

# DEVELOPMENT IS GOING DIGITAL

Digital4Development  
background paper

**Development is going digital**  
2018

Alistiq s.r.o  
[www.alistiq.com](http://www.alistiq.com)  
Enquires about publication  
[info@alistiq.com](mailto:info@alistiq.com)

Design and DTP: Ján Ceľuch  
Charts design: Branislav Randa



This report was commissioned by CONCORD Europe and FOND Romania with the aim to initiate and contribute to the debate from the perspective of the impact of digitalisation on civil society.



**CSO Partnership**   
for **Development Effectiveness**

This report was partially co-funded by the European Commission, part of the project "Enhancing Civil Society Role in Development Partnerships Post-2015", implemented globally by CSO Partnership for Development Effectiveness – CPDE.

# TABLE OF CONTENT

## 1. GETTING WITH THE PROGRAM (6)

Summarising the content of the report and describing the used approach. We highlight key recommendations and ways how to succeed in the digital era.

## 2. KEY TRENDS (8)

Outlining of selected key trends reinforced by the information and communication technologies with emphasis on their main threats and opportunities including potential focus areas for the civil society sector.

## 3. ROLES OF DEVELOPMENT CSOs IN DIGITAL WORLD (20)

Identifying potential roles for CSOs in digitalisation for development and highlighting the possibilities for engagement in the pyramid of digital needs. The recommendations are based on interviews with key stakeholders and targeted surveys.

## 4. DIGITALISATION MEETS DEVELOPMENT AGENDA (37)

Analysing opportunities for the civil society sector and impacts of digitalisation on the society, economy and policies, in the context of Agenda2030 and Sustainable Development Goals.

## 5. IS DIGITAL4DEVELOPMENT BECOMING MAINSTREAMED? (54)

Is Digital4Development becoming mainstreamed? Digitalisation is becoming vital part of development cooperation and the European Commission starts to be actively engaged. Civil society organisations should enter into these processes and bring the civil voice into the debate.

# FOREWORD

“Today, more people in Africa have access to mobile phones than to clean water”<sup>1</sup>. What does this tell us about the world we live in? Does it mean we are getting closer to providing solutions for poor people or getting our priorities badly mixed up? It depends, of course, on who you ask.

When Ghana suffered another cholera epidemic in 2014 due to the combined woes of poor sanitation and extreme flooding, Faith Kuwornu was one of 28,000 people to be infected. She was also one of the lucky ones to survive, thanks to a call she placed on her mobile phone to a new teleconsultation healthcare service with which her hometown of Keta had been equipped months prior to the disaster. Unlike many other afflicted people, Faith was given first aid over the phone before the nurses were able to reach her with the hydrating salts and medication she needed to save her life.

If clean water in the digital era risks becoming more and more of a luxury, mobile phone technology is fast becoming a staple that few communities can afford to turn down or, indeed, wish to. Quite the contrary. Telecommunications and other digital technologies are hardly being foisted on developing countries. Enthusiastic home-grown entrepreneurs are actively seeking solutions to local issues and domestic problems, **tech-hubs are cropping up in slums, and motivated youngsters**, across urban centers and remote areas alike, **are eagerly learning to code** through online portals (like Udacity) **in an effort to contribute to the tech-revolution**. The Liberian-born inventor, Mr. Chris Nyan, known for multiple disease-testing devices he created specifically for his continent, puts it this way: “We are forced to be inventive to become masters of our own destitution.”<sup>2</sup> Given the chance, communities all across the developing world are seizing new

technologies, however they can, and customising them to their specific needs.

So how do we as a sector, committed to transformative and positive change throughout the developing world, respond to this new trend? Do we have a clear sense of what our priorities ought to be in this changing context? Do we choose to support certain promising initiatives over others confident that they are in line with our civic vision and values? And if they are not aligned, are we equipped to take a stance? And, perhaps, more critically, do we as a sector, understand what is at stake should one technology be prioritized over another? (i.e. mobile phone networks over water sanitation)

There are no easy answers. Partly because few people can predict, with any degree of certainty, where this surge of new technologies is taking us. They are proliferating so quickly, in such a multitude of directions all over the globe, that it is hard to keep track of the changes afoot let alone their implications. For the first time in human history, we don't know where we are headed or what the world will look like in the next fifty years. To the extent that artificial intelligence can enhance visibility – even supplant the need for it when it comes to computer-navigated flight and sea routes – when we try to see what sort of world we'll be living in just five decades hence we find ourselves in a fog of a very different order, one thick with conjecture, supposition, aspiration and suspicion.

## Much will depend on which technologies take precedence and who will control them and to what ends.

This report hopes to contextualise the role as development actors in this shifting paradigm so that we can continue to advance the cause of the world's most vulnerable and ensure that we all benefit from these new technologies in equal measure. With the extraordinary interconnecting powers of digital technologies and artificial intelligence, **the possibility of creating a free and fair world has never looked so achievable**. If, however, these transformative technologies are hijacked by unchecked and profiteering elites, our hard-won achievements and ongoing efforts towards a freer and fairer world could be irrevocably eroded.

We will, therefore, outline the chief precepts and possibilities of digitalisation and explain why some trends are deeply worrying and others exceptionally promising for the world at large and for developing countries in particular. More specifically, in the context of the EU's new digital4development framework we will offer recommendations on how CSOs can get involved in shaping those policies that will determine how successful Europe's digital revolution will be in championing sustainable development.

We are persuaded that information and communication technologies (ICT) have a central role to play in either fulfilling and/or hijacking Agenda 2030 and its ambitious and interlinked Sustainable Development Goals (SDGs).

We also think that it is crucial that CSOs understand how digitalisation can be used for development so that they too can steer the agenda, as equal partners, alongside policy makers and big business whose interest in digitalisation may not always be motivated by sustainable development.

Above all, this paper will promote understanding and opportunity among development actors so that we can all take part in those conversations that are grappling with the directions these many technological revolutions might take; and get to grips with the new sorts of partnerships that might be needed to impact our global decision-makers effectively.

### **New geography – the map that emerges from the mist?**

This map shows where ICT technologies and digital power is concentrated around the world in comparison with the density of CSO engagement.

With such a map, our sector should be better equipped to identify the changing power dynamics resulting from the emergence of digital dynasties cropping up around the world and strategise on how best to help shape the world's transformative technological agenda.

# 1. GETTING WITH THE PROGRAM

Digitalization is transforming the world whether we like it or not. Systemic change has already happened. It's here. It's also there. It's everywhere we look. Everywhere we go, whatever we do, revolutionary digital systems are changing us and everything around us: our economy, our society, our politics, our everything. So how do development actors help shape that change? How do we ensure that this deep and all-pervasive change is underpinned by our unchanging humanist values? Such a global revolution is fast becoming everyone's revolution since everyone's interests are at stake. As this paper hopes to demonstrate, if the right people get with the program, digital innovation has the potential to revolutionise our systems and our institutions in the interest of our forests, our oceans, our villages and our metropolises. It has the power to create a fairer and more sustainable dwelling place for all the world's people.

This report provides a structured overview of the digitalisation in development for CSOs. There are huge opportunities and challenges of digitalization. We have explained why some digital trends are deeply worrying and others exceptionally promising for the world at large especially for developing countries. There are new issues to fight for, new action to be taken. CSOs can still

become relevant players in the digital era, but they need to reinvent themselves. The report offers recommendations on how CSOs can get involved in shaping relevant policies and how to steer the agenda as equal partners alongside policy makers and big business whose interest in digitalisation may not always be motivated by values, we need to create humane societies around the world.

## UNDERSTAND NEEDS IN THE DIGITAL ERA

The report focused on possible scenarios for the following trends:

- **Data has become the most important resource in the new economy.**
- **Digital technologies change the way governments function and can be made accountable.**
- **Social media fundamentally transforms people-to-people interaction, journalism and democracy.**
- **The labor market will be shaken by automation.**
- **New technologies supporting social innovation and creativity.**

The first step for CSOs and policy-makers today is to understand the digital citizen's needs so that the myriad conditions can be secured, and the negative impacts of the above-mentioned trends can be minimized. We have modelled our vision of ascending human needs from the most basic to the most sophisticated on Maslow's well-known "pyramid of psychological needs":

### Connectivity for everyone

- Accessible and affordable internet connection as a human right (3 billion people have no access to the internet)

### Open, free and secure internet

- Net neutrality (rich entrepreneurs will buy their way into the fast lane and leave other companies floundering in the slow lane)
- Open internet, open data, open code, open future ... (the public and private sector are proactively making information available to the citizens rather than putting the onus on the individual to ask for it)
- Secure internet (Striking the right balance between openness and security is the key challenge)

### Application and services in Digital economy

- Meaningful electronic identification
- Trustworthy digital services and other digital rights
- Personal data protection

### Digital divide and digital skills (allowing citizens to consume digital content falls short of this goal)

- Reinventing education (lifelong learning will become a necessary requirement for working citizens)
- Gender equality in digital era (majority of cyberpioneers are white men. In fact, many of those issues that most concern women are poorly reflected in existing data)
- Algorithmic bias as a new form discrimination (Algo-

gorithms that conceal prejudices are already routinely used to make vital financial and legal decisions that obviously affect citizens everywhere).

- Universal Basic Income for The Digital Age (current social security systems must be rethought to provide a safety net for citizens in the digital age)

### Enabling environment for social innovation and digital entrepreneurship

## THE CIVIL SOCIETY SECTOR'S STRATEGY FOR THE DIGITAL AGE

This report was prepared by collecting a lot of objective and subjective evidence from:

- Conducting 20+ in person and online meetings with key stakeholders from the CSO space, public and private sectors,
- Performing an online survey among 45 CSO representatives,
- Participating in two workshops about the role of the CSOs in the digital era and about the use of big data in the development agenda,
- Analysis of the secondary resources, policy frameworks and concepts as well as of the evidence from the authors' experience and knowledge in the areas of development and digitalisation.

The sector's strategy for the digital age must be reinvented and could include the following elements:

- **New models for fundraising** (peer to peer networks, crowdfunding): digital technologies and social networks make it possible to connect those who care about common issues. Campaigning can be personalized, a particular issue can be tracked as well as the outcome of a specific contribution. CSOs who have worked as intermediaries no longer need

to be needed. It brings new experience for campaign contributor, who can "see" the impact of their money directly.

- Digital communication campaigns and **the ability to connect with the community**: digital technologies need to be used to participate actively in the community, to recognize its needs and interests.
- **Better program and project management**: thanks to the use of digital platforms and their services, routine tasks can be automated, more responsibilities can be moved to a lower level, and best practice can spread more easily.
- Better options for tracking the **effectiveness of initiatives and projects** thanks to big data powered analytics. This means, in particular, that the data will be able to clearly demonstrate what works and resources can be allocated to projects with the greatest impact. At the same time, failures can be detected immediately.
- Digitization is an opportunity to improve the functioning of the development CSO also from **internal management perspective**. Administrative forces can be replaced by automated processes, the learning process can be greatly improved by e-learning and knowledge sharing.

Be inventive, open-minded and search for new ways how to:

- **Advocate for fair rules in the digital world and influence at the policy level**
- **Establish new partnership and bring change through digital activism at implementation level**
- **Use data for better overview of a situation at the monitoring and evaluation level**

## 2. KEY TRENDS

The key trends we see emerging on the not-too-distant digital horizon are fraught with paradoxical potentials, risks and opportunities, challenges and tensions. Here they are in a nutshell:

### **The Data Economy** **Changing the world order**

The geopolitical fault lines are no longer what they were or so clear cut. China, the US and EU are competing to have the digital edge. On the other hand, the traditional North/South divide is blurring and poor countries in the South might catch up – or even overtake – the wealthier countries of the North.

### **Digital technologies** **Changing the governments**

The internet of things (IoT) could lead to a new crop of digital dictatorships manipulating us and using us for to their own interests, or it could create ever more inclusive democratic processes for global citizens the world over.

### **Social media** **Transforming democracy**

Individuals have never enjoyed so much freedom of expression and have never been the recipients of so much fake and/or censored instant news. Algorithms may help us to know ourselves better, though they may even end up knowing us better than we know ourselves.

### **Automation** **Changing the labor market**

Automation might give rise to a universal income and much time for leisure and other pleasurable pursuits, it could also lead to deepening inequalities, creating a gulf between those who will be able to contribute to society in meaningful ways and those who will be sidelined.

### **Social innovation** **Under modernisation**

Social innovation is making widespread e-learning, e-government, and e-health an ever more viable reality. These digital advances could remain in the realm of the private sector or could become new types of development projects to which civil society could effectively and constructively contribute.



## So what influence do the civil society sector have on these fast-evolving trends? Perhaps more importantly, what influence do we wish to have?

Below we will consider a spectrum of scenarios that may or may not play out depending on which technological advances the world willingly, or accidentally, signs up to.

As there is no turning back the clocks on this ever-

accelerating digital revolution, there is a pressing need to get to grips with the digitalisation of the world and internet of things so that, as technologically-equipped development actors, we can continue to strive for a more just and sustainable world.

### INFO BOX: WHAT IS DIGITALISATION?

**Digitalisation** is a process where every day human interactions and transactions—with the government, businesses, and fellow humans—and consumption of goods, services, information, and ideas are primarily conducted using the Internet and Internet-based technologies and services.

**Digitalisation** is the integration of digital technologies into everyday life by the digitisation of everything that can be digitised.

**Digitisation** at its simplest means the conversion of analogue information into digital information. As digitisation capabilities extend, virtually every aspect of life is captured and stored in some digital form, and we move closer towards the networked interconnection of everyday objects. The impact of this is a real-time global exchange of information between multiple connected devices (fixed and mobile).

---

## 2.1. DATA HAS BECOME THE MOST IMPORTANT RESOURCE IN THE NEW ECONOMY

Data is the fuel of smart machines. The more data that is processed the greater capability machines have for tailoring solutions to an individual's specific needs.

Such a development could revolutionise – and digitalise – healthcare, education and lifestyle. For this to occur, however, innovators must have access to the data of billions of citizens which in turn necessitates a tried and trusted framework to protect a citizen's fundamental rights to privacy and confidentiality. The danger is

that individuals' and whole communities' data could be misused by profit-making businesses and/or by controlling states. Data is the resource of the 21<sup>st</sup> Century, and it is resulting in unprecedented concentrations of knowledge and power.

*Who will define the rules for the global digital economy and how?*

### **Scenario 1: Internet giants rule the world**

In a not too distant future, companies like Amazon or Google could become the chief rulers of the world. By spreading their "free" services globally and reaping the dividends of consumer information worldwide, they could, if left unchecked, effectively legislate their own data economy. The needs and aspirations, rights and freedoms, of people throughout the world would be determined and even subjugated to the will of these internet giants, and no more so than in developing countries where governments have relatively little economic clout.

Already, throughout Africa, people's data is being wildly exploited by such corporations and, although their services are readily embraced, few African countries are actually profiting from this new economy. Rather users of these services have become products themselves.

For digital platforms, the large youthful populations of many developing countries are a gold mine. With little data protection, they provide rivers of data which can be processed, passed on and sold at will. An abundance of innovative services is made available but at a hefty price. And this price will become ever heftier if these digital behemoths are allowed to self regulate free of any legally binding rules. But what is a cash-strapped government to do? Without sufficient economic power, a system of voluntary guidelines is the most these governments can politely request from their service providers, jeopardising the whole concept of

sovereignty and civil rights as their population's needs are fulfilled and ultimately conditioned by commercial interests.

### **Scenario 2: Data economy will be driven by states. Which countries can prevail?**

If we want to see the most dynamic development of the data economy, driven by the state, we must look east. In Asia, we can already find two examples:

In China citizens have little say on how their data is used. Data is pooled and freely used by companies chosen by the ruling Communist party to provide goods and services that now prevail in their data economy, such as Baidu for autonomous driving or Tencent for smart cities. By extinguishing competition, the state effectively centralises data-processing and gives their choice corporations a huge technological advantage because, of course, the more data that is processed by these companies, the more accurate their algorithms will be. Likewise, states that control these algorithms have a clear geopolitical edge, especially if we consider how these algorithms will be used to wage and win the wars of the future. They are also trying to develop a social credit system, whereby the government will be able to rate citizens' trustworthiness or creditworthiness based on their data.

By contrast, the model of India's publicly owned and democratically governed electronic identity provider Aadhaar lends hope to an alternative scenario which could be emulated throughout developing countries.

This solution provides an electronic identity for over a billion citizens and is a unique way to how involve a broad population in the data economy<sup>a</sup>. This example shows that even if the benefits of a guaranteed electronic identity are enormous, the costs of development are not negligible and are mostly out of the reach of developing countries, so it's likely that they will get the solution from another country. It is necessary to prepare for the race in the new colonization, this time digital.

The winner will determine how societies will be run in the future, whether the temptation to manipulate and control will prevail or whether personal freedoms will be enabled and thrive across the digital sphere.

### **Scenario 3: Personal data will be under control of individual citizen – democratic rules fostering human rights in digital space similar to EU GDPR will apply globally**

The EU has just enforced its new personal data protection regulation (GDPR). Unlike the Asian model detailed above, this initiative will protect the citizen from large government-owned platforms which can use personal data to their own ends. The European vision promotes the individual ownership of personal data and fosters freedom of expression. In such a framework, citizens will have more control over their personal data and be able to choose with whom they wish to share their data and for what purpose and even, eventually, for what price. The long-term aspiration is to enshrine these digital rights in a human-rights framework that will be adopted globally/internationally so that fundamental rights, such as an individual's right to privacy, information and freedom of expression are respected, protected and fulfilled across the digital sphere.

#### **INFO BOX: WHAT SHOULD BE ADVOCATED**

- Focus on personal data protection in line with international human rights framework
- Focus on a rules definition for fair, innovative and inclusive digital economy
- Digital single market and regulation of businesses concentrating digital market power

---

a For the purpose of this scenario pointing out to the question of data governance model we leave out the serious technological shortcomings of the Indian Aadhaar system when it comes to the data protection as well as the issue of the actual weakness of the project due to corruption and lack of the social safeguards being in place for the most vulnerable who are not integrated in the database.

---

## 2.2. DIGITAL TECHNOLOGIES CHANGE THE WAY GOVERNMENTS FUNCTION AND CAN BE MADE ACCOUNTABLE

ICT provide powerful tools to transform the way state government works. Democratic e-Government can be defined as use of ICT in government to provide public services to improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society<sup>a</sup>.

It is therefore possible to deal digitally with public services such as identification and citizenship, land and business registers, tax obligations, and so on. In the broader sense, digital tools can also use public administration for better policy design, monitoring effectiveness and management of regulatory frameworks. If government opens its systems for third parties, it can create a vital platform for civic innovation, based on open access to data and to services. Governments will strive for better efficiency, transparency and resource management by simplifying and reengineering their processes. **If this is done correctly, citizens can finally become the focal point of government's activities.** On the other hand, bad governance can lead to waste and bad projects. In addition to quality electronic services, we also need to prevent governments from restricting citizens' digital rights.

Centrally-available data means a new type of power for those who have access to it. Public data can be misused

to gain commercial benefits and various schemes of cronyism, which may take place if public registers are incomplete and a significant portion of agreements, claims and businesses are still informal. In an even worse case, the improvement of the government's digital capabilities may lead to an improvement in their ability to monitor the population and suppress dissent – as can already be seen in countries such as Uzbekistan, Azerbaijan and Iran. If citizens do not know how to use digital public services or if they do not have enough skills to capably deal with their affairs electronically, e-Government projects can easily become unsustainable "white elephants". Such projects will not achieve satisfying level of citizen acceptance and thus the foreseen results.

The e-Government governance model is very important and deserves attention. The degree of openness, transparency, and participation in each governance model can determine their future.

In order to properly influence this development, it is necessary to ask: *What are the preventive measures to be taken so that independent civil society will be not sabotaged by governments once they have the tools to monitor any dissident activity, engineer broad social consent and discriminate against critical voices of non-conformists? How to prevent governments from misusing digital infrastructures against their own citizens?*

**Scenario 1: Civil society is sabotaged by governments once they have the tools to monitor any dissident activity, engineer broad social consent and discriminate against non-conformists**

In countries where there is little respect for human rights there is a very real risk that e-services could bring more harm than good. Take e-Government is demanding

for competence of public sector and skills of involved professionals. There is a high risk that the e-services will not deliver. It is often the case that state security forces have the greatest experience. For governments that have problems with respect for human rights, it can be tempting to use digital tools to control the population. Possibilities will be greatly expanded if such a government can combine identity and citizenship data with

---

a A **knowledge society** generates and shares knowledge with all members of the society that can thus further progress and thrive.

social networking data, data from telecom operators or data from banks. It is now possible to surveil, track and monitor society on a mass scale and to identify moods as well as recognize beginning of demonstrations. On individual level, abuse of electronic health records can be used in a political fight to discredit opponents. If such problems arise, it is necessary to have international instruments for the protection of rights in the digital society. Advanced technologies should only be available to countries with a sufficient degree of democracy and the use of these technologies should be transparent. There is an important role of civil sector to monitor these risks.

**Scenario 2: Online consultation and deliberation, reinforced by open, participative and transparent governmental institutions, brings with it greater accountability, more civic engagement and accelerated positive political change**

Imagine, that you can register your new business online within minutes by couple clicks of mouse, or you can ask your city for building permits online and check the status of your requests later. Such services and many more are

now possible in digital savvy nations such as Estonia or Singapore. In the developing world, with its excessive bureaucracy and byzantine rules, such a revolution is worth pursuing.

The virtuous circle can be created if the e-Government model is setting right. Electronic services can really help the community to engage; if we manage to give electronic ID to everyone, access to services such as addressed social benefits or micro-loans will be easier. For example, Adhaar scheme from India makes possible to reduce fraud by 9 billion dollars annually. If the service is useful, people's ability to use digital services will be gradually increasing, because it is important for them to try; electronic services are continually improving thanks to feedback from users; satisfaction and usage grow. And we do not have to end just with the electronic service. Smart public administration can better understand the problems it solves through data, it can measure the effectiveness of its policies. Electronic public services can systematically improve the application of rights in the community and reduce unnecessary bureaucracy. The government can become an open platform that supports innovation and transparency.

### INFO BOX: WHAT SHOULD BE ADVOCATED

- Focus on government transformation towards more openness, inclusivity, transparency, accessibility and accountability (public sector reform, open government partnership etc.)
- Monitoring the effectiveness of e-Government projects
- Focus on public sector capacity to deliver digital services

---

## 2.3. SOCIAL MEDIA FUNDAMENTALLY TRANSFORMS PEOPLE-TO-PEOPLE INTERACTION, JOURNALISM AND DEMOCRACY

In the beginning of 2011, social media were perceived as a tool for a new type of democratic change and revitalization in near-east societies. After a couple of years, they are becoming connected with fake news and are increasingly perceived as a threat to democracy.

Fake news can spread like wildfire thanks to social media: the tools that were meant to help grassroots movements succeed, marginalized communities express their opinions and people in all corners of the world participate more efficiently in public life, are now dividing societies and closing individuals within echo chambers. The algorithms that should be helping people to find interesting and personalised content are reinforcing their preferred opinions, influencing their political views and making them more close-minded. The public sector has too few tools to address this situation. Fake news has existed since the beginning of history, but social media,

such as Facebook, Twitter or WhatsApp, represent a qualitative leap: information is spreading incredibly quickly. Fake news is often designed in a way, which is appealing to consumers. Public opinion manipulation is already taking place during election campaigns and new technologies feed on old preconceptions and divides, such as tribalism or religious differences. The most widely used technology is the mobile phone, which guarantees instant access to information. In situation when social media users do not develop sufficient digital skills and critical thinking, it creates dangerous cocktail.

A fundamental issue for civil society is: *How can we ensure that reliable news are accessible in developing countries?* Response to these challenges can significantly affect the quality of public debate in the developing world.

### **Scenario 1: New forms of organised cyber violation and tribal wars, rise of new iracionality**

The developing world seems to be an ideal space for post-truth era. Twitter and Facebook have made it possible for audiences to circumvent state-controlled information infrastructures. In Africa, recent study shows, that there are five times more content on social networks is related to politics than in the US and UK. Now appeared scandal that infamous Cambridge Analytica was hired to influence election results in Kenya in 2017. Discovering the exact influence on the Kenya election is tricky because Kenya has no data protection laws.

The manipulation, distortion and outright invention of news stories could have a detrimental and polarizing impact on tribal societies. The use of services to influence election results by snubber groups will become a common practice. The effect will be most notable in countries with deeply polarised political landscapes, such as Zambia and Tanzania. The prevalence of fake news has already dramatically increased in recent

years. Influence of social media is growing. As a means of democratic engagement, social media is a cause for celebration, but its prevalence leaves public awareness open to abuse. Politicians, corporate entities, NGOs and private persons have become the targets of concerted fake news campaigns, which have quickly become very personal. Instead of a competition of ideas, the democratic process will change to competition in radicalization. Using these tools will mobilize the crowd and induce a conflict that can go into violence and bloodshed.

### **Scenario 2: New digital democracy spring**

New opportunities for social action and freely organised mobilisation (thanks to social media) could create the conditions for civil society to thrive. Such a scenario may be naive, and it actually means returning to the original Arabian spring values, where social media played the original role of a catalyst for positive political change and allowed organisation from the bottom up. Since the risks that the social networks bring (control by the government, false reports) are already known, a good

strategy can be proposed: learning to critical thinking in the digital age and promoting high-quality journalism from public sources and private foundations under

development aid. Last but not least, it will be maybe necessary to introduce content-level regulation on platforms

### **INFO BOX: WHAT SHOULD BE ADVOCATED**

- Focus on awareness-raising and civic education; supporting information, data and new media literacy
- Focus on free and independent CSO space: human rights activists; dissidents; and independent media and journalists' protection and support in both physical and virtual spaces

---

## 2.4. THE LABOR MARKET WILL BE SHAKEN BY AUTOMATION

Computerization and modern production have created new types of factory jobs with higher salaries, but with higher skill requirements for laborers as well. Artificial Intelligence may soon replace many workers. The workforce will need to adapt to these changes. Dynamic digital economies will inevitably create huge disparities of wealth. Therefore, there is a great need to better protect human rights and to support the creation of jobs and decent salaries in the digital age. “The future of automation, including robotics, in the developing world is unlikely to mirror trends from the United States and other high-income countries.”<sup>3</sup>

Modern technologies such as automation, robotics and artificial intelligence can replace many professions, not just the manual work but also the so-called white-collar jobs in administration, audit or law. The effect on work is difficult to predict in the developed world and even more difficult in the developing world. However, basic trends are clear: the need for labor will be reduced, except for

highly qualified experts who are able to implement AI solutions. As a result, the balance between labor and capital can be completely changed in favor of capital. **If we are capable as a society to create goods without a significant need for work, the result may not be bad.** What matters is how the profits will be divided within such an economy.

*Who will own the algorithms (most important factor in a new digital economy)? and how to ensure sufficient skills for work in digital age?*

**Scenario 1: Production will return to rich countries as the developing world fails to acquire competitive digital skills and ultimately becomes “unnecessary” in the global value chain**

Robots will be making our cars and cars will be driving themselves – and unless developing countries keep up with the technological advances being pursued on our production lines...

Globalization in the 90’s and the 0’s years was characterized by the gradual shift of production to countries with cheap workforce. This trend of de-industrialization of the West has begun to reverse thanks to automation, the cost of labor ceases to be important in the world of robots and industry 4.0. On the contrary, logistical chains and skilled workforce of experts are important. In the future, thanks to the further development of 3D printing, goods will be produced where customers are. Rich customers. The largest piece of pie in this economy will have owners of future means of production – algorithms that manage operations. It can easily happen that it will not be the nations of the developing world. Even their elites will not. Imagine a world in which the whole

continents are useless and unnecessary for the growth of the global economy.

**Scenario 2: The huge benefits arising from automation will be divided fairly across societies, all over the world**

But we can imagine another future. A future, where the benefits of automation and new technologies are fairly divided between the whole of mankind. Imagine that every person had the right to a universal income. This was pie in the sky ten years ago, but a new economy based on artificial intelligence and automation can create conditions that will allow it. Already there are different views on how to guarantee higher justice in the society, where superstars companies powered by network effects prevail. Universal basic income is one option, that can be considered. But it would be a mistake to limit it to national borders or developed world. World Basic Income, we believe that the extent of world inequality is deeply unjust, and that mechanisms should be introduced to redress it. A world basic income would aim to scrape money off the top of the world economy by intercepting wealth as it flows between well-off corporations and individuals. This money would then be



pumped back into the world economy from the grass-roots. Unlike national basic incomes – which do a great job of addressing inequalities within countries – a world

basic income could help to even up flows of wealth between countries and help shift money from global elites into the pockets of ordinary people.

### **INFO BOX: WHAT SHOULD BE ADVOCATED**

- Focus on digital skills in the developing world: “enhancing educational outcomes and ensuring that skill development systems are demand driven and continue to be key priorities”
- Promoting open innovation and knowledge for example as [openai.com](https://openai.com)
- Support of universal basic income (UBI)

---

## 2.5. NEW TECHNOLOGIES SUPPORTING SOCIAL INNOVATION AND CREATIVITY

New technologies can spur social innovation and creativity within living labs where open ingenuity can flourish. Innovative companies, together with local governments and the civil society sector, need to solve practical problems that citizens face every day. Smart cities must help in the reduction of traffic; increase the quality of social care, health care and education; improve waste management; and make our cities cleaner and safer to live in. Smart cities<sup>4</sup> must be planned in an open and participatory manner, thereby being better equipped to respond to their citizens' needs.

That tech and innovation can play a big role in making some countries richer than others is not in question. About half the differences in GDP per person between countries are due to differences in productivity. Some of these innovations are emerging from the thriving tech hubs that are popping up across the developing world. A new trend is being noted which encourages countries such as Germany, France or Belgium to concentrate resources from develop-

ment cooperation to support domestic leapfrog innovation and start-ups. **Technology**, coupled with interesting ideas and entrepreneurial spirit, **can really address most of the problems the developing world faces**. But it is necessary to know the limits of such an approach: impact is often limited for few, innovation is often limited to prosperous urban areas and the risk of failure can be enormous.

From perspective of social innovation, we need to ask: *How can we ensure that Digital4Development projects will be sustainable and development results-oriented?*

### **Scenario 1: Digitisation will exhaust resources unnecessarily in development projects that are unsustainable and often unsuccessful and run primarily by the private sector**

35 % of all digital projects in Africa tend to fail and another 50 % could be characterized as partial failures. In Nigeria, for example, there is an endless list of undelivered digital systems, there are also significant delays in a nation-wide effort to establish bank verification numbers, and, as often happens, after a successful pilot project in Lagos, the country's national deployment of a cashless economy policy initiative has failed. Even more depressing, broadband reaches a mere 14 % of the population despite pledges to provide coverage throughout the country. Introducing a national ID card has also proved problematic and has suffered many setbacks and delays.

Relying on entrepreneurs to solve the problems of the developing world through technology and innovation can be short-sighted. Deep structural and

infrastructural problems can eclipse even the most prescient innovations. Even worse, investments into startups can create illusory bubbles of modernisation that burn a lot of cash and result in unsustainable projects and/or unviable solutions that will never be used due to prohibitive operating costs, creating the Potemkin villages of successful ecosystems.

### **Scenario 2: Local problems (in finance, energy, health, education, culture) will be solved thanks to local innovation and social entrepreneurship, facilitated by digital tools and technologies.**

Fifteen years ago, only a tiny fraction of Africans had access to phones. Getting a landline installed meant waiting years. Then mobile telephony services exploded. With sufficient support, an ecosystem seeking solutions to a wide variety of problems can be created: from agriculture, to addressing market failures, energy needs in remote areas or managing healthcare on community level. There are thousands of start-ups and number is rising, fueled by the development aid. There is new category of start-ups:

social innovators, who are primarily focused on social issues. That energy can make difference. Africa, without limits of legacy systems, would become

startup continent reaching out to the global market with fresh ideas.

### **INFO BOX: WHAT SHOULD BE ADVOCATED**

- Supporting local MSMEs and start-ups to deliver social innovation to real/identified development needs
- Foster monitoring and evaluation of the development impact and added value of innovation
- Accompany digital solutions with right analogue solutions at the systemic level

# 3. ROLES OF DEVELOPMENT CSOs IN DIGITAL WORLD

## 3.1. WHERE IS THE FUTURE GOING AND WHAT SHOULD BE THE CSOs' JOURNEY?

What if the transformative powers of digitalisation could make every Sustainable Development Goal come true? What if European CSOs were able to work hand in hand with EU's policy-makers to turn their digitalisation<sup>4</sup>development framework into an unequivocal force for good that closed the "digital divide", facilitated participatory democratic processes worldwide and made Agenda 2030 a reality? What would that look like? What form would it take? Or alternatively what if civil society organisations were left behind, and the big business of big data remained concentrated in the hands of a few and this golden opportunity for deep and widespread positive change was missed? Digitalisation is one of the key and most dynamic mega-trends influencing development today. Yet, it is often missing from civil society's agenda. Why?

In the context of development, particularly poverty eradication, we don't know whether digital technologies will create a more just world, eradicate poverty, create gateways to education, and pave the way for enlightened democracies or thwart freedoms and manipulate the masses worldwide to society's detriment.

We don't know if Africa will leapfrog its way into the 21<sup>st</sup> Century. We don't know if Europe will be left behind, and if so, which parts of the world will prevail and/or how these emerging regions will be regulated.

All scenarios described above are possible with different and ever-changing degrees of probability depending on who takes the decisions. Who can see into the future? Who writes the script?

Earlier this year the blockbuster film, Black Panther, made headlines. It dreamt up a thrilling vision for an Afro-Future embodied by the futuristic techropolis Wakanda. The usual African stereotypes of poor and beleaguered populations are done away with and, through the potent agency of myth, a whole new outlook for the continent is created, one where Africa takes the lead, artificial intelligence becomes a global force for good, resources are shared and divisions between the privileged and underprivileged are successfully dissolved.

If this is the stuff dreams are made of, it is nevertheless a dream rooted in a promising reality. Because **Africa really is on the cusp of a tech-driven transformation**. And, although its overall advances so far continue to fall short of those in the richer regions, there are areas where the leapfrogging model does apply and where **Africa's readiness to embrace new technologies** (like the mobile phone and fintech) **has, in certain respects, outstripped our most optimistic predictions**.

However, it is not all so rosy.

In the West, the commonly held view is that it is chiefly the owners of productive capital that are reaping the advantages of new technological advances; that the working classes are much less upwardly mobile than ever before and that the divide between the haves and have-nots is widening.

This is not only worrying with respect to those poorly served communities experiencing growing inequalities – as well as the other social ills that invariably result – but it could also have implications for the rest of the world, in particular the developing world and the West's capacity to leverage support for the poverty-stricken who reside there. While our own working classes and middle classes are feeling increasingly alienated from the technological revolutions afoot, the development sector may find that it is increasingly difficult to garner sympathy for their

causes abroad. Or worse, the sector itself could come under attack from tech-savvy malefactors determined to snuff out challenging voices.

As a sector committed to a free and fair world, it is critical that, at the very least, we understand and anticipate the change resulting from such forces, and ideally contribute to their evolution to whatever degree we can through our actions and advocacy work.

So how do we do this?

Geo-political forces around the world are changing, and with this, so are the means of exerting influence and authority and impacting decision-making.

Whereas before there was hope that the working classes themselves would rise-up and overcome capital forces – the emergence of digital dynasties on the one hand and the increasingly open and interconnected online platforms on the other – suggest that there will be more and more calls to action from new spontaneously organised sources: such as activists who wield economic and political clout.

In other words, investors rather than philanthropists – small start-ups rather than traditional political

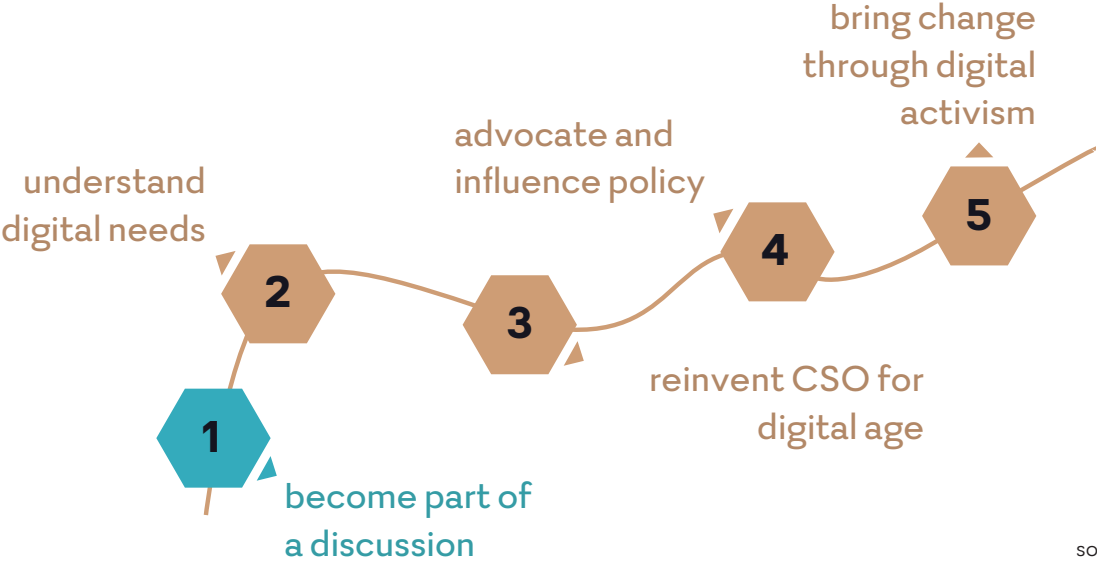
activists – might become the chief trailblazers and revolutionaries of the 21<sup>st</sup> Century, **leaving CSOs behind and rendering their activities irrelevant**. Or, alternatively, the draw and breadth of interconnectivity might spark new and fruitful partnerships between sectors and across silos of expertise, ensuring that this technological revolution isn't just the prerogative of the privileged few but the business of citizens, in all sectors, all over the globe.

Whether superheroes from Wakanda are the mythical figures upon which we wish to pin our hopes, it is clear that we need new stories to plot possible routes into an uncertain but nevertheless promising future. Large swathes of Africa, Asia and Latin America are finding tailor-made digital solutions to their local problems and specific needs thanks to highly adaptable and mobile technologies. Through education and awareness-raising, the hope is that this model will take root and multiply, fostering grass-root innovation globally. For this to happen, however, the myriad conditions, conducive to a free and fair digital world, need to be met, as will be outlined in the next chapter. To help create a vision for the digital future, it is crucial that we start with what people will need to survive and indeed thrive in a digital landscape.

**The Conversations that matter**

- 1. To spur CSOs to get engaged in the discussion;
- 2. To understand pyramid of digital needs and issues that need to be addressed;
- 3. To reinvent your organisation for the digital era;
- 4. To influence digital policy and regulation;
- 5. To engage in digital activism (to encourage CSOs to build new – perhaps unexpected – partnerships and work in the field to bring change).

**CSOs' journey in the digital world**



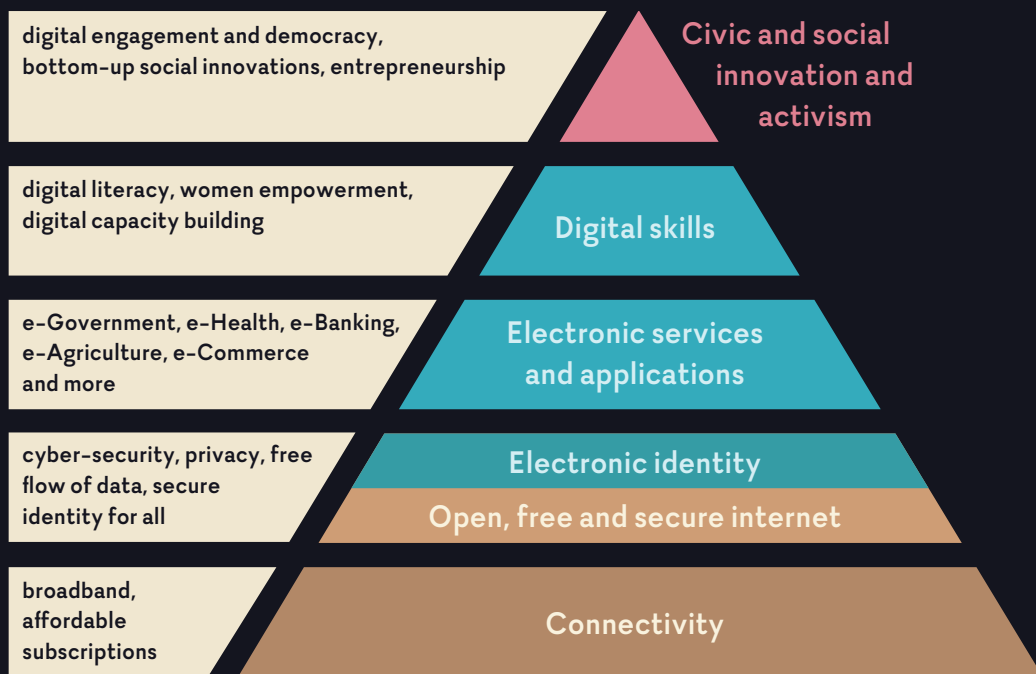
source: Alistiq

## 3.2. UNDERSTANDING DIGITAL NEEDS

The digital era has created new needs which will have to be met if individuals, communities and societies are to develop and prosper. It has also created other forms of inequality since the benefits of modernization are far from being distributed fairly. While digital technologies can better fulfil some of our needs, many people’s most basic needs continue to be neglected.

The first step for CSOs and policy-makers today is to understand the digital citizen’s needs so that the myriad conditions can be secured. In an effort to give you a comprehensive overview of these needs (some

of which feature in the EU’s Digital4Development framework) we have modelled our vision of ascending needs from the most basic to the most sophisticated on Maslow’s well-known “pyramid of psychological needs”:



source: Alistiq

### The digital citizen needs:

- To be connected to the digital world and, more specifically, to be part of the digital economy through accessible and affordable broadband;
- To have access to an open, free and secure internet service (i.e. without discrimination, and cybercrime);
- To have a unique and protected digital identity to strengthen the citizen’s rights and economic autonomy online;
- To have access to digital services, such as e-commerce, e-health, e-government or e-agriculture to improve quality of life;
- To have the skills to navigate and contribute to the digital world;
- To prosper in the digital economy by creating or contributing to successful products and services;
- To innovate, self-actualise and harness digital technology for a more meaningful life.

Once we understand these needs and how they fit together, we can start to advocate effectively on the issues we choose.



## CONNECTIVITY FOR EVERYONE

### Accessible and affordable internet connection as a human right

The Internet is no longer just a commercial service. It is fast becoming a public utility. In fact, it enables the “digital citizen” to learn, share knowledge, receive healthcare, bank, find work, farm and possibly even better understand ourselves. Despite this, **3 billion people have no access to the internet.**

If for some communities the internet may still seem like a luxury, it could soon become a necessity. Already today, citizens who have no internet access are automatically cut off from the digital economy. This not only puts them at a serious economic disadvantage, it excludes them from crucial information flows and sources of knowledge. Even more worrying, lack of access cuts them off from some of the most basic services like

healthcare and education. This is not only creating an underclass of ever more impoverished citizens, but, with time, it will also result in an increasing number of communities whose basic rights are being neglected. This, in turn, will deepen divisions throughout the world and thereby compromise the benefits of digitisation for all. To remedy this, many argue that connectivity ought to be made a human right. This was pointed out by the United Nations Human Rights Council, in a non-binding resolution (HRC/32/L.20) released in the Summer of 2016<sup>5</sup>. Like public schools, street-lights, roads and sidewalks, internet access ought to become the responsibility of civil society to manage and maintain, and deemed as ubiquitous as primary healthcare, public education, and the rule of law.



## OPEN, FREE AND SECURE INTERNET

### Net neutrality

Without net neutrality, Internet Service Providers (ISPs) would be able to charge internet companies for faster delivery of their data. In other words, data from different sources will no longer be treated equally.

Money will rule the waves so to speak. And companies with resources to spare will enjoy speedier distribution services, reaching citizens all over the digital world before less-affluent contenders have a chance to compete.

Rather than the level playing field of the past, big companies and **rich entrepreneurs will buy their way into the fast lane and leave a wealth of other companies (innovative start-ups for example) floundering in the slow lane.** Fewer digital entrepreneurs will be able to compete, innovation will suffer as will the digital citizen and consumer as their options shrink and the free-market fails them. Net neutrality is the important

principle that governments should mandate Internet service providers to treat all data on the Internet the same, and not discriminate or charge differently by user, content, website, platform, application, type of attached equipment, or method of communication. New York based global NGO Access Now (<https://www.accessnow.org/>) defends and extends the digital rights of users at risk around the world and advocates for the Net Neutrality principles.

### Open internet, open data, open code, open future ...

Openness is a crucial quality of the internet. It is influencing the way we do business, how we innovate, govern and even how we behave. Access to content on the internet should be guaranteed to all citizens irrespective of their geographical location, income, education, gender and social status. It is also important to protect open competition and opportunities for all market participants.



The scope for innovation and inclusion is unprecedented and it is creating a highly interactive and participatory culture across the internet. Thanks to the internet, citizens can engage with ideas and innovations of their choice and use what open data they come across freely and without restrictions, unfettered by such mechanisms of control.

As such, the citizen's "right to information" is prevailing more and more over the closed cultures of the past. This is changing attitudes and approaches to transparency. Increasingly, for instance, **the public and private sector are proactively making information available to the citizens rather than putting the onus on the individual to ask for it.** The potential for enhancing democratic and innovative processes is massive as citizens enjoy and contribute to new digital technologies and vouch for this open model. These ideas are promoted by The Open Government Partnership<sup>6</sup> – a multilateral initiative that aims to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance.

Wikipedia.org is an example of how an open knowledge platform can become a free encyclopedic resource for everyone, just as Elon Musk's NGO, Open.ai, is an audacious experiment in giving citizens access to cutting edge technology and algorithms to which they can contribute if they are able, and, as such, spreading the scope of machine-learning experts.

## Secure internet

As we've seen, open data is a huge asset and resource for all. Citizens, however, can only thrive in an open digital world when they feel safe and know that their data is secure. If the open model benefits well-intentioned citizens, it can also massively facilitate the task of wrongdoers whether their intent it is to line their own pockets or to disrupt a country's infrastructure. With access to the right technology, as for innovators and entrepreneurs, the scope for criminals too is unprecedented. They can launch cyber-attacks by blocking websites, disabling energy networks, or damaging banking systems. They can also commit robbery by misusing personal data, engaging in fraudulent activities and/or fleecing bank accounts. Openness, therefore, comes with critical obligations from those regulating the internet. **Striking the right balance between openness and security is the key challenge.** Secure communication tools and encryption technologies must ensure that the citizen's data is prot without impinging on their personal freedoms or rights.

Developing countries are especially vulnerable. Nigeria, for instance, hosts a global network of internet fraudsters, (some of you may have already received an email from the king of Nigeria).



## DIGITAL ECONOMY: APPLICATION AND SERVICES

### Meaningful electronic identification

To have access to society's most fundamental services such as justice, health and education, citizens need to be able to prove they are who they claim to be, i.e. they need to have valid identification. In the digital sphere the same rule applies. In other words, we need to create secure, verifiable, digital ID systems for everyone, so that they can exercise their rights, access services and prosper online. With respect to the digital economy, for example, a citizen benefitting from a digital identity would be able to start a business online or buy real estate via the internet and access the relevant financial services. The internet is no longer solely an anonymous platform, but rather a space where individual rights can be enforced. This idea was developed in 2018 in the World Economic Forum white paper, *Digital Identity: On*

*the Threshold of a Digital Identity Revolution.* Several interesting initiatives on the subject, including an alliance of governments, NGOs and the private sector called ID2020 Alliance which is a global partnership committed to improving lives through digital identity, are popping up.<sup>7</sup>

### Trustworthy digital services and other digital rights

Citizens will increasingly have certain expectations of digital services. They will demand, for instance, that the online platform offering the service respects their right to privacy, ensures their asset security and maintains their commercial commitments too. Only then will the service provider be trusted. Transparently pre-

established rules and agreed upon codes of conduct will become essential to boost user's confidence.

Citizens will not want services that track their movements without their knowledge or that snitch on them to intolerant regimes or facilitate criminal activity, like digital identity theft, through carelessness or outright opportunism. Rather, to feel secure and to thrive online, people will expect digital services to do all they can to protect their digital content, intellectual property and personal freedoms. With the rise of AI and the IoT it will become ever more complicated to regulate technology. Nevertheless, as long as the citizen can freely choose between services, the onus of good practice will be on the competing providers which we believe is where it must be. In addition to strictly adhered to rules, we also press for open competition in the digital sphere.

## Personal data protection

How online platforms store and use people's personal digital data is of critical importance in our massively interconnected world given that at the click of a button – or two – databases can be accessed, searched, edited and shared. Citizens, more than ever, need to know: What data is being collected? Where it is being stored, how it is being protected, and with whom their data may be shared and to what end? Only then, can a citizen make an informed decision as to whether or not they agree with how a platform commits to handling their data. As development CSOs, concerned with the rights and wellbeing of the world's most vulnerable, it is important to engage in this policy area. Online confidence, more and more, will become a hallmark of good governance as legislation is established, its implementation enforced, and corrective measures taken in the interest of the digital citizen's right to freedom and privacy.



## DIGITAL DIVIDE AND DIGITAL SKILLS

It goes without saying that **people without digital skills will be – and are being – excluded from the digital world**. While digitalisation offers us the opportunity to overcome many forms of economic inequality and social exclusion, there is a danger that new divisions will proliferate, and some older divisions intensify along the so-called digital divide. There will be the expertly skilled on one side and the less skilled – or altogether unskilled – on the other. To mitigate such a gulf, knowledge and know-how must be spread as equally as possible throughout communities and across continents. Simply **allowing citizens to consume digital content falls short of this goal**. To create a truly level playing field, the digital citizen must be given the opportunity to code, create applications and acquire a deeper and broader understanding of these new technologies and how they can be used.

### Reinventing education

Equipping citizens with digital skills starts with education, especially with our children's early education. There needs to be a shift in the school curriculum so that a maximum number of young people can benefit from the sort of knowledge and know-how necessary to set them up for the future. Likewise, given how rapidly technology develops (and how these developments change

the way we work as well as the work we do) **lifelong learning** and re-qualification **will not only become common practice but a necessary requirement for working citizens**. Beyond the workforce, education helps to protect citizens from internet manipulation, empowers them to reap the full benefit of digital services and to keep up with the ever-changing, ever-accelerating world

### Gender equality in digital era

**To unlock the digital power of women and girls we need to address the digital gender divide**. We need to understand why the divide exists and then dismantle the forces that keep it in place so that women have as much access to digital technologies as men do and are given the same opportunities to create new ones. If more women were innovators in this field, the more ICT technologies and algorithms would succeed in rooting out gender bias and bringing about a more equal world. So far, **the vast majority of cyber pioneers are white men. In fact, many of those issues that most concern women are poorly reflected in existing data**. If this data were to become available, however, (i.e. if more online users were women) new technologies could be specifically developed to serve women's interests, activities and priorities. The 24/7 culture of the gig

economy is also definitely working to the detriment of women, especially in those households where they bear the burden of most domestic chores. More ingenious machines made by more ingenious inventors are in order.

## Algorithmic bias as a new form of discrimination

Automated decision-making helps some people and hurts others. As we call more and more on artificially intelligent services to crunch our data and make our decisions for us, we become vulnerable to “algorithmic bias”. Algorithmic bias occurs when a computer system behaves as those who created it would, having implicitly integrated the values and biases of the data programmer. It is a form of automated inequality. **Algorithms that conceal prejudices are already routinely used to make vital financial and legal decisions that obviously affect citizens everywhere.** Proprietary algorithms, for instance, increasingly determine who gets a job interview, who gets granted parole, and who gets a loan.

If this problem remains unaddressed, millions of people could suffer the consequences. But there would be no public oversight if people do not have access to the inner workings of these programmes and their algorithms. NGOs, such as the Berlin based Algorithm

Watch, criticise and underscore just how pervasively such software breaches our privacy, manipulates search engine results, and facilitates racial and other forms of harmful profiling<sup>8</sup>.

## A Universal Basic Income for The Digital Age

As many jobs will disappear and other jobs will rise with digitalisation demanding digitally proficient personnel, it is becoming increasingly urgent to instate major structural reforms to protect citizens’ socio-economic welfare and avert an unemployment and/or poverty pandemic. The developing world will be hardest hit by these changes to market forces and the corresponding tumult throughout the world’s workforce, underscoring the importance of finding a systemic solution with global scope. One solution being considered is the introduction of a universal income. This blanket wage would be covered by the “yield of algorithms” which is being qualified as the most valuable virtual capital of future societies. Whether this idea comes to light remains to be seen but, what is clear, is that our **current social security systems must be rethought to provide a safety net for citizens in the digital age.** Global Living Wage Coalition (<https://www.globallivingwage.org/>) might be the forum for the discussion.



## CIVIC ACTIVISM AND SOCIAL INNOVATION

At the top of the pyramid citizens can finally realise their digital dreams so-to-speak and attain genuine social progress thanks to well-integrated and fairly distributed life-improving technologies.

### Connect, share, learn

Creating an environment that actively encourages local innovation and start-up entrepreneurship requires a lot of human capital and know-how. But it is obviously worth it as it enables local people and communities to find their own tailor-made solutions from the bottom up and develop services to fit their specific needs. Developed economies have a lot of experience supporting their own startup economies but this experience is not necessarily transferable. Rather the capacity needs to be home-grown. We can provide technical assistance and prepare incubators for innovation, but it is vital

that digital ecosystems within the developing world are hooked up with one another. Innovators and entrepreneurs who encounter challenges of a similar order will more readily benefit from sharing knowhow and learning from one another. Some development agencies are already preparing the ground for these domestic ecosystems, like MakeIT Africa, under the aegis of the German agency GIZ.

### Scalability and Systemic Change

As in all economies of scale, many digital services, such as e-Health and e-Learning, are only sustainable in the longer term if they are able to grow over time and attract an ever-greater number of users. In the developing world, there is a proliferation of many small-scale digital services which are created locally but they unfortunately fizzle out due to a lack of users. This shortage of

clientele, in turn, is often the result of an incompatibility of software across regions rather than an incompatibility of needs. To stem this trend, it would be helpful to standardise certain digital software at the national and even international levels to give more locally created

services the chance to thrive. If digital solutions could be transferred from one community to another throughout the developing world, then we could look forward to many more economically viable and durable services as well as a wave of “leap frog innovations”.

---

*Successful future solutions for development will require that these issues be addressed. This brings us to the main role of civil society.*

---

---

## 3.3. HOW TO REINVENT CSOs FOR THE DIGITAL AGE

### CSOs SHRINKING SPACE

In an ideal world, civil society operates at the heart of democratic societies. Democratic organisations represent the will of its citizens and channels their common interests to promote the public good. Freedom of expression is key. So is civil society's independence from government and business.

In the digital age, the tools for self-expression have never been so sophisticated or indeed so widespread, broadening civil society's scope to hitherto unimaginable degrees.

But there is a problem: most of "our virtual digital space" is owned or monitored by commercial firms and/or governments. This not only jeopardises civil society's legitimacy but, in many regions of the world, it increasingly puts their work, their resources and indeed their activists under threat.

According to the CIVICUS State of Civil Society Report 2018<sup>9</sup>, there are serious systemic problems with the space for civil society in 109 countries, thus in the majority of the states. By global population: 28 % of civic space is closed, 17 % is repressed, 37 % obstructed, 14 % narrowed and only 4 % open. The shrinking civic space is linked to the democratic backsliding in the world in general. After a quarter of a century of democratic progress, democracy has

now weakened globally for more than a decade. The situation is worst in North Africa, the Middle East and Eurasia, but restrictions of civic space occur in all world regions. Even in countries that have traditionally defended the international system for democracy and human rights, the trend is going in the wrong direction. "It is no coincidence that experts see signs that the space for civil society is closing, that those monitoring the health of democracies fear for the future, and that those monitoring Internet freedom see rising threats." As we have shown earlier in the report, repressive and non-democratic states and forces use Internet, ICT and digital platforms to connect, discuss and mobilize, just as CSOs do. **To save the civil society space, the CSOs must invest in understanding how digital technologies help to concentrate power and to change relationships between sectors but even more importantly, how to minimize the negative consequences.**

In the digital age, civic space – online and elsewhere – needs to be protected and enabled as much as ever. The European Confederation of Development and Relief NGOs, CONCORD, has identified five key components for civic space to operate and thrive<sup>10</sup>. Digitalisation is having an impact on each of these elements, for good or for bad, as outlined below:

- A. **Values that respect fundamental freedoms of expression, association and peaceful assembly;** these values are under threat because of manipulative online media and increasing government oversight.
- B. **Legal framework guaranteeing civic freedoms,** even in the times of shrinking civic space. (legal framework must be adapted to the digital age and must support the fulfillment of digital rights)
- C. **Regulatory environment** that faces strong lobby from big digital players. A small number of big donors have been shown to shape political campaigns, legislative and legal strategies.
- D. **Access to funding** that can come either from governments or big digital players trying to persuade CSOs to support their cause. While crowdfunding and crowdsourcing get a lot of press attention, the other end of the scale is shaped by large concentrations of money from a few interests.
- E. **Meaningful participation in decision making** that can be enhanced by online tools and use of big data but must not be influenced by governments. New forms of activism such as hacking have been introduced.

## DO WE NEED DIGITAL TRANSFORMATION? THE RISE OF CSOs 4.0

The digital era has the potential to transform and even supplant many of our current institutions and services (banks, supermarkets, hotels, taxis etc.) in favour of new digital economy-based business and administrative models. It is very likely that the **civil society sector will also be obliged to keep up with these developments and change the way they work** and, in some cases, on what they work as well. While some issues are becoming obsolete (i.e. support to industry), others as we saw in the chapter above are becoming ever more pressing to address (i.e. transferring our technological knowledge and know-how rather than direct financial assistance, too often (formally or informally) tied to donors' interests). With respect to how CSOs operate

it is also increasingly clear that digital technologies have the potential to improve an organisation's effectiveness and efficiency, minimizing wasted resources, reaching the right people directly without the unnecessary intervention of costly middlemen, and, with the right software, significantly improving the monitoring and evaluation of projects. If this pressure to reinvent the sector may be felt as a threat, we believe that it is also a golden opportunity to innovate and respond to the times with new and improved forms of development initiatives.

The sector's strategy for the digital age could include the following elements:

- **New models for fundraising** (peer to peer networks, crowdfunding): digital technologies and social networks make it possible to connect those who care about common issues. Campaigning can be personalized, a particular issue can be tracked as well as the outcome of a specific contribution. CSOs who have worked as intermediaries no longer need to be needed. It brings new experience for campaign contributor, who can "see" the impact of their money directly.
- Digital communication campaigns and **the ability to connect with the community**: digital technologies need to be used to participate actively in the community, to recognize its needs and interests.
- **Better program and project management**: thanks to the use of digital platforms and their services, routine tasks can be automated, more responsibilities can be moved to a lower level, and best practice can spread more easily.
- Better options for tracking the **effectiveness of initiatives and projects** thanks to big data powered analytics. This means, in particular, that the data will be able to clearly demonstrate what works and resources can be allocated to projects with the greatest impact. At the same time, failures can be detected immediately. The result is the transformation of CSOs.

Digitisation is an opportunity to improve the functioning of the development CSO also from internal **management perspective**. Administrative forces can be replaced by automated processes, the learning process can be greatly improved by e-learning and knowledge sharing. The future should belong to organisations that can work lean and can use the maximum part of the labor force for productive activities. There are already huge differences between ability of CSO to embrace digital age.

Last but not least, we also need to make sure that we can **protect the end-users' and partners' data once they are gathered through our databases**. Failing to take preventive protection measures, such as blockers and encryptions, we fail to protect our communities and actually give up our constituencies. Lack of protection and prevention when working with vulnerable people undermine our legitimacy, as in the end, the beneficiaries bear the risk of data collection.

## SECTOR'S RESPONSE TO DIGITAL TRENDS

Our survey *Digital4Development: Current situation and future trends* on CSOs attitude, knowledge, interest and involvement in digitalisation for development was conducted between 19<sup>th</sup> March and 16<sup>th</sup> April 2018. It was built around five key trends we have identified (Data economy, Digital governance, Social media, Labor market and Social innovation). The survey outcomes have shown that most of **the respondents are rather dissatisfied with CSOs' awareness of digitalisation**. However, they also show that there are some intensely committed CSOs active in the field of digitalisation. On the other hand, some respondents indicate a lack of digitalisation awareness. There is a reported need for workshops focused on experience sharing that would benefit CSOs by connecting and enabling them to find the right approaches and useful tools to succeed in the digital era.

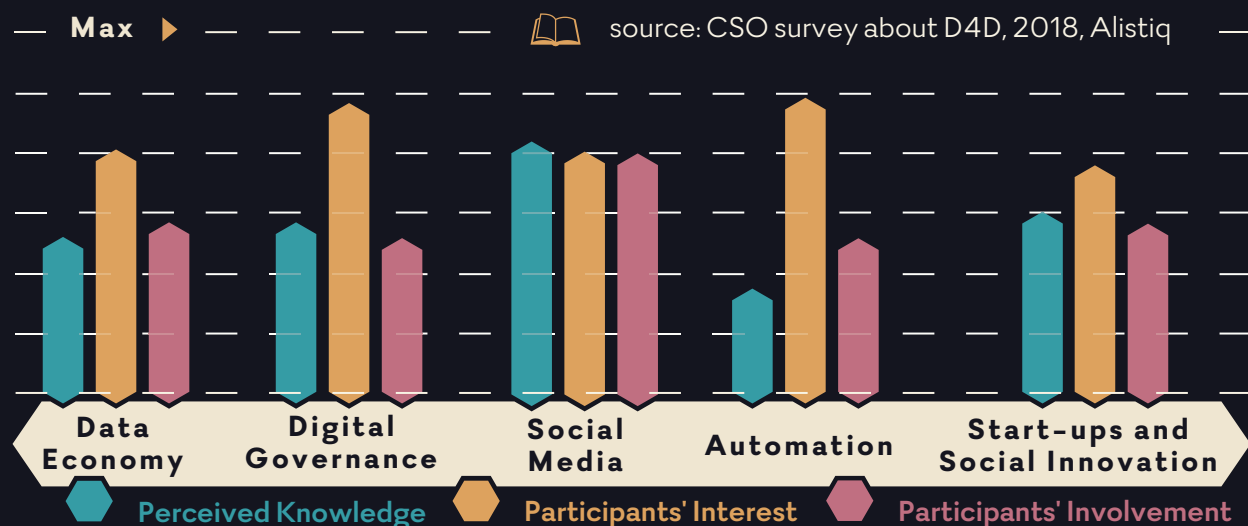
The answers show that participants are greatly interested in digitalisation trends, given that a fair amount of them expressed their interest in at least two or more trends. Social networking and High-speed internet connection ranked as the most preferred trends. In addition, the participants that are showing high interest,

tend to proactively seek information and study further the problematic aspects associated with digitalisation. It implies that **perhaps efforts to provide training, experience sharing and to raise awareness can significantly increase interest and** motivate the participants to seek more information. Conducting research and easy access to knowledge are both known to enable CSOs **to get more involved in digitalisation**.

In terms of knowledge on particular digitalisation trends, **the majority of the respondents believe „Social media and their impact on democracy“ to be their asset**. They expressed their current or future involvement in above mentioned opportunities and threats of Social Media. The least picked option regarding knowledge was „Automation and its impact on the labor market“.

The survey was filled in by 45 participants, representing NGOs, NGO networks, National platforms and other CSOs with a broad range of activities and focusses. Nevertheless, solely for the purpose of interpretation, the participants were identified according to their area of focus into four groups:

### Participants' Knowledge, Interest and Involvement in Digitalisation Trends



We have discovered that, in general, **CSOs tend to perceive the digitalisation trends rather neutral (neither positive nor negative)**. Nevertheless, **trends happening within the Labor market are viewed in a negative way by 42 % of respondents**, mainly active in Poverty eradication, who believe the situation may be shifting

towards deindustrialization – production will return to rich countries as the developing world fails to acquire competitive digital skills and ultimately becomes “unnecessary”. Labor market oriented organisations turned out to be the most positive group regarding this issue.

---

## 3.4. ADVOCATE FOR FAIR RULES IN THE DIGITAL WORLD AND INFLUENCE AT THE POLICY LEVEL

As has been pointed out, the key to success in digital development for people is the correct framework of rules on national, international and global levels: to define viable and just economic, legal and ethical framework

of digital economy. The enormous role of CSOs is to demand rules that will benefit people so that everyone has the opportunity to prosper. It is then necessary to check that such rules are put into practice.

In principle, we see the greatest scope for engagement in three areas:

- **Regulation**

Help to set the right laws and appropriate regulation as well as its enforcement mechanisms

- **Representation**

Ensure a participatory process and the involvement of the affected communities alongside with the central Agenda2030 principle “leave no one behind”

- **Advocacy**

Advocate and promote improvements on specific sustainable development issues

### REGULATION:

#### The need for checks and balances

**So far, machines, like governments, can only ever be as good or as bad as the people who build them. Robots still have no will of their own. Their stunning, if engineered, intelligence continues to rely on human intervention. But there may come a day when this is no longer the case. We might press the on-button to find that a machine is ready to start engineering, teaching and governing itself.**

Over 50 years ago Asimov imagined a world where ultra-intelligent robots were capable of governing our world and had to be pre-programmed with laws and codes of good behaviour. Regulation, in other words, had to be hardwired into them to make sure they wouldn't kill or hurt humans and/ or jeopardise life on earth. But a problem arises when one of these robots becomes too powerful and starts to make up rules of its own. The

humans who created it see no better solution than to destroy it, except that they can no longer destroy it. To their horror, they no longer have the necessary technological expertise and they no longer have the means to deactivate their creation. Such a conundrum may strike us as an implausible fantasy, but the dilemma of creating machines we can no longer control, and digital societies we no longer fully understand, is a very real one.

Regulation is a pressing concern and we need to think about potential shifts in human rights during the digital era. There are CSOs keeping an eye on the human rights protection, fulfilment and respect in the digital environment. Development CSOs need to be aware of these and partner with them when advocating for good governance, civic space and human rights, just as they usually do with human rights and pro-democratic CSOs. Development CSOs should support digital rights' CSOs in their engagement for trustworthy digital services as this has far-reaching consequences for global justice, poverty eradication and inequalities reduction.

### REPRESENTATION:

#### aggregate citizen voice

**In the digital era, we can reinvent policy-making. It is feasible to foster participatory and evidence-based**

**decision and policy-making by using decentralised, bottom-up ICT tools, data mining and e-government solutions. If we can make good use of digital tools, such as surveys or petitions, we can better understand the views and needs of communities on a daily basis.**



## ADVOCACY:

### lobby on particular issues, that matters

The main aim of advocacy should be to ensure a strong focus on inclusion and poverty reduction within digital policy – meaning to continue advocating on behalf of the needy, underserved and discriminated ones while considering key digital trends among other global megatrends influencing development. This will help ensure marginalised and excluded people and communities have equal opportunities, voice and choice to benefit from digital technologies.

Furthermore, it is important:

- To **promote good data governance and wise regulation policy** so that data, like any resource, will be managed for the public good, and will ensure that the benefits flow to all people and not just the few;
- To **promote effective global development partnership**, including effective ODA for digital solutions and capacity building on good data, i.e. data which are relevant, accurate, timely, accessible, comparable and produced free of political interferences;
- To **further push for transparent, open, participatory, inclusive and accountable governmental institutions and processes**, including CSO space;
- To **promote policy coherence for sustainable development** with regard to global digitalisation rules and donors' self-interest promotion;
- To **promote investments and commitments in basic analogue development measures**, such as ensuring education for all, human rights protection, democracy and accountability, effective institutions, wise regulation and food security etc;
- To **raise awareness** on fundamental rights protection within the digital era;
- To **support CSOs defending digital rights**, such as right to privacy, freedom of expression, access to information, but also intellectual rights protection, access to culture, protection of labor rights and decent work within new data economy, non-discrimination and gender equality.

---

## 3.5. AT IMPLEMENTATION LEVEL: ESTABLISH NEW PARTNERSHIP AND BRING CHANGE THROUGH DIGITAL ACTIVISM

It is to be expected that more development projects will have a digital component. It is therefore important for civil society organisations to learn how to do such projects. Principles for digital development<sup>11</sup> are good start: design with user; understand the existing ecosystem; design for scale; build for sustainability; be data driven; use open standards; open data, open source and open innovation; reuse and improve; address privacy and security and be collaborative.

There are two main areas, where you can use digital methods and take advantage of digital technology:

- **Service delivery**

Implementing development projects or providing services

- **Enabling environment**

Fostering collective recreational activities such as education, hubs and accelerators for start-ups and social innovators

### SERVICE DELIVERY

CSOs deliver services that state, market, and family cannot deliver – including well-run health care facilities. Smart use of digital technologies can even enhance this role and can make the services more personalised, proactive, efficient and accessible.

In the digital era, new kinds of relationships have to be managed, with all sorts of consequences considered:

- How will a partnership with a digital solution provider or a company work?
- Will the digital solution be financed from grants or contracts?
- Who will determine the goals?
- How much oversight will the public sector expect, and how much should there be? What digital aspects such as data protection and privacy need extra independent oversight?
- What are the drawbacks for a CSO in becoming a contractor? The more a CSO is delivering according to government or other donor priorities, the more it risks its autonomy, which in turn might risk other virtues such as commitment, knowledge, and credibility.

The agenda updated in the digital era could be:

- To incorporate digital solutions in own work and use them for innovating and improving the transparency, accountability and effectiveness – development effectiveness, see 3 biggest challenges according World Bank Development Report 2016:
  - *Getting wired for feedback.* Development projects are often very sensitive to context and have no standard blueprints. They could be more relevant if their design and implementation drew on local knowledge.
  - *Taking information to scale:* information as an input. Decision makers, from villages to capitals, lack the information they need to optimize their actions.
  - *Mustering global information for global goods.* Global weather and water data are costly to gather but now almost costless to distribute. They take on the character of a global public good<sup>12</sup>.
- To partner with private sector to scale up solutions and innovations driven by CSOs, among others, through start-ups,
- To network and build partnerships from the local to the global level, within CSOs' community but also across sectors.

## ENABLING ENVIRONMENT

The CSOs can improve their impact by:

- Using ICT to empower and build capacities of those left behind, including minorities, indigenous people, forcibly displaced people, people with disabilities, elderly people, rural communities, children or women etc., to make their voice heard and their needs and rights considered;
- Building partnerships with digital CSOs and digital experts and providing training on digital skills;
- Campaigning on poverty eradication and sustainable development using social platforms' potential for mass mobilisation and bottom-up, decentralised peer-to-peer interaction. One important way of poverty eradication is to teach necessary skills and to create functional ecosystems for digital entrepreneurs.

---

## 3.6. AT THE MONITORING AND EVALUATION LEVELS: USE DATA FOR BETTER OVERVIEW OF A SITUATION

Implementation of development projects and overall development as such has been characterized by a lack of quality data, which has often led to intuitive implementation of the measures. If any organisation or project had good data, getting it was time consuming and expensive. More often the available data was wrong or missing. But this time is over. Thanks to digitisation, more and more data will be available; an important role for CSOs is to ensure that the data is interpreted fairly.

Initially, progressive monitoring will be improved to clarify what is happening and why. Later, forecasting, simulation of policy impacts, and new ways of risk assessment will also be improved. If development aid is implemented on the basis of common and high quality data, a significant increase in efficiency and impact will be possible.

### NEW ERA OF MONITORING provide information and policy advice based on big data analytics

CSOs should make use of the whole regulatory cycle – after a regulation or a policy is in practice, they should collect objective data from the environment. The insights from this data can be used to show what works and what does not work and to hold governments and enterprises accountable using evidence on the development impact of their actions.

CSOs could also engage in new digital standards such as in the data economy or social network. “Standards underpin much of modern life, whether in the form of technology standards that enable the operation of key infrastructure and devices or in the form of organisational practices. Civil society organisations such as the International Standards Organisation formulate more or less technical standards and thereby enable modern society and market competition to function. Within countries, there are many civil society standards organisations engaged in work as diverse as setting standards for road design, medical device interoperability, and good quality care for children.”<sup>13</sup>

### DIGITAL DATA ECOSYSTEM provide support to other CSOs, including funding

Imagine that it will be possible to track the development of the country thanks to the accurate and nearly real-time data. Furthermore, the progress towards the objectives of individual projects could be monitored. To achieve this, it will be necessary to establish and operate an enhanced infrastructure for CSOs. The main focus of their enhanced role could be:

- To **layer big data in order to get smart data**;
- To enable **real-time data monitoring** and analysis of projects and development aid;
- To use ICTs for **better policies**;
- To use ICT's to better **monitor and review policies in a participatory, representative and transparent manner**;
- To **improve SDGs monitoring and indicators**;
- To help other CSOs **protect the end-users' and partners' data once they are gathered through CSO databases** since beneficiaries ultimately bear the risk of data collection. Among others, CSOs need to adjust their databases and assess the potential risks linked to data storage;
- To address and to help prevent hate speech, hoaxes, manipulation of information on digital platforms, and to cooperate with experts on cybersecurity.

## 4. DIGITALISATION MEETS DEVELOPMENT AGENDA

Building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation are some of the goals highlighted in Agenda 2030 for Sustainable Development. The main focus is to enable the least developed countries (LDCs) by significantly increasing their access to affordable internet and ICT.

Given that many developed countries are already close to saturation in terms of mobile penetration, it is logical to focus on internet access, and specifically on the needs of the LDCs. The two key words in the new target are “universal” and “affordable.”<sup>14</sup>

Given the current low level of internet penetration in the LDCs—just over 10 % by the end of 2015 —achieving “universal” coverage would imply a required growth rate of 51 % a year, much faster than the LDCs have achieved since 2000. Affordability is also likely to be a challenge as only 1 of the 48 LDCs, Bhutan, actually met the UN target in 2013. Nevertheless, **mobile coverage in LDCs currently stands at close to 70 %**. As those mobile phones are upgraded to smartphones, and as coverage of 3G (third-generation) and 4G (fourth-generation) signal expands, this target will become more attainable— although perhaps not by 2020<sup>15</sup>. The real significance of the ICT for the SDGs is likely to lie in helping to achieve other SDGs and targets related to climate change, gender equality and women empowerment,

private sector development, education and health.

In the following text we approach digital data and technology as development enablers rather than ends in themselves. The objective is not simply to include digital solutions in development. Rather, the objective is to empower end-users, especially those who are most vulnerable and marginalised. Bearing this in mind, digital for development does not mean that everything analogue needs to be digitised.

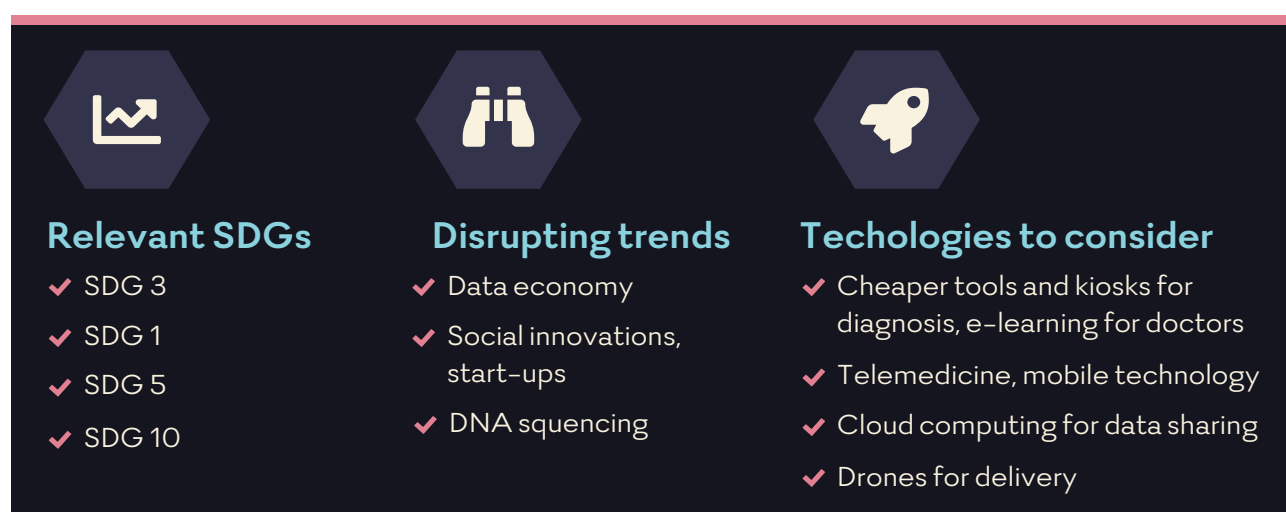
There is not the space to offer a detailed overview of the current benefits which digitalisation brings for development. For this, have a look at the World Bank Development Report 2016: Digital Dividends<sup>16</sup>. In this report, The World Bank concludes that “digital dividends” cannot be harnessed in development, if no investment in analogue domains, such as vocational education, democracy, accountability, effective institutions and wise regulatory policy is made.




## Digitalisation may transform following key areas

<b>Health services</b>	Digitalisation can transform health services both for OECD Countries and developing countries by creating a smart health system based on personalized and actionable insights harnessed from patient data. This system would be able to accurately map and monitor diseases and propose solutions for their management or even prevention.
<b>Education and learning</b>	Technology is increasingly transforming the face of education provision and can help to improve the quality of education to transform lives around globe. Failure to achieve this goal puts the achievement of all SDGs at risk
<b>Agriculture</b>	Agriculture and food security transformations aim to eradicate poverty and world hunger while fostering decent work and ensuring sustainable economic growth from responsible and climate friendly food production
<b>Finance</b>	Innovations in financing applied in low-income countries helps stimulate economic growth, industry, innovation and infrastructure, thus contributing to the eradication of poverty
<b>Enterprises</b>	Digital transformation can directly boost healthy competition on domestic and international markets. Also, private sector products or services can be developed to help to solve many societal problems
<b>Energy</b>	Digitalisation of energy systems aims to enable all citizens to access affordable and clean energy which aids to confront the myriad challenges such as poverty, low levels of life expectancy and lack of access to essential healthcare services
<b>Cities</b>	Digitally transformed cities tend to be sustainable and eco-friendly because they optimise the use of energy and natural resources. Technology enables the local government to be more responsive and transparent
<b>Governments</b>	Its successful transformation in the world will contribute to establishing good governances and ensuring human rights fulfilment. Transformed governments are transparent with decision-making based on (big) data

## 4.1. TRANSFORMING HEALTH SERVICES

For OECD countries, the emerging vision is of a learning health system<sup>17</sup>, based on real-time and personalized information. Realizing this vision will require enhanced capacity to share, process, and analyze large streams of data from heterogeneous sources – a major change from traditional practices. A transformed health care system will need to be proactive, preventive, and focused on quality of life. The new system would shift from hospital/doctor-centered to community/patient-centered. Data would be generated and aggregated from digital clinical and administrative records, advances in genomics, new diagnostics and medical imaging, sensor and mobile technologies, and geospatial location tools.



 Relevant SDGs	 Disrupting trends	 Technologies to consider
<ul style="list-style-type: none"><li>✓ SDG 3</li><li>✓ SDG 1</li><li>✓ SDG 5</li><li>✓ SDG 10</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy</li><li>✓ Social innovations, start-ups</li><li>✓ DNA sequencing</li></ul>	<ul style="list-style-type: none"><li>✓ Cheaper tools and kiosks for diagnosis, e-learning for doctors</li><li>✓ Telemedicine, mobile technology</li><li>✓ Cloud computing for data sharing</li><li>✓ Drones for delivery</li></ul>

For developing countries, this vision remains relevant, but they will have to build the system from the ground up. With local adaptation and experimentation to overcome last-mile problems of health service delivery and empower local health providers with information and patients with choice. Such a health system will also need to give attention to mapping and monitoring the devastating and endemic diseases like malaria and tuberculosis.

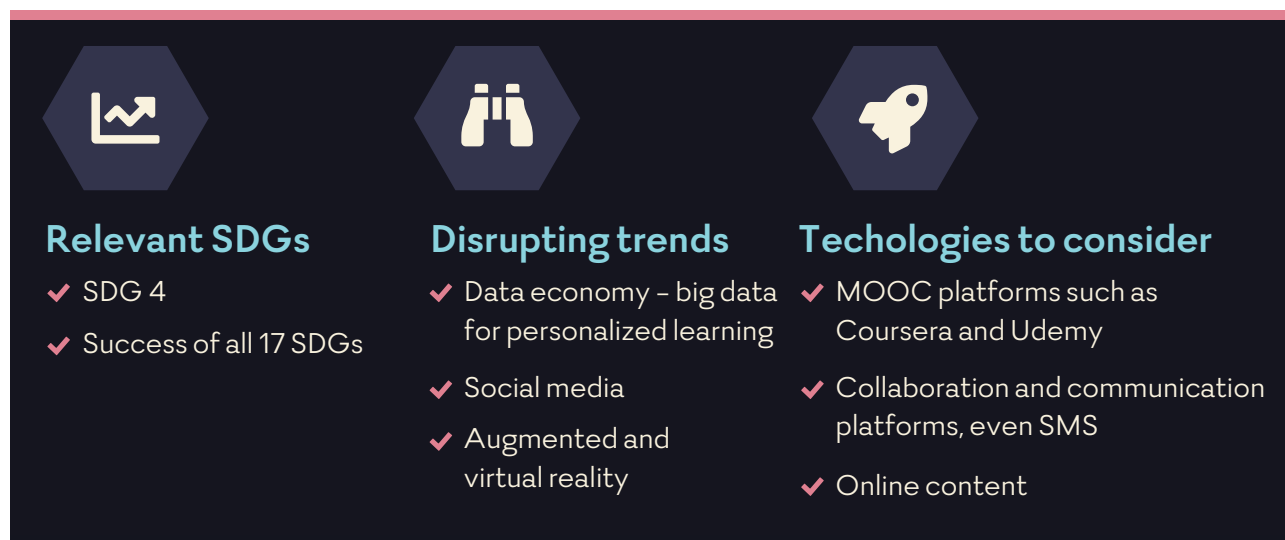
The internet and associated technologies have the potential to expand health services, increase health system efficiency, and lead to better patient outcomes in developing countries and thus meet directly SDG 3 (Good Health and Well-being), but also to some extent SDG 1 (No Poverty), SDG 5 (Gender Equality) and SDG 10 (Reduced Inequalities). Using ICT to transform the health system can optimize the use of scarce resources and help bridge the urban-rural divide in health care; it could help maximize the reach and impact of smaller number of highly-trained physicians and clinical

staff in rural and remote areas. This may mean, among others, more emphasis on access to medical information and diagnosis via kiosks and clinics in schools and markets, and making hospitals more of a network, less of a big box with all specialists co-located. Telemedicine and mobile technology can play important role when it comes to development of health system in the developing countries. Mobile health, combined with cloud computing and an ICT-enabling ecosystem, can transform health services and deliver more effective health care with relatively limited resources. **It will allow even the poorest and most remote locations to take advantage of its benefits and can be used even in poor settings.**

Effective country ownership, good governance, and strong institutional and human capacity are core to e-health planning and implementation. This includes a strong legal basis for managing health related data with appropriate safeguards.

## 4.2. TRANSFORMING EDUCATION AND LEARNING SYSTEMS

Technology is increasingly transforming the face of education provision and can help make SDG 4 (Quality education) a reality and transform lives around the globe. Failure to achieve this goal puts the achievement of 17 SDGs at risk as a whole. It is a foundation block for nearly every other SDG. In the vision of the future, mass education will shift toward personalized learning. In the school of tomorrow, teachers will become learning companions; they will accompany students on their learning journey, while borders between home and school will disappear. Schools will become community-learning hubs.



Relevant SDGs	Disrupting trends	Techologies to consider
<ul style="list-style-type: none"><li>✓ SDG 4</li><li>✓ Success of all 17 SDGs</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy - big data for personalized learning</li><li>✓ Social media</li><li>✓ Augmented and virtual reality</li></ul>	<ul style="list-style-type: none"><li>✓ MOOC platforms such as Coursera and Udemy</li><li>✓ Collaboration and communication platforms, even SMS</li><li>✓ Online content</li></ul>

The possibilities for using ICT to transform learning are enormous: teaching learners how to locate information, judge credibility of the sources, engage in collaborative problem solving, and take ownership of how and what they learn.

Text will no longer be the main medium for conveying meaning, as interactive multimedia can more effectively develop understanding. Curricula will incorporate projects that call for mixed sets of skills and backgrounds, enabling networked learning and learning communities. Teaching programmes will monitor children's progress and the data derived will be used to tailor what the child confronts on the computer screen. Tablets, for instance, will enable students worldwide to meet in web-based forums to create databases, wikis, image boards, and other resources but also give access to games, virtual worlds, and various group learning.

The open-source movement will allow students to access the lectures of top college professors. Online learning platforms like MOOC will provide a hugely disruptive mode of education services delivery, its promise is being exploited now mainly in the US, UK, EU. With low start-up costs and powerful economies of scale, MOOC is likely to spread to countries where there is a massive need to be met with a fast-growing cohort of eager university students. But, ensuring transparency and quality, and safeguarding the consumer will be important for digital education to succeed.

The fundamental elements of digital education will be connectivity, knowledge management, education technology, and partnership (including various forms of private sector participation).

To sum it up, **digitalisation of education has the potential to improve quality of education, address skills**



**gaps and lower the cost.** It can be used to find creative solutions to fundamental challenges (such as a lack of well-trained teachers), make education available to a broader audience at a much lower cost, to enable easier scaling up of promising models within local markets, to gain insight into how and what students learn in real time and to increase teacher productivity, thus freeing up valuable time from tasks such as grading and testing, which can be used for teaching of competencies and character qualities needed in 21<sup>st</sup> century.

But when it comes to successful technology-enabled education in low-income countries special attention needs to be paid to local context to avoid the so-called Matthew Effect. That means to not only provide more and better devices and connectivity, but also focus on the guided use of technology in practical ways, relevant curricular materials; pedagogy, teacher support and development of evaluation mechanisms. Besides exploring the uses of new technologies, it is important to utilize also potential of technology that people already have, know how to use, and can afford. In most circumstances,




this is the mobile phone (in developing countries, more people have access to a mobile phone than to electricity or decent sanitation. Almost 70 % of people in the bottom fifth countries from the income pyramid own a mobile phone).<sup>18</sup>

Also, it is worth mentioning that having local capabilities in ICT and a thriving ICT industry is no guarantee for mastering the use of ICT in the education sector. It is crucial to understand their relevance, interdependencies, and impact; proper planning and policy frameworks are also necessary.

Education challenges cannot be overcome by simply providing more and better ICT devices and connectivity. There is sometimes talk that technology will replace teachers. In reality, experience from around the world demonstrates that, over time, the role of teachers becomes more central – and not peripheral – as a result of the introduction of new technologies. That said, while technology will not replace teachers, teachers who use technology will replace those who do not.

## 4.3. TRANSFORMING AGRICULTURE

Digitally-enabled agricultural transformation can help meet the challenge of feeding over 9 billion people by 2050; improving inputs, increasing productivity, and reducing food losses are all examples of such transformation. ICT tools could raise the incomes of millions of poor farmers in developing countries and improve the efficiency of the agriculture and food sectors. They could also cut carbon dioxide emissions and reduce freshwater withdrawals for agricultural irrigation, with significant savings in water-stressed regions. Digitalisation in the sector can help to accomplish at least six SDGs – to agriculture and food security directly linked SDG 2 (Zero Hunger), but also SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Production and Consumption), SDG 13 (Climate Action) and SDG 15 (Life on Land).

 <b>Relevant SDGs</b>	 <b>Disrupting trends</b>	 <b>Technologies to consider</b>
<ul style="list-style-type: none"><li>✓ SDG 2</li><li>✓ SDG 1</li><li>✓ SDG 8</li><li>✓ SDG 12</li><li>✓ SDG 13</li><li>✓ SDG 15</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy for data-driven management and optimization</li><li>✓ Automatization</li><li>✓ Drones</li><li>✓ Sensor networks</li></ul>	<ul style="list-style-type: none"><li>✓ Information systems with satellites and sensors to collect data</li><li>✓ Mobile technology and communication platforms for farmers to trade</li><li>✓ SMS, kiosks and other information services for farmer</li></ul>

Increased storage and computational capacity, coupled with high-resolution environmental and remotely sensed data, have created unprecedented opportunities for data-driven discovery in agriculture and food systems. Technology can be applied to all aspects of agricultural production systems. It will reflect a shift from generalized management of farm resources towards highly optimized, individualized, real-time, hyper-connected and data-driven management.

It is envisioned that instead of treating all farm fields uniformly, small field zones will each receive their own highly optimized management prescriptions. ICT will help improve logistics by coordinating transport. For example, websites that relay information on transport

and logistics will enable tracing the food supply from point of origin (farm gate) to the consumer or reduce reliance on traders or middlemen, who otherwise exert strong influence. The market players will have improved understanding of real-time market dynamics and value chains, which will also help farmers switch to high demand but perishable products.

Some of the promising technologies that enable digital agriculture to expand are: computational decision and analytics tools, sensors, robots, geo-locating technologies such as GPS, geographical information systems, yield monitors, precision soil sampling, proximal and remote spectroscopic sensing, unmanned aerial vehicles, auto-steered and guided equipment and others.



In developing countries, as in other regions mobile phones present a promising entry tool to improve data visibility and transform relationships across agricultural value chains. They may help to increase market transparency and farmers' ability to negotiate. They can connect farmers to markets, traders, input suppliers, finance, and education; they also make it possible to monitor resources or track products. With the diffusion of mobile phones, a larger number of small farmers can be reached. They represent untapped opportunity for food security and agricultural growth. Rather than always visiting a farmer, extension agents can use a combination of phone calls, text, videos, and internet to reduce transaction costs and increase the frequency of interaction with farmers. When timely information on weather and soil conditions is combined, extension services can be timed and contextualized, and agricultural insurance

can be also delivered to farmers in developing world with minimal transaction costs.

Agriculture is location-specific, and farmers need accurate local weather forecasts, advice on agricultural practices and input use, and real-time information about prices and market logistics. **Harnessing the rapid growth of the internet and associated digital technologies such as mobile phones is critical to helping farmers obtain the information they need and to promoting transformative agricultural development.** But the full potential of ICT in transforming agriculture services, and the whole rural sector, will only be realized by mobilizing the whole ecosystem: digital content, information infrastructure, access to financial services and markets, farmer education, partnerships, and enabling policies.

## 4.4. TRANSFORMING FINANCE

Disruptive innovations are reshaping the way financial services are structured, provisioned and consumed. The pace of change in financial markets will accelerate with emerging technologies, changing regulations, and disruptive new business models. Innovations in financing applied in low-income countries may aid in accomplishing SDG 8 (Decent work and economic growth) and thus also support reaching SDG 1 (No Poverty), SDG 9 (Industry, Innovation, Infrastructure) as well as SDG 17 (Means of Implementation).

		
<b>Relevant SDGs</b>	<b>Disrupting trends</b>	<b>Technologies to consider</b>
<ul style="list-style-type: none"><li>✓ SDG 8</li><li>✓ SDG 1</li><li>✓ SDG 9</li><li>✓ SDG 17</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy for deep insights</li><li>✓ New governance by cryptocurrencies</li><li>✓ Crowdfunding to increase access to capital</li></ul>	<ul style="list-style-type: none"><li>✓ Mobile banking to increase access and savings</li><li>✓ Digital technologies to assess credit scores from digital footprint</li><li>✓ API transaction platforms</li><li>✓ Crowdfunding platforms</li></ul>

In digital future of finance, cryptocurrency usage will expand beyond money transfers to modernize other financial infrastructures. Ubiquity of connected devices such as IoT will enable insurers to highly personalize insurance and proactively manage clients' risks. New lending platforms will transform credit evaluation and loan origination as well as open-up consumer lending to non-traditional sources of capital. Banking as a platform will open application interfaces for new service providers outside traditional banking sector and will offer new ways to meet consumer demand. Crowdfunding platforms will widen access to capital raising activities. More diverse funding options will allow new companies, mainly MSMEs, to grow at a quicker pace and shorten the average time between early funding stages. Robo-advisors will improve accessibility to sophisticated financial management and reduce margin pressure.

Innovations in the financial sector will provide new ways to aggregate and analyze information, improving con-

nectivity and reducing the marginal costs of accessing information and participating in financial activities. They will streamline or eliminate traditional institutions' role as intermediaries, and offer lower prices and/or higher returns to customers. This will allow financial institutions to access new data sets, such as social data, that enable new ways of understanding customers and markets and give customers access to previously restricted assets and services, more visibility into products, and control over choices, as well as the tools to become "prosumers"<sup>b</sup>.

In low-income countries, however, many digital payment systems help overcome barriers to accessing financial services in the first place. Overall, **only about 59% of men and 50% of women in developing countries have an account at a regulated financial institu-**

<sup>b</sup> A **prosumer** is a person who consumes and produces a product.

tion.<sup>19</sup> The fundamental problem is transaction costs. It is not solely the poor who are impacted; businessmen turn to more costly ways to borrow.

Mobile money schemes, in particular, can allow people who own a phone but do not have a bank account to make and receive payments. Digital payments can also increase control since senders of remittances can have a greater influence on how recipients use and save the money. Digital finance can increase the incentive to save through automatic deposits, text reminders, or default options.

Digital finance also increases women's economic participation. Digital payments can more easily be concealed by the recipient than cash, at least temporarily, which helps shift economic decision making in favor of women. Access to savings instruments also increases female empowerment and the consumption and productive investment of female entrepreneurs. There is a significantly positive relationship between female labor force participation and female bank account ownership.

In credit markets, especially those for informal enterprises and low-income borrowers, the lender usually has limited information about a potential borrower's ability to repay a loan, thus impeding lending. Digital technologies help estimate credit scores from digital footprints.

The internet reduces the cost of many financial transactions, such as retail payment, by allowing their unbundling into separate components that can be automated or provided by specialized entities. Such

service providers are becoming more widespread in developing and emerging markets.

Governments can also lower the cost of their financial transactions by reducing costs of social transfers and reaching savings that comes from lower leakages and reduced fraud. Electronic payments create a clear digital record and can be traced, so the likelihood of funds not reaching the beneficiary or of duplicate payments or payments to "ghost" recipients who do not exist will be lower.

Another key area, still very challenging from the governance point of view, is tax collection and administration. While digital solutions have potential for more effective and transparent tax administration at the domestic level, the current international tax rules do not grasp new digital economic processes nor key actors, such as platforms, which encourages tax evasion or even avoidance.

Mobile money systems can also serve as a platform for additional innovations and apps. Some examples include paying bills electronically, avoiding lengthy queue times, applying for short-term loans, securing efficient conditional cash transfers for drought relief, educating girls, or other emergency transfers and compensation schemes. Clients can sign up for services quickly on their own. Moreover, mobile communications generate huge amounts of data, which banks and other service providers can use to understand the behavior and needs of various groups and develop profitable and responsive services. Developing countries could benefit a lot from such innovations, perhaps even more than from foreign aid.

## 4.5. TRANSFORMING ENTERPRISES

Digital transformation has become a basic mode for adapting and competing in this new world. It can directly impact the realisation of SDG 9 (Industry, Innovation and Infrastructure) but also all other SDGs, since private sector products or services can be developed to help solve many societal woes.



 Relevant SDGs	 Disrupting trends	 Technologies to consider
<ul style="list-style-type: none"><li>✓ SDG 9</li><li>✓ Success of all 17 SDGs</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy for AI and business intelligence</li><li>✓ Automation</li><li>✓ Social media and online marketplace</li><li>✓ Internet of Industrial Things</li><li>✓ 3D printing</li></ul>	<ul style="list-style-type: none"><li>✓ Online e-commerce platforms to support local entrepreneurs</li><li>✓ Make the latest technology accessible to companies, teach them and let them experiment</li></ul>

Digital adaptation in private sector offers three broad categories of benefits for enterprises. First, new technologies enhance enterprises' efficiency. Innovations include enhanced business analytics and business intelligence, digitally enabled organisational and business-process changes, broader sharing of information, decentralized decision making, pruning and outsourcing non-core processes, and real-time supply-chain management. Companies also commit an increasing quantity of investments in intangibles such as knowledge management systems, communities of practice, and lifelong learning.

Particularly, when we are talking about manufacturing industry, at the center of the transformation will be Industrial Internet of Things (IIoT), robotics, 3D printing and artificial intelligence (machine learning). These innovations permit the vision of the interconnected factory; where equipment is online, intelligent and capable of making its own decisions; to become a reality.

Machine's ability to learn and adopt intelligent behavior will help speed up heuristic functions – the ability to

sort through large amounts of data to find the best option to solve a problem. Robots capable of mimicking more human traits (such as dexterity, memory, voice/vision recognition) and sensors will replace human hands and help manufacturers achieve new levels of precision, productivity, and safety beyond the ability of humans – particularly in hazardous environments. 3D printing will facilitate the seamless creation of products using a single machine and virtual reality will enable manufacturers to develop and test different scenarios related to product design, assembly line setups and other production aspects, before physical products are developed.

New technologies will increase market access, expansion, and create digital marketplaces. They will further facilitate the fragmentation and internationalization of production and services.

Online trade platforms enable small firms to trade and access new product-destinations at much lower costs. They enable firms to exploit economies of scale and

give rise to specialized online services like Travelocity, Amazon and Alibaba; digital goods such as eBooks; and the sharing economy like Airbnb and Uber. These developments enhance price transparency and intensify competition, generating consumer surplus.

Digital technologies are enabling new forms of innovation. Past innovation revolved around mass production, economies of scale, and centrally driven R&D. Increasingly, there is a profound shift to flexible production, diversification, networked and open innovation, sourcing talents globally, integration of disparate technologies, and collaboration in R&D among several actors, and economies of scale. Collaborative ICT tools have given rise to new models of sharing knowledge and collective production of ideas and innovations, which often bypass proprietary systems. The power of these tools is reflected in many massively produced knowledge products and infrastructures: the Linux ecosystem, Wikipedia, and open source software.

In low-income economies, manufacturing has traditionally been used as a first step towards economic transformation and generating employment. However, considering that many developing countries have yet to industrialize, digitalisation may not impact them to the same extent as their developed counterparts. At the same time, it is important to not underestimate the power of technology to bring about disruptive change.

What is clear is that inexpensive labor costs – something developing countries have traditionally offered to attract manufacturing – will be not as sought after as they used to be (some manufacturing factories will be re-shored back to the developed world). In the future, the more significant component will be a manufacturing location's ability to take advantage of new technologies. It will depend on 'digital-readiness' in terms of infrastructure and skills.

Nevertheless, the low level of development of the on-demand economy and lower barriers to entry in low-income regions will provide potential opportunity for creation of new businesses and jobs. Hence, the services that were once not intermediated can potentially, through further reductions in transaction costs, become marketable and create low-skilled service jobs.

There will also be multiple entry points into the global digital economy for firms from low-income regions. Size will not be the only determining factor of success; countries with small domestic markets, and/or few natural resources, may transform themselves into global technological leaders through strategic policy decisions (such as Singapore or Estonia). The emerging digital technologies will also lower the costs of coordination and trading, thereby strengthening global value chains and enabling smaller firms to access international markets.

It is important to stress that the **informal economy still comprises between half and three-quarters of all employment in developing countries**. It provides livelihoods and employment for a critical segment of the population, particularly women: **60% of working women in the developing world are in the informal sector**.

This can be viewed as an opportunity not to succumb to an obsession with digitalisation 'at any price,' but to revisit and reinvigorate the very DNA of the country, which is at first about communities, social responsibility, local support groups and local trad. **Available technology (digital or not) can be used to promote inclusive pro-poor innovation that would address the needs of those at the bottom of the pyramid;** (for example UPENERGY or SANERGY businesses in Africa) as well as help share indigenous knowledge and empower local innovators.

## 4.6. TRANSFORMING ENERGY

Stunning advances in data, analytics and connectivity are enabling a range of new digital applications in the energy sector. Digitalised energy systems will be able to identify who needs energy and then deliver it at the right time, in the right place and at the lowest cost. Digitalisation of energy systems is supporting the achievement of “energy for all” SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action). Access to modern energy will allow countries to confront the myriad challenges, such as poverty (SDG 1), food production and security (SDG 2), low levels of life expectancy and lack of access to essential healthcare services (SDG 3), delivering quality education (SDG 4), gender inequality (SDG 5), economic growth and employment (SDG 8) and sustainable industrialization (SDG 9).

		
<b>Relevant SDGs</b>	<b>Disrupting trends</b>	<b>Technologies to consider</b>
<ul style="list-style-type: none"><li>✓ SDG 7 + 13</li><li>✓ SDG 1-5</li><li>✓ SDG 8</li><li>✓ SDG 9</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy to optimize</li><li>✓ Greentech and electrification</li><li>✓ Internet of Things (smart meters)</li><li>✓ Smart Cities</li></ul>	<ul style="list-style-type: none"><li>✓ Sensors for capturing remote real-time data</li><li>✓ Mobile payments for electricity with new business models</li><li>✓ Decentralized renewable energy technologies</li></ul>

Digitalisation will impact both energy demand, and supply. On the energy demand side, transport will become smarter, more connected, safer and more efficient. In road transport, connectivity will enable new mobility sharing services. Combined with advances in vehicle automation and electrification, digitalisation could result in substantial energy and emissions reductions. However, depending on the interplay between technology, policy, and behavior, road transport energy use could either drop by about half or more than double.

In residential and commercial buildings, digitalisation may also significantly cut energy use. With the use of smart thermostats and sensors, efficiency gains

will be largest in heating and cooling. Smart lighting will allow for substantial cuts in electricity demand. However, new services and comforts brought about by digitalisation – such as energy from idle devices, appliances and datacenters – could offset potential savings.

In industry, digitalisation will lead to further energy savings with short payback periods through improved process controls within industrial plants. The introduction of more smart sensors to monitor various parameters, ranging from operating conditions to equipment status, will allow for the identification and diagnosis of system inefficiencies, thus increasing energy efficiency gains and yielding significant savings at little to no net cost.



On the power supply side, the range of available power generation technologies has expanded from a small set of designs, most of which burn fossil fuels, to nuclear, hydropower, bioenergy, solar, wind and geothermal – with solar and wind energy dominating future world electricity.

Digitalisation of power sector assets will represent another step in the process of technological innovation. Applied to the current structure and operation of power systems, the data and analytics components of digitalisation will provide a series of improvements: cost reductions for existing and new projects across all types of power generation, improving their technical performance and competitiveness. The deployment of digital technologies will enhance power systems' ability to integrate an increasing share of variable renewables.

Also, technologies that are critical for environmental sustainability might receive a significant boost from digitalisation. For example, each element in carbon capture and storage (CCS) could significantly benefit from advances in digital technologies. Furthermore, many cities could measure air pollution using static monitoring stations alongside a network of IoT by means of additional sensors added to vehicles or drones in air. Despite accelerated gains in energy efficiency, **the global energy demand will rise by 25 % and will be led by non-OECD countries, where electricity demand will nearly double between 2016–2040.** It will be due to improving living standards of the growing middle class but also due to gaining basic access to electricity for more than 1 billion people. The majority of those without access to electricity are in developing countries in Asia and in sub-Saharan Africa.

The poor and those without modern energy access are often the same and having access to modern energy is a necessary condition for poverty alleviation. For some poor households, a large share of their income is directed towards low quality and often expensive energy sources, such as kerosene and candles for lighting, mobile phone charging at retail stations and dry cell batteries for electricity. They also have limited options to meet their basic cooking needs, typically relying heavily on fuels and technologies which are inefficient, polluting and time consuming to provide and use.

New ICT enabled business models present opportunity to facilitate a significant increase in energy access. They can take advantage of improvements in technologies, including the declining cost of renewables, and improvements in energy efficiency. Combined with existing efforts, they could help accelerate progress at a scale that has the potential to transform access to electricity in the coming decade.

For example, instead of relying on traditional means of collecting payments (with high transaction costs and losses), electricity bills can now be paid by cell-phone through mobile money services. Energy supply companies can combine financial information with geographic and census data to identify new markets and to differentiate customers based on varying levels of service; thus allowing them to tailor the service to the customer's ability to pay.

ICTs can be deployed to reduce risks for suppliers and to facilitate after-sales service by tagging energy systems (such as solar PV panels and batteries) with sensors so that they can be tracked as they pass through distributors and are sold and installed. The sensors will capture remote real-time data about the equipment, enabling the provider to monitor performance and offer maintenance support.

The wide array of system designs – Off-grid, mini-grid, and on-grid solutions – will increase the number of pathways available to attain electricity access. Off-grid technologies (such as stand-alone solar home systems), mini-grids and energy efficient appliances can complement efforts to provide electricity access from grid expansion. Such decentralised systems can help fill the energy access gap in remote areas by providing electricity at a level of access that is currently too expensive to be met via a grid connection and in urban areas by providing back-up for an unreliable grid supply. A decline in the cost of decentralized renewable energy technologies, a rise in the availability of affordable energy efficient appliances and a boom in mobile phone ownership are cumulatively making Off-grid solar home systems the least-cost pathway to universal electricity access in some areas.

## 4.7. TRANSFORMING CITIES

A smart city uses new technologies to enhance its economic performance, citizen wellbeing, and to engage more effectively and inclusively with its citizens, businesses, and NGOs. It can positively impact SDG 11 (Sustainable Cities and Communities) but may have wider effects on all other SDGs as well – which are interlinked with city life.



 Relevant SDGs	 Disrupting trends	 Technologies to consider
<ul style="list-style-type: none"><li>✓ SDG 11</li><li>✓ Success of all 17 SDGs</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy</li><li>✓ Social innovations, start-ups</li><li>✓ Greentech</li><li>✓ Internet of things</li><li>✓ Smart Cities</li></ul>	<ul style="list-style-type: none"><li>✓ Sensor grid to measure real-time conditions</li><li>✓ Smart infrastructure to support smart urban policies</li><li>✓ Communication platforms for participation</li><li>✓ Cloud computing and Open Data</li></ul>

In cities of the future, sensor grids will be embedded into city infrastructures to measure real-time conditions throughout the city, optimize the use of existing infrastructures, ensuring responsive and efficient transport services. The resilience and sustainability of cities will be enhanced by optimizing the use of energy and natural resources, while monitoring the environmental changes and impact of all economic activities (sustainable resource management; flood control and natural disaster management). Cities will provide open and responsive local government, transparent financial management and online delivery of local services. Open data initiatives and citizen participation/feedback will boost innovation, access, and quality for municipal services. Digital transformation of local education and health systems will support cities' human resources development and competitiveness. Combined with smart urban policies and local regulations, new "smart" infrastructure will provide an attractive environment for innovative enterprises. Parts of these cities will become "living labs" – test beds to collaboratively pilot new ideas.

To make it simple, smart cities will collect lots of data, bring these data together, and then analyze the integrated data for intelligence on how to improve the city's services and quality of life. They will use this three-step approach to tackle issues such as traffic congestion, crime, and poor air quality.

But smart city is a fast-evolving concept and practice, it will require reconciliation of competing approaches towards city digitalisation (first is based on urban planning models and relies on a fully networked, automated and optimized city, driven by top-down control, via digital technologies and big data in the hands of city leaders and large IT and telecommunication companies. The other approach aims to evolve and shape cities from the bottom up, providing opportunities and tools for citizens to pool efforts and resources outside of government to solve urban problems with smart solutions. It relies on distributed innovation and celebrates open source software, civic commons, social media, open data, mobile computing, community networks, crowdsourcing, geo-mapping, peer-to-peer and collaborative technologies, and apps contests and hackathon events).

Cities in the developing world will also strive for economic growth and improved living conditions, but their capacity to do so will vary wildly.

The urban population of the developing world is expected to double between 2000 and 2030, adding 2 billion city dwellers. The fastest increase is expected to occur among megacities hosting over 20 million inhabitants.<sup>20</sup>

**In 2015, 828 million people lived in slums, lacking basic services such as drinking water and sanitation, that figure increases by 6 million people every year<sup>21</sup>.**

Smart City initiatives will help cities to overcome the limitations of traditional urban development that tends to manage urban infrastructure systems in silos. By leveraging the pervasive character of data and services offered by digital technologies, such as Cloud Computing, the IoT, or Open Data, they will help to connect different city stakeholders, improve citizen involvement, offer new and enhance existing services, and provide context-aware views on city operations.

A better use of technology could help developing countries make a quantum leap forward. An advantage

the developing world has over the developed world is being unencumbered by aging infrastructure that needs to be rebuilt – a lot can be built from scratch and built better. Developing countries may also learn from the mistakes of their developed counterparts (for example cities, where nearly all population travel by car) and build compact, dense cities which are sustainable for the people. Smart cities of the future will raise social stability by lowering inequalities and unemployment, tackle air and water pollution, traffic congestion, and urban violence and crime.

An effective smart city approach will balance top-down strategic directions, coordination across sectors, investments in citywide infrastructures with bottom-up community initiatives, innovations, and participation – led and owned by the municipal government, local businesses and cooperatives, local NGOs and think tanks. It aligns the city's digital strategy with the city's strategic goals and citizen's preferences via open consultations, intensive interactions, and proactively sought feedbacks. It will empower citizens and employees to collaborate and co-create to solve city problems.

## 4.8. TRANSFORMING GOVERNMENTS

ICT provides powerful tools to transform the way state governments work and relate. It enables them to become a platform for open data and innovation. E-Government is defined as the use of ICT in government to provide public services, improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society. Its successful implementation in the world will contribute to fulfill targets of SDG 16 (Peace, Justice and Strong Institutions) but also to meet other SDGs since good governance and human rights fulfilment is a cross-cutting issue and prerequisite for fulfilling every single SDG.

		
<b>Relevant SDGs</b>	<b>Disrupting trends</b>	<b>Technologies to consider</b>
<ul style="list-style-type: none"><li>✓ SDG 16</li><li>✓ Success of all 17 SDGs</li></ul>	<ul style="list-style-type: none"><li>✓ Data economy for better policy and services</li><li>✓ Social media and fake news</li><li>✓ eGovernment</li></ul>	<ul style="list-style-type: none"><li>✓ Participatory platforms and Open Data</li><li>✓ eID</li><li>✓ Cloud computing and Open Data</li></ul>

The vision for future governments consists of capturing cutting-edge practices in reforming public sector agencies: results-based management, putting citizens at the center, and delivering service on demand. They will reflect citizen aspirations for transparent, accountable, and participatory government. There are several types of e-Government based on using ICT to facilitate relationships between government and other key stakeholders. The types of relationships are with citizens (G2C – Government-to-Citizen), business (G2B – Government-to-Business), other governments (G2G – Government-to-Government), and employees (G2E – Government-to-Employees)<sup>22</sup>.

Customers (citizens and businesses) will become the center of all activity performed by agencies (customer centered government). Government services will be available when, where, and through whatever medium

the citizen or the business demands and requires. One-stop service centers, or customer-centric portals, will reduce transaction costs and help citizens and businesses access basic public services such as taxation, licenses, permits, certificates, and land titles.

Governments will strive for greater efficiency and resource management by simplifying and reengineering their processes. They will adopt common business processes across agencies based on user needs. This will involve front-office processes such as a shared call center, and a common portal for online contact with businesses or citizens with a single online authentication system. They may also cover shared back-office processes, such as common procurement, financial management, and human resources management. Key databases will be shared across the government so that basic data will be used and reused throughout the

public sector. Standardized infrastructure components will facilitate cross-sectorial partnerships to achieve flexibility and fast deployment.

The use of ICT will streamline administrative procedures and reduce transaction costs between business and government. E-registration, e-reporting, online investment promotion, ICT-enabled business support services, e-tax, e-procurement, e-customs will be tools of intelligent governments.

Citizens will strive for transparency, accountability, and participation in governance. ICT applications will enable citizen feedback, make public procurement open and transparent, utilize social media, and facilitate information sharing on budgets and financial performance. Dashboards that capture key performance indicators (KPIs) will help track decisions and outcomes and engage citizens in policy development and implementation. Government policymaking and knowledge management will gain significantly from the emergence of big data, analytics, open data and rapidly growing mobile apps.

Most developing countries are less ready to provide e-Government services compared to developed countries. Poor public services, unmet basic needs, fragile democracies, weak governance, major divides, widespread information poverty, viewing technology in a deterministic fashion (expecting that the technology can solve the problems of the organisation), and a lack of critical resources present significant barriers to the adoption of e-Government. In many poor countries, public services are exclusively available to the wealthy and the urban middle class. Whichever public services are offered, they are of poor quality, provided inefficiently at high costs, and are a major source for bribery and corruption. The budget pressures are more acute and are caused by additional factors such

as fast-growing populations, nascent social protection systems to compensate for economic volatility, and global competition for foreign direct investment (FDI) via tax reductions and the drying up of traditional sources of revenue such as tariffs. As transformational changes are inherently riskier, and benefits take time to realize (typically beyond electoral cycles), there is often a bias toward the status quo.

**But developing countries have the latecomer advantage to learn from early pioneers and to avoid costly mistakes**, as in the case of smart cities or other sectorial areas. m-Government will be best suited for the developing world, which has low access to computers but nearly ubiquitous mobile phone penetration. They may have to focus first on services that have the most impact or value for users and government. The poor, and those most dependent on public services, are among the least able to access and use online services. A customer-oriented e-Government approach will therefore require the definition of potential users, learning what they want from services, and what they can do (and would be motivated to do) online or through other channels of delivery. Experience from e-Government programmes in developed countries shows that citizens and businesses strongly prefer joined-up services through single windows or portals organized around their needs/ "life events."

**ICT adoption in the public sector must be combined with complementary investments in human capacity, institutional practices, and policy reform.** This transformation is a complex and demanding task. A well-sequenced and prioritized series of e-government initiatives, complemented with public sector reforms and aligned incentives among stakeholders, can encourage the necessary learning, momentum and commitment to overcome barriers and resistance to change.

# 5. IS DIGITAL4DEVELOPMENT BECOMING MAINSTREAMED?

## DIGITAL “GREAT GAME”

Digitalisation will determine the future of our society, which governments are now aware of and they are starting to how to embrace it. The European Union (EU) is facing a strong competition in digitalisation. Its main competitors – the USA and China – are, unlike the EU, both firmly determined to take the global lead. China is determined to incorporate digital sectors like telecommunications, IoT infrastructure, and e-commerce into “digital silk road”

within the China’s Belt and Road Initiative. Compared to the US and China, the EU’s long-term strategy in digitalisation called Digital Europe arrived late. However, the EU as the largest aid donor, is well positioned to introduce the rules and standards of the European Digital Single Market to developing countries. The global struggle for the shape of the impact of digitalisation will significantly affect the form of development cooperation.

## MAINSTREAMING DIGITAL TECHNOLOGIES AND SERVICES INTO EU DEVELOPMENT POLICY

It is only very recently, since 2016, that the EU has started working on its strategic approach towards digitalisation for development, so called “Digital4Development” (D4D). In fact, the EC follows Member States’ (MS) interest in the area and is currently within a mapping phase which allows development CSOs to get involved at the very formative stage of policy-making process – including in the debate on the objectives, priorities and measuring/indicators. In November 2016, the Council adopted the Council Conclusions on mainstreaming digital solutions and technologies in EU development policy;<sup>23</sup> a year later, Council Conclusions on Digital for Development.<sup>24</sup>

The new European Consensus on Development<sup>25</sup> from 2017 includes digitalisation mostly from the opportunities side, however, it neglects to address the potential threats which are already known such as the job losses during the shift to a digital economy. Around the same time as the EU Consensus on De-

velopment was adopted, the Commission adopted a Staff Working Document: “Digital4Development: mainstreaming digital technologies and services into EU Development Policy”<sup>26</sup> which serves as a strategy to mainstream digital technologies into EU development policy, contributing to the achievement of the SDGs (implementation of the par. 57 of the Consensus).

Current priority areas of the EU D4D framework are: 1) broadband connectivity, 2) digital literacy and digital skills, 3) digital entrepreneurship, 4) application of digital technologies (including e-government). The focus region is Africa and the main platform for D4D being the EU-African Union policy forum. The central debate is on the Digital Single Market’s alternative for Africa through its development cooperation, the EU could support Africa in creating a regulatory environment that promotes competition and protection of end-user’s rights in the digital economy.

## WHERE IS CIVIL SOCIETY IN THE EQUATION?

The EU, within D4D, addresses the challenges such as free flow of data, net neutrality and cybersecurity. However so far, it fails to address the impact of artificial intelligence, automation of jobs, and the monopolies of the digital global platforms such as Google, Facebook, Amazon, Apple or Chinese ones like Alibaba. The whole concept strongly supports “Made in Europe” solutions and the implementation is planned mainly via big private companies that are active in Europe such as Orange, SAP and IBM. These companies and European countries active in D4D have managed to create more than 400

local hubs and accelerators that support local entrepreneurs. However, the role of CSOs in D4D is still unclear as well as how to effectively engage SMEs what was confirmed during the “multi-stakeholder” event on D4D organised by DG DEVCO on April 24 in Brussels. CSOs were significantly underrepresented and discussion on D4D potential for the implementation of SDGs was centred on issues of financing, needs for stronger engagement of private sector in achieving inclusive and sustainable growth in developing countries and reaching prosperity through investment and trade.

**Digitalisation is not only about the private sector or governments. An adequate inclusion of the civil society/ CSOs and creating their ownership as one of the key end users of the benefits, but also the ones that will face the impacts of digitalisation is needed. This report argue that now is the right time for civil society to make a significant contribution to this discussion and bring the civil voice into the debate.**

## SOURCES

1. The World Bank. (2016). *World Development Report 2016: Digital Dividends*. The World Bank. <http://www.worldbank.org/wdr2016>
2. The Economist, Nov 9th 2017, *What technology can do for Africa*, <https://www.economist.com/special-report/2017/11/09/what-technology-can-do-for-africa>
3. *Should developing countries fear the impact of automation on jobs?* Author: Sher Singh Verick, ANU and ILO, East Asia Forum, <http://www.eastasiaforum.org/2017/11/13/should-developing-countries-fear-the-impact-of-automation-on-jobs/>
4. UNIDO. (2018). *The belt and road initiative: Industry4.0 in sustainable and smart cities*. [https://www.unido.org/sites/default/files/files/2018-03/Unido\\_BRI\\_summary\\_web.pdf](https://www.unido.org/sites/default/files/files/2018-03/Unido_BRI_summary_web.pdf)
5. [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/HRC/32/L.20](http://www.un.org/ga/search/view_doc.asp?symbol=A/HRC/32/L.20)
6. See <https://www.opengovpartnership.org/>
7. See <https://id2020.org>
8. See <https://algorithmwatch.org>
9. *CIVICUS State of Civil Society Report 2018*
10. Concord (2018), *Analysis and recommendations on the promotion of civic space and enabling environment in EU external action*. [https://concordeurope.org/wp-content/uploads/2018/03/CONCORD\\_PolicyPaper\\_CivicSpace\\_03.2018.pdf?864408&864408](https://concordeurope.org/wp-content/uploads/2018/03/CONCORD_PolicyPaper_CivicSpace_03.2018.pdf?864408&864408)
11. See <https://digitalprinciples.org/principles/>
12. The World Bank. (2016). *World Development Report 2016: Digital Dividends*. The World Bank. [http://documents.worldbank.org/curated/en/896971468194972881/310436360\\_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf](http://documents.worldbank.org/curated/en/896971468194972881/310436360_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf)
13. Greer, S. et al. (2017). *Civil society and health: Contributions and potential*. *European Observatory on Health Systems and Policies*. <https://www.ncbi.nlm.nih.gov/books/NBK459034/>
14. The World Bank. (2016). *World Development Report 2016: Digital dividends*. The World Bank. [http://documents.worldbank.org/curated/en/896971468194972881/310436360\\_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf](http://documents.worldbank.org/curated/en/896971468194972881/310436360_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf)
15. The World Bank. (2016). *World Development Report 2016: Digital dividends*. The World Bank. [http://documents.worldbank.org/curated/en/896971468194972881/310436360\\_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf](http://documents.worldbank.org/curated/en/896971468194972881/310436360_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf)
16. The World Bank. (2016). *World Development Report 2016: Digital Dividends*. The World Bank. <http://www.worldbank.org/wdr2016>
17. Institute of Medicine (IOM). (2011). *Digital infrastructure for the learning health system: the foundation for continuous improvement in health and health care*. In: Grossman C. et al. *The foundation for continuous improvement in health and health care workshop series summary*. National Academies Press. <https://www.ncbi.nlm.nih.gov/pubmed/22379651>
18. DIGITAL DIVIDENDS, 2016, World Bank flagship report, <http://documents.worldbank.org/curated/en/961621467994698644/pdf/102724-WDR-WDR2016Overview-ENGLISH-WebResBox-394840B-OUO-9.pdf>
19. World Bank, *The Global Findex Database 2017*, <https://globalfindex.worldbank.org/>
20. The World Bank. (2016). *World Development Report 2016: Digital dividends*. The World Bank. [http://documents.worldbank.org/curated/en/896971468194972881/310436360\\_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf](http://documents.worldbank.org/curated/en/896971468194972881/310436360_201602630200217/additional/102725-PUB-Replacement-PUBLIC.pdf)
21. Lopes, N. (2016). *Smart Sustainable Cities: Reconnaissance Study*. *United Nations University Operating Unit on Policy-Driven Electronic Governance*. <https://unu.edu/projects/smart-cities-for-sustainable-development.html>
22. Gant, P. (2008). *Electronic Government for Developing Countries*. ITU. [https://www.itu.int/ITU-D/cyb/app/docs/e-gov\\_for\\_dev\\_countries-report.pdf](https://www.itu.int/ITU-D/cyb/app/docs/e-gov_for_dev_countries-report.pdf)
23. Council of the European Union. (2016). *Council Conclusions on mainstreaming digital solutions and technologies in EU development policy*. European Union. <http://www.consilium.europa.eu/media/24221/st14682en16-dsat.pdf>



24. Council of the European Union. (2017). *Press release – Council adopts conclusions on digital for development. European Union.* <http://www.consilium.europa.eu/en/press/press-releases/2017/11/20/council-adopts-conclusions-on-digital-for-development/pdf>
25. European Commission. (2018). *European Consensus on Development.* European Union. [https://ec.europa.eu/europeaid/policies/european-development-policy/european-consensus-development\\_en](https://ec.europa.eu/europeaid/policies/european-development-policy/european-consensus-development_en)
26. European Commission. (2017). *Commission Staff Working Document – Digital4Development: mainstreaming digital technologies and services into EU Development Policy.* European Union. [https://ec.europa.eu/europeaid/sites/devco/files/swd-digital4development\\_part1\\_v3.pdf](https://ec.europa.eu/europeaid/sites/devco/files/swd-digital4development_part1_v3.pdf)

# LIST OF ABBREVIATIONS

AFD	French Development Agency / Agence Française de Développement
AI	Artificial Intelligence
API	Application Programming Interface
AU	African Union
CCS	Carbon Capture and Storage
CSO	Civil Society Organisation
D4D	Digital for Development
DC	Development Cooperation
DG CONNECT	Directorate-General for Communications Networks, Content and Technology
DG DEVCO	Directorate-General for International Cooperation and Development
DSM	Digital Single Market
EC	European Commission
EFSD	European Fund for Sustainable Development
EIP	External Investment Plan
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GIZ	German Society for International Cooperation, Ltd.
ICT	Information and Communication Technologies
ID	Identity Document
IIoT	Industrial Internet of Things
IoT	Internet of Things
IT	Information Technology
ISP	Internet Service Provider
KPI	Key Performance Indicator
LDCs	Least Developed Countries
MFF	Multiannual Financial Framework
MOOC	Massive Open Online Course
MS	Member State
MSMEs	Micro, Small and Medium Enterprises
NGO	Non-Governmental Organisation
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
SDGs	Sustainable Development Goals
UBI	Universal Basic Income
UN	United Nations









**Development is going digital**  
2018

Alistiq s.r.o  
[www.alistiq.com](http://www.alistiq.com)  
Enquires about publication  
[info@alistiq.com](mailto:info@alistiq.com)