiative (e.g. the Digital Springboard feedback card)
- Plan regular review focus group meetings

## Phase 2: Launching a digital cooperation initiative

This phase aims to build coherence between the planning and the implementation of a digital cooperation. Such coherence needs to be built through regular feedback collection and documentation of the process, as well as efforts to communicate the initiative transparently and engage further stakeholders to join.

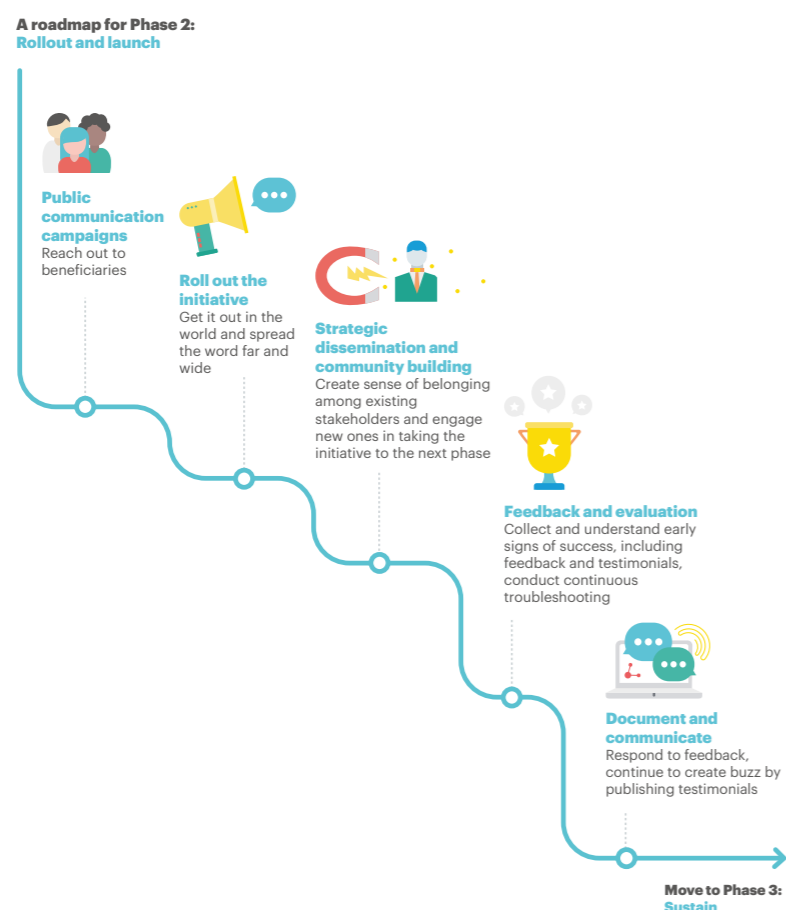


Figure 15: A roadmap to launch a digital cooperation to bridge digital divides. Image source: Digital Future Society and Futuribile

### 1. Conduct a public relations campaign

- Communicate the initiative to citizens
- Use a combination of classic channels as well as new channels that may not be usual for the leading organisation, but that are part of target groups' daily experience

### 2. Roll out the initiative

- Spread the word across channels defined in phase 1

### 3. Strategic dissemination and community building

- Communicate the initiative to stakeholders that may be interested in taking its results further (i.e. research institutions who could use the data, private companies who could offer funding or recruit talent, beneficiaries and civil society associations that want to deliver skills to their community, etc.)
- Hold regular meetings to foster knowledge exchange and partnerships among existing and potential stakeholders

### 4. Feedback and evaluation

- Gather regular feedback
- Analyse feedback and track how impact indicators were reached

### 5. Document and communicate

- Compile multimedia content, testimonials, feedback and research to document the progress of the initiative
- Communicate interim results through channels identified in phase 1

### 6. Host a final event

- Convene stakeholders in a face-to-face gathering and community building occasion to celebrate achievements and share monitoring and evaluation findings

## Conclusion

Until recently, most efforts to “close the digital gap” have been focused on delivering access, and thus on investments in massive technology deployments, especially in the Global South. However, a growing body of evidence from the ICT4D sector, as well as from large international organisations like the UN suggests efforts aimed at increasing the quality of technology usage beyond access are sorely needed. Moreover, digital divides are present even in the most digitalised societies. Two fundamental shifts in thinking are thus required: first, acknowledging that digital divides are not only a development problem, and that they go well beyond providing access to the internet or ICTs.

The increasing digitalisation of society presents several challenges not only for those left out, but also for those who experience the digital with little awareness or agency. Digital literacy consists of not only the ability to use ICTs (digital skills) but also a critical awareness of how they work, the business models behind them, and how they affect our lives (digital understanding). Initiatives aimed at increasing digital literacy are essential to create more confident digital citizens, and to help bridge other divides impeding equitable growth such as affordability.

From this theoretical foundation emerges concrete guidance on how to set up a digital cooperation ecosystem in which digital literacy initiatives can serve as catalysts towards a more inclusive and equitable society.

This is articulated through a new and improved digital cooperation framework whose adoption enables the convener to make sure the most effective combination of stakeholders is present. The collaboration of different sectors makes it possible to co-design and implement initiatives that have a deep knowledge of the socio-economic application context and prove relevant for it. Key success and risk factors are provided as a compass towards positive social impact. The case studies and their analysis show the difficulty in striking a well-balanced digital cooperation.

A three-phase roadmap is the stand-alone output of this report: leveraging the insights from the rest of the report, it guides the reader in the setup, implementation and scaling of a truly inclusive digital inclusion initiative. The roadmap is structured in such a way that the initiative can live on as a platform for long-term prevention of digital divides, leveraging social cohesion and a shared multi-stakeholder vision for generating a more equitable digital society.

## Phase 3: Sustaining a digital cooperation

This phase consolidates the ecosystem created in the previous phases by creating mechanisms that allow stakeholders to replicate, enhance and add new layers to the aspects of the digital cooperation that proved more meaningful to them.

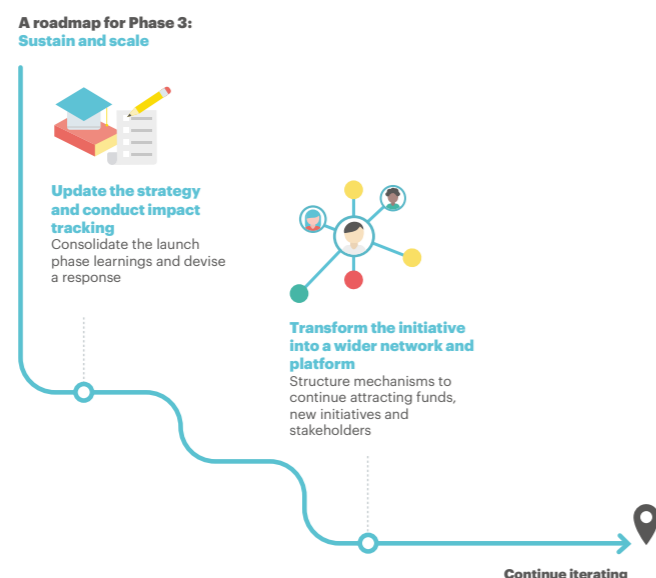


Figure 16: A roadmap to sustain a digital cooperation to bridge digital divides. Image source: Digital Future Society and Futuribile

### 1. Update the strategy and impact tracking

- Leverage launch phase evaluation to improve processes and perform course correction
- Co-design new iterations of the initiative

### 2. Transform the initiative into a platform for tackling digital divides

- Attract additional stakeholders and funders
- Co-design pipelines from the initiative to long-term goals (new employment, improved political participation, access to higher education...)
- See how Medellín Digital successfully created a talent and innovation ecosystem
- Build capabilities, train educators and multi-stakeholder mediators (such as in the decentralised model of Digital Springboard whose delivery partners allowed for large-scale impact)
- Formalise processes and tools by creating guidance materials such as toolkits, tutorials, virtual knowledge repositories, or partnership programmes
- Recall how Vision Empower collaborates with companies to provide material support and content for visually impaired citizens

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