Study

Digital for Development – an analysis from a geopolitical perspective

The EU's digital development approach in light of competing models from the US and China

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The EU's digital development approach in light of competing models from the US and China

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Berlin, October 2021

Executive Summary

The digital transformation reaches almost every corner of the world and poses new opportunities and challenges for international development cooperation. Development cooperation today can utilize a large variety of digital technologies and data to improve their work and facilitate digital development in partner countries, e.g. building digital literacy and supporting digital transformation in public administrations. However, they also need to understand the broader implications and challenges of digital technologies and develop adequate approaches and programmes to support and accompany the digital transformation in their partner countries.

In a networked world, the digital development process of a country is interdependent – though to varying degrees and in differing ways – with trends and dynamics on the global level. More specifically, the rivalry between the US and China on various and, in particular, technological issues is affecting countries worldwide. Development cooperation in areas related to digital transformation is situated in this broader and complex context of digital geopolitics. As a means of foreign policy and for shaping international partnerships, it is therefore not neutral or free of the self-interests of the donor. A key question is therefore how digital development cooperation can succeed in a way that strengthens the digital sovereignty of partner countries in the Global South and puts their development priorities first.

Competing digital economy models

Two distinct approaches, the US market-centred, liberal model and the Chinese state-led model, have dominated the development of the global digital economy over the past decades. China's digital development model is built on a strong role of the state in developing a thriving domestic tech industry, fostering its success abroad as well as protecting the industry at home against foreign competition. China is an advocate of strong data localisation rules, which it understands as a matter of both economic development as well as national security. With the Belt and Road Initiative as well as the Digital Silk Road, it is expanding its trade and foreign relations and increasingly shapes international discourses on digital policy issues and technical standard setting, for example in the area of 5G technology, but also artificial intelligence. China is very active in countries of the Global South, particularly in Africa, where it has become the main supplier of telecommunications infrastructure and technologies, including those that can be used for surveillance.

The US is leading in the global development of digital technologies as well as in the platform economy. This frontrunner position is built on an efficient research and innovation ecosystem as well as a market-liberal approach supporting a quick commercialisation of digital innovations. US tech companies, such as Google and Facebook have been active in developing digital infrastructures in several developing countries. Moreover, the Silicon Valley success story has shaped the notion of entrepreneurship and start-up ecosystems in many developing countries. However, overall, the US has long had a blind spot on digital development issues in the Global South, in particular in Africa. In the light of the competition with China, it is now stepping up its efforts. With the Better Utilization of Investments Leading to Development (BUILD) Act, signed in 2018, it has created a new development finance corporation with a budget of USD 60 billion and digital technologies as one focal area. Besides, in April 2020, USAID launched its first Digital Strategy. The strategy aims to improve the use of digital technologies and tools within the agency itself, strengthen its digital capacities and foster the development of sound digital ecosystems in partner countries. This also includes spreading US digital policy approaches, for example

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with regard to 5G technology, by providing technical assistance and advice. With the G7 initiative Build Back Better World, the US has also taken a step to counterbalance China's Belt and Road Initiative.

In recent years, the European Union (EU) has emphasised its aspiration to strengthen its digital sovereignty and to play a more active geopolitical role. Among other things, the EU is making great efforts to position itself as a player with an alternative approach to shaping the digital economy and society, sometimes referred to as "European Third Way": with a regulatory, human-centred approach, the EU combines a market economy model with a normative orientation underscoring, in particular, the protection of the individual's data and privacy rights. The EU increasingly sees its activities as a counterweight to China's growing influence. Its "Global Gateway" connectivity strategy, launched in September 2021, is the latest example of this.

The EU and its member states promote their human-centred approach to digital transformation in the international and development cooperation with their partner countries. The EU's approach to digital development has become more and more pronounced since 2017, but still lacks a clear strategy and substantial funding. Currently, the EU's digital development activities are programmed with around EUR 5 billion with the EU D4D Hub focussing in particular on African partner countries. However, the EU aims to strengthen its digital development cooperation in Latin America – with the BELLA programme being a first step – as well as with the Asia-Pacific region, where India is one of its most important partners. Furthermore, it remains to be seen if the EU's digital development cooperation can fit the needs and expectations of the rapidly developing and growing regions in the Global South eager to catch up in the digital transformation.

Ways forward

For shaping and developing its external relations on digital policy issues, the experience the EU has gained in recent years in regulating the digital transformation can be an important asset. Partner countries from the Global South have noticed these developments and many of them are interested in cooperation. The EU should develop a clear strategy for its digital development cooperation with these partners in the Global South, including the promotion of interoperability, common standards and data markets, a human-centred digital governance approach, as well as the development and implementation of adequate funding mechanisms. In addition, the EU and particular member states with large-scale development cooperation programmes such as Germany and France need to strengthen capacities and knowledge resources on digital development issues and improve their coordination. Furthermore, there is great potential for deepening and broadening cooperation between like-minded countries in the Global South and the EU, for example on issues of data protection, a fair digital and data economy and cybersecurity. The EU should particularly support African countries in their digital development efforts and strengthening their digital sovereignty. In addition, the EU should intensify its dialogue with countries such as Brazil, India and Mexico on digital policy issues. With China and the US, the EU should seek exchange and dialogue on common interests and possible synergies, while also addressing problematic aspects, be it data protection, individual privacy and human rights in cyberspace, or a fair distribution of the benefits of the global digital economy.

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1   Introduction

The international community stands at crossroads to determine whether the global digital economy will become inclusive, fair, and sustainable and allow for equal development chances for all. As both the World Bank (World Bank 2016) and UN Conference on Trade and Development (UNCTAD 2019) have noted, the current digital economy landscape is characterised by stark imbalances and inequalities between countries leading in digital development and those lagging behind.

Two digital economy models, the US market-centred, liberal model and the Chinese state-led model, have dominated the shaping of the global digital economy over the past decades. However, more recently, the European Union (EU) makes strong efforts to position itself as a player with an alternative approach, sometimes referred to as 'European Third Way': by promoting a regulatory, people-centred approach, the EU combines a market-based model with a normative orientation that emphasises in particular the protection of individuals' data and privacy.

The EU and its member states are promoting this approach to digital transformation in international and development cooperation with their partner countries. However, it remains to be seen whether this approach can compete with the offerings of the US and China, which have also expanded their activities and investments in digital development in countries of the Global South. The key question will be which model seems most promising to partner countries in the Global South to best meet their needs, goals and expectations.

Aims of the study

Against this backdrop, the study aims to understand the geopolitical setting for the EU's digital development cooperation in key regions of the Global South, particularly Africa, Latin America, and the Asia-Pacific region. For this purpose, the study provides an overview of key geopolitical issues and developments relevant to understanding the broader context for digital development cooperation. It outlines the key characteristics of the digital development models of the US, China and the EU and provides an overview of the distinct approach to digital development cooperation they go along with. On this basis, the study aims to provide novel impulses for advancing the EU's development cooperation on digital transformation and policy issues. It furthermore points to challenges, needs for action as well as potential focal areas for future activities.

In brief, this study aims to address the following key questions:

- What is the connection between development cooperation and geopolitical aspects of digital transformation?
- How do China, the US and the EU promote and engage in digital development in different world regions? What are the differences and commonalities in their approaches?
- What are the challenges and opportunities of the EU's approach to digital development cooperation?
- Which conclusions can be drawn from this assessment for the digital development cooperation of the EU?

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Structure

The study is structured as follows: The chapter following this introduction explores the relationship between development cooperation and digital geopolitics. It also addresses asymmetries between actors in digital geopolitics and their implications for development cooperation. Chapter 3 outlines key issues in digital geopolitics that play an important role in digital development cooperation, as they influence the framework for action and entail specific needs and requirements for development cooperation. The following chapters 4, 5 and 6 focus on China, the US and the EU respectively. Each chapter briefly outlines the underlying digital development model, recent trends relevant to digital development cooperation, and how these actors are working towards digital development in Africa, Latin America and the Asia-Pacific region. The study closes with chapter 7, which outlines options and needs for action for the EU's digital development cooperation with its partner countries.

Methodological approach and sources

The study builds on a comprehensive desktop literature research, including scientific peer-reviewed papers and grey literature, such as reports from international organisations, international consultancy companies, and other academic and non-academic resources such as news articles. Furthermore, the study draws on available data sets on official development assistance (ODA) and digital development projects.

The nexus of digital geopolitics and digital development is a dynamic field, and much data and information are often not published yet or remains undisclosed. To complement the picture that can be drawn from the available literature, the study team organised two virtual roundtables with academia, civil society, businesses and decision-makers from the digital ecosystem, one on a German national level and one on a European level, to present and discuss their findings. The insights generated in these two discussions and several background discussions with (digital) development professionals, both national and international, were included in the final version of the study. In addition, the author team conducted a small number of background interviews on individual aspects that are discussed in this study.

2 Development cooperation in a networked world

Key take-aways

- There has been a conceptual shift from *ICT for development* to *digital development*, acknowledging the broader systemic implications of digital transformation that affect both developing and developed countries.

- Development cooperation is not neutral, but needs to be seen in the context of foreign and economic policies. It is an instrument to promote domestic interests and to shape international relations.

- Development cooperation on digital issues takes place against the backdrop of a complex and increasingly conflictual geopolitical environment which is particularly characterised by the systemic rivalry between the US and China.

- As competition over the dominant model of digital economy and society rises, the risk increases that the needs and aspirations of developing countries and emerging economies are not adequately addressed and that the digital divide further widens.

The digital transformation reaches almost every corner of the world and poses new opportunities and challenges for international development cooperation. Development organisations today can choose from a large variety of digital technology and data to improve their work – but they also face the need to build their own skills and capacities to apply these tools effectively. Furthermore, new topics and fields of activity open up, e.g. building digital literacy and supporting digital transformation in public administrations in partner countries. However, development agencies also need to understand the broader impacts and challenges of digital technologies and develop appropriate approaches and programmes to effectively support partner countries in their digital transformation processes according to their needs and aspirations.

2.1 Shifting concepts from ICT4D to digital development

Since the mid-1990, spurred by the spread of the internet and mobile phones, the role of information and communication technologies (ICTs) in development cooperation gained momentum. In light of the Millennium Development Goals, which pushed development higher on the international agenda, ICTs became a useful tool for development cooperation (Heeks 2009). As Richard Heeks, Professor of Digital Development at the University of Manchester, noted: "The digital technologies of the 1990s, then, were new tools in search of a purpose. Development goals were new targets in search of a delivery mechanism" (Heeks 2009, 3).

Under the acronym of ICT4D (ICT for development), many projects and initiatives were launched to bring connectivity, digital devices, and technological literacy to especially the most vulnerable groups

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of society in countries of the Global South. Especially in the education, agriculture and health sectors, development organisations rushed to use the internet and mobile apps. Despite success stories, in many cases, this trend led to the development of various parallel, often incompatible and, in a worst-case, useless or even harmful 'digital solutions'. In 2012, this *pilotitis* (Huang, Blaschke, and Lucas 2017) caused the Ministry of Health in Uganda to issue a moratorium on mobile health interventions (mHealth or e-health), demanding the coordination and harmonisation of e-health interventions as well as their sustainability, interoperability and approval by the ministry (McCann 2012).

Experiences like these led to the development and launch of the Principles for Digital Development in 2015. The principles not only stand for a learning process in international development cooperation on how to (not) use digital technologies in development interventions. They also contributed to a shift from the ICT4D paradigm to the concept of digital development (Heeks 2016).

A global perspective on digital development

Digital development takes a much broader and systemic view on the impact of digital technologies and related transformation processes on economies and societies. Digitalisation is a complex design task that needs courageous action and careful consideration at the same time to turn into a real enabler for social and economic development. Moreover, a successful digital transformation needs high investments in new infrastructures and skills and the analogue foundations of development, such as health, good governance, education, and policies that foster the private sector (World Bank 2016). Given these huge requirements, digital development cannot be achieved and shaped by policy-makers alone. As a whole-society process, it needs the combined effort and critical interaction of politics, businesses and civil society.

Besides, digital development is a concept that does not apply exclusively to the so-called *developing countries*. It is part of a general shift towards understanding *global development* as international development framing, acknowledging that the distinction between developed and developing countries becomes increasingly obsolete (Horner 2020). The digital transformation requires digital development efforts also from industrialised, 'developed' countries – many of which were made painfully aware of their own deficiencies in digitalisation during the COVID-19-pandemic – whether in government services, education or the health sector. Building digital infrastructures, developing the necessary skills and capacities of individuals, businesses and institutions to deal with digital change, identifying suitable approaches to regulate the digital economy to raise benefits and mitigate its downsides are challenging tasks for every country in the world – even the so-called 'frontrunners' or hyper-digitalised countries.

In a networked world, the digital development process of a country is furthermore interdependent – though to varying degrees and in differing ways – with trends and dynamics on the global level. As researchers have noted, the issue of connectivity – of which digital connectivity is only one element aside from, e.g. connectivity through trade and investments – has taken a "geopolitical turn" (Godehardt and Postel-Vinay 2020, 1) over the past years. More specifically, the strategic rivalry (Lippert and Perthes 2020) between the US and China on various and, in particular, technological issues is affecting countries worldwide. As on commentary put it: "These developments point to the fact that digital systems are just as much tools for foreign policy and political influence as they are for innovation and economic growth" (Pisa and Nwankwo 2020).

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2.2   Digital geopolitics

"The old conceptual maps of geopolitics do not work in a world of speeding flows, instantaneous information, and proliferating techno-scientific risks."

(Tuathail 1999, 108)

The concept of geopolitics is always bound to the time and context it is used in (Tuathail 1998). Originally understood as "the geographical influence on the behaviour of states" (Tunander 2001, 457), this rather narrow view had increasingly been challenged after the end of the Cold War. Globalisation, the spread of the internet and the ubiquity of information and communication technologies (ICTs) turned the world into the "global village" (McLuhan 1962) that had already been debated in the 1960s and spurred the development of a new understanding of *spaces* as results of human interactions. The globalised production and consumption networks, mega-infrastructures such as pipelines and telecommunication infrastructures, as well as challenges and risks that transcend national borders – such as climate change – raised the awareness of the complex interdependencies between states.

In recent years, *digital geopolitics* has emerged as an umbrella term for a wide range of political conflicts, trends, and developments related to the global digital transformation, particularly regarding the rivalries between the two digital forerunners USA and China. As a rather broad concept, there is currently no generally accepted definition of digital geopolitics. In this study, digital geopolitics refers to the **power politics of states to pursue their interests, maintain and expand their sovereignty and security, and extend their influence** in a territorially (largely) delimited and highly i**nterdependent world** networked by digital infrastructures, technologies, platforms and data streams.

The notion of digital geopolitics bounds together two rather opposing developments: that of increasing power politics of nation-states as territorial units in matters related to the digital transformation and that of decentral and transnational networks that dissolve territorial boundaries (Bendiek, Godehardt, and Schulze 2019). The digital geopolitics of states use various instruments to shape the drivers and elements of a digitally networked world, including economic and trade policies, innovation and technology policies, and classical means of foreign policy.

Digital geopolitics is characterised by conflicts and tensions arising from nation states' efforts to establish, expand and protect their digital sovereignty and the nature of digital transformation processes challenging, obstructing and necessitating these efforts at the same time. On the international level, this inherent conflict manifests in disputes and growing tensions over issues such as the future of the internet and its increasing fragmentation, leadership in key technologies, the preservation of digital or data sovereignty of states, cybersecurity issues as well as the localisation of data to reap the benefits of the data economy.

2.3   Power imbalances deepen the digital divide

In the 2016 World Development Report, the World Bank noted a persistent and multi-faceted digital divide, with large disparities in internet usage being only one symptom of it (see Figure 1). The report stated that despite many positive outcomes, the overall effects of digitalisation have lacked far behind expectations concerning raising global productivity, improving opportunities for the middle classes and

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the poor and increasing the accountability of governance (World Bank 2016, 2). In 2019, the UN Conference on Trade and Development (UNCTAD) complemented this analysis. It drew attention to the fact that the global digital economy is dominated by two countries, namely the US and China (UNCTAD 2019). The report states: "Digital divides, differences in readiness and the high concentration of market power in the digital economy all point to the need for new policies and regulations that will help create a fairer distribution of gains from the ongoing process of digital transformation. This will not be easy" (UNCTAD 2019, XX). This finding was highlighted again in the UNCTAD Digital Economy Report 2021, which underlines the dominant position of US and Chinese technology companies in the global data economy (UNCTAD 2021).

Figure 1: Proportion of individuals using the internet by region and development status, 2019
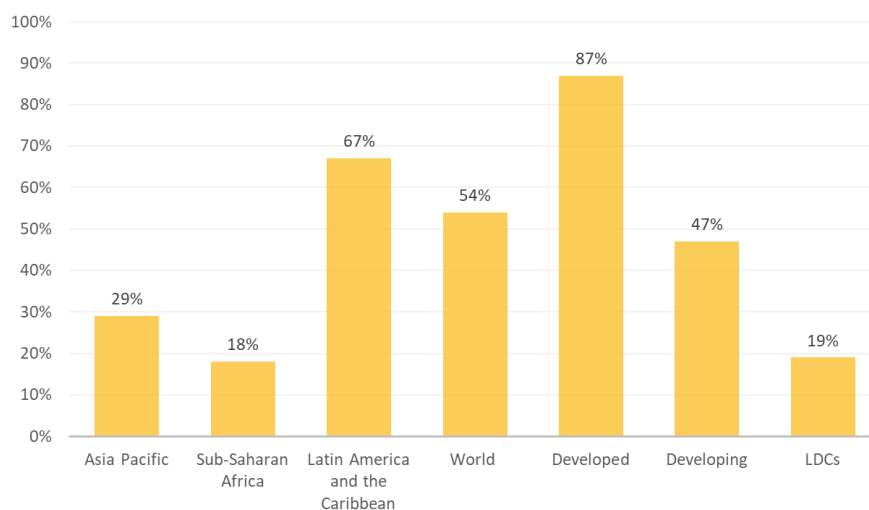
Source: United Nations Statistics Division. 2021. "SDG Indicators - United Nations Global SDG Database." Accessed June 17, 2021. https://unstats.un.org/sdgs/indicators/database/. Values for Asia Pacific (aggregate of Southern and South East Asia) derived from recalculation based on data for subregions.

Developing and many industrialised countries alike find it hard to keep pace with the US and China and struggle with their dependence on the technologies and digital services provided by companies of these two countries (see Figure 2). Yet, the possibilities of countries to deal with these power imbalances vary significantly. The EU, for example, uses its economic power and the fact that it is one of the largest markets for ICT and digital services to shape the rules for the digital economy on its territory and beyond – with the General Data Protection Regulation (GDPR) being the most prominent example.

India, a country with nearly 1.37 billion inhabitants in 2019 (UNPD 2019) and a rising digital market, has also made a strong case for its digital sovereignty in recent years. In July 2020, for example, the country banned 59 Chinese apps on the grounds that they undermine its data sovereignty and the protection of its citizens' data (PTI 2020). Many countries in the Global South, especially those endowed with large and young populations and favourable economic prospects, find themselves in a dilemma: on the one hand, being promising markets, they have some bargaining power vis-à-vis tech

companies and donors. On the other hand, lacking own significant financial resources, research and innovation capacities and a strong private sector, these countries depend significantly on foreign investments in their digital infrastructure and businesses. This makes them vulnerable to pitfalls and disadvantageous contracts. For example, a recent study on China's foreign lending to 24 developing countries in various world regions revealed that Chinese lending contracts, amongst others, comprise strict confidentiality clauses and could potentially be used as levers to influence domestic and foreign policies of debtors (Gelpern et al. 2021).

Figure 2: Distribution of value added in ICT manufacturing by country
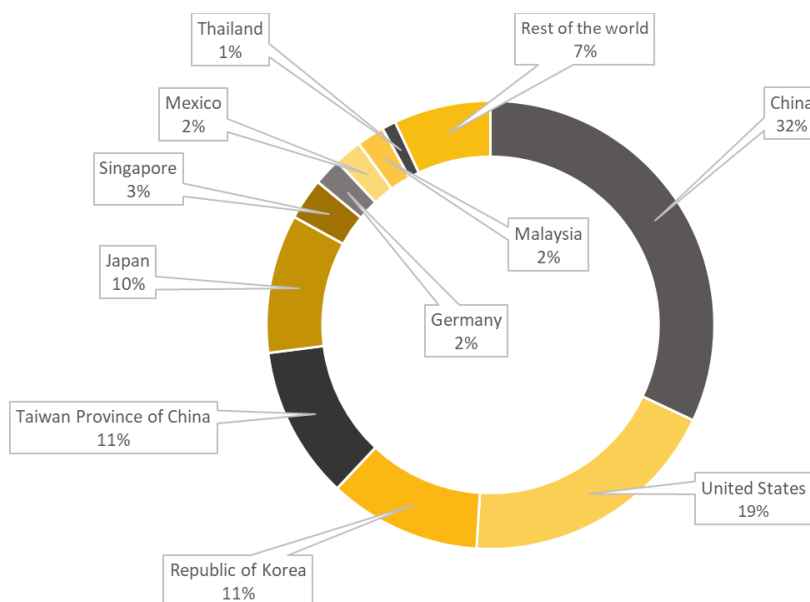
Based on data from 2017.

Source: UNCTAD. 2019. "Digital Economy Report 2019. Value Creation and Capture: Implications for Developing Countries." Accessed April 14, 2021. https://unctad.org/system/files/official-document/der2019_en.pdf, 54.

Besides, countries of the Global South are underrepresented in international and regional institutions and fora shaping the global digital and data economy. This increases the risk "of neglecting their needs, local knowledge and the cultural context in the global policy discussions, which results in increasing inequality" (UNCTAD 2021, XX).

The digital divide, therefore, goes far beyond gaps in infrastructure and internet access. More and more, it needs to be understood in terms of countries' capacities to shape their own digital development, guard their digital sovereignty and influence international governance and rule-setting in their favour. For developing countries, this could make the difference if they really will use the digital transformation to follow their social and economic development priorities.

2.4   Implications for development cooperation

Development cooperation in areas related to digital transformation (in the following short 'digital development cooperation') is situated in the broader and complex context of digital geopolitics. As a means of foreign policy and for shaping international partnerships, development cooperation itself is not neutral or free of the self-interests of the donor. Development cooperation can, therefore, also be used – and is used – as a tool for promoting a certain digital development model – as the chapters on the digital development cooperation of the US, China and the EU will discuss more in-depth later.

Besides, the impact of digital geopolitics on development cooperation manifests in an increasingly heterogeneous field of actors 'doing' development activities in areas related to the digital transformation in the Global South. Corporations, private organisations and philanthropic organisations play a more and more important role in digital development cooperation. This privatisation trend in development cooperation is not novel and has been evolving since the 1980s, gaining new momentum in the light of the 2007 and 2008 financial crisis (Martens 2020). However, in digital development, the boundary between 'classical' development cooperation, philanthropy and business cooperation is blurring even further.

This may not be without consequences for partner countries in the Global South: The perception of private sector involvement in development cooperation is rather ambivalent (Pérez-Pineda and Wehrmann 2021). Private sector engagement and private-public-partnerships (PPP) are often viewed as being particularly efficient and results-oriented and as having a positive impact on economic growth and the development of the private sector in developing countries. However, research has also shown a variety of negative effects from private sector involvement in international development projects, ranging from weakening public sector and public revenues, a lack of transparency and accountability, a focus on bankable projects going along with neglecting needs for action in other sectors, unclear development impacts and increasing inequalities amongst vulnerable populations (Martens 2020).

Against this backdrop, the risk exists that the digital development priorities of countries in the Global South take a back seat to strategic considerations of both state- non-state actors in digital geopolitics.

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3 Core issues on the global digital agenda

Key take-aways

- There are several key issues on the agenda of digital geopolitics, amongst others the development of digital infrastructures, the design of digital trade rules and a global data economy, the supremacy in digital key technologies as well as influencing technical standard setting and, finally, the issue of cybersecurity.

- Current dynamics in these fields are rarely tailored to the needs and concerns of developing countries, revealing a large digital justice gap. If this remains unchanged, developing countries will be hampered in exploiting the benefits of the digital transformation for their social and economic development priorities.

- International partnerships and development cooperation already address some of the above-mentioned core issues, but efforts need to step up in order to support countries of the Global South in shaping the digital transformation to match their objectives.

The digital transformation has profound implications for many areas of national infrastructure, economic, security and technology policy and links them closely to issues at the level of digital geopolitics. While these topics cannot be presented here in full, the following paragraphs highlight some key issues and discuss their relevance for development cooperation. These topics are: digital infrastructure, data economy and digital trade, digital key technologies, setting of technical standards and cybersecurity.

3.1 Digital infrastructures

Network infrastructure represents the physical assets that constitute the internet, such as submarine cables, satellites, fibre optic and copper cables, transmission towers, data centres and many more. Submarine cables are at the centre of global connectivity, carrying 99 per cent of international data traffic (Submarine Telecoms Forum 2020). Between 2016 and 2020, submarine fibre design capacity on major routes has increased by 26.4 per cent per year, and it can be expected that demand will exceed supply eventually (Submarine Telecoms Forum 2020). Since 1990, public and private entities have invested nearly USD 50 billion in submarine cables, with almost 90 per cent of investments coming from multiple owner systems and the remaining ten per cent being almost evenly distributed between single owner systems and multilateral development banks (Submarine Telecoms Forum 2020). Currently, the majority of submarine cables is in the hands of multiple owner systems. However, there is a clear trend towards a greater role of single owners: it is expected that cables owned by only one entity will increase from 47 per cent of new systems built in 2020 to 67 per cent by 2022 (Submarine Telecoms Forum 2020). In many cases, single entities are content providers such as Google and Facebook, which increasingly seek to develop own infrastructures for delivering their services.

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Satellite connectivity currently represents only a small fraction of international traffic. However, the situation might change in the not too distant future when connectivity projects using low-orbiting satellites, such as the Starlink project by SpaceX, OneWeb, Lightspeed by Telesat and Amazon's Project Kuiper, start their operations (Garrity and Husar 2021). Starlink is the most advanced initiative out of these four, having launched 1.445 satellites by early April 2021 (Garrity and Husar 2021). Moreover, China (Jones 2021), Russia (TASS 2018) and the European Union (Euronews 2021) have announced plans to develop low Earth orbit (LEO) satellite systems. The broader implications of this new dynamic are very uncertain. A recent study by the German Institute for International and Security Affairs (SWP) highlights that there could be major consequences for the security and resilience of the internet and global internet governance (Voelsen 2021).

Landing stations build the start- and endpoints of submarine cables. As the juncture between national and international internet infrastructures, their physical and cybersecurity are particularly important (Sechrist 2012). From the submarine cable or satellite receiver, vast networks of fibre optic cables, routers, masts and mobile cells give Internet access to the end-users. These networks are owned and operated by telecom operators and are regulated under national law.

In recent years, the development of 5G networks has become a geopolitical issue. The strong market position of Chinese companies in 5G telecom equipment has raised security concerns, particularly in the US and many other Western countries. Under the Trump administration, attempts were made to push back Chinese influence by offering developing countries loans if they chose 5G equipment from preferred European (Nokia and Ericsson) or South Korean (Samsung Electronics) companies (Woo and Hinshaw 2021). Many countries have meanwhile banned technology from Chinese companies such as Huawei (Buchholz 2020, see Figure 3).

Figure 3: Countries having banned Huawei products or are planning to do so
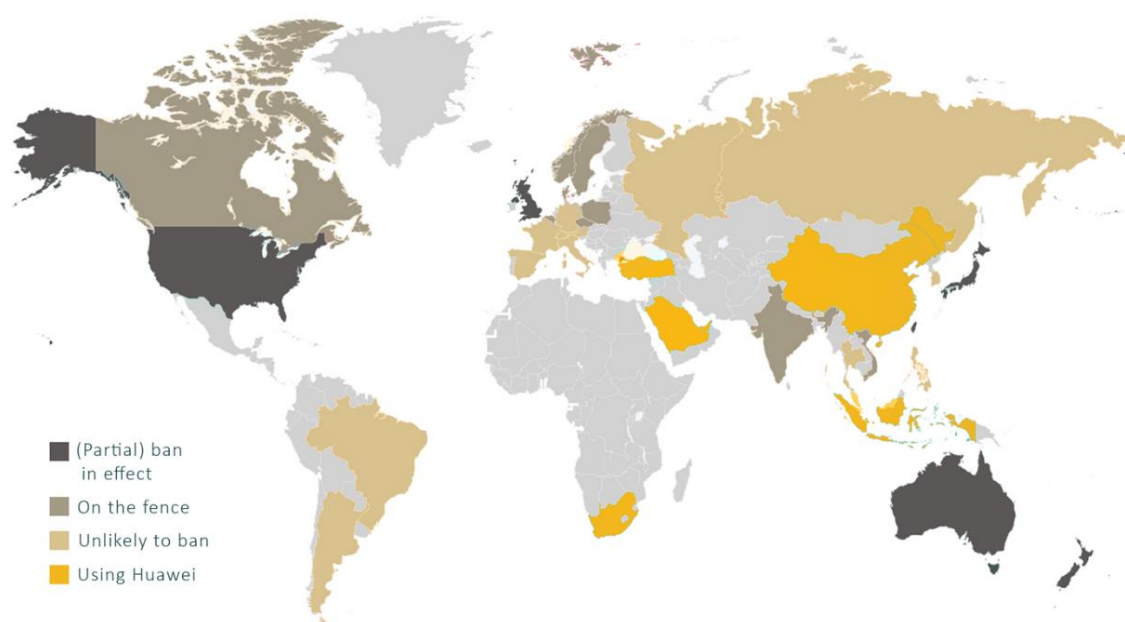
Data as of 19 August 2019. Source: Buchholz, Katharina. 2020. "Which Countries Have Banned Huawei?" Accessed July 08, 2021. https://www.statista.com/chart/17528/countries-which-have-banned-huawei-products/.

Finally, as the role of data as economic asset increases, data centres become more and more relevant as critical infrastructures and become a major geo-economic factor. Data centres store and share applications and data and are a key element in the provision of cloud computing services. Data centres are often built in areas where high population density, infrastructures, business and research activities, along with favourable political conditions meet (Burrington 2015). Consequently, the development of data centres also needs to be seen in the context of the current international debate about data localisation and e-commerce. The effects of data localisation rules can be rather ambivalent, and it is not certain that strict data localisation rules will lead to a withdrawal of data-intensive businesses. In India, for example, the rigorous data localisation rules under the Data Protection Act has led many companies to increase their data centre capacity. Amazon was reported to have invested USD 197 million in its data services branch, with Google, Microsoft, and ByteDance having also announced to ramp up their infrastructures (Gupta 2019).

Box 1: Multi-national corporations as key actors

In the international political economy of the digital transformation, the political cannot be separated from the economic. *Big business* is a major force in digital politics since large companies "all create wealth – and incidentally affect the who-gets-how-much justice and freedom and economic security" (Strange 1991). Google, Amazon, Facebook, Apple, Microsoft (GAFAM), and companies such as Huawei, ZTE, Alibaba, and many others today play a key role in digital geopolitics. Although the actions of US-American and Chinese companies often align with the larger interests with the country of their origin, the underlying relationship between these companies and the state vary significantly. Considering the free market economy and the US government's generally liberal regulation of the private sector, US companies enjoy a great deal of freedom in their business operations and foreign investments. Concerning China, on the other hand, experts argue that the digital macro-economic strategy of the Chinese Communist Party (CCP) rests on a "unique private-party-state nexus in the ICT sector" (Shi-Kupfer and Ohlberg 2019) as one of two major pillars (the other one being a top-level policy design). Chinese tech companies are therefore often regarded as instruments for reaching China's geopolitical and macroeconomic objectives.

Private companies also play an increasing role in international development cooperation. This is not a novel development and has been evolving since the 1980s, the privatisation of international development has gained new momentum in the light of the 2007 and 2008 financial crisis (Martens 2020) The perception of private sector involvement in development cooperation, however, is rather ambivalent (Pérez-Pineda and Wehrmann 2021): private sector engagement and private-public-partnerships (PPP) are often viewed as being particularly efficient and results-oriented and as having a positive impact on economic growth and the private sector in developing countries. However, research has also shown a variety of negative effects from private sector involvement in international development projects, ranging from weakening public sector and public revenues, a lack of transparency and accountability, a focus on bankable projects which leads to less profitable areas being neglected, unclear development impacts and increasing inequalities amongst vulnerable populations (Martens 2020).

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3.2 Data economy and digital trade

Economic strength today is still very much dependent on a country's industrial, service and financial sector. However, with the digital transformation of these sectors and the emergence of the platform economy, the trade of digital goods and services – and the ability to create value from data – is gaining more and more importance. In fact, some argue that data has become an important production factor today (Manyika et al. 2011), complementing the three production factors of classical economic theory, namely land, labour and capital.

There is currently no generally accepted definition for the data economy and other related concepts such as digital or platform economy. One understanding of the digital economy, which UNCTAD has also taken up in its 2019 Digital Economy Report, differentiates between three segments of the digital economy: at its core lies the I(C)T, hardware and software sector. In a narrower sense, the digital economy can further be understood as digital services and the platform economy. With a broader perspective, it can be understood as the digitalised economy, including e-commerce, precision agriculture, Industry 4.0 and other digitally-driven economic application areas (Bukht and Heeks 2017, see Figure 4). Taking this understanding as a basis, the data economy emerged from the large amounts of data created in the digital and digitalised economy and leverages the selling, processing and storing of data as a business case. The data economy rests on a vastly expanding network of data centres and the power of artificial intelligence (AI) to analyse big data (while large amounts of data are at the same time a prerequisite to train and improve AI).

Figure 4: How data economy and the digital economy are connected
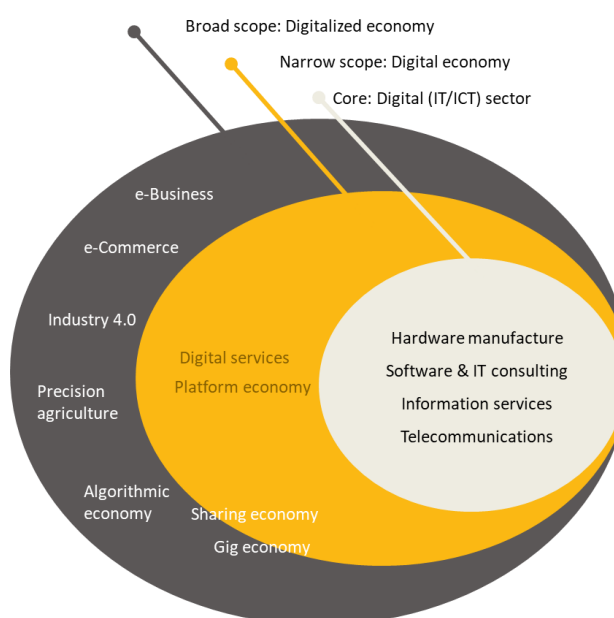
Source: UNCTAD. 2019. "Digital Economy Report 2019. Value Creation and Capture: Implications for Developing Countries." Accessed April 14, 2021. https://unctad.org/system/files/official-document/der2019_en.pdf, 6.

Looking at the digital economy in the narrow sense of platforms and digital services, it can be noted that it is largely dominated by US-American and, to a lesser extent, by Chinese companies. Together, both countries "account for half the world's hyperscale data centres, the highest rates of 5G adoption in the world, 94 per cent of all funding of AI start-ups in the past five years, 70 per cent of the world's top AI researchers, and almost 90 per cent of the market capitalization of the world's largest digital platforms" (UNCTAD 2021, XV–XVI).

Since the launch of Google Search in 1997, Google dominates the search engine market and had a 92.47 per cent market share in June 2021 (Johnson 2021), followed at a large distance by Bing (US), Yahoo (US), Baidu (CN) and Yandex (RU). Facebook is the largest social media platform accounting for approx. 70 per cent of the market share (StatCounter Global Stats 2021), followed by other platforms such as Twitter (US), YouTube (Google-US) and Instagram (Facebook-US). As for e-commerce plat-forms, Amazon (US) is estimated to account for more than one-third of the global online retail activities (UNCTAD 2019). Having an almost 60 per cent domestic market share in China in 2018 (Blazyte 2018) and being present in markets in Europe, Asia and Africa, Alibaba is the second major global e-com-merce player. With 2 billion users for Whatsapp and 1.3 billion users for Facebook Messenger, Face-book (US) is the leading provider of messaging apps (Tankovska 2021), while China's WeChat is the leading super app with over one billion monthly active users (Thomala 2021). A super app can be un-derstood as an app bundling the functions of several apps in one, which provides a closed ecosystem of services and thus allows an improved and highly efficient user experience (Ponnappa 2019).

Given the rise of data as a commodity and the dominance of only a few players in the platform econ-omy – which will also likely dominate the emerging data economy – three key issues have become matters of geopolitical relevance: the protection of personal data, the regulation of digital trade and the taxation of platform companies. In particular, the two latter centre on the question of how value creation from data and the benefits of the digital economy can be fairly distributed, which is why they are highly relevant for countries in the Global South.

3.2.1   Regulating the protection of personal data

Personal or behaviour-generated data is particularly valuable for companies as it can be used to tailor products and services better to consumer needs and preferences and thus increase sales and turnover. However, there are high risks related to the generation and use of personal data. These range from the manipulation of consumer behaviour, e.g. leading to unsustainable and unhealthy consumption patterns, to the misuse of personal data for political campaigning and advertising, as the Cambridge Analytica scandal exemplified, which was revealed in 2018 (Cadwalladr and Graham-Harrison 2018). In the same year, the EU's General Data Protection Regulation (GDPR) entered into effect. Introduced to the legislative process in 2012, the enactment of the GDPR was preceded by a year-long wrestle of a large variety of lobby and interest groups, making it one of the most controversial forms of legislation the EU has ever passed (Privacy International 2018). The GDPR provides for strict data protection prin-ciples and aims to strengthen data security and the accountability of data controllers. In case of viola-tion, the GDPR also foresees significant penalties. The GDPR is obligatory to any entity that collects people's data in the EU and provides safeguards for the cross-border trade of personal data.

The GDPR is often regarded as a great success for European regulation and the strongest framework for protecting and securing data worldwide. However, the EU was neither the only nor the first to issue

data protection legislation (UNCTAD 2020, see Figure 5). Countries like Australia, Japan, India, China and Thailand also enacted data regulations about the same time or only a few years later, with some countries like Chile upgrading their legislations to meet the stricter rules of the GDPR (Simmons 2021).

Figure 5: Data protection legislation worldwide
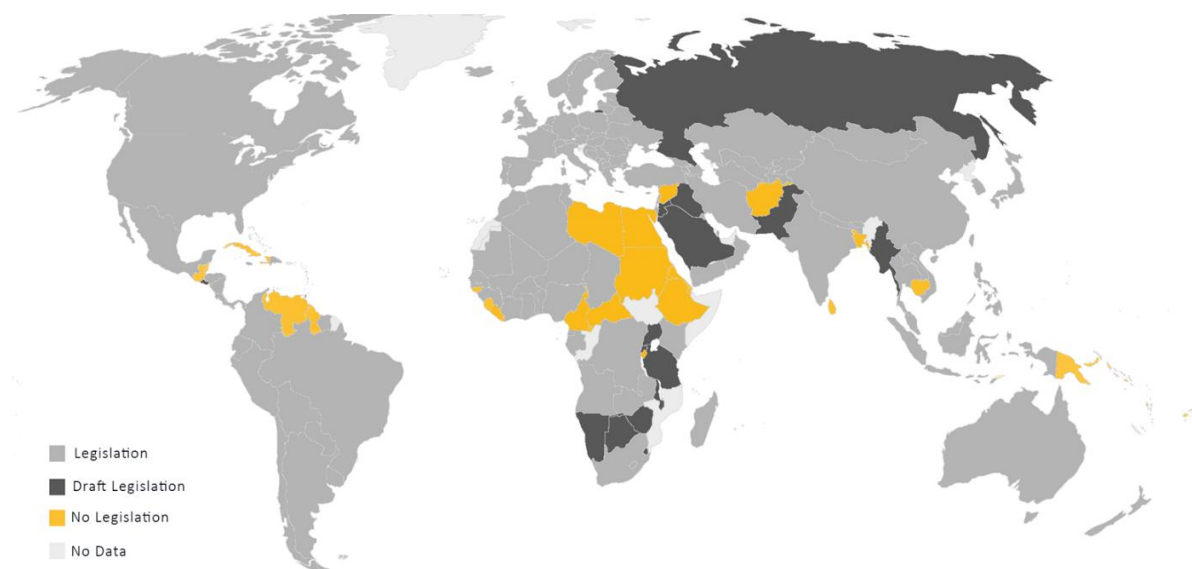
Source: UNCTAD. 2020. "Data Protection and Privacy Legislation Worldwide." Accessed July 08, 2021. https://unctad.org/page/data-protection-and-privacy-legislation-worldwide.

3.2.2   Regulating digital trade and data localisation

The issue of protecting personal data is also closely interlinked with the regulation of digital trade and international data flows. Since 1990, the trade in data-driven services has risen considerably. Between 2007 and 2017 (see Figure 6), data flows increased more than twentyfold and will likely quadruple between 2017 and 2022 (World Bank 2021).

Given the stark imbalances in the global digital and data economy, there is a controversial debate about the regulation of data flows and digital trade (Fritz and Hilbig 2019). This debate particularly evolves around the e-commerce negotiations taking place at the level of the World Trade Organisation (WTO). It was mainly the US that brought digital issues into the international trade regime, both on the multilateral and regional and bilateral levels, to promote a digital trade agenda fostering its domestic tech companies (Azmeh, Foster, and Echavarri 2020). However, some studies argue that the international trade regime is not the most suitable venue to regulate the issue of cross-border data flows since trade agreements apply to states and leave companies and citizens out of the equation (Aaronson 2016).

Digital trade negotiations cover a broad and complex range of issues, from non-discrimination and liability of digital products, customs duties, consumer and data protection to cybersecurity, business

trust and market access (Ismail 2020). Several negotiation rounds have been conducted between 83 WTO members by September 2020, with the progress of negotiations having slowed down due to the Corona pandemic (Titievskaia 2020). While there is much agreement with regard to issues like consumer protection and the need for principles to curb deceptive practices, there is strong criticism of the negotiations, especially from the African Group (Titievskaia 2020). The Group condemns the proposal of free flow of data, brought forward by the EU and the US, in particular, as well as the prohibition of forced technology transfer and the disclosure of source code (Titievskaia 2020). China, having the strictest data localisation rules globally, also took a strong position in this regard and urged the WTO negotiations to be 'development-oriented', taking the needs of developing and least-developed countries into account (Nair 2020). In a joint paper, India and South Africa stressed, amongst others, that countries should be able to shape their domestic digital policies in a way that matches their digital development process (Nair 2020).

Figure 6: Data flows and data-driven services in comparison to traditional services
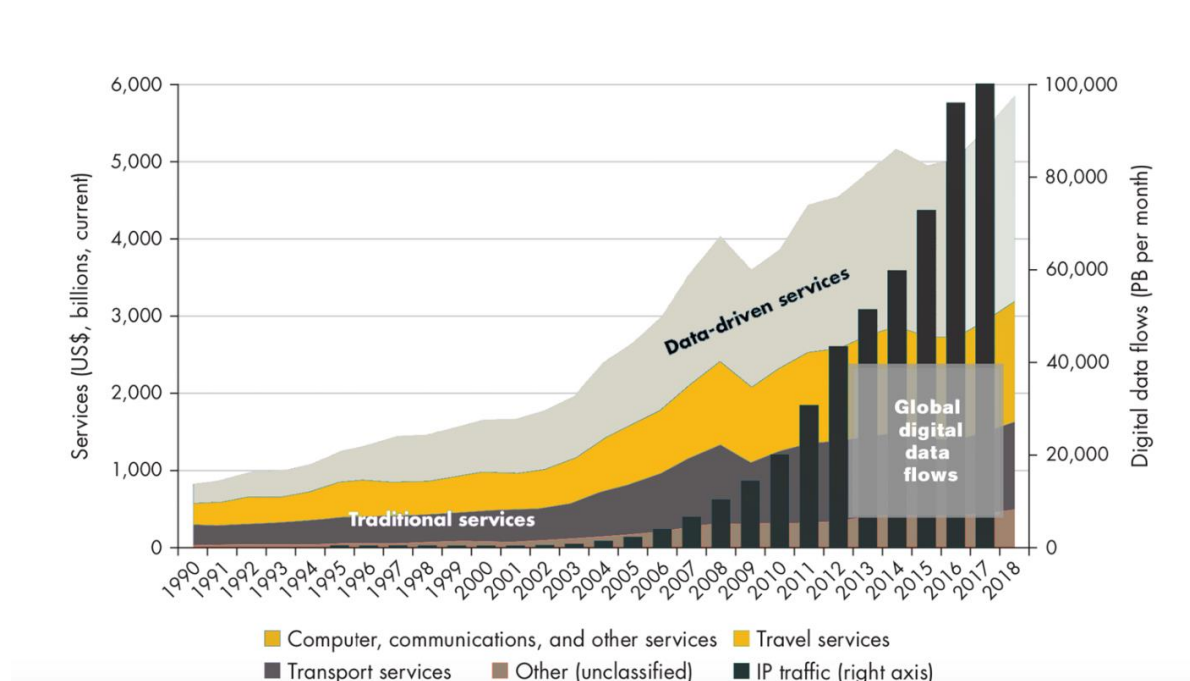
Source: World Bank. 2021. "World Development Report 2021: Data for better lives." Accessed July 09, 2021. https://openknowledge.worldbank.org/handle/10986/35218, 238.

The issue of free flow of data is thereby one of the most controversial topics on the agenda of international digital trade negotiations. Currently, three different approaches to handle cross-border data flow can be distinguished (see Figure 7). In recent years, countries like India, Indonesia and Vietnam have relaxed some of their data localisation requirements due to intensive global industrial lobbying and diplomatic efforts (Basu 2020). However, a solution to the "localisation gambit" (Basu, Hickok, and Chawla 2019) is far from being within reach.

Figure 7: Three distinct approaches to handling cross-border data flows

	Limited transfers model			Conditional transfers model	Open transfers model
Regulatory options	**Domestic storage**	**Domestic processing**	**Government approval**	**Regulatory safeguards**	**Private standards**
Key features	Broad requirements to use domestic servers for data storage	Broad requirements to use domestic servers for data processing	Prior approval required for data transfers	Consent Adequacy findings Private sector assessment (for example, codes of conduct, binding corporate rules, contractual arrangements)	No a priori mandatory requirements Private sector accountability based on voluntary standards
Examples	China: certain personal data US states: government data Australia and United Kingdom: health data Russian Federation: telecommunications data	Russian Federation: processing of personal data	China: Cybersecurity Law	European Union: General Data Protection Regulation	US federal rules APEC Privacy Framework

← Data closure   Data openness →

Source: World Bank. 2021. "World Development Report 2021: Data for better lives." Accessed July 09, 2021. https://openknowledge.worldbank.org/handle/10986/35218, 239.

3.2.3   Taxation of tech companies

While multinational tech and platform companies have seen high growth rates over the past years, states rarely benefitted from this development through taxes. Research showed that up to USD 32 billion in potential annual tax revenues from the five largest tech companies Google, Amazon, Facebook, Apple and Microsoft are lost by the world's largest economies (Dahlbeck 2021). For countries in the Global South, missing out on raising taxes from tech companies is even more critical as they struggle with a lack of investments and public finance. Corporate income tax (CIT) and value-added tax (VAT) provide for a much larger share in the total tax revenue of developing countries than in developed countries (Rukundo 2020). It is estimated that if the five largest Silicon Valley companies were taxed fairly, Nigeria, for example, could collect approx. USD 100 million in annual taxes, which would be enough to cover the salaries of 70.000 nurses (Dahlbeck 2021).

In recent years, several initiatives on the level of the G20 and the Organisation for Economic Co-operation and Development (OECD) had been launched to tackle the taxation of multinational tech companies. In 2016, India had introduced an equalisation levy of 6 per cent targeting online advertising providers (Deloitte 2016) and expanded its scope to include a 2 per cent tax on e-commerce supply and services in 2020 (KPMG 2020). In 2019, France introduced a levy of 3 per cent on revenue created from digital services provided in France. The tax applies to companies that generate more than 25 million euros in French revenue and 750 million euros globally (Peccarelli 2019). In June 2021, the

leaders of the G7 agreed to push forward the proposed tax plan developed by the OECD and support a tax rate of at least 15 per cent on multinational companies to ensure states where they operate a fairer share of benefits in the digital economy and shift profits away from low-tax countries (Milliken and Holton 2021).
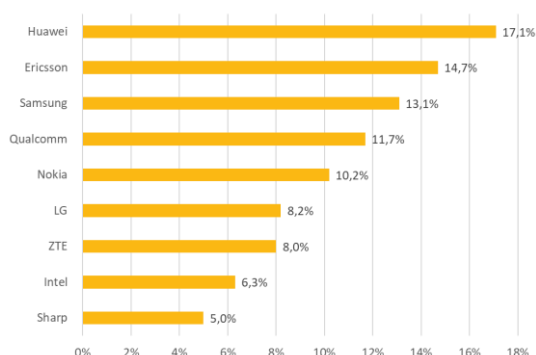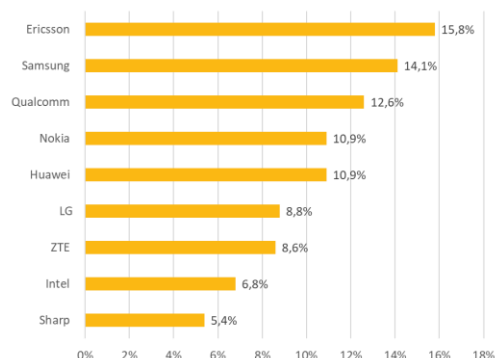
The effects on developing countries, however, remain uncertain. On the one hand, the recent efforts could spur the debate on fair taxation and the adverse effects of tax avoidance on developing countries. This could help countries in the Global South highlight their needs and concerns, especially regarding providing a sounder income base through taxes to invest in infrastructures and public services (Ahmed and Gillwald 2020). On the other hand, some argue that the OECD proposal may not be effective. Having been negotiated mostly by rich countries, there is doubt that it provides a real global solution and concerns are raised that developing countries may not benefit sufficiently from a global minimum tax, especially if set too low (Dahlbeck 2021). If that proves right, more and more countries could seek individual solutions for taxing tech companies. However, many countries in Africa, for example, face a lack of resources and capacities in their revenue administrations. It remains questionable how they can obtain the relevant information from multinational companies and enforce their legislations (Rukundo 2020).

3.3   Digital key technologies

The digital transformation rests on internet infrastructures and is closely linked with the development of key technologies, particularly artificial intelligence (AI), blockchain and possibly in the future quantum computing. Mastering these technologies and using them for innovative technologies and business models is a major success factor in the global digital economy.

The US and China both have efficient AI ecosystems, meaning clusters of AI entrepreneurs, financiers and AI users, and have issued national AI strategies in recent years, in some cases backed up by funding initiatives (EC 2018). Tech companies, such as Amazon, Baidu and Google, dominate investments in automation technologies, including AI (Bughin et al. 2017). In 2016, USD 8 to 12 billion were invested in AI development in Asia, USD 15 to 23 billion in North America and USD 3 to 4 billion in Europe, showing a strong investment gap between these three world regions (Bughin et al. 2019).

Against this backdrop, the EU has made an increasing effort to strengthen AI research and innovation capacities in its member states. Moreover, it aims to become a global hub for *trustworthy* AI and has therefore started working on the regulation of AI to deal with its social and ethical implications (EC 2021a). In February 2020, the EC published a White Paper recognising the increasing competition over AI and stating that "the EU must act as one and define its own way, based on European values, to promote the development and deployment of AI" (EC 2020b, 1). In April 2021, the EC presented an initial proposal for the regulation of AI in the EU, called the Artificial Intelligence Act. The AI Act aims to ensure that AI used within the EU is safe and respects EU laws and values, to provide a legal basis for innovation and investments in AI, to improve AI governance as well as to foster the development of a single market for AI applications that are "lawful, safe and trustworthy" (EC 2021h). While the US and China may be driving AI innovation, the EU is once more driving the development of regulation around key technological developments.

Figure 8: 5G patent declarations, by company group

Figure 9: 5G patent declarations with essentiality weighting

Company	Figure 8	Figure 9
Huawei	17,1%	10,9%
Ericsson	14,7%	15,8%
Samsung	13,1%	14,1%
Qualcomm	11,7%	12,6%
Nokia	10,2%	10,9%
LG	8,2%	8,8%
ZTE	8,0%	8,6%
Intel	6,3%	6,8%
Sharp	5,0%	5,4%

Source: Noble, Matthew, Jane Mutimear, and Richard Vary. 2019. "Determining which companies are leading the 5G race." Intellectual Asset Management (IAM).

Countries in the Global South are not just mere bystanders to these developments. Although lacking resources and capacities to directly compete with the US, China and the EU on technology development, AI applications are more and more common in developing countries. However, there are concerns that since developing countries and populations of the Global South are still largely underrepresented in AI development, these technologies may not suit their specific needs and even be discriminatory and exclusionary to them (Arun 2020). Besides, there is a growing trend among African governments using AI surveillance and facial recognition technologies, often disregarding citizens' rights and privacy (Mudongo 2021).

3.4   Standard setting

Aside from the development of digital key technologies, another area should not be neglected: the setting of international technical standards. Standards allow compatibility and interoperability of goods and products and create network effects, which is why they are an important factor for a thriving international economy. However, standard setting is also a question of power (Seaman 2020), particularly with regard to new and powerful technologies such as AI, blockchain and 5G. More and more – although standardisation has never been apolitical – it becomes an area where states, especially the US and China, compete over technological influence, changing the nature of standard setting as an area where companies used to cooperate for mutual benefit (Rühlig 2020).

China, actually a latecomer in global standard-setting, has felt the disadvantages of following mandatory standards for its exports for a long time (Yan and Li 2018). Meanwhile, however, in particular with regard to ICTs – and here most notably 5G – the country is taking an active role in shaping global standards for digital key technologies, building on the success of its tech companies. As a former Chinese R&D manager is cited in one study: "third class companies are doing product, second class com-

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panies doing technology, first class companies doing brand, and the top class companies doing standard" (Yan and Li 2018, 27). Moreover, China has managed to fill some key positions in the international standardisation system, such as, for example, the position of the secretary-general of the International Telecommunication Union (ITU) and the position of the president of the International Electronical Commission (IEC) (Freedom Lab 2020).

Whether developing countries can benefit economically from international standards depends significantly on their ability to apply standards – as well as on how well their needs and specificities are already considered in technical standards. In general, however, developing countries are less active in technical standardisation. They are mostly involved in the regulatory and administrative issues related to standards, such as, e.g. assigning country codes (Mauree 2012). Their weaker role in standard setting is due, in particular, to factors such as a low private sector engagement in ICT standardisation, a low priority given to standardisation activities by governments, and lack of capacities and funding to build these at the national level (Mauree 2012).

3.5   Cybersecurity

Cybersecurity has become a major issue on the global governance agenda. The topic is rather complex and involves various issues, ranging from cyberwarfare, securing a state's critical infrastructures, institutions, elections, and state secrets to industrial espionage, blackmailing, and individual internet users' security. For many states, national security today is closely linked with cybersecurity and the ability to prevent and defend cyberattacks by state and non-state actors, as well as to launch own strikes in cyberspace. According to the Cyber Operations Tracker of the Council on Foreign Relations (CFR), it is estimated that thirty-four countries have conducted or backed cyber operations since 2005, with China, Russia, Iran and North Korea accounting for 77 per cent of all suspected incidents (Council on Foreign Relations 2021). Aside from national security, cybersecurity is also an economically relevant matter. According to McAfee and the Center for Strategic and International Studies (CSIS), the world lost approx. USD 600 billion due to cybercrime in 2017 (McAfee 2018).

Developing countries are particularly vulnerable to cybersecurity breaks and cybercrime. Alone for Africa, it is estimated that in 2017, cybercrime costs amounted to USD 3.7 billion (Vazzana 2019). Developing countries also face particular challenges in ensuring cybersecurity and mitigating cybercrime (Świątkowska 2020). First and foremost, the speed of technological development and adoption has often outpaced the development of institutions and regulations to govern the digital transformation (Kshetri 2010). While this is already a major challenge for developed countries, capacities in developing countries are often even less available to develop and implement the necessary frameworks. Moreover, although awareness of cybersecurity issues is generally increasing in developing countries, there is still a lack of knowledge and understanding of possible cybersecurity threats on both the sides of public administration and the private sector (Pijnenburg Muller 2015).

Considering the rapid developments in technological areas such as machine learning, quantum computing, the internet of things and its increasing role in industrial production, new cybersecurity challenges lie ahead of developing and developed countries alike. These evolving issues need to be considered along with existing threats, in order to build effective cybersecurity measures and combat cybercrime (Świątkowska 2020).

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4 Digital development cooperation – the case of China

Key take-aways

- China's digital development model is built on a strong role of the state in developing a thriving domestic tech industry, fostering its success abroad as well as protecting the industry at home against foreign competition.

- Recently, however, the authorities have taken forceful steps to curb the power of Chinese technology companies.

- With the Belt and Road Initiative and the Digital Silk Road, China expands its trade and foreign relations and increasingly shapes international discourses and standard setting for the digital transformation. This applies especially to technical standards in the area of 5G, but also artificial intelligence.

- China is very active in countries of the Global South, especially in Africa, where it has become the main supplier of telecommunication technologies and is increasingly providing 5G as well as surveillance technologies.

4.1 Digital development model & recent dynamics

In less than two decades, China has become one of the top players in the global digital economy. According to UNCTAD, China accounts for 22 per cent of the market capitalisation value of the world's 70 largest digital platforms, being second to the US (UNCTAD 2019). With 38 per cent, China is the world's largest ICT exporter (UNCTAD 2019). Several sources reported that the China Internet Development Report 2021, published by the Chinese Academy of Cyberspace Studies, estimated that China's digital economy had reached CNY 39.2 trillion (USD 6.1 trillion) by 2020 (CIFTIS 2021; iNews 2021). According to the report, the digital economy would account for 38.6 per cent of China's GDP and have a high growth rate of 9.7 per cent.

China achieved this strong position in the global digital economy by high government funding of strategic digital technologies such as AI, blockchain, supercomputing and 5G, as well as strong investments in domestic tech companies. It is estimated that China has spent USD 50 billion for research on quantum computing – at least ten times the amount spent by the US – and has applied for 30,000 AI patents in 2018 – more than twice as much as the US (Shi-Kupfer and Ohlberg 2019). Furthermore, with a protectionist industrial policy, China successfully blocked international competitors and created an optimal environment for its domestic tech firms to develop and flourish (UNCTAD 2019).

Between protection and control

This environment also includes light regulation for the domestic tech industry and a strong focus on setting international standards (Shi-Kupfer and Ohlberg 2019). Besides, China has passed a Cybersecu-

rity Law in 2016, which considers cross-border data flows to be protected as critical information infrastructure and introduces an outbound assessment (Liu 2020). Following the law, several rules have been introduced to further develop the localisation and protection regime around personal information and data relevant for national security, the economy and the public (Liu 2020).

On the international level, particularly with regard to the ongoing e-commerce negotiations at the WTO, China is an advocate of strict data localisation rules. However, there appears to be common ground with the other WTO members on clarifying important trade-related issues such as a customs moratorium for e-transmissions, the protection of consumers, the facilitation of e-signatures, and the fight against spam (Titievskaia 2020).
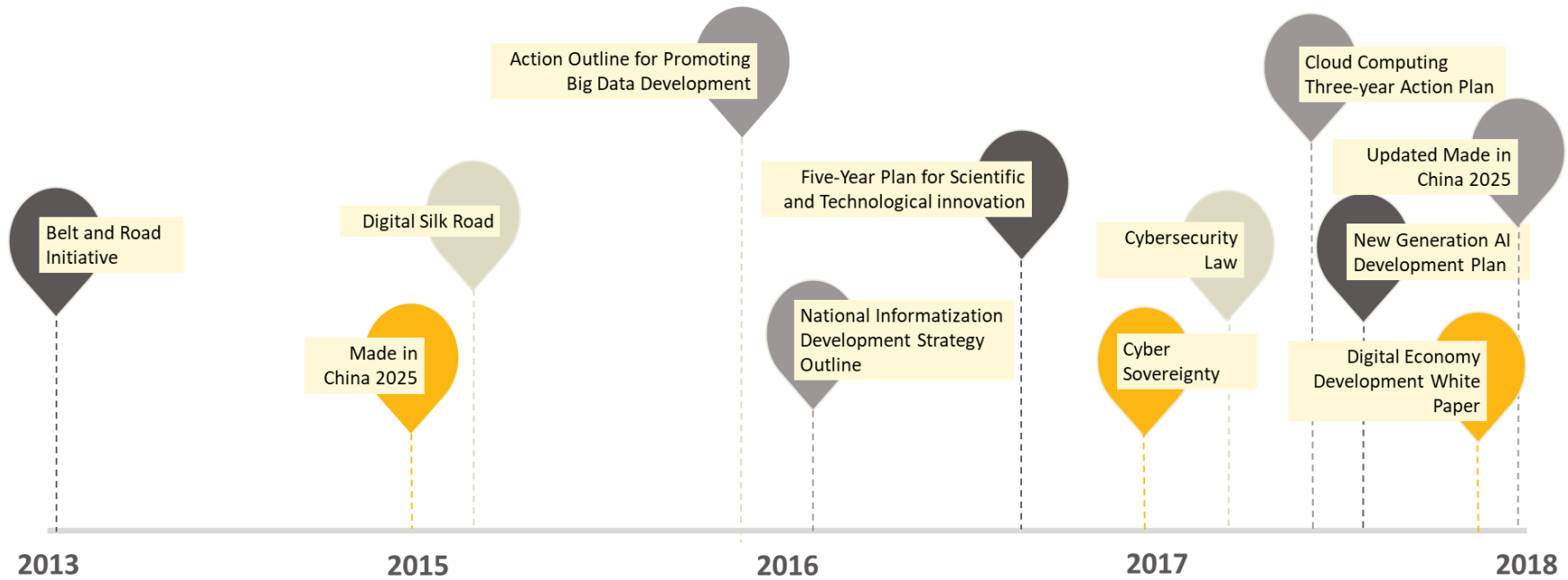
Researchers see China's digital strategy going far beyond economic objectives. It aims to protect critical infrastructures and data from foreign powers and monitor and control the behaviour of its companies and population (Shi-Kupfer and Ohlberg 2019). One important element in this regard is the so-called Social Credit System (SCS) which the Chinese government has been developing since 2014. The system collects information about natural and legal persons in China and consists of "a central data platform, a rating system for commercial creditworthiness, a propaganda system for educative purposes and a publicly available listing system with black- and redlists (for negative or positive behaviour) as well as consequential joint punishments and rewards" (Krause and Fischer 2020, 437). However, aside from the control of people and legal entities, the researchers also argue that the SCS serves to build stronger trust in society and institutions being beneficial to economic development (Krause and Fischer 2020).

China reins in its tech giants

China is increasingly taking measures to limit the influence of its tech industry and regulate the digital economy more strictly. In April 2021, Alibaba Group Holding Ltd. was fined USD 2.8 million following an anti-monopoly investigation (Bloomberg News 2021). Chinese regulators are increasingly concerned about Alibaba's potential to influence public opinion, not only because of the large amounts of consumer data the company holds, but also with regard to the company's various media assets. In September 2021, it was furthermore reported that the government wants to break up Alipay, an online payment system which is owned by the Ant Group and has more than one billion users (Yu and McMorrow 2021). Alibaba is, however, not the only tech company that came under the scrutiny of Chines regulators. In July, antitrust penalties were announced for Alibaba, Didi, Meituan, Suning, and Tencent (Chen 2021). To limit the use of video games by minors, the authorities have not only banned access for children during the week and limited their access on weekends. They have also asked tech companies like Tencent and NetEase to break with a purely profit-driven approach to attracting customers and take measures to limit addictiveness and abusive use of their services (Toh 2021).

Aside from tech companies, cryptocurrencies have also been put under pressure. In September 2021, the Chinese central bank banned digital tokens, calling cryptocurrency transactions illegal (BBC 2021). Commentators see a Communist Party masterplan behind the crackdown on big tech in China. The Economist described this plan as a "techno-utopia" where "[i]ncumbent technology giants such as Alibaba (…) or Tencent (…) will be around but less overweening (…). Policies to curb their market power will redistribute some of their profits to smaller merchants and app developers, and to their workers. (…) Data will pulse through the system, available to firms of all sizes, under the watchful eye of the government in Beijing" (The Economist 2021).

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Figure 10: Key digital policy initiatives in China

Action Outline for Promoting Big Data Development

Cloud Computing Three-year Action Plan

Five-Year Plan for Scientific and Technological innovation

Updated Made in China 2025

Digital Silk Road

Belt and Road Initiative

Cybersecurity Law

New Generation AI Development Plan

National Informatization Development Strategy Outline

Made in China 2025

Cyber Sovereignty

Digital Economy Development White Paper

2013   2015   2016   2017   2018

Source: Own figure based on Shi-Kupfer, Kristin, and Mareike Ohlberg. 2019. "China's Digital Rise: Challenges for Europe." MERICS Papers on China 7. Accessed June 11, 2021. https://merics.org/sites/default/files/2020-06/MPOC_No.7_ChinasDigitalRise_web_final_2.pdf.

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4.2   Landscape of digital development cooperation in China

China's activities in international and development cooperation need to be seen in the broader context of the country's foreign policy and macro-economic strategy. One of the main activities in this regard is the launch of the Belt and Road Initiative (BRI) in 2013, a major trade, investment and infrastructure project that builds and strengthens economic ties and foreign relations between China and approx. 60 countries in Asia, Africa and Europe (Chatzky and McBride 2020).

Building a Digital Silk Road

As part of the BRI, China started the Digital Silk Road initiative (DSR) in 2015. The DSR aims to provide financial aid, research collaboration and political support to partner countries, support digital infrastructure development, promote Chinese standards, and assist domestic tech companies such as Huawei in further expanding their exports (Kurlantzick and West 2020; Shi-Kupfer and Ohlberg 2019). According to research, "over 6,000 of China's Internet enterprises alongside over 10,000 Chinese technological products have gained access to overseas markets" (Mohan and Jia Hao 2019, 5). China has become the landing point, owner, or supplier for 11.4 per cent of the world's undersea cables and for 24 per cent of planned cables (CSIS 2019).

With its DSR, China has laid out an ambitious plan to become the global leader in the digital economy. The DSR also stands for a shift in China's strategy from being the main deployer of digital infrastructure to a deployer of digital policies and standards. Furthermore, as researchers point out, the DSR also contains a strong element of shaping the discourses on digitalisation, e.g. by promoting the concept of *digital sovereignty* (Shi-Kupfer and Ohlberg 2019).

The DSR is a complex system of state-supported investments by Chinese public and private companies in submarine cables and telecommunication infrastructure, data centres, smart city/safe city projects, the BeiDu satellite system and e-commerce platforms. However, it is not only about investments but a global push of Chinese standards in key areas such as AI, 5G and IoT, published under the China Standards 2035. As noted by the Netherlands Institute for International Relations, "the DSR essentially combines the domestic push to export Chinese technologies developed with assertive industrial policies, with a broader agenda to augment interoperability and compatibility between Chinese and overseas technological networks, on Chinese terms" (Dekker, Okano-Heijmans, and Zhang 2020, 2).

The DSR lines are blurry and involve many actors at all levels from the Chinese public and private sectors. Not all Chinese investments in Asia, Africa or Latin America are part of the DSR. In this regard, the DSR has features of a franchise. Comprehensive data on DSR investments is difficult to come by, but according to one estimate, by 2018, DSR-related investments in digital infrastructure projects outside of China had reached USD 79 billion (Ghiasy and Krishnamurthy 2021).

Supplying surveillance technology and know-how

There are many voices of the opinion that China does not only pursue investment in infrastructure but an export of the authoritarian governance model of the internet based on control and censorship as well as the Social Crediting System. This is done by providing censorship training and model legislation for surveillance and exporting ideological governance principles (Cheney 2019). It is estimated that companies such as Huawei, Hikvision, Dahua and ZTE have delivered AI surveillance technology to

more than 60 countries, most of which are also part of the BRI (Feldstein 2019). China recently proposed a new Internet Protocol in the International Telecommunication Union and was pushing for new international standards for facial recognition and surveillance technology (Dekker, Okano-Heijmans, and Zhang 2020).

New strategy for international cooperation

In January 2021, the China International Development Cooperation Agency (CIDCA) published a white paper on "China's International Development Cooperation in the New Era" (CIDCA 2021). The white paper elaborates on China's development strategy and its guiding principles, such as developing a shared prosperous future, the important role of South-South cooperation and the achievement of the UN Sustainable Development Goals. For the first time, the development strategy of China also makes a direct and strong reference to the BRI, making it a centrepiece of China's development policy (Cichocka, Mitchell, and Ritchie 2021; Nedopil 2021b). Moreover, the white paper signals a shift from an aid-focused engagement to a broader understanding of development cooperation (Cichocka, Mitchell, and Ritchie 2021).

The white paper also elaborates on China's approach to multilateral cooperation and bilateral debt relief. Between 2013 and 2018, the paper says, China has "extended assistance to 20 regional and international multilateral organisations and 122 countries across the world – 30 in Asia, 53 in Africa, 9 in Oceania, 22 in Latin America and the Caribbean, and 8 in Europe" (CIDCA 2021). Besides, China has developed several new partnerships with development banks. Aside from providing funds for smaller regional development banks, it has also created a partnership facility with the World Bank Group, the African Growing Together Fund at the African Development Bank – worth USD 2 billion – and an equally large Co-financing Fund for LAC at the Inter-American Development Bank (Chen, Clababrese, and Willitts-King 2021).

Perception of China as a development partner

Aside from its own interest, it should not be disregarded that Chinese development cooperation addresses the needs of many countries in the Global South (Arcesati 2020) – many of which fear being left behind in the global digital race. For example, China is investing massively by using prices that are sometimes 30 or even more per cent lower than those of competitors and providing state loans on a large scale (Nakashima 2019; Yap 2019). This creates benefits for partner countries that cannot otherwise afford the technology and is bringing more people online across the world. China is also offering capacity-building activities to several African countries, varying from collaboration with universities and research centres to training programmes for civil servants and direct advisory roles to governments in countries such as Tanzania.

In many developing countries, China is viewed as a strong yet pragmatic and results-oriented donor that emphasises mutual interests and does not pose political conditions on recipient countries (Zhang, Gu, and Chen 2015). This view on China as a development partner may shift due to its increasing dominance in the digital sphere which also creates new dependencies for many countries. However, it continues to shape the perception of developing countries as an alternative to Western development cooperation. Furthermore, China's own development success serves as a role model to many developing countries. Not surprisingly, they are, therefore, open to adapt China's approaches to solving the challenges of modern, industrialising and heterogeneous societies, such as satisfying the needs of growing middle classes and maintaining and creating internal peace.

4.3   Regional engagement

4.3.1   Africa

Africa is among the main recipients of Chinese state loans for telecommunication projects as part of the DSR. It is estimated that as of January 2021, 40 Sub-Saharan African countries and 17 from North Africa and the Middle East have signed Memorandums of Understanding with China to join the BRI (Nedopil 2021a). The main countries in Africa benefiting from the DSR are Ethiopia (USD 2.4 billion), Nigeria (USD 1.8 billion), Zimbabwe (USD 1.8 billion), Angola (USD 1.7 billion) and Zambia (USD 0.73 billion) (Chimbelu 2019).

However, technological infrastructure loans for Africa are anything but a new instrument in the framework of DSR. A study, published by the China Africa Research Initiative in August 2021, assessed 90 Chinese loans to African government ministries (74) and private companies or state-owned businesses in Africa (16) between the years 2000 and 2019 (Tugendhat and Voo 2021). The authors of the study found that the largest loan amounts were disbursed before the launch of the DSR in 2015, with Ethiopia being by far the largest recipient of loans for technological infrastructure (see Figure 11).

Figure 11: Chinese Technology Infrastructure Loans by Country (2000-2014) in USD millions
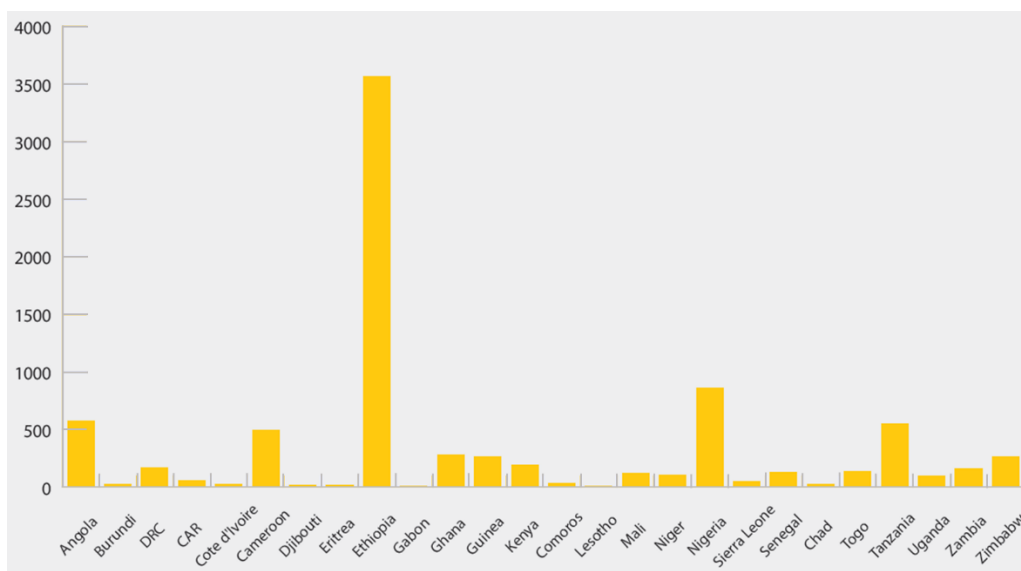
Source: Tugendhat, Henry, and Julia Voo. 2021. "China's Digital Silk Road in Africa and the Future of Internet Governance." China Africa Research Initiative, School of Advanced International Studies, Johns Hopkins University, Washington, DC. Working Paper 50, 14.

The authors also concluded that the amount of technology-related loans decreased between 2015 and 2018. During this period, countries such as Zambia, Nigeria, Cameroon and the Republic of the Congo (ROC) were among the main recipients (see Figure 12).

Figure 12: Chinese Technology Infrastructure Loans by Country (2015-2018) in USD millions

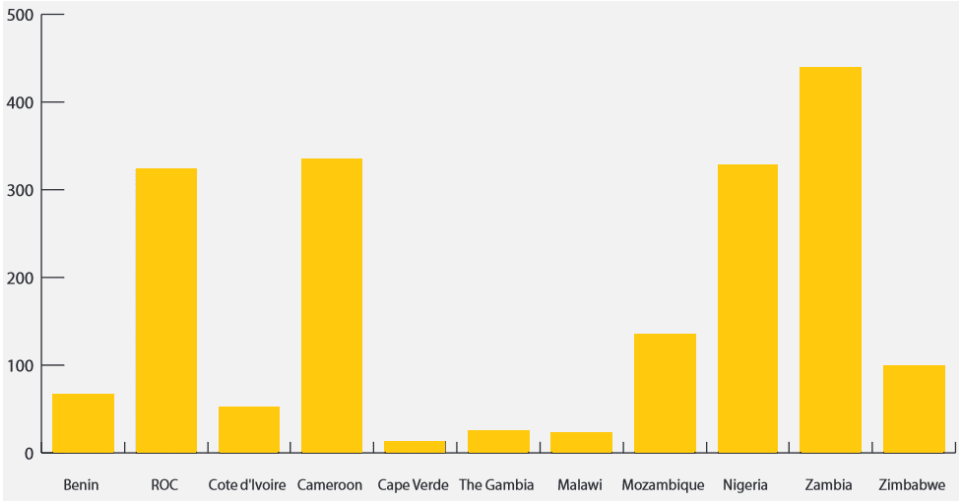Source: Tugendhat, Henry, and Julia Voo. 2021. "China's Digital Silk Road in Africa and the Future of Internet Governance." China Africa Research Initiative, School of Advanced International Studies, Johns Hopkins University, Washington, DC. Working Paper 50, 14.

The submarine cables are a key component of the DSR, with Chinese companies owning or sharing several cables (ICPC/ASPI 2021) connecting mainland China to Asia, Africa and Europe. The PEACE cable built by Hengtong Group and Huawei is one of the most significant ones (Fouquet 2021). To be finalised in 2021, the cable will stretch over 15,000 km to connect mainland China to South Africa, Djibouti, Somalia, Kenya, Egypt and Seychelles. Another key investment is the SAIL cable, connecting Angola to Brazil. The cable is a joint project between Camtel and China Unicom. The project was financed through the Concessional Loan and Preferential Export Buyer's Credit of China Exim Bank. The engineering and construction were contracted to Huawei Marine (ICPC/ASPI 2021).

China is the main investor in the African digital infrastructure with 74 telecommunication projects, the majority of them developed by Huawei and ZTE (Chimbelu 2019). Chinese companies are increasingly focusing on building data centres in Africa in countries such as South Africa, Djibouti, Kenya, Tanzania, Zambia, Zimbabwe, Ghana, Nigeria, Mali and Egypt (Chimbelu 2019). In June 2021, Senegal announced to establish a national data centre for government data and platforms, following the example of China with its strong data localisation policy to increase its data sovereignty (Govender 2021). The provision of equipment for the data centre is supported by Huawei, and the USD 70 million cost of the project are financed by a loan from the Chinese government (Govender 2021).

Chinese data centre investments also appear to go hand in hand with many *smart city* or *safe city* initiatives developed by Huawei in countries such as Morocco, Ivory Coast, Ghana, Nigeria, Cameroon, Angola, South Africa, Mozambique, Tanzania, Ethiopia, Egypt, Uganda, Zambia, Zimbabwe, Botswana, Madagascar and Mauritius (ICPC/ASPI 2021). This new direction of Chinese investments has sparked fears that China is equipping countries with AI-powered control and repression tools (Feldstein 2019). One key example is the agreement between the Chinese start-up CloudWalk Technology and the Zimbabwean government to facilitate sending biometric data of Zimbabweans to china to develop facial

recognition algorithms based on ethnicities (Hawkins 2018). Another well-documented example is that Huawei helped the government of Uganda and Zambia to spy on political opponents and provided training. Uganda subsequently agreed to purchase a similar facial recognition surveillance system from Huawei, costing USD 126 million (Biryabarema 2019).

Aside from financial and technical support, China also offers capacity building to African countries. It has strategic memorandums of understanding (MoU) with the governments of Kenya, Ghana and Tanzania. Under the MoU with Tanzania, for example, China dispatched an advisor to the government. Also, China is providing training to ICT specialists in countries such as Morocco, Zambia, Angola, South Africa and Egypt. In addition, Huawei has expanded its activities to governance issues by taking a leading role in drafting a new national digital strategy for Côte d'Ivoire (Williams 2021) as well as supporting the country in its efforts to develop a broadband strategy (Govender 2021).

Finally, in August 2021, the China-Africa Partnership Plan on Digital Innovation was launched by the Ministry of Foreign Affairs of the People's Republic of China. It confirms China's engagement in African countries in sectors such as "transportation, medical care, finance and other livelihood areas, building 'smart cities', and [in] leveraging digital technologies to strengthen state governance and control the pandemic" (MFA 2021). Moreover, the plan encourages Chinese companies to take an active role in the development of public service and e-governance platforms as well as digital payment systems and digital currencies in Africa.

4.3.2 Latin America

Many Latin American countries joined the BRI during the China-Community of Latin American and Caribbean States Forum (China-CELAC) in January 2018. This happened partly because China was already the biggest trading partner for the region. In 2021, the BRI counted 19 members from Latin America, amongst others Bolivia, Chile, Cuba, Ecuador, Peru and Uruguay (Nedopil 2021a). However, Argentina, Brazil and Colombia have so far not jointed the initiative.

The ASPI database shows 143 Chinese digital projects in Central and Latin America (ICPC/ASPI 2021). Out of those, 34 are telecommunications projects mainly driven by Huawei and ZTE. The SAIL submarine cable is a major Chinese investment under a state loan connecting Brazil to Cameroon. The financing for the project was provided by the China Development Bank (CDB) and the Export-Import Bank of China (EXIM). Construction costs totalled USD 136 million, and the project took about 13 months to complete (ICPC/ASPI 2021). Also, Chinese companies built or own 16 data centres mostly in Brazil and Chile. Across the continent, the data shows 25 smart city, respectively safe city projects mostly driven by Huawei. Also, China provided training to police officers in Argentina, Ecuador, and Colombia. China and Chinese companies have signed 25 research partnerships across the continent (ICPC/ASPI 2021).

Huawei became the largest network provider in Brazil in 2014 and has cultivated a deep relationship with the country. Huawei is expected to build a USD 800 million factory in Sao Paulo for manufacturing smartphones and is expected to have a stake in deploying 5G networks in Brazil (Reuters 2021). Also, Huawei has become a major player in Mexico. It supported the country's government to build the largest public Wi-Fi network in Latin America and provided it with technical assistance to overcome the digital divide in Mexico (Malena 2021). Furthermore, ZTE has exported surveillance technology to Argentina, Bolivia, Ecuador, Venezuela and Uruguay (Malena 2021). In Venezuela, ZTE was involved in the development of a national identification system and a smart-card ID called the "Fatherland Card"

(Malena 2021). Tencent has invested USD 180 million in the Brazilian fintech company NuBank which provides fee-free credit cards and digital payment accounts and has more than 8.5 million customers (Malena 2021).

Some observers see a slowdown in China's BRI activities in Latin America due to the COVID-19 pandemic and its disruptive impact on supply chains and financial flows, as well as the increasing difficulties of Latin American countries to pay their debts due to the economic crisis (Koop 2020). However, the effects of the pandemic could also shift the focus of the BRI in Latin America towards health services and digital technologies (Koop 2020).

4.3.3   Asian-Pacific region

Most countries in the Asian-Pacific region have signed MoUs making them part of the Chinese BRI. 25 countries in East Asia and the Pacific and six countries in South Asia joined the initiative (Nedopil 2021a). India, another major digital player in the region often seen as a counterweight to China (Moschella and Atkinson 2021), has not joined the initiative.

37 submarine cables and 37 terrestrial cables connect mainland China to the rest of the world. In the Asian-Pacific region, Chinese companies have built 122 telecommunication projects and 75 data centres. Also, Huawei is engaged in 25 safe city projects. Chinese technology corporations are investing heavily in e-commerce industries in the region, including in Thailand, India, and Singapore, under the umbrella of the Digital Silk Road (ICPC/ASPI 2021).

China is the dominant power in the region by investing in six economic corridors (Cheney 2019): (1) the China-Mongolia-Russia Corridor, (2) the New Eurasian Land Bridge Corridor, (3) the China-Central Asia-West Asia Corridor, (4) the China-Pakistan Corridor, (5) the Bangladesh- China-India-Myanmar Corridor and (6) the China-Indochina Peninsula Corridor.

A great focus of Chinese companies in the Asia-Pacific region is the expansion of Alibaba and Tencent. It is estimated, that since 2015, both companies have invested over USD 12 billion in the region (Nguyen 2020). Malaysia has established a partnership with Alibaba to develop a digital free trade zone, and in Thailand, Alibaba committed THB 11 billion (roughly USD 320 million) to build a *digital hub*. In Indonesia, Alibaba and Tencent invested in local e-commerce and ride-hailing companies that offer or use electronic payments (Nguyen 2020).

5 Digital development cooperation – the case of the US

Key take-aways

- The US is leading in the global development of digital technologies as well as in the platform economy. This leading position is built on an efficient research and innovation ecosystem as well as a market-liberal approach supporting a quick commercialisation of digital innovations.

- With the Better Utilization of Investments Leading to Development (BUILD) Act, signed in 2018, the US has created a new development finance corporation with a budget of USD 60 billion and digital technologies as one focal area.

- In April 2020, USAID launched its first Digital Strategy. The strategy aims to improve the use of digital technologies and tools within the agency itself and strengthen its digital capacities as well as fostering the development of sound digital ecosystems in partner countries.

- US companies, such as Google and Facebook have been active in developing digital infrastructures in several developing countries. However, overall, the US has long had a blind spot on digital development issues in the Global South, in particular in Africa. In the light of the competition with China, it is now stepping up its efforts with the G7 initiative 'Build Back Better World' being one more recent step in this direction.

5.1 Digital development model & recent dynamics

The US is the global leader in digital technologies. It had created an innovation and investment ecosystem early on that enabled major technological breakthroughs – such as the very creation of the internet. Its success is based on an effective mix of high governmental R&D spending, close interlinkages between science and industry and a generally liberal regulation of the private sector. This particular ecosystem served not only innovation, but also the quick commercialisation of new technologies and the development of new business models building on them. In the light of the US dominance in the global digital economy, this largely state-funded and government-driven innovation approach – sometimes referred to as the 'Silicon Valley Model' – serves as a role model for many industrialised as well as developing nations that aim to catch up on digital development (Bastion and Mukku 2020).

System competition with China, differences with Europe

Internationally and in particular with regard to the ongoing e-commerce negotiations at the level of the World Trade Organization (WTO), the US acts as a strong advocate for a free and open internet and the free flow of data across borders, including personal data (Titievskaia 2020). This approach assumes that a liberal market design for the digital economy, especially concerning data, is best suited to allow companies the creation of value from data as well as the development of innovations, even-

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tually serving the economy and society as a whole. It also allows US companies, which have front runner positions in many segments of the digital economy, to keep their comparative advantages and strengthen their market position.

In recent years the US has increasingly voiced concerns about the security of the global internet and critical digital infrastructures at home, as well as in partner countries. Under the Trump administration, the conflict between the US and China on trade and technology issues intensified, particularly around Huawei as a global leader in 5G technology. With regard to the rollout in the EU, the US pressured European countries to ban Huawei technology from building 5G networks (Wintour 2020). However, as commentators note, the US position in this regard is as much based on security concerns as on economic considerations, especially to avoid overdependence on Chinese technologies and to keep the balance in the already highly concentrated 5G market (Rühlig, Seaman, and Voelsen 2019). Furthermore, the US would see itself in a *systemic confrontation* (Rühlig, Seaman, and Voelsen 2019) over defending the liberal world from the increasing influence of an authoritarian China.

Frontrunner under pressure for change

However, the picture of the US as a digital pioneer has lost much of its shine due to events such as the Cambridge-Analytica scandal, the largely unrestricted spread of fake news on social media and the growing concern that platform companies could become too powerful to control. Moreover, especially European countries have spurred the debate about the regulation and taxation of digital platforms in order to protect the data and privacy of their citizens and to keep a fair share of the value created by such companies operating in EU countries. Therefore, the US model of digital economy may, despite its still remarkably strong position, come under increasing pressure for some fundamental changes. Domestically, the regulation of big tech has been on the agenda of the Obama and Trump administrations and is likely to continue to be a major issue under the Biden administration, with a stronger focus on increasing the liability and accountability of tech companies (Ghosh 2020).

5.2 The landscape of digital development cooperation in the US

The US is by far the largest donor country for official development assistance (ODA). According to preliminary figures of the OECD Development Assistance Committee (DAC), the US spent nearly USD 35.5 billion on ODA in 2020 (OECD DAC 2021). On average, for the years 2018 and 2019, approximately one-third of US ODA was dedicated to Sub-Saharan Africa, followed by the Middle East and North Africa (12.6 per cent), South and Central Asia (9.2 per cent) and Latin America and the Caribbean (7.0 per cent) (OECD DAC undated). By sector, "education, health and population" received the largest share (27.1 per cent), followed by "humanitarian aid" (26.5 per cent) and so-called "other social infrastructure" (18.2 per cent) (OECD DAC undated). Since there is no broadly accepted framework to track spending in digital development projects, figures in this area are not available and difficult to estimate.

The engagement of the US in digital development in the Global South comprises three main elements:

- Digital development cooperation led by the US Agency for International Development (USAID)
- Private sector investments in the digital development of countries in the Global South, including large network infrastructure projects by multinational companies such as Google and Facebook.
- Philanthropic activities related to digital development.

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However, these main elements are closely intertwined, and actors from these different segments co-operate with each other in various constellations. USAID, for example, has a strong culture of working with the private sector in implementing its projects (USAID undated). Since 2011, USAID's Center for Digital Development (CDD) has used over USD 45 million out of USD 192 million levered from public and private partners to support the development of digital infrastructure and services (USAID 2019a). In January 2021, Mastercard and USAID partnered to launch a business accelerator called Start Path Empodera, which focuses on financial inclusion and the empowerment of women in entrepreneurship in Columbia (Hernández 2021). To generally strengthen the cooperation with the private sector, USAID presented a Private Sector Engagement Policy in 2018 that was jointly developed with over 100 companies over several years (Lairo and Schweda 2019). The policy outlines acknowledges the role of the private sector in development processes and institutionalises private sector engagement as a key cornerstone of USAID's operation model (USAID 2019c).

Foundations and companies also frequently cooperate in digital development projects or initiatives, such as e-health and digital payment systems. As a partnership between the Bill and Melinda Gates Foundation, the Swedish government, the Foreign, Commonwealth and Development Office of the UK and the United Nations Foundation, the Digital Impact Alliance (DIAL) was established in 2015, funded by several development agencies, including USAID (DIAL 2021). The alliance aims to enhance digital inclusion by identifying barriers to the adoption of digital technologies and by developing solutions, understanding itself as a "'think, do, replicate' tank" (DIAL 2021). In May 2020, as another example of cooperation among different actors, the Mojaloop Foundation was announced, a joint effort of the Bill and Melinda Gates Foundation, the Rockefeller Foundation, Google and many other tech companies and non-profits (Mojaloop Foundation undated). The foundation aims to increase financial inclusion by developing open-source software for interoperable digital payment systems.

BUILD Act – fostering private sector engagement

Despite the strong role of large multinational tech companies in network infrastructures (see below) and other issues of digital development in countries of the Global South, the engagement of the US private sector still lacks far behind its potential. While there are many reasons for companies not to engage in developing countries – such as lack of regulation, unstable and unfavourable framework conditions, uncertainty about potential returns – the US development finance system also needed to be improved to spur private sector activity development cooperation.

The freshening up cure came in October 2018 with the signing of the Better Utilization of Investments Leading to Development (BUILD) Act by President Trump. The BUILD Act received support from both the Democrat and the Republican parties to modernise development finance (Ingram 2018) in order to make it more attractive to the private sector and raise its impact. Moreover, it is also intended as an answer to China's Belt and Road Initiative (BRI), especially with regard to Africa, and aims to shift US relations from aid-based to trade-based (Reuters 2018). Based on the BUILD Act, the activities of the USAID Credit Authority and the Overseas Private Investment Corporation (OPIC) were merged into a new financing institution, the US International Development Finance Corporation (DFC). The DFC opened in October 2019 and it improves US development finance in several ways:

- It provides more and flexible tools to support investments, for example, providing technical assistance and limited equity investments,
- With 60 billion USD exposure cap, it has more than double the capacity compared to OPIC,

- The authorisation period has been shifted from a year-to-year basis to a seven-year period,
- Oversight and risk management were improved (Akhtar and Lawson 2019),
- Rather than requirements for companies, it provides preferences (Runde and Bandura 2018).

Regionally, the DFC focuses, in particular, on Africa and the Middle East, the Indo-Pacific region, Latin America and the Caribbean, as well as Eastern Europe and Eurasia. Its activities concentrate on eight sectors, namely technology, infrastructure, healthcare, education, agriculture and food security, climate, as well as finance for small businesses and women entrepreneurs and COVID-19 response.

USAID Digital Strategy

USAID has a long history of digital development cooperation in the Global South, reaching back to the 1990s and the Leland Initiative. USAID coordinated the project, also known as African Gateway to the Global Information Infrastructure (GII) Project, which was a "five-year, USD 15 million, interagency initiative designed to assist up to 20 African nations in connecting to the Internet and other electronic technologies in order to promote sustainable development activities" (Bland et al. 1996, 1). In the following decades, a series of digital development activities and alliances were implemented or (co-)initiated by USAID, including the Better than Cash Alliance on mobile money in 2012 and the aforementioned DIAL (USAID 2019a, see Figure 13).

However, it was not until 2020 that USAID gave itself an agency-wide digital strategy. Published in April 2020, the Digital Strategy 2020-2024 focuses on two strategic objectives:

- "Improve measurable development and humanitarian assistance outcomes through the responsible use of digital technology in USAID's programming; and
- Strengthen the openness, inclusiveness, and security of country-level digital ecosystems" (USAID 2020a, 4).

While the first objective particularly aims at strengthening USAID's own capacities and competencies to use digital technologies effectively on various levels of the agency's operations, the second objective aims at supporting partner countries in their digital development efforts. As one important issue, the activities of USAID should strengthen the inclusiveness and security in the digital ecosystems of partner countries, thus aligning the Digital Strategy with the National Security Strategy (NSS) of the US (USAID 2020b). The strategy, therefore, also needs to be understood in the context of the US' rivalry with China in the digital sphere and its rising concern about the increasing dependency of many countries of the Global South countries on Chinese technology.

For the period until 2024, the Digital Strategy sets several targets, such as, e.g. that 30 USAID mission will have implemented at least one activity to improve the national digital ecosystems in their countries, that internet inclusion – measured by an index including availability, affordability, relevance and readiness – is in increased an average 30 per cent or that private-sector digital investment in underserved markets is increased by 20 per cent. The strategy is underway of being implemented throughout USAID's programming. However, it is not clearly stated how much of the USAID's budget for the fiscal year 2021 of USD 19.6 billion (USAID 2020b) will be dedicated to the Digital Strategy.

Figure 13: Selected activities and initiatives of the USAID Center for Digital Development
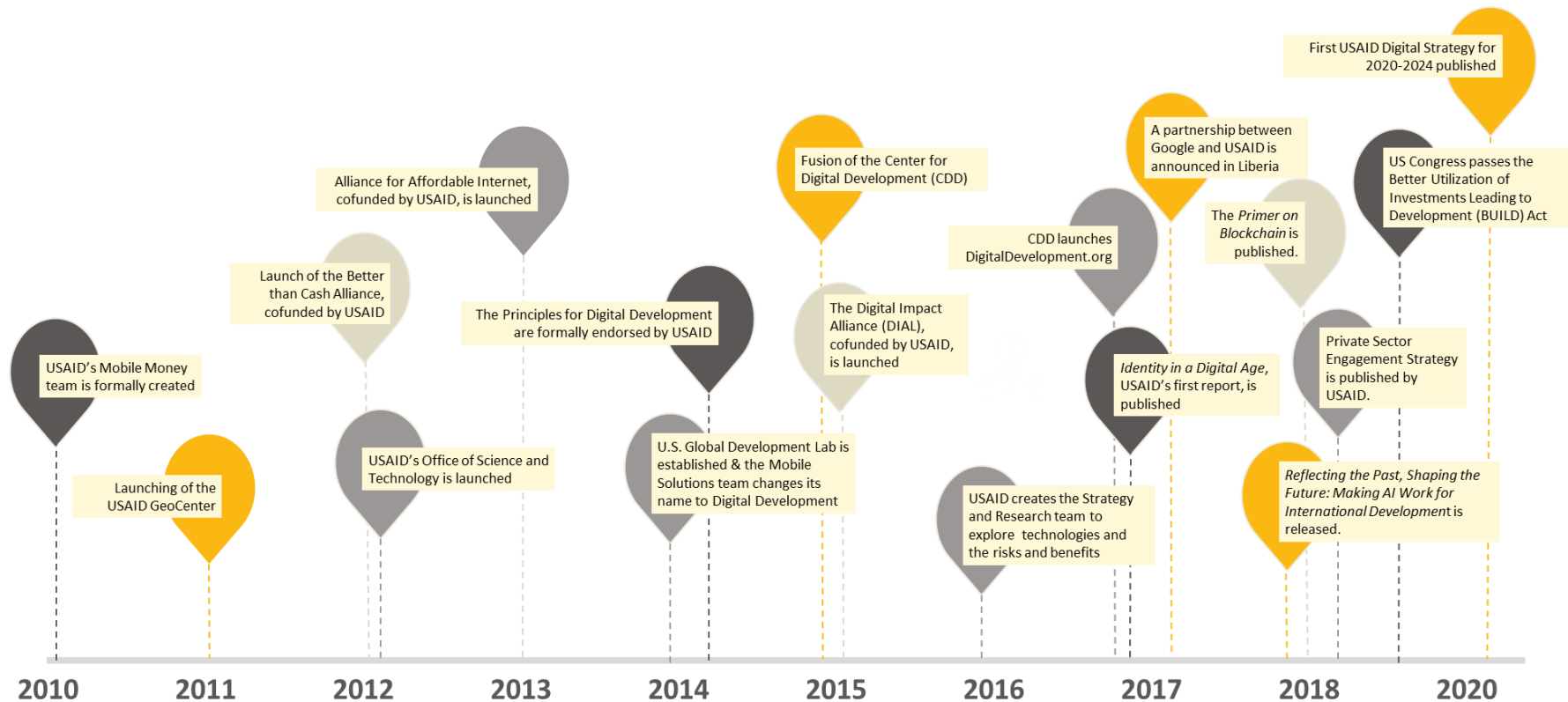
Source: USAID. 2019a. "2018 Digital Download." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/15396/2018-DigitalDownload.pdf.

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USAID's Digital Strategy received much praise, particularly for its balanced perspective on the benefits, but also challenges and risks of digital technologies, including issues of digital divides and inequities, concerns over privacy issues and the rise of digital authoritarianism (Powell 2020). However, some commentators argue that the strategy will be hampered by two factors: the lack of a comprehensive data protection framework in the US and the dominance of Chinese telecommunication technologies in lower-income countries (Pisa and Nwankwo 2020). Others regard the strategy as a good basis for the launch of a government-led multinational or multiparty Digital Initiative that could concentrate donor efforts on key issues of digital development in the Global South and provide a strong counter-weight to Chinese activities in this field as well as Russian disinformation activities (Ingram 2021).

The Digital Strategy could also play an important role in the US' efforts to spread its digital policy approaches abroad, especially with regard to 5G technology (Goovaerts 2021). In October 2021, USAID and the Federal Communications Commission (FCC) signed a MoU to cooperate more closely on 5G technology. The MoU aims to "further the goals and objectives of the USAID Digital Strategy and the FCC's 5G FAST Plan, consistent with the National Strategy to Secure 5G" (USAID 2021). In the MoU, USAID commits to provide "technical assistance, including through embedded advisors, to the governments of developing countries that request assistance in reforming telecommunications and other ICT regulations and policies, to advance policies that promote secure networks, private-sector investment, competition, and the free flow of data across borders" (USAID and FCC 2021, 3). USAID will also work to improve digital skills, capacities and cyber risk awareness among private sector and civil society actors.

Digital development activities by US-American MNCs

As the lead nation in the global digital economy and home to major multinational tech companies such as Alphabet, Amazon, Apple, Facebook, Microsoft and many more, the US is a key factor in shaping the global framework conditions for digital development. In particular, the aforementioned US companies "have an outsized influence on both the internet's physical topology and its digital rules" (Sherman 2020). In recent years, content providers like Google and Facebook have entered the submarine cable industry, making themselves more independent from the usual tier 1 providers and becoming infrastructure-building companies themselves (see Table 1).

Other activities of US-American MNCs aim to improve connectivity in countries of the Global South by providing special, low cost or even free services. Facebook's Free Basic is one example. It offers users free access to a limited number of websites that have been stripped of data-intensive content, such as pictures. The project has been launched in 2013 and was interpreted by some observers as a response to Google's activities in the area of network infrastructure, namely its project 'Loon', aiming to bring the internet to remote areas via balloons in the stratosphere (Nothias 2020). MNCs digital development activities should, therefore, not only be seen in the wider geopolitical context but also in the context of direct competition between these companies to shape the digital economy and to position themselves in emerging markets.

Both examples also share a set of similarities from which lessons can be learned: Both sought cooperation with local actors. In the broader context of Free Basics, Facebook actively reached out to the local civil society (Nothias 2020), while Google cooperated with local companies – in Kenya, for example, with Kenyan Telkom (Newton 2021). However, this did not prevent them from being harshly criticised. In the case of Free Basics, Facebook was criticised for undermining net neutrality and providing access to internet services that served its needs much than those of the users. Google, on the other

hand, was accused of using its balloons for surveillance and of creating a monopoly in certain regions (Newton 2021). Loon was eventually cancelled in early 2021 – despite its quite successful provision of the internet to regions that were cut off due to disasters. Facebook Free Basics is still operating. However, in India, it was banned in 2016 (Vincent 2016).

Table 1: Selected Google subsea cable investments

Name	Ownership	Cable length (km)	Fiber Pairs	System capacity (Tbps)	Ready for service
INDIGO	Consortium	9,600	2	36	2019
Havfrue	Consortium	7,200	6	108	2019
Curie	Private	10,500	4	72	2019
JGA-S	Consortium	6,900	2	36	2019
PLCN	Consortium	12,817	6	144	2019
Dunant	Private	6,400	12	250	2020
Grace Hopper	Private	6,500	16	352	2020
Equiano	Private	15,000	12	240	2021
Echo	Consortium	17,184	12	144	2023
Firmina	Private		12		2023

Source: Qiu, Winston. 2021. "Complete List of Google's Subsea Cable Investments." Accessed June 11, 2021. https://www.submarinenetworks.com/en/insights/complete-list-of-google-s-subsea-cable-investments.

5.3   Regional engagement

5.3.1   Africa

The US plays a rather ambivalent role in Africa's digital development process. The country has long shown a certain apathy towards the continent (Devermont 2020; Soest 2021), which has given China the opportunity to play a major role in the continent's digital transformation. The US is one of the major suppliers of ICTs worldwide. In Sub-Sahara Africa, it mainly supplies video-streaming, cloud computing and drone delivery services (USITC 2020). In areas such as financial technology and e-commerce, US companies focus on investment and infrastructure development rather than providing products directly (USITC 2020).

In recent years, large US-American content provider companies have stepped up their efforts to increase connectivity on the African continent. Facebook announced in 2020 to build a 37.000 km long submarine cable all around the African continent (Browne 2020). With its Free Basics, as mentioned

before, the company is already a provider of basic internet services for low-income populations in 32 African countries (Nothias 2020). Google, on the other hand, built a 15.000 km long submarine cabled called Equiano. Along the West Coast of Africa, the cable leads from Portugal to South Africa. It also has several branching units that allow the creation of additional connections to other African countries along the way (SubmarineNetworks undated). Besides these private-sector investments, the DFC invests one billion USD in Africa's connectivity via the Connect Africa initiative. This includes investments in telecommunications and internet access, but also transportation infrastructures such as roads, railways, ports, and airports (DFC 2018).

Africa is also one of the focus regions of the US-led G7 initiative 'Build Back Better World' (B3W, see Box 2). However, at the time this study is written, there are no concrete figures available on how much investment will be dedicated to African countries under this initiative. Yet, some recent developments might be indicators that US engagement in Africa is increasing: In June 2021, the US Trade and Development Agency (USTDA) has announced to fund a feasibility and viability study to support the South African provider Dark Fibre Africa (DFA's) in its efforts to improve connectivity on the continent (USTDA 2021b). Besides, USTDA also provides funding for a study assessing the feasibility of the deployment of up to 2,000 mobile network base stations in rural Nigeria (USTDA 2021c).

Box 2: G7 aims to Build Back Better World

In June 2021, the US announced the so-called 'Build Back Better World' (B3W) initiative at the G7 Summit in Glasgow. The initiative aims to narrow the existing infrastructure investment gap in developing countries, which is estimated to amount to approx. USD 40 trillion by mobilising private sector capital and using development finance as a catalyst (The White House 2021). The initiative particularly targets low- and middle-income countries in Africa, Latin America and the Caribbean, as well as the Indo-Pacific region. Its aim is to provide these countries with an alternative to investments through the Chinese BRI.

It remains to be seen, however, whether the B3W, which focuses on areas such as climate, health, digital technology and gender equality, is really a competitor for China, whose BRI focuses mainly on classic infrastructure development (Garver 2021). Moreover, the coming months will show what walking the talk will look like and whether or not B3W succeeds in raising new money for digital development in the Global South.

5.3.2 Latin America

Despite many structural challenges that hamper socio-economic development in Latin America and the Caribbean, the ICT market in this region has shown fast growth rates above the global average. It is estimated to account for seven per cent of the global ICT market, with Brazil being the largest market in the region (USTDA 2021a). With regard to both soft- and hardware, Latin America is highly dependent on imports from the US and China. It is also economically vulnerable to the ripple effects of the

tensions between these two powers (OECD 2019). Their conflict placed many countries in the region "in the vulnerable position of divided loyalties and dependencies" (Avila 2021, 5).

In the light of China's increasing influence, in particular, in South America (Nugent and Campell 2021), the US has stepped up its cooperation with Latin American countries, including cooperation on digital issues. In Peru and Ecuador, for example, the DFC finances a project deploying at least 500 telecom towers to improve 4G connectivity also in rural areas (U.S. Department of State 2020). Besides, in October 2020, the US and Brazil deepened their digital cooperation and signed a memorandum of understanding about the deployment of up to one billion USD to foster U.S. exports to Brazil with a particular focus on 5G technologies (U.S. Department of State 2020).

Currently, there are several free trade agreements (FTA) and trade promotion agreements (TPA) in place between the US and Latin American countries. The agreements with Chile, Colombia, Panama, Peru, as well as the Central America-Dominican Republic Free Trade Agreement (CAFTA-DR) include chapters on e-commerce (Office of the U.S. Trade Representative undated). Besides, in July 2020, the United States-Mexico-Canada Agreement (USMCA) entered into force. It contains advanced provisions on digital trade and cybersecurity, amongst others a commitment to free cross-border data flows, the prohibition of data localisation requirements, except for appropriate reasons, and the non-disclosure of source code except for specific investigations (Meltzer 2019).

5.3.3   Asian-Pacific region

The Asia-Pacific region is of great strategic importance for the US in the context of its competition with China. This is also marked by the increasing use of the geopolitically-loaded term Indo-Pacific for the region (Heiduk and Wacker 2020). In 2018, the US launched the Digital Connectivity and Cybersecurity Partnership (DCCP), with USAID playing a central role in activities aimed at strengthening the digital economy and private-sector, building capacities to improve cybersecurity and the mitigation of cybercrime as well as developing technical skills and knowledge in the region (USAID 2019b). In March 2021, Facebook and Google announced investments in two new submarine internet cables, namely Echo and Bifrost, connecting the US West coast with Indonesia and Singapore and increasing the capacity for data to flow between both regions by 70 per cent (Shead 2021).

With regard to digital trade with the region, the US is currently only involved through the US-Japan digital trade agreement concluded in 2019. In 2018, the Progressive Agreement for Trans-Pacific Partnership (CPTPP) was signed by nine countries from the Asia-Pacific region as well as Mexico and Canada, following the US withdrawal from the Trans-Pacific Partnership (TPP). While commentators argue that it would still be reasonable for the US to join the CPTPP, it appears unlikely due to the Biden administration focusing its efforts on the domestic recovery in the light of the Covid19-pandemic (Schneider-Petsinger 2021). A digital trade agreement between the US and countries of the Asia-Pacific region is currently not in sight but could be the next step, building on the digital trade rules established through the CPTPP as well as the US-Japan digital trade agreement (Schneider-Petsinger 2021).

Besides, in November 2020, member countries of the Association of Southeast Asian Nations (ASEAN), along with five other partners in the region, including China, signed a free trade agreement, the Regional Comprehensive Economic Partnership (RCEP). The RCEP also includes a chapter on e-commerce, which, however, bears the handwriting of China as it provides for strict rules on the restriction of free data flows and data localisation (Cutler and Meltzer 2021). Commentators argue that the US absence

in trade agreements in the region could negatively affect the ongoing e-commerce negotiations at the WTO and strengthen China's position (Cutler and Meltzer 2021).

Furthermore, well-aware of India's strategic role in the digital economy in Asia and worldwide, the US seeks to strengthen its relations with the country further. However, there are significant differences between the two countries on core issues of the digital economy, such as the free flow of data and data localisation.

6 Digital development cooperation – the case of the EU

Key take-aways

- The EU is struggling to compete with the digital pioneers, the US and China, especially in terms of innovation and development of key digital technologies. In recent years, however, the EU has underlined its ambition to play a more active geopolitical role, strengthen its digital sovereignty and become a stronger player in the global digital transformation.

- To this end, the EU is stepping up its efforts to develop its own European path for a digital economy and society. The EU has become a key driver for regulating digital transformation in areas such as data protection, data governance, platforms and digital services, as well as AI and other key technologies.

- The EU and its member states are together the largest donor in international development cooperation and aid. Since 2017, the EU approach to digital development issues has become increasingly clear and is underpinned by concrete activities and initiatives such as the D4D Hub. Nevertheless, the EU's D4D approach still lacks a coherent strategy and solid financial resources.

- Currently, the EU's digital development efforts are mainly focused on the African continent, where three flagship projects have been launched under the D4D Hub. However, the EU aims to strengthen its digital development cooperation with Latin America, as well as with the Asia-Pacific region, where India is one of its main partners.

6.1 Digital development model & recent dynamics

The EU is often viewed as a latecomer in the digital economy and a laggard in fully exploiting the potentials of digital technologies. Indeed, the EU is struggling to keep up with the US and China, especially in terms of research and innovation in key digital technologies such as AI, and the development and scaling of digital business models. It should also be noted that the digital readiness of EU Member States varies widely, from frontrunners like Denmark and Sweden to countries like Romania, Greece and Italy, which still have large gaps (EC 2020d).

Nevertheless, the EU is both an important market for digital products and services and a provider. In 2019, for example, the 27 EU member states exported a total of EUR 1.1 trillion in digitally-enabled services to countries inside and outside the EU and also imported an equally large amount of these services (Hamilton and Quinlan 2021). Excluding intra-EU trade, however, the balance shows a deficit of EUR 37 billion (Hamilton and Quinlan 2021). With 22 per cent of exports to non-EU countries and 27 per cent of imports in 2019, the US is both the largest consumer of EU digitally-enabled services as well as supplier of such services to the EU (Hamilton and Quinlan 2021).

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Becoming a player in digital geopolitics

Given its shortcomings, the increasing role of digital technologies and data in the global economy, and the growing competition and tension between the US and China on technology policy issues, the EU has made great efforts to strengthen its position as a player in digital geopolitics and geoeconomics. It has also become more outspoken in this regard. In her speech to the European Parliament on 19 November 2019, Ursula von der Leyen, President of the EU Commission, underlined her aspiration to lead a *geopolitical* Commission with the digital transformation being one major theme in order to preserve European prosperity and EU values alike (Leyen 2019). The EC also stated, that in order to "truly influence the way in which digital solutions are developed and used on a global scale, it needs to be a strong, independent and purposeful digital player in its own right" (EC 2020c).
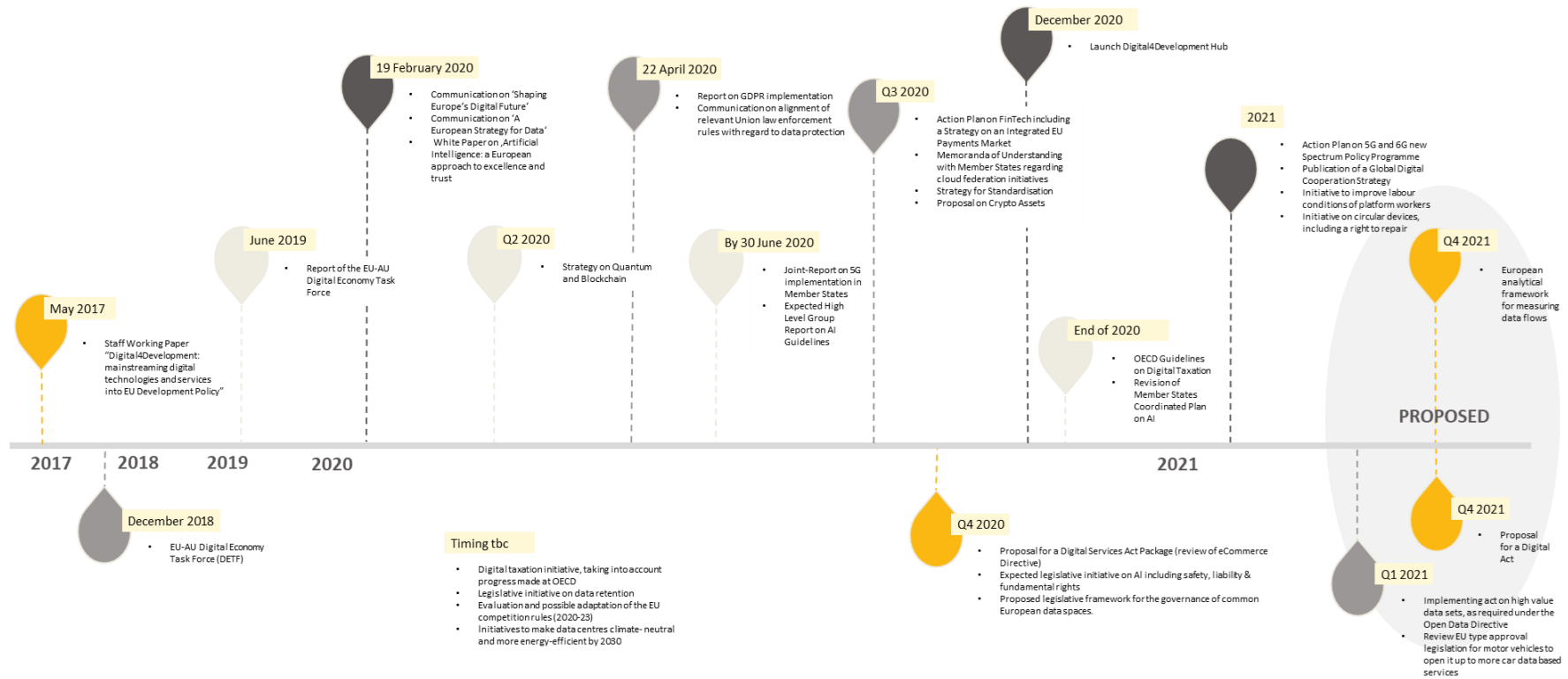
Against this backdrop, the EU has driven the development of a comprehensive legal framework for the digital transformation that reflects not only its economic interests but also its core values (see Figure 14). For this reason, the EU model is often associated with the notion of a regulatory or *human-centred* model of digital economy and society, with the *trustworthiness* of digital technologies being a central element. The regulatory initiatives launched by the EU in recent years range from the General Data Protection Regulation (GDPR) – which has become an important reference and guidance for data regulation worldwide – the regulation of AI, the development of a European data governance act to the regulation of platforms and digital services. In the light of the European Green Deal, the ecological risks and potentials of ICTs also receive more and more attention. The new Circular Economy Action Plan, for example, includes a Circular Electronics Initiative to promote longer lifetimes of digital devices and regulatory measures for electronics and ICTs under the Ecodesign Directive (EC 2020a).

Strengthening Europe's digital sovereignty

The von der Leyen Commission has also put the EU's technological and digital sovereignty higher on the agenda. As a broad concept, it comprises issues like data sovereignty, sovereignty in key technologies such as AI, 5G, blockchain and quantum technology, the development of own capacities, competencies and ecosystems for innovation as well as greater independence with regard to central technological components, such as semiconductors. To that end, the EU has launched several activities: With the development of a European data ecosystem called Gaia-X, the EU particularly aims to strengthen its independence from foreign cloud and data service providers, in particular US companies. The vast majority of the more than 300 members of Gaia-X are indeed companies or other institutions from members of the EU. However, the association also includes several companies from the US, such as Oracle, Palantir Technologies, Palo Alto Networks and salesforce.com, as well as from China and other Asian countries (Gaia-X 2021).

The EU also made efforts to strengthen its capacities in the field of 5G technologies. The EC adopted a legislative proposal for a European partnership for the development of 5G technologies and earmarked 900 million EU of funding to be matched through co-funding by industrial partners (Stuckmann 2021). Besides, the EC has launched an investment initiative to support start-ups and companies in the development and scaling of AI and blockchain technologies (EC 2021d). The EU's Quantum Technologies Flagship aims to support quantum research and innovation through a long-term initiative providing an expected EUR 1 billion over ten years (EC 2021i).

Figure 14: Overview of selected EU's policy initiatives to shape the digital economy and society

December 2020
- Launch Digital4Development Hub

19 February 2020
- Communication on 'Shaping Europe's Digital Future'
- Communication on 'A European Strategy for Data'
- White Paper on ,Artificial Intelligence: a European approach to excellence and trust

22 April 2020
- Report on GDPR implementation
- Communication on alignment of relevant Union law enforcement rules with regard to data protection

Q3 2020
- Action Plan on FinTech including a Strategy on an Integrated EU Payments Market
- Memoranda of Understanding with Member States regarding cloud federation initiatives
- Strategy for Standardisation
- Proposal on Crypto Assets

2021
- Action Plan on 5G and 6G new Spectrum Policy Programme
- Publication of a Global Digital Cooperation Strategy
- Initiative to improve labour conditions of platform workers
- Initiative on circular devices, including a right to repair

June 2019
- Report of the EU-AU Digital Economy Task Force

Q2 2020
- Strategy on Quantum and Blockchain

By 30 June 2020
- Joint-Report on 5G implementation in Member States
- Expected High Level Group Report on AI Guidelines

Q4 2021
- European analytical framework for measuring data flows

May 2017
- Staff Working Paper "Digital4Development: mainstreaming digital technologies and services into EU Development Policy"

End of 2020
- OECD Guidelines on Digital Taxation
- Revision of Member States Coordinated Plan on AI

PROPOSED

2017   2018   2019   2020   2021

December 2018
- EU-AU Digital Economy Task Force (DETF)

Timing tbc
- Digital taxation initiative, taking into account progress made at OECD
- Legislative initiative on data retention
- Evaluation and possible adaptation of the EU competition rules (2020-23)
- Initiatives to make data centres climate- neutral and more energy-efficient by 2030

Q4 2020
- Proposal for a Digital Services Act Package (review of eCommerce Directive)
- Expected legislative initiative on AI including safety, liability & fundamental rights
- Proposed legislative framework for the governance of common European data spaces.

Q4 2021
- Proposal for a Digital Act

Q1 2021
- Implementing act on high value data sets, as required under the Open Data Directive
- Review EU type approval legislation for motor vehicles to open it up to more car data based services

Source: (Fleishman 2021). Own figure based on Fleishman, Hillard. 2021. "The road to Europe Fit for the Digital Age." Accessed July 08, 2021. https://fleishmanhillard.eu/2020/02/the-road-to-europe-fit-for-the-digital-age/.

In September 2021, the EC proposed a decision of the European Parliament and of the Council to establish the 2030 Policy Programme "Path to the Digital Decade", following the communication "The 2030 Digital Compass: the European way for the Digital Decade" which the EC adopted in March 2021. The aim of the "Path to the Digital Decade" is to "deliver the EU's digital transformation in line with this vision by establishing a clear, structured and collaborative process to achieve such result" (EC 2021g).

6.2 The landscape of digital development cooperation in the EU

The EU and its member states are the largest international donors and even surmounts donors like the US, Japan, and China. Digital development, however, has long been missed on its development agenda. It is only since 2017 that the European Union has made Digital for Development (D4D) a priority. The Commission Staff Working Paper on Digital4Development provided an overview of the status quo of the EU's engagement in digital development issues and outlined an approach aiming "to promote information and communication technologies in developing countries as powerful enablers of growth, and to better mainstream digital solutions in development" (EC 2017). The document suggested four priority areas for the EU's D4D activities:

- Access to open, affordable and secure broadband connectivity and digital infrastructure including the necessary regulatory framework
- Digital literacy and digital skills
- Digital for growth, entrepreneurship and job creation
- Digital technologies as an enabler (EC 2017).

In addition, the Commission Staff Working Document proposed to focus D4D activities on Africa. It argued that the approximation between EU and African digital policies would "contribute to developing business relationships in the fast growing markets of the developing world, based on co-development and co-innovation" and called for a reinforcement of the EU's cooperation with its partner countries on "mutually beneficial terms" (EC 2017).

Against the backdrop of the EC's intensified efforts to improve cooperation between the EU and African countries, the EU-AU Digital Economy Task Force (DETF) was launched in December 2018. In June 2019, the DETF published a report setting out a shared vision and key principles for a digital economy and society, and identifying priority actions and options for further cooperation between the AU and the EU on digital development issues. Amongst others, the DETF recommended to boost investments in telecom infrastructures in Africa, develop favourable regulatory environments, enhance digital skills and responsible online behaviour, foster digital entrepreneurship, facilitate access to funding for digital businesses, foster key e-governance services and encourage intra-African digital trade as well as interoperability (AU-EU DETF 2019).

Under the geopolitical turn of the EC, the efforts on digital development cooperation were further strengthened. Three new initiatives were launched by the President of the EC in December 2020, namely the D4D Hub, the EU-AU Data Flagship and the Innovation Bridge. The D4D hub is intended to act as a global multi-stakeholder platform and to better coordinate the many digital development activities at EU level and in the member states to achieve greater impact.

Currently, the D4D initiatives facilitated by the D4D Hub focus particularly on the cooperation with African countries and the African Union (D4D Hub 2021):

- The African European Digital Innovation Bridge (AEDIB) aims to establish a network of digital innovation hubs to develop and strengthen the Africa-European digital innovation ecosystem.
- The EU-AU Data Flagship supports the development of a joint and non-binding data framework between the EU and the AU based on shared values, providing data sovereignty and contributing to the creation of the African Single Digital Market.
- The Innovation Dialogue Europe Africa (IDEA) aims to strengthen the capacities of both civil society and academy to promote digital rights.

The D4D Hub has also launched several activities to support countries in the use of digital technologies to mitigate the impact of the COVID-19 pandemic. It is therefore an important element of the EU's Team Europe approach that had been introduced in April 2020 as part of the EU's response to the pandemic. The Team Europe approach initially focused on mobilising and coordinating an immediate financial response to the challenges of the pandemic. However, it is now increasingly and more generally associated with better coordination within the EU and between the EU and its international partners to respond more effectively to the pandemic (Keijzer et al. 2021). To date, however, it remains unclear to what extent the Team Europe approach actually leads to more strategic and effective action and cooperation (Keijzer et al. 2021).

EU's commitment to improving connectivity

Aside from the D4D Hub, the Data Flagship and the Innovation Bridge as key initiatives, there are also other purely digital connectivity projects currently underway, such as the Policy and Regulation Initiative for Digital Africa (PRIDA) project (EUR 7.5 million), the Multinational Trans-Saharan Backbone (TSB) Optical Fibre Project to connect Algeria, Niger, Nigeria and Chad (Total cost EUR 78.5 million, EU contribution EUR 29 million), the Central African Republic backbone project (total cost EUR 29.5 million, EU contribution EUR 17.5 million) and the AfricaConnect3 (EUR 30 million EU contribution) (Letouzé et al. 2020).

The External Investment Plan has furthermore signed two guarantee agreements with EIB-EBRD for a connectivity project in South Mediterranean countries (EUR 70 million) and a start-up support scheme with the Netherlands Development Finance Company (FMO, EUR 45 million) (EC 2021e).

Furthermore, at her State of the Union Address in September 2021, Ursula von der Leyen, President of the European Commission, announced a European connectivity strategy, called the Global Gateway, that aims to build infrastructure partnerships around the world which will "create links and not dependencies" (EC 2021k). The strategy can clearly be seen as a measure to counterbalance China's growing influence through the BRI and DSR in many parts of the world (Lau and Cokelaere 2021).

A new instrument for development finance

In March 2021, the European Parliament and the European Council endorsed the Neighbourhood, Development and International Cooperation Instrument (NDICI) 'Global Europe' from 2021 to 2027 with an overall budget of 79.5 billion Euro (EC 2021j) for the next MFF period (2021-2027). The instrument focuses on external action funding of the EU and is intended to spur partnerships and activities with Southern partner countries. Digital development is one of the five priority areas focusing on connectivity, digital economy and governance issues, for which around EUR 5 billion has been earmarked.

However, there is currently a lack of coordination with member states and tech-companies and no shared European perspective on connectivity issues and the engagement of the EU. These shortcomings are not sufficiently addressed by the implementation of the new position of an Ambassador at Large for Connectivity in the European External Action Service. A study by the German Institute for International and Security Affairs (SWP) described this position as a rather "representative gesture than a clear resource-rich commitment" and call for the establishment of a decision-making body with a strong financial basis as well as a permanent advisory body on issues of connectivity (Godehardt & Postel-Vinay 2020, 8). However, in July 2021 the Council called on the Commission to implement a strategic and global EU connectivity agenda which is to be presented no later than spring 2022.

D4D activities of EU member states

Besides these activities on the EU-level, many member states and their respective development agencies have actively engaged in digital development efforts over the past years. Table 2 provides an overview of selected digital development activities and initiatives of EU member states.

Table 2: Selected initiatives of EU member states in digital development

Development agency/country	Project	Description
Agence française de développement (AFD), France	Digital Africa platform	Network of more than 170 innovation hubs and incubators across 42 African countries.
	Digital Africa seed fund for innovative entrepreneurship	Supporting entrepreneurship, launched in December 2019.
	AFD Digital Challenge	Competition for start-ups
	Digital Content Hub	Skill development for digital contents, cooperates with local incubator programme.
	Digital Energy Facility	Promotes digital innovation by start-ups and operators in the energy sector.
	#Data4COVID19 challenge	Call for data-based projects to address the African challenges caused by Covid-19
	Submarine cables Asia-Africa-Europe 1 (AAE-1) and South-East Asia-Middle-East-Western Europe 5 (SMW5)	Funding together with Orange and other mobile operators of two submarine cables
	Identification for Development (ID4D) programme	Aims to provide 80 per cent of the Nigerian population with access to a single, legally-recognized and reliable digital identifier

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Development agency/country	Project	Description
	Vietnamese national portal for public services.	Funding of technical assistance for portal to streamline existing public services.
Enabel, Belgium	Wehubit platform	Funds digital initiatives of private, non-profit and public sector actors, focus on health, agriculture, and the empowerment of women
Estonian development cooperation	Diverse projects that establish e-services, especially in e-governance	Support for development e-justice and e-governance solutions, a governmental interoperability framework, a secure data exchange platform, and an education information system
German Corporation for International Cooperation (GIZ)	African European Digital Innovation Bridge (AEDIB)	Aims at a Pan-African network of Digital Innovation Hubs (DIHs). Initiated by France, Belgium, Germany and the European Commission
	Make-IT Africa initiative	Enabling environment for young tech entrepreneurs in multiple sectors (agriculture, health, energy, financial services, smart cities), active in 28 African countries
	FAIR Forward – Artificial Intelligence for All	Supports improvement of AI knowledge; better training data and AI tech access; development of political frameworks for ethical AI and data protection, active in Ghana, Rwanda, South Africa, Uganda and India
	atingi learning platform	Enables digital learning and development of digital competencies
	Fairwork	Evaluates the work conditions of digital labour platforms, implemented by the Oxford Internet Institute with participation of academic institutions from the Global South
	Orange Digital Centres	Promotes digital skills training for young people, established together with Orange and local universities, centres exist in Ethiopia, Senegal and Tunisia and will be opened in a further eleven countries by 2021

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Development agency/country	Project	Description
	#SmartDevelopmentFonds	Hackathon event in 2020 to help develop local digital solutions for use in the COVID-19 crisis
Luxembourg Agency for Development Cooperation (LuxDev)	African Internet eXchange System (AXIS)	Capacity-building for Internet community stakeholders, technical assistance to regional Internet exchange points and policy and regulatory reform at regional level
	Business Partnership Facility (BPF)	Co-finance initiatives to encourage the Luxembourg/European private sector to join forces with partners in developing countries
	CATAPULT initiative	Launched together with the EIB, aims to develop fintech solutions through the collaboration of local start-ups, networks of Fintech providers, and academia.
Swedish International Development Cooperation Agency (SIDA)	Swedish Programme for ICT in Developing Regions (SPIDER)	A centre at the Royal Technical University that mobilizes a network of Swedish and international experts on ICT4D

Source: Based on Letouzé, Emmanuel, Patrick Vinck, Tatiana Goetghebuer, Katia Duhamel, Julie Ricard, Konstantin Gruev, Romain Fourmy, Maria A. Bravo, and Andrés Lozano. 2020. "Study for the assessment of DEVCO work in digitalisation in Sub-Saharan Africa." Accessed October 08, 2021. https://datapopalliance.org/publications/study-for-the-assessment-of-devco-work-in-digitalisation-in-sub-saharan-africa/.

EU's private sector in international cooperation

As for the private sector, the EU's industry maintains its leadership in key sectors and mainly focuses on Business to Business and Business to Government services. With their services, operators such as Orange, Vodafone, and Telefonica cover large parts of Africa and Latin America (see below). The EU has launched several activities to increase the engagement of private companies in development cooperation, such as for example the EU-Africa Business Forum. However, the activities of private companies in the field of digital development cooperation still remains expandable, which is also due to the lack of adequate financing mechanisms for private sector engagement in this field.

In summary, the European Union's greatest strength so far has been its ability to create rules and policies for the digital economy that can provide guidance to many partner countries. Roaming, e-commerce, eID, and data protection are just a few examples where the EU can offer its insights and lessons learned. Not least, Team Europe and the D4D Hub aim to provide better coordination between the EU development actors and open the possibility of joint programming.

6.3 Regional engagement

6.3.1 Africa

The EU's digital development cooperation is most advanced with the African countries and the African Union – as the first projects under the D4D Hub show. It can be expected that increased investments in the African digital economy may take place under a future Global Connectivity Fund (EC 2021f). Besides, the newly launched connectivity strategy "Global Gateway" is likely to put a focus on African countries as it will be one priority topic at the upcoming EU-Africa Summit in February 2021 (EC 2021k).

So far, interventions of the EU in African countries were mostly related to infrastructure building, such as the investments in the Trans-Saharan Backbone project, and creating an enabling policy environment in Africa via the Policy and Regulation Initiative for Digital Africa (PRIDA). Besides, the EU has invested in the African start-up ecosystem with the African-European Digital Innovation Bridge and the External Investment Plan guarantee (EUR 40 mill) attributed to FMO (EC 2021e). EIB has also made investments in the African digital economy and society by supporting network deployment, investing in several start-ups and offering a EUR 250 million loan to develop the Nigerian e-ID system (EIB 2018).

Regarding private-sector involvement on the African continent, Orange is present in 17 African countries and is an official candidate to enter the Ethiopian market starting from 2021 (Orange 2021). Vodafone is present in nine African countries plus India. Both operators own extensive networks, land and submarine cables and data centres connecting their markets. One example is a data centre built by the Orange Service Group on the free zone of Grand-Bassam, which is located 40 kilometres away from Côte d'Ivoire's largest metropolitan area Abidjan (Barton 2019).

6.3.2 Latin America

The EU has announced to make digital development a core issue in its cooperation with countries of Latin America and the Caribbean (EC 2021b). The most important project in this regard is the BELLA (Building the Europe Links with Latin America) Programme. Running from August 2016 to December 2021, the programme has a total budget of EUR 53.7 million, with the EU providing a share of EUR 26.5 million via the Development Cooperation Instrument (DCI). Aside from the EU, the BELLA consortium also includes the Regional Research and Education Networks GÉANT (Europe) and RedCLARA (Latin America) and the National Research and Education Networks (NREN) of Brazil, Chile, Colombia, Ecuador, France, Germany, Italy, Portugal and Spain (EC 2021j).

The programme aims at improving the cooperation in research and education between Europe and Latin America through a 6,000 km long fibre-optic cable called the EllaLink (EC 2021j). The terrestrial component of the project links this high-capacity cable also to the Latin American research network so that research and education institutions achieve better connectivity.

6.3.3 Asian-Pacific region

In the light of the increasing geopolitical role of China and rising tension between China and the US, the EU shows an increasing interest and engagement in the Asia-Pacific region (EEAS 2021b). Aside

from China and Japan, the most relevant partners for the EU in the region are India, Taiwan, South Koreas as well as the South East Asian Nations (ASEAN). With the Asia-Europe Meeting (ASEM), there is also an established information dialogue and cooperation process in place (EC 2021c).

Among others, the EU Strategy for Cooperation in the Indo-Pacific aims to improve and enhance cooperation in particular in areas such as ocean governance, health, global challenges, research and technology, and connectivity (EEAS 2021a). Concerning digital development cooperation, the EU particularly focuses on deepening its relations and cooperation with India on issues related to human-centric digitalisation. Here, there are already several activities taking place, for example, a joint working group between businesses from the Indian and the European digital sector on key issues of concern (EC 2021c). Moreover, the EU and India cooperate on cybersecurity issues, the development of standards in 5G, IoT and blockchain, and the ethical use of AI and high-performance computing (HPC) (EC 2021c). Though taking different stands on the topic of data localisation, the EU and India also exchange on issues related to safe and secure data flows across borders.

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7 Conclusions & way forward

Key take-aways

- The EU faces the challenge of positioning itself as a player in digital geopolitics. The digital and technology policy regulatory initiatives of recent years form a good basis for this. However, a clear strategy for shaping cooperation with partner countries in the Global South on key issues of digital transformation is missing.

- The EU and its member states should develop clear objectives, priorities and strategic actions to improve digital development cooperation, including the establishment of appropriate funding mechanisms. In addition, the EU should strengthen its own capacities and knowledge resources on digital development issues and improve coordination among its member states.

- The EU should particularly intensify its cooperation with Africa, especially on issues of data protection, a fair digital and data economy and cybersecurity. It should support African countries in their efforts to develop a digital single market and strengthen their digital sovereignty. In addition, the EU should deepen its cooperation with countries such as India and Mexico and intensify the strategic dialogue on digital issues.

- In its relations with China and the US, the EU should engage in deeper exchanges with both on mutual interests and possible synergies, while also addressing problematic aspects such as data protection and privacy of individuals.

7.1 Bottom line

Digital geopolitics is characterised by rivalries between the US and China, a large number and heterogeneity of actors, a high level of interdependence between these actors, and various lines of tension and disagreement over the concrete shape of the global digital economy, its value base and the distribution of digital dividends. The challenges in digital geopolitics, therefore, mirror dynamics and power shifts that alter global governance and international relations since the end of the Cold War. However, they are also new in that they deal with issues where policy approaches and decision-making often take place under great uncertainty and raise normative trade-offs that are not easily resolved. Moreover, international and regional institutions, mechanisms and processes for managing the digital transformation are far from adequate to ensure equal digital development opportunities for all, especially for developing countries.

Against this backdrop, the EU faces the challenge of defining its position and developing a consistent approach on how to act in digital geopolitics in line with its normative approach to promote a human-centred digital development model. Moreover, its options differ greatly from those of China and the US: in comparison to both countries, the EU has far fewer financial resources it could dedicate to large infrastructure projects in partner countries in the Global South. European IT and telecommunication

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companies do play an important role in many of these countries, especially on the Africa continent. However, they can hardly compete in areas occupied by large multinational platforms and tech companies from the US and China that increasingly engage in the infrastructure business themselves and that – being also *data-rich* – are well-positioned to dominate the global data economy. The EU – other than China and the US – is also not one country with a unified foreign policy but a union of sovereign states that – especially in the past years – has witnessed increasing internal frictions and challenges.

The EU is not empty-handed

Despite these constraints, the EU has other means and resources at its disposal to act in digital geopolitics and as a partner for developing countries: first of all, its plurality is also an asset as it provides the chance to identify, discuss and develop strategies to resolve diverging views on key issues of digital development. Regulations and guidelines that the EU today is proud of, such as the GDPR and the evolving regulatory framework for AI and other aspects of the digital economy, were born out of an intensive process of weighting concerns, differences, conflicting objectives and interests and integrating them into rules and regulations. The EU's asset is, therefore, not just that it *has* the GDPR – but more that it knows how it got there and how processes around critical and controversial digital topics need to be set up to lead to constructive outcomes.

Moreover, its normative approach to digital development provides a compass behind which like-minded countries can rally. With its large single market, the EU can enforce its own normative and regulatory standards. In doing so, it also acts as a living laboratory for how to regulate the digital economy in a way that benefits not only individual companies but society as a whole. Besides, the existing research and innovation capacities in Europe are an important pillar to find the best technological solutions for the EU's human-centred approach. The EU's active and knowledgeable digital civil society also acts as a watchdog and driving force, constantly assessing where gaps in the legal framework for digital transformation exist, improvements are needed and rights and key objectives – such as e.g. the reduction of the ecological footprint of digital technologies (see Box 3) – need to be strengthened.

Box 3: Fostering an environmentally sustainable digital development in the Global South

The environmental impact of digitalisation is highly ambiguous: on the one hand, digital technologies can lead to greater resource efficiency in industrial production, support new, more sustainable consumption patterns and contribute to the transition of energy systems to renewable energy. On the other hand, digital technologies have a large environmental footprint, rely on rare earths and other raw materials that are often mined with great environmental destruction, and contribute to rising electricity consumption and increasing amounts of e-waste.

Digital development cooperation must take these issues into account in order to promote truly sustainable digital development paths. The coming years will be decisive in determining which digital development model the countries of the Global South will follow and whether or not it will contribute to a transformation towards sustainability. The task is challenging: it ranges from developing energy-efficient data infrastructures, expanding renewable energy to power the digital transformation, to developing sustainable and public good-oriented digital business models and using AI and big data for environmental protection and more inclusive and sustainable societies.

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So far, however, the issue of ecological sustainability has played a minor role in digital development cooperation. With its European Green Deal and its commitment to climate protection and a human-centred digital transformation, the EU is the right actor to support a sustainable and green digital transformation in its partner countries. Together with the development agencies and their partner countries, it could add the tenth principle "Build in an environmentally friendly, climate-neutral and resource-saving way" to the Principles for Digital Development.

Finally, the EU and its member states have strong relations with many countries in the world, including in the Global South. Its proximity to the African continent and the close interdependences between Europe and Africa form a basis from which cooperation on digital issues can – and should be – intensified and designed for mutual benefits.

7.2 Options for the further development of the EU's D4D concept

Starting with 2017, the EU has made several steps to advance and implement its D4D approach. To further strengthen this approach and improve digital cooperation with countries in the Global South, the following measures should be boldly taken:

1. **Develop a coherent EU Digital4Development strategy with clear and measurable objectives and targeted actions.**

The policy environment for the EU's D4D approach is rather fragmented: There is a wide variety of documents on the EU level, ranging from the 2017 Staff Working Document on D4D to the EU-AU Digital Economy Task Force report in 2019. Besides, there are numerous documents prepared by the EU member states. Taken together, however, these documents do not provide a clear strategy for the EU's digital development cooperation. Moreover, several measures to strengthen the EU's role in digital geopolitics outlined in the EU 2020 Strategy "Shaping Europe's Digital Future" have hardly taken concrete shape so far. However, the need for a global digital cooperation strategy was reaffirmed by the Council in July 2021. Such a strategy should now be developed in a timely and decisive manner to make the EU more active, coherent and visible in digital development cooperation.

For that purpose, the EU should review the above-mentioned digital development and strategy documents and evolve them into a comprehensive D4D Strategy. This strategy should formulate a consistent approach to promoting the EU's human-centred model for digital development. It should provide key principles and objectives and set the cornerstones for programming in priority areas such as privacy and data protection, digital governance, infrastructure development, digital skills and capacity building, as well as key technologies such as AI. The strategy should be underpinned with concrete measures, responsibilities and a timeline for its implementation. It should be jointly developed by the EC and the EU member states and in close cooperation with international partners, especially those in the Global South. It should aim to provide a sound basis for a better cooperation and coordination between the development programmes of the EU member states. As many actors are currently scaling up their activities, such a strategy could allow the EC and the EU member states to plan and implement development actions together with partner countries in the spirit of a "Team Europe".

First steps:

- Review key documents such as "Shaping Europe's digital future" and "Europe's Digital Decade: digital targets for 2030" with regard to their international perspective and status of implementation. The review should identify gaps, new issues that need to be included as well as priority areas.

- Based on this review, set up a collaborative process with EU member states, their development agencies and international partners to develop a joint strategy for the EU's digital development approach in international partnerships, including objectives and priorities.

2. **Underpin the EU's Digital4Development Strategy with a comprehensive funding and investment strategy with sufficient financial resources and flexible financing instruments.**

It will be crucial for the success of the EU's D4D strategy to provide it with adequate resources and modern funding mechanisms. The current funding system is highly fragmented between national and regional envelopes and often criticized for being too slow for the fast-moving digital ecosystem. Besides, EU investments in digital infrastructures in partner countries in the Global South are low compared to the US and China. The strategy document "Europe's Digital Decade: digital targets for 2030" mentions a Global Connectivity Fund, but this fund remains rather vague in its description. The development of a EU's digital development strategy for international partnerships should therefore be accompanied by developing a clear and comprehensive funding and investment strategy.

One approach could be to broaden the scope of the Global Connectivity Fund. Currently, the planned fund focuses on infrastructure investments. The EU needs a coherent investment approach that considers international connectivity, especially for landlocked countries, national backbone connectivity and last mile connectivity, and focuses in particular on new business models that can connect more people in low population density areas to reliable and high-quality internet. Another key aspect is critical data infrastructure, such as data storage and processing facilities as well as governmental public infrastructure such as registries and the network connecting them. Such elements are crucial for the data sovereignty of nations, but currently, for example, the large amount of data from African countries is stored in the US and Europe. Alternatively, the EU and its member states should commit to funding environmentally friendly and secure data centres in their partner countries. Moreover, the fund should go beyond infrastructure development and cover all strategic areas of an EU D4D stratify including e-government, start-up financing, development of skills and capacities, and more. It should also provide funding for technical assistance that can support the development and implementation of legislation in partner countries.

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The fund should combine grants, blended grants, loans plus guarantees in one single and agile financing instrument. Its funding and investment strategy should be developed in a collaborative process, including the European Union, its member states, financing institutions, the EU private sector, and civil society and academia. As a starting point, the missing connectivity links should be identified that require EU investment and that are sustainable in the long term in order to also attract private investments. Priorities should be set based on the actual needs of partner countries and in line with their development goals. Such a comprehensive and inclusive strategy could allow for EU member states and private companies to dedicate additional resources under an EU-wide strategy and consolidate joint interventions on the ground.

First steps:

- Develop a comprehensive needs assessment with partner countries and identify their priorities and goals for digital development as well as investment opportunities in connectivity infrastructure.

- Initiate a process to further develop the concept of the planned Global Connectivity Fund into a comprehensive financing and investment instrument with a clear strategy that encompasses both infrastructure, including green and secure data infrastructures, and broader digital development issues, such as digital capacity and skills development, digital entrepreneurship, e-government, data governance, etc.

3. **Develop the D4D Hub into a strong institution to better coordinate, manage resources and multiply on the experience of the EU member states, private sector, civil society and academia.**

The D4D Hub was launched in December 2020 with the main objective of increasing the coordination between the EU D4D stakeholders and the partner countries. In addition, the Team Europe approach promised to bring a new way of programming and implementation as European Commission and EU member states join forces and share resources to respond to the COVID-19 pandemic. However, neither the D4D Hub nor the Team Europe approach have reached sufficient maturity in order to live up to these expectations.

For this to happen – and for the proposed D4D strategy to succeed – the D4D Hub needs to become a stronger institution, with sufficient resources and an inclusive governance model that ensures better coordination not only between member states but also with the EU private sector and civil society. Aside from improving coordination, the D4D Hub has also the potential of addressing the shortage of D4D experts the EU has at the level of Headquarters and in the EU delegations. It could form pools of experts on various digital topics of the aforementioned D4D strategy, which could provide expertise and support for digital capacity building. This approach of internal consultants is already being successfully implemented by the World Bank. In order to keep a finger on the pulse of time and to quickly identify new topics and developments, the D4D Hub should also be equipped with a geopolitical monitoring component. Such a D4D observatory could enable the EU to keep track of digital investments and development projects, provide sound analysis for decision-making and assess the impact of EU D4D projects.

A well-funded, staffed and managed D4D Hub could gradually become the incubator for larger "Team Europe" initiatives, bringing together the resources, expertise and diplomatic reach of EU institutions, member states, the private sector, civil society and academia. Such an instrument could strengthen cohesion between the European Commission, EU member states and the private sector, and unify the EU's external appearance and action.

First steps:

- Expand the resources available to the D4D Hub, create a more inclusive governance model and put in place pools of experts on key aspects of the D4D strategy.

- Develop a concept for a monitoring component within the D4D hub, such as a D4D observatory, which could ensure continuous monitoring of D4D actions and general developments at international level on digital issues.

4. **Provide financial as well as technical support to partner countries to develop their legal and institutional framework for the digital transformation, strengthen countries' enforcement capacity and digital sovereignty, promote skills development in the public and private sector.**

Based on the above-mentioned D4D strategy and in line with a comprehensive funding strategy for connectivity in the Global South, the EU and its member states should intensify their support to partner countries in defining and implementing their digital development approaches and strengthen their digital sovereignty.

To this end, the EU should establish a strong digital policy and governance assistance programme to support partner countries and regions in developing and implementing data protection and data governance regulations, e-government interoperability frameworks, guidelines and regulations for key technologies such as AI, e-commerce rules, cybersecurity and more. The proposed pool of experts under the D4D Hub could be one corner element of this digital governance programme.

One challenge that is often overlooked is the ability of partner countries to enforce regulations once they have been adopted. One example is the limited capacity of many partner countries to enforce data protection regulations, often hampered by a lack of institutional independence, resources or expertise. For this reason, next to the digital governance assistance programme, the EU and its member states need to provide institutional capacity building.

Besides, the EU should create a strong digital skills and job programme by bringing together public and private stakeholders in a coalition that can jointly finance digital skills projects in partner countries. These projects should address skill development in the public as well as the private sector and also contribute to the development of ecosystems for digital entrepreneurship and job creation in the digital economy of partner countries.

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First steps:

- Design a digital policy and governance assistance programme that can be managed under the D4D Hub with the EU pools of experts for each of the priority areas being an important element.

- Develop and finance an International Digital Skills and Jobs Coalition for partner countries in the Global South.

5. **Take a leading role on the global stage by forging partnerships and improved coordination with countries sharing common interests and values.**

The European Union and its member states should forge bilateral or multilateral partnerships with countries in the Global South based on a shared understanding of the goals and challenges of the digital transformation. Such agreements should be made in the spirit of mutual benefits and shared learning, present clear objectives, instruments of implementation and joint action plans and should be harmonised at regional and continental level. In relation to the African continent, for example, the EU and its member states should take the opportunity of the EU-AU Summit scheduled for March 2022 to lay down a concrete digital transformation partnership. Also, as Smart Africa Alliance is increasing its role in shaping up the digital integration of the continent, the EC should consider to become a member, provide financing and be more present in the working groups developing the so-called blueprints.

The EU and its member states should also work towards a digital development alliance of like-minded countries and organisations. Countries such as US, Japan, Korea, Mexico, Brazil and India could be engaged in creating a joint push towards a more human-centred global digital economy model. With those countries interested, the EU should share its perspectives and experiences with the development of regulatory standards, such as the GDPR, the Digital Single Market Act, the Digital Service Act, the Data Governance Act as well as the upcoming AI regulation. Aside from that, dialogues should also address the development of healthy digital ecosystems for companies and start-ups, the engagement of civil society in digital development, questions related to a new digital social contract, and the development of sustainable and resilient digital infrastructures in the light of cybersecurity issues. An intensified dialogue with India could be particularly relevant since the country takes strong positions on controversial issues such as the question of data localisation. A sincere exchange on such topics could broaden the understanding of data sovereignty from a Global South perspective and contribute to take the concerns of the developing countries more seriously.

With regard to the US and China, the EU has many interdependencies on the one hand, but on the other hand there are also opposing approaches and positions. The US will remain the closest partner of the EU. Existing differences on digital development issues need to be discussed and resolved by using cooperation mechanism such as the US-EU Trade and Technology Council that took place in Pittsburgh. Such mechanisms could also be used to develop joint actions for the countries of the Global South. To China, the EU is tied through strong economic and trade relations. Despite – or because of – the many differences in the EU's and China's approaches to digital development, dialogue with China

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should be intensified on these critical and controversial issues, as well as on future cooperation and common interests.

Moreover, the EU should bring the African continent into this conversation as it has become a field of contestation and competition between the two digital powers US and China – often not to the benefit of the African countries. As Africa's challenges to develop digital infrastructures and reap the benefits of the digital economy are huge, it cannot afford a power struggle on its grounds. On the contrary, joint efforts, cooperation and tapping into synergies would be much needed to support African countries in their digital developments. Over these issues, a sincere and constructive conversation needs to be led – just as much as on how Africa and African people can develop and maintain their digital and data sovereignty. Therefore, it would be important that African actors lead such a dialogue.

First steps:

- Start a process of engaging with countries in the Global South with the aim of forging strong and official partnerships between the EU and these countries.

- Increase the EU engagement and exchange with regional organisations such as AUC, Smart Africa, ASEAN, etc.

- Initiate an EU-US as well as an EU-China high-level dialogue on digital for development in order to discuss areas for cooperation as well as to exchange contrasting views on key issues of digital development.

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Abbreviations

AfCFTA	African Continental Free Trade Area
AFD	Agence Française de Développement/French Development Agency
AI	Artificial Intelligence
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASEM	Asia-Europe Meeting
ASPI	Australian Strategic Policy Institute
AUC	African Union Commission
B3W	Build Back Better World
BELLA	Building the Europe Links with Latin America
BRI	Belt and Road Initiative
BUILD	Better Utilization of Investments Leading to Development
CAFTA-DR	Central America-Dominican Republic Free Trade Agreement
CCP	Chinese Communist Party
CDB	China Development Bank
CDD	Center for Digital Development
CFR	Council on Foreign Relations
China-CELAC	China-Community of Latin American and Caribbean States
CIDCA	China International Development Cooperation Agency
CIT	Corporate income tax
CN	China
CNY	Chinese Yuan
CPTPP	Progressive Agreement for Trans-Pacific Partnership
CSIS	Center for Strategic and International Studies
D4D	Digital for development
DAC	Development Assistance Committee
DCCP	Digital Connectivity and Cybersecurity Partnership
DCI	Development Cooperation Instrument
DDA	Doha Development Agenda
DFA	Dark Fibre Africa
DFC	Development Finance Corporation
DG DEVCO	EU Commission Directorate-General for International Cooperation and Development
DIAL	Digital Impact Alliance
DMT	Digitalisation Mapping Tool
DSR	Digital Silk Road
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIB	European Investment Bank

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EU	European Union
EUR	Euro
EXIM	Export-Import Bank of China
FCC	Federal Communications Commission
FTA	Free Trade Agreement
GAFAM	Google, Amazon, Facebook, Apple, Microsoft
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GII	Global Information Infrastructure
HPC	High-Performance Computing
ICPC	International Cyber Policy Centre
ICT	Information and communication technology
ICT4D	Information and communication technology for development
IEC	International Electronical Commission
IMF	International Monetary Fund
IoT	Internet of Things
IT	Information Technology
ITU	International Telecommunication Union
LAC	Latin America and the Caribbean
LEO	Low Earth Orbit
MFF	Multinational Financial Framework
MNC	Multinational Corporation
MoU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
NDICI	Neighbourhood, Development and International Cooperation Instrument
NREN	National Research and Education Networks
NSS	National Security Strategy
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OOF	Other Official Flow
OPIC	Overseas Private Investment Corporation
PPP	Private-Public Partnerships
PRIDA	Policy and Regulation Initiative for Digital Africa
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
ROC	Republic of the Congo
SCS	Social Credit System
SWP	Stiftung Wissenschaft und Politik/German Institute for International and Security Affairs
THB	Thai Baht
TPA	Trade Promotion Agreement

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TPP	Trans-Pacific Partnership
TSB	Trans-Saharan Backbone
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNPD	United Nations Population Division
USA	United States of America
USAID	United States Agency for International Development
USD	United States Dollar
USITC	United States International Trade Commission
USMCA	United States-Mexico-Canada Agreement
USTDA	United States Trade and Development Agency
VAT	Value-added tax
WTO	World Trade Organisation

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References

Aaronson, Susan A. 2016. "The digital trade imbalance and its implications for internet governance." Paper Series 25. Accessed July 02, 2021. https://www.cigionline.org/sites/default/files/gcig_no25_web_0.pdf

Ahmed, Shamira, and Alison Gillwald. 2020. "Multifaceted challenges of digital taxation in Africa." Policy Brief 7. Accessed July 02, 2021. https://media.africaportal.org/documents/Final-Tax-PB_30112020.pdf

Akhtar, Shayerah I., and Marian L. Lawson. 2019. "BUILD Act: frequently asked questions about the new U.S. International Development Finance Corporation." Accessed July 02, 2021. https://fas.org/sgp/crs/misc/R45461.pdf

Arcesati, Rebecca. 2020. "The Digital Silk Road is a development issue." Accessed April 14, 2021. https://merics.org/de/analyse/digital-silk-road-development-issue

Arun, Chinmayi. 2020. "AI and the Global South." In The Oxford handbook of ethics of AI, edited by Markus D. Dubber, Frank Pasquale, and Sunit Das, 587–606. New York NY: Oxford University Press.

AU-EU DETF. 2019. "New Africa-Europe Digital Economy Partnership: Accelerating the Achievement of the Sustainable Development Goals." Accessed September 29, 2021. https://digital-strategy.ec.europa.eu/en/library/new-africa-europe-digital-economy-partnership-report-eu-au-digital-economy-task-force

Avila, Renata. 2021. "Shaping the future of multilateralism: Towards a "digital new deal" for Latin America: Regional unity for a stronger recovery." Accessed July 04, 2021. https://us.boell.org/sites/default/files/2021-06/HBS-e-paper%204%20-%20Latin%20America%20V2.pdf

Azmeh, Shamel, Christopher Foster, and Jaime Echavarri. 2020. "The International Trade Regime and the Quest for Free Digital Trade." International Studies Review, 22 3: 671–92. DOI:10.1093/isr/viz033.

Barton, James. 2019. "Orange selects ENGIE for Côte d'Ivoire data centre." Accessed July 14, 2021. https://developing-telecoms.com/telecom-technology/data-centres-networks/8515-orange-selects-engie-for-operation-and-maintenance-of-cote-d-ivoire-data-centre.html

Bastion, Geraldine de, and Sreekanth Mukku. 2020. "Data and the Global South: Key Issues for Inclusive Digital Development." Accessed September 04, 2021. https://us.boell.org/sites/default/files/2021-01/20201216-HB-broschure-data%20and%20global%20south-A4-01.pdf

Basu, Arindrajit. 2020. "The Retreat of the Data Localization Brigade: India, Indonesia and Vietnam." The Diplomat, January 10. Accessed July 02, 2021. https://thediplomat.com/2020/01/the-retreat-of-the-data-localization-brigade-india-indonesia-and-vietnam/

Basu, Arindrajit, Elonnai Hickok, and Aditya S. Chawla. 2019. "The localisation gambit: Unpacking policy measures for sovereign control of data in India." Accessed July 02, 2021. https://cis-india.org/internet-governance/resources/the-localisation-gambit.pdf

BBC. 2021. "China declares all crypto-currency transactions illegal." September 24. Accessed October 07, 2021. https://www.bbc.com/news/technology-58678907

Bendiek, Annegret, Nadine Godehardt, and David Schulze. 2019. "The Age of Digital Geopolitics & Proxy War Between US and China." Accessed October 07, 2021. http://www.ipsnews.net/2019/07/age-digital-geopolitics-proxy-war-us-china/

Biryabarema, Elias. 2019. "Uganda's cash-strapped cops spend $126 million on CCTV from Huawei." Accessed July 05, 2021. https://www.reuters.com/article/us-uganda-crime-idUSKCN1V50RF

Bland, Jeff, Zoey Breslar, Jim Esselman, Ireland, and Dana. 1996. "Leland Initiative: Africa Global Information Infrastructure Gateway Project." Accessed July 02, 2021. https://pdf.usaid.gov/pdf_docs/PNABZ059.pdf

Blazyte, Agne. 2018. "Alibaba continues to lead retail e-commerce sales in China in 2018." Accessed July 02, 2021. https://www.statista.com/chart/14717/alibaba-continues-to-lead-retail-e-commerce-sales-in-china-in-2018/

izt

REFERENCES

Bloomberg News. 2021. "China Fines Alibaba Record $2.8 Billion After Monopoly Probe." Bloomberg, April 10. Accessed October 07, 2021. https://www.bloomberg.com/news/articles/2021-04-10/china-fines-alibaba-group-2-8-billion-in-monopoly-probe

Browne, Ryan. 2020. "Facebook is building a huge undersea cable around Africa to boost internet access in the continent." Accessed October 14, 2021. https://www.cnbc.com/2020/05/14/facebook-building-undersea-cable-in-africa-to-boost-internet-access.html

Buchholz, Katharina. 2020. "Which Countries Have Banned Huawei?" Accessed July 08, 2021. https://www.statista.com/chart/17528/countries-which-have-banned-huawei-products/

Bughin, Jacques, Eric Hazan, Sree Ramaswamy, Michael Chui, Tera Allas, Peter Dahlström, Nicolaus Henke, and Monica Trench. 2017. "Artificial Intelligence: the next digital frontier?" Discussion Paper. Accessed July 02, 2021. https://www.mckinsey.com/~/media/mckinsey/industries/advanced%20electronics/our%20insights/how%20artificial%20intelligence%20can%20deliver%20real%20value%20to%20companies/mgi-artificial-intelligence-discussion-paper.ashx

Bughin, Jacques, Jeongmin Seong, James Manyika, Lari Hämäläinen, Eckart Windhagen, and Eric Hazan. 2019. "Notes from the AI frontier: Tackling Europe's gap in digital and AI." Discussion Paper. Accessed July 02, 2021. https://www.mckinsey.com/~/media/mckinsey/featured%20insights/artificial%20intelligence/tackling%20europes%20gap%20in%20digital%20and%20ai/mgi-tackling-europes-gap-in-digital-and-ai-feb-2019-vf.pdf

Bukht, Rumana, and Richard Heeks. 2017. "Defining, conceptualising and measuring the digital economy." Working Paper Series 68. Accessed July 02, 2021. https://diodeweb.files.wordpress.com/2017/08/diwkppr68-diode.pdf

Burrington, Ingrid. 2015. "The Strange Geopolitics of the International Cloud: How cold weather, taxes, and sovereignty dictate the placement of data centers overseas." The Atlantic, November 15. Accessed July 02, 2021. https://www.theatlantic.com/technology/archive/2015/11/the-strange-geopolitics-of-the-international-cloud/416370/

Cadwalladr, Carole, and Emma Graham-Harrison. 2018. "Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach." The Guardian, March 17. Accessed July 02, 2021. https://www.theguardian.com/news/2018/mar/17/cambridge-analytica-facebook-influence-us-election

Chatzky, Andrew, and James McBride. 2020. "China's Massive Belt and Road Initiative." Accessed July 05, 2021. https://www.cfr.org/backgrounder/chinas-massive-belt-and-road-initiative

Chen, Qin. 2021. "Didi, Alibaba, and Tencent hit in major round of antitrust fines." Technode, July 8. Accessed October 07, 2021. https://technode.com/2021/07/08/didi-alibaba-and-tencent-hit-in-major-round-of-antitrust-fines/

Chen, Yunnan, Linda Clababrese, and Barnaby Willitts-King. 2021. "How China's new white paper defines a decade of development cooperation." Accessed July 05, 2021. https://odi.org/en/insights/how-chinas-new-white-paper-defines-a-decade-of-development-cooperation/

Cheney, Clayton. 2019. "China's Digital Silk Road: Strategic technological competition and exporting political illiberalism." Issues & Insights 8. Accessed July 05, 2021. https://pacforum.org/wp-content/uploads/2019/08/issuesinsights_Vol19-WP8FINAL.pdf Working Paper.

Chimbelu, Chiponda. 2019. "Investing in Africa's tech infrastructure. Has China won already?" Accessed July 05, 2021. https://www.dw.com/en/investing-in-africas-tech-infrastructure-has-china-won-already/a-48540426

Cichocka, Beata, Ian Mitchell, and Euan Ritchie. 2021. "Three Key Shifts on Development Cooperation in China's 2021 White Paper." Accessed July 06, 2021. https://www.cgdev.org/blog/three-key-shifts-development-cooperation-chinas-2021-white-paper

CIDCA. 2021. "China's International Development Cooperation in the New Era." Accessed July 05, 2021. http://english.www.gov.cn/archive/whitepaper/202101/10/content_WS5ffa6bbbc6d0f72576943922.html White Paper.

CIFTIS. 2021. "Report: China's Digital Economy Has Reached 39.2 Trillion Yuan, Accounting for 38.6% of GDP." Accessed October 07, 2021. https://www.ciftis.org/article/9895564642873344.html

izt

Council on Foreign Relations. 2021. "Cyber Operations Tracker." Accessed July 02, 2021. https://microsites-live-backend.cfr.org/cyber-operations

CSIS. 2019. "China's Digital Silk Road. Event transcript." Center for Strategic and International Studies, February 5. Accessed October 28, 2021. csis-website-prod.s3.amazonaws.com/s3fs-public/publication/190211_Chinas_Digital_Silk_Road.pdf.

Cutler, Wendy, and Joshua P. Meltzer. 2021. "Digital trade deal ripe for the Indo-Pacific." Accessed July 02, 2021. https://www.brookings.edu/opinions/digital-trade-deal-ripe-for-the-indo-pacific/

D4D Hub. 2021. "Eight innovative projects." Accessed October 05, 2021. https://d4dhub.eu/projects

Dahlbeck, Anders. 2021. "The current plans for a new global digital tax are inadequate." Accessed July 02, 2021. https://www.euronews.com/2021/06/04/the-plans-for-a-new-global-digital-tax-are-wholly-inadequate-view

Dekker, Brigitte, Maaike Okano-Heijmans, and Eric S. Zhang. 2020. "Unpacking China's Digital Silk Road." Accessed July 02, 2021. https://www.clingendael.org/sites/default/files/2020-07/Report_Digital_Silk_Road_July_2020.pdf Clingendael Report.

Deloitte. 2016. "Equalization Levy, 2016: Is it equitable?" Accessed July 02, 2021. https://www2.deloitte.com/content/dam/Deloitte/in/Documents/technology-media-telecommunications/in-tmt-equalization-levy-2016-noexp.pdf

Devermont, Judd. 2020. "A new U.S. policy framework for the African century." CSIS Briefs. Accessed July 02, 2021. https://www.csis.org/analysis/new-us-policy-framework-african-century

DFC. 2018. "OPIC Launches Connect Africa Initiative to Invest More Than $1 Billion Supporting Infrastructure, Communications, and Value Chain Connectivity." Accessed July 05, 2021. https://www.dfc.gov/media/opic-press-releases/opic-launches-connect-africa-initiative-invest-more-1-billion-supporting

DIAL. 2021. "Who we are: A "think, do, replicate" tank." Accessed July 02, 2021. https://digitalimpactalliance.org/home/who-we-are/

EC. 2017. "Digital4Development: mainstreaming digital technologies and services into EU Development Policy: Commission Staff Working Paper." Accessed July 07, 2021. ec.europa.eu/newsroom/document.cfm?doc_id=44806

EC. 2018. "USA-China-EU plans for AI: where do we stand?" Digital Transformation Monitor. Accessed July 02, 2021. https://ati.ec.europa.eu/sites/default/files/2020-07/USA-China-EU%20plans%20for%20AI%20-%20where%20do%20we%20stand%20%28v5%29.pdf

EC. 2020a. "A new Circular Economy Action Plan. For a cleaner and more competitive Europe." Accessed April 14, 2021. https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

EC. 2020b. "On Artificial Intelligence - A European approach to excellence and trust." Accessed July 04, 2021. https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf White Paper.

EC. 2020c. "Shaping Europe's digital future: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions." Accessed September 29, 2021. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0067

EC. 2020d. "The Digital Economy and Society Index (DESI)." Accessed April 14, 2021. https://ec.europa.eu/digital-single-market/en/digital-economy-and-society-index-desi

EC. 2021a. "A European approach to Artificial intelligence." Accessed July 03, 2021. https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence

EC. 2021b. "Americas: The digital economy & society is now firmly part of the agenda for the EU's relations with the Americas." Accessed July 05, 2021. https://digital-strategy.ec.europa.eu/en/policies/americas

EC. 2021c. "Asia-Pacific: Asia is a vibrant economic region of the world, with dynamic markets and a strong innovation capacity." Accessed July 05, 2021. https://digital-strategy.ec.europa.eu/en/policies/asia-pacific

izt

EC. 2021d. "Blockchain funding and investment." Accessed September 20, 2021. https://digital-strategy.ec.europa.eu/en/policies/blockchain-funding

EC. 2021e. "EU External Investment Plan." Accessed July 05, 2021. https://ec.europa.eu/eu-external-investment-plan/projects-list_en?f%5B0%5D=field_eip_blending_sector%3A352&f%5B1%5D=field_eip_region%3A466

EC. 2021f. "Europe's Digital Decade: digital targets for 2030." Accessed June 30, 2021. https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

EC. 2021g. "Proposal for a decision of the European Parliament and of the Council establishing the 2030 Policy Programme "Path to the Digital Decade"." Accessed October 06, 2021. https://ec.europa.eu/newsroom/dae/redirection/document/79300

EC. 2021h. "Proposal for a regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts." Accessed July 03, 2021. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1623335154975&uri=CELEX%3A52021PC0206#footnote3

EC. 2021i. "Quantum Technologies Flagship." Accessed September 29, 2021. https://digital-strategy.ec.europa.eu/en/policies/quantum-technologies-flagship

EC. 2021j. "BELLA - Building the Europe Link to Latin America." Accessed July 05, 2021. https://ec.europa.eu/international-partnerships/projects/bella-building-europe-link-latin-america_en

EC. 2021k. "State of the Union Address: Strengthening the Soul of Our Union." Delivered by President Ursula von der Leyen. Accessed October 28, 2021. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_21_4701

EEAS. 2021a. "EU strategy for cooperation in the Indo-Pacific." Accessed July 02, 2021. https://eeas.europa.eu/sites/default/files/eu-indo-pacific_factsheet_2021-04_v.5.pdf

EEAS. 2021b. "EU strategy for cooperation in the Indo-Pacific." Accessed July 02, 2021. https://eeas.europa.eu/headquarters/headquarters-homepage/96741/eu-strategy-cooperation-indo-pacific_en

EIB. 2018. "Nigeria Digital ID." Accessed July 05, 2021. https://www.eib.org/en/projects/pipelines/all/20180298

Euronews. 2021. "Brussels bids to boost Europe's connectivity with 600 low-orbit satellites." Accessed July 02, 2021. https://www.euronews.com/2021/01/13/brussels-bids-to-boost-europe-s-connectivity-with-600-low-orbit-satellites

Feldstein, Steven. 2019. "The Global Expansion of AI Surveillance." Accessed April 14, 2021. https://carnegieendowment.org/files/WP-Feldstein-AISurveillance_final1.pdf

Fleishman, Hillard. 2021. "The road to Europe Fit for the Digital Age." Accessed July 08, 2021. https://fleishmanhillard.eu/2020/02/the-road-to-europe-fit-for-the-digital-age/

Fouquet, Helene. 2021. "China's 7,500-Mile Undersea Cable to Europe Fuels Internet Feud." Accessed July 05, 2021. https://www.bloomberg.com/news/articles/2021-03-05/china-s-peace-cable-in-europe-raises-tensions-with-the-u-s

Freedom Lab. 2020. "The new power of technical standards." Accessed July 02, 2021. https://freedomlab.org/the-new-power-of-technical-standards/

Fritz, Thomas, and Sven Hilbig. 2019. "Global Justice 4.0: The impacts of digitalisation on the Global South." Accessed July 04, 2021. https://www.brot-fuer-die-welt.de/fileadmin/mediapool/blogs/Hilbig_Sven/global_justice_4.0.pdf

Gaia-X. 2021. "Members." Accessed October 05, 2021. https://www.gaia-x.eu/members

Garrity, John, and Arndt Husar. 2021. "Digital Connectivity and Low Earth Orbit Satellite: Constellations Opportunities for Asia and the Pacific." Accessed July 02, 2021. https://www.adb.org/sites/default/files/publication/696521/sdwp-076-digital-connectivity-low-earth-orbit-satellite.pdf

Garver, Rob. 2021. "Can Biden's 'Build Back Better World Partnership' Really Challenge China?" Voice of America (VOA), June 15. Accessed July 02, 2021. https://www.voanews.com/usa/can-bidens-build-back-better-world-partnership-really-challenge-china

izt

Gelpern, Anna, Sebastian Horn, Scott Morris, Brad Parks, and Christoph Trebesch. 2021. "How China Lends: A Rare Look into 100 Debt Contracts with Foreign Government." Accessed October 14, 2021. https://www.ifw-kiel.de/fileadmin/Dateiverwaltung/IfW-Publications/-ifw/Journal_Article/2021/How_China_Lends.pdf

Ghiasy, Richard, and Rajeshwari Krishnamurthy. 2021. "China's Digital Silk Road and the Global Digital Order." The Diplomat, April 13. Accessed July 02, 2021. https://thediplomat.com/2021/04/chinas-digital-silk-road-and-the-global-digital-order/

Ghosh, Dipayan. 2020. "What Will Tech Regulation Look Like in the Biden Era?" Accessed April 14, 2021. https://hbr.org/2020/12/what-will-tech-regulation-look-like-in-the-biden-era;

Godehardt, Nadine, and Karoline Postel-Vinay. 2020. "Connectivity and geopolitics: beware the "new wine in old bottles" approach." Accessed July 02, 2021. https://www.swp-berlin.org/10.18449/2020C35

Goovaerts, Diana. 2021. "FCC, USAID push US 5G views abroad." Accessed October 28, 2021. https://www.mobileworld-live.com/featured-content/top-three/fcc-usaid-push-us-5g-views-abroad

Govender, Melissa. 2021. "The West looks on as Africa opts for China's Digital Silk Road programme." July 18. Accessed October 07, 2021. https://www.businesslive.co.za/bd/opinion/2021-07-18-the-west-looks-on-as-africa-opts-for-chinas-digital-silk-road-programme/

Gupta, Sunil. 2019. "How will data localization impact the data center market in India." ETCIO, October 11. Accessed July 02, 2021. https://cio.economictimes.indiatimes.com/news/digital-security/how-will-data-localization-impact-the-data-center-market-in-india/71532991

Hamilton, Daniel S., and Joseph Quinlan. 2021. "The Importance of Digital Services to the U.S. and European Economies." Accessed September 20, 2021. https://www.wilsoncenter.org/article/importance-digital-services-us-and-european-economies

Hawkins, Amy. 2018. "Beijing's Big Brother tech needs African faces: Zimbabwe is signing up for China's surveillance state, but its citizens will pay the price." Foreign Policy, July 24. Accessed July 05, 2021. https://foreignpolicy.com/2018/07/24/beijings-big-brother-tech-needs-african-faces/

Heeks, Richard. 2009. "The ICT4D 2.0 Manifesto: Where Next for ICTs and International Development?" Development Informatics Working Paper 42. Accessed June 30, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3477369

Heeks, Richard. 2016. "From ICT4D to Digital Development?" Accessed June 30, 2021. https://ict4dblog.wordpress.com/2016/03/30/from-ict4d-to-digital-development/

Heiduk, Felix, and Gudrun Wacker. 2020. "From Asia-Pacific to Indo-Pacific: Significance, implementation and challenges." Accessed July 02, 2021. https://www.swp-berlin.org/en/publication/from-asia-pacific-to-indo-pacific/

Hernández, Nicolás. 2021. "Mastercard and USAID partner to launch 'Start Path Empodera'." Accessed July 02, 2021. https://www.usaid.gov/colombia/news-information/press-releases/mastercard-and-usaid-partner-launch-%E2%80%98start-path-empodera%E2%80%99

Horner, Rory. 2020. "Towards a new paradigm of global development? Beyond the limits of international development." Progress in Human Geography, 44 3: 415–36. DOI:10.1177/0309132519836158.

Huang, Fei, Sean Blaschke, and Henry Lucas. 2017. "Beyond pilotitis: taking digital health interventions to the national level in China and Uganda." Globalization and health, 13 1: 49. DOI:10.1186/s12992-017-0275-z.

ICPC/ASPI. 2021. "Mapping China's Tech Giants." Accessed October 28, 2021. https://chinatechmap.aspi.org.au/#/map/

iNews. 2021. "The key motivation! The scale of China's digital economy reaches 39.2 trillion yuan." Accessed October 10, 2021. https://inf.news/en/economy/4f72a6e4f3690bc180d2fcdc2b95004f.html

Ingram, George. 2018. "How the Build Act advances development." Accessed July 02, 2021. https://www.brookings.edu/blog/future-development/2018/07/10/how-the-build-act-advances-development/

izt

Ingram, George. 2021. "Making USAID a premier development agency." Accessed July 02, 2021. https://www.brookings.edu/research/making-usaid-a-premier-development-agency

Ismail, Yasmin. 2020. "E-commerce in the World Trade Organization: History and latest developments in the negotiations under the Joint Statement." Accessed July 02, 2021. https://www.iisd.org/system/files/publications/e-commerce-world-trade-organization-.pdf

Johnson, Joseph. 2021. "Global market share of search engines 2010-2021." Accessed April 14, 2021. https://www.statista.com/statistics/216573/worldwide-market-share-of-search-engines/

Jones, Andrew. 2021. "China establishes company to build satellite broadband megaconstellation." Accessed July 02, 2021. https://spacenews.com/china-establishes-company-to-build-satellite-broadband-megaconstellation/

Keijzer, Niels, Aline Burni, Benedikt Erforth, and Ina Friesen. 2021. "The rise of the Team Europe approach in EU development cooperation: assessing a moving target." Accessed October 04, 2021. https://www.die-gdi.de/uploads/media/DP_22.2021.pdf

Koop, Fermín. 2020. "Coronavirus reshapes Belt and Road in Latin America." July 30. Accessed October 07, 2021. https://dialogochino.net/en/infrastructure/36699-coronavirus-reshapes-belt-and-road-in-latin-america/

KPMG. 2020. "India: Digital taxation, enlarging the scope of "equalisation levy"." Accessed July 02, 2021. https://home.kpmg/us/en/home/insights/2020/03/tnf-india-digital-taxation-enlarging-the-scope-of-equalisation-levy.html

Krause, Theresa, and Doris Fischer. 2020. "An Economic Approach to China's Social Credit System." In Social Credit Rating, edited by Oliver Everling, 437–453. Wiesbaden: Springer Fachmedien Wiesbaden.

Kshetri, Nir. 2010. "Diffusion and Effects of Cyber-Crime in Developing Economies." Third World Quarterly, 31 7: 1057–79. DOI:10.1080/01436597.2010.518752.

Kurlantzick, Joshua, and James West. 2020. "Assessing China's Digital Silk Road Initiative: A Transformative Approach to Technology Financing or a Danger to Freedoms?" Accessed April 14, 2021. https://www.cfr.org/china-digital-silk-road/

Lairo, Jeanene, and Alexander H. Schweda. 2019. "US-Entwicklungspolitik vor tiefgreifenden Reformen." Accessed July 02, 2021. https://www.kas.de/de/laenderberichte/detail/-/content/us-entwicklungspolitik-vor-tiefgreifenden-reformen

Lau, Stuart, and Hanne Cokelaere. 2021. "EU launches 'Global Gateway' to counter China's Belt and Road." POLITICO, September 15. Accessed October 28, 2021. https://www.politico.eu/article/eu-launches-global-gateway-to-counter-chinas-belt-and-road/

Letouzé, Emmanuel, Patrick Vinck, Tatiana Goetghebuer, Katia Duhamel, Julie Ricard, Konstantin Gruev, Romain Fourmy, Maria A. Bravo, and Andrés Lozano. 2020. "Study for the assessment of DEVCO work in digitalisation in Sub-Saharan Africa." Accessed October 08, 2021. https://datapopalliance.org/publications/study-for-the-assessment-of-devco-work-in-digitalisation-in-sub-saharan-africa/

Leyen, Ursula von der. 2019. "Speech in the European Parliament Plenary Session." Strasbourg, November 27. Accessed September 20, 2021. https://ec.europa.eu/info/sites/default/files/president-elect-speech-original_1.pdf

Lippert, Barbara, Volker Perthes, and Stiftung Wissenschaft und Politik. 2020. "Strategic rivalry between United States and China." Accessed October 28, 2021. https://www.swp-berlin.org/publikation/strategic-rivalry-between-united-states-and-china

Liu, Jinhe. 2020. "China's data localization." Chinese Journal of Communication, 13 1: 84–103. DOI:10.1080/17544750.2019.1649289.

Malena, Jorge. 2021. "The extension of the Digital Silk Road to Latin America: Advantages and potential risks." Accessed July 05, 2021. https://cdn.cfr.org/sites/default/files/pdf/jorgemalenadsr.pdf

Manyika, James, Michael Chui, Brad Brown, Jacques Bughin, Richard Dobbs, Charles Roxburgh, and Angela H. Byers. 2011. "Big data: The next frontier for innovation, competition, and productivity." Accessed July 02, 2021.

izt

https://www.mckinsey.com/~/media/mckinsey/business%20functions/mckinsey%20digital/our%20insights/big%20data%20the%20next%20frontier%20for%20innovation/mgi_big_data_full_report.pdf

Martens, Jens. 2020. "The Role of Public and Private Actors and Means in Implementing the SDGS: Reclaiming the Public Policy Space for Sustainable Development and Human Rights." In Sustainable Development Goals and Human Rights, edited by Markus Kaltenborn, Markus Krajewski, and Heike Kuhn, 207–220. Springer.

Mauree, Venkatesen. 2012. "ICT standardization capabilities of developing countries: Bridging the standardization gap." Accessed July 02, 2021. https://www.itu.int/dms_pub/itu-t/oth/0B/1F/T0B1F0000013301PDFE.pdf

McAfee. 2018. "The economic impact of cybercrime - no slowing down: Executive summary." Accessed July 02, 2021. https://www.mcafee.com/enterprise/en-us/assets/executive-summaries/es-economic-impact-cybercrime.pdf

McCann, David. 2012. "A Ugandan mHealth Moratorium Is a Good Thing." Accessed June 30, 2021. https://www.ictworks.org/ugandan-mhealth-moratorium-good-thing/#.YNyJUOdCSM-

McLuhan, Marshall. 1962. The Gutenberg galaxy: The making of typographic man, Reprint. Toronto: University of Toronto Press.

Meltzer, Joshua P. 2019. "The United States-Mexico-Canada Agreement: Developing Trade Policy for Digital Trade." Trade Law and Development, 11 2: 239–68. DOI:10.2139/ssrn.3595185.

MFA. 2021. "China will work with Africa to formulate and implement a China-Africa Partnership Plan on Digital Innovation." Accessed October 11, 2021. https://www.fmprc.gov.cn/mfa_eng/wjbxw/t1901786.shtml

Milliken, David, and Kate Holton. 2021. "Tech giants and tax havens targeted by historic G7 deal." Accessed July 02, 2021. https://www.reuters.com/business/g7-nations-near-historic-deal-taxing-multinationals-2021-06-05/

Mohan, Raja C., and Chan Jia Hao. 2019. "China's Digital Expansion and India." ISAS Working Paper 320. Accessed July 05, 2021. https://www.isas.nus.edu.sg/wp-content/uploads/2019/10/ISAS-Working-Paper-No.-320.pdf

Mojaloop Foundation. undated. "Members." Accessed July 02, 2021. https://mojaloop.io/foundation/members/

Moschella, David, and Robert D. Atkinson. 2021. "India Is an Essential Counterweight to China—and the Next Great U.S. Dependency." Accessed October 07, 2021. https://itif.org/publications/2021/04/12/india-essential-counterweight-china-and-next-great-us-dependency

Mudongo, Oarabile. 2021. "Africa's expansion of AI surveillance - regional gaps and key trends." Accessed July 03, 2021. https://researchictafrica.net/wp/wp-content/uploads/2021/01/AI-Surveillance_Policy-Brief_Oarabile_Final.pdf

Nair, Arun S. 2020. "E-commerce issues at the WTO discussions and in India." Accessed July 02, 2021. http://www.ris.org.in/sites/default/files/E-commerce%20issues%20at%20the%20WTO%20discussion%20and%20in%20India.pdf

Nakashima, Ellen. 2019. "U.S. pushes hard for a ban on Huawei in Europe, but the firm's 5G prices are nearly irresistible." The Washington Post, May 29. Accessed September 29, 2021. https://www.washingtonpost.com/world/national-security/for-huawei-the-5g-play-is-in-europe--and-the-us-is-pushing-hard-for-a-ban-there/2019/05/28/582a8ff6-78d4-11e9-b7ae-390de4259661_story.html

Nedopil, Christoph. 2021a. "Countries of the Belt and Road Initiative (BRI)." Accessed August 28, 2021. https://green-bri.org/countries-of-the-belt-and-road-initiative-bri/

Nedopil, Christoph. 2021b. "Analysis and opinion on the White Paper on "China's International Development Cooperation in the New Era"." Accessed July 05, 2021. https://green-bri.org/white-paper-on-chinas-international-development-cooperation-in-the-new-era/

Newton, Mark. 2021. "Googles „Project Loon" platzt, doch es gibt Alternativen zur Überwindung der digitalen Kluft." Accessed July 02, 2021. https://reset.org/blog/googles-project-loon-platzt-doch-es-gibt-alternativen-zur-ueberwindung-der-digitalen-kluft-0208

Nguyen, Vy. 2020. "China's Digital Silk Road: progress & influence in Southeast Asia." Accessed July 05, 2021. https://china-focus.ucsd.edu/2020/07/16/chinas-digital-silk-road-progress-influence-in-southeast-asia/

Noble, Matthew, Jane Mutimear, and Richard Vary. 2019. "Determining which companies are leading the 5G race." Accessed June 11, 2021. https://www.twobirds.com/~/media/pdfs/news/articles/2019/determining-which-companies-are-leading-the-5g-race.pdf?la=en&hash=8ABA5A7173EEE8FFA612E070C0EA4B4F53CC50DE

Nothias, Toussaint. 2020. "Access granted: Facebook's free basics in Africa." Media, Culture & Society, 42 3: 329–48. DOI:10.1177/0163443719890530.

Nugent, Ciara, and Charlie Campell. 2021. "The U.S. and China are battling for influence in Latin America, and the pandemic has raised the stakes." Time, February 4. Accessed July 04, 2021. https://time.com/5936037/us-china-latin-america-influence/

OECD. 2019. Latin American Economic Outlook 2019: Development in transition. OECD. Accessed July 02, 2021. https://read.oecd-ilibrary.org/development/latin-american-economic-outlook-2019_g2g9ff18-en#page1

OECD DAC. undated. "Aid at a glance." Accessed July 02, 2021. https://public.tableau.com/views/AidAtAGlance/DACmembers?embed=y&:display_count=no?&:showVizHome=no#1

OECD DAC. 2021. "Compare your country: Official Development Assistance 2020 - Preliminary Data." Accessed July 02, 2021. https://public.tableau.com/views/ODA_GNI/ODA2020?language=fr&:display_count=y&publish=yes&:origin=viz_share_link?&:showVizHome=no#1

Office of the U.S. Trade Representative. undated. "Digital trade & e-commerce FTA chapters." Accessed July 04, 2021. https://ustr.gov/issue-areas/services-investment/telecom-e-commerce/e-commerce-fta-chapters

Orange. 2021. "Orange, a multi-service operator in Africa and the Middle East." Accessed July 14, 2021. https://www.orange.com/en/africa-and-middle-east

Peccarelli, Brian. 2019. "Digital tax goldrush creates big compliance challenges for multinational tech companies." Forbes, October 29. Accessed July 02, 2021. https://www.forbes.com/sites/brianpeccarelli/2019/10/29/digital-tax-goldrush-creates-big-compliance-challenges-for-multinational-tech-companies/?sh=596e1a073bf5

Pérez-Pineda, Jorge A., and Dorothea Wehrmann. 2021. "Partnerships with the Private Sector: Success Factors and Levels of Engagement in Development Cooperation." In The Palgrave Handbook of Development Cooperation for Achieving the 2030 Agenda, edited by Sachin Chaturvedi, Heiner Janus, Stephan Klingebiel, Xiaoyun Li, Andre de Mello Souza, Elizabeth Sidiropoulos, and Dorothea Wehrmann, 649–670. Cham: Springer International Publishing.

Pijnenburg Muller, Lilly. 2015. "Cyber security capacity building in developing countries: challenges and opportunities." NUPI Report 03/2015. Accessed July 02, 2021. https://core.ac.uk/download/pdf/52116225.pdf

Pisa, Michael, and Ugonma Nwankwo. 2020. "USAID's First Digital Strategy Seeks to Counter Digital Authoritarianism." Accessed June 30, 2021. https://www.cgdev.org/blog/usaids-first-digital-strategy-seeks-counter-digital-authoritarianism

Ponnappa, Sidu. 2019. "What is a 'Super App'? Lessons in building an ecosystem - it's always about thinking ahead for the long haul." Accessed July 02, 2021. https://www.gojek.io/blog/what-is-a-super-app

Powell, Josh. 2020. "Building on Digital Development: Takeaways from USAID's First Digital Strategy." Accessed July 02, 2021. https://developmentgateway.org/blog/building-on-digital-development-takeaways-from-usaids-first-digital-strategy/

Privacy International. 2018. "A Global Standard for Data Protection Law." Accessed July 02, 2021. https://privacyinternational.org/impact/global-standard-data-protection-law

PTI. 2020. "India 'important digital power', won't compromise on data sovereignty: Prasad." Accessed June 30, 2021. https://economictimes.indiatimes.com/tech/ites/india-important-digital-power-wont-compromise-on-data-sovereignty-prasad/articleshow/76840586.cms?from=mdr

Qiu, Winston. 2021. "Complete List of Google's Subsea Cable Investments." Accessed June 11, 2021. https://www.submarinenetworks.com/en/insights/complete-list-of-google-s-subsea-cable-investments

izt

Reuters. 2018. "US planning development finance overhaul to counter growing influence of China." Accessed July 02, 2021. https://www.devdiscourse.com/article/agency-wire/3760-us-planning-development-finance-overhaul-to-counter-growing-influence-of-china

Reuters. 2021. "Brazil regulator approves 5G spectrum auction rules, no Huawei ban." Accessed July 05, 2021. https://www.reuters.com/business/media-telecom/brazil-regulator-approves-5g-spectrum-auction-rules-no-huawei-ban-2021-02-26/

Rühlig, Tim. 2020. "Technical standardisation, China and the future international order: A European perspective." Accessed July 02, 2021. https://eu.boell.org/sites/default/files/2020-03/HBS-Techn%20Stand-A4%20web-030320-1.pdf

Rühlig, Tim, John Seaman, and Daniel Voelsen. 2019. "5G and the US-China tech rivalry - a Test for Europe's Future in the Digital Age: How Can Europe Shift form Back Foot to Front Door?" Accessed October 28, 2021. https://www.swp-berlin.org/publikation/5g-and-the-us-china-tech-rivalry-a-test-for-europes-future-in-the-digital-age

Rukundo, Solomon. 2020. "Addressing the challenges of taxation of the digital economy: lessons for African countries: Summary of ICTD Working Paper 105." Research in Brief 52. Accessed July 02, 2021. https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/15317/ICTD_RiB_52_Online.pdf?sequence=1&isAllowed=y

Runde, Daniel F., and Romina Bandura. 2018. "The BUILD Act Has Passed: What's Next?" Critical Questions. Accessed July 02, 2021. https://www.csis.org/analysis/build-act-has-passed-whats-next

Schneider-Petsinger, Marianne. 2021. "Three pillars for a US trade strategy in Asia-Pacific: A new approach for the US to strengthen economic and strategic ties in the region, advance strong rules for new trade issues, and tackle China's trade policies." Accessed July 02, 2021. https://www.chathamhouse.org/2021/03/three-pillars-us-trade-strategy-asia-pacific

Seaman, John. 2020. "China and the new geopolitics of technical standardization." Notes de l'Ifri. Accessed July 02, 2021. https://www.ifri.org/sites/default/files/atoms/files/seaman_china_standardization_2020.pdf

Sechrist, Michael. 2012. "New threats, old technology: Vulnerabilities in undersea communications cable network management systems." Accessed July 02, 2021. https://www.belfercenter.org/sites/default/files/files/publication/sechrist-dp-2012-03-march-5-2012-final.pdf

Shead, Sam. 2021. "Facebook and Google reveal plans to build subsea cables between U.S. and Southeast Asia." Accessed July 02, 2021. https://www.cnbc.com/2021/03/29/facebook-google-to-lay-subsea-cables-between-us-and-southeast-asia.html

Sherman, Justin. 2020. "U.S. strategy for global internet security needs to better leverage the private sector." Accessed July 02, 2021. https://www.cfr.org/blog/us-strategy-global-internet-security-needs-better-leverage-private-sector

Shi-Kupfer, Kristin, and Mareike Ohlberg. 2019. "China's Digital Rise: Challenges for Europe." MERICS Papers on China 7. Accessed June 11, 2021. https://merics.org/sites/default/files/2020-06/MPOC_No.7_ChinasDigitalRise_web_final_2.pdf

Simmons, Dan. 2021. "13 Countries with GDPR-like Data Privacy Laws." Accessed July 02, 2021. https://insights.comforte.com/13-countries-with-gdpr-like-data-privacy-laws

Soest, Christian von. 2021. "The End of Apathy: The New Africa Policy under Joe Biden." GIGA Focus Africa 03/2021. Accessed July 02, 2021. https://www.giga-hamburg.de/en/publications/24204746-apathy-africa-policy-under-biden/

StatCounter Global Stats. 2021. "Social Media Stats Worldwide: Mar 2020 - Mar 2021." Accessed April 14, 2021. https://gs.statcounter.com/social-media-stats

Strange, Susan. 1991. "Big Business and the State." Millennium: Journal of International Studies, 20 2: 245-50. DOI:10.1177/03058298910200021501.

Stuckmann, Peter. 2021. "Europe moves towards 6G." Accessed April 14, 2021. https://ec.europa.eu/digital-single-market/en/blogposts/europe-moves-towards-6g

izt

Submarine Telecoms Forum. 2020. "Submarine Telecoms Industry Report: 2020/2021 Edition." Accessed July 02, 2021. https://subtelforum.com/products/submarine-telecoms-industry-report/

SubmarineNetworks. undated. "Equiano." Accessed September 02, 2021. https://www.submarinenetworks.com/en/systems/euro-africa/equiano

Świątkowska, Joanna. 2020. "Tackling cybercrime to unleash developing countries' digital potential." Pathways for Prosperity Commission Background Paper Series 33. Accessed July 02, 2021. https://pathwayscommission.bsg.ox.ac.uk/sites/default/files/2020-01/tackling_cybercrime_to_unleash_developing_countries_digital_potential.pdf

Tankovska, H. 2021. "Most popular messaging apps 2021." Accessed April 14, 2021. https://www.statista.com/statistics/258749/most-popular-global-mobile-messenger-apps/

TASS. 2018. "Russia to create orbital Internet satellite cluster by 2025." Accessed July 02, 2021. https://tass.com/science/1005554

The Economist. 2021. "What tech does China want?", August 9. Accessed October 07, 2021. https://www.economist.com/business/what-tech-does-china-want/21803410

The White House. 2021. "Fact sheet: President Biden and G7 Leaders Launch Build Back Better World (B3W) Partnership." Accessed July 02, 2021. https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/12/fact-sheet-president-biden-and-g7-leaders-launch-build-back-better-world-b3w-partnership

Thomala, Lai L. 2021. "Monthly active users of the leading apps in China in March 2021." Accessed July 02, 2021. https://www.statista.com/statistics/1032630/china-leading-apps-by-monthly-active-users/

Titievskaia, Jana. 2020. "WTO e-commerce negotiations." At a Glance. Accessed July 02, 2021. https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/659263/EPRS_ATA(2020)659263_EN.pdf

Toh, Michelle. 2021. "China tells Tencent and Netease to focus less on profit as gaming crackdown expands." September 10. Accessed October 07, 2021. https://edition.cnn.com/2021/09/09/tech/tencent-netease-video-games-intl-hnk/index.html

Tuathail, Gearóid Ó. 1998. "Introduction. Thinking critically about geopolitics." In The geopolitics reader, edited by Gerard Toal, Simon Dalby, and Paul Routledge, 1–12. London: Routledge.

Tuathail, Gearóid Ó. 1999. "Understanding critical geopolitics: Geopolitics and risk society." Journal of Strategic Studies, 22 2-3: 107–24. DOI:10.1080/01402399908437756.

Tugendhat, Henry, and Julia Voo. 2021. "China's Digital Silk Road in Africa and the Future of Internet Governance." Working Paper 50. Accessed October 07, 2021. https://static1.squarespace.com/static/5652847de4b033f56d2bdc29/t/61084a3238e7ff4b666b9ffe/1627933235832/WP+50+-+Tugendhat+and+Voo+-+China+Digital+Silk+Road+Africa.pdf

Tunander, Ola. 2001. "Swedish-German geopolitics for a new century: Rudolf Kjellén's 'The State as a Living Organism'." Review of International Studies, 27 03. DOI:10.1017/S026021050100451X.

U.S. Department of State. 2020. "U.S. support for digital transformation in Latin America and the Caribbean." Accessed July 04, 2021. https://cl.usembassy.gov/u-s-support-for-digital-transformation-in-latin-america-and-the-caribbean/

UNCTAD. 2019. "Digital Economy Report 2019. Value Creation and Capture: Implications for Developing Countries." Accessed April 14, 2021. https://unctad.org/system/files/official-document/der2019_en.pdf

UNCTAD. 2020. "Data Protection and Privacy Legislation Worldwide." Accessed July 08, 2021. https://unctad.org/page/data-protection-and-privacy-legislation-worldwide

UNCTAD. 2021. "Digital Economy Report 2021. Cross-border data flows and development: For whom the data flow." Accessed September 30, 2021. https://unctad.org/system/files/official-document/der2021_en.pdf

izt

United Nations Statistics Division. 2021. "SDG Indicators - United Nations Global SDG Database." Accessed June 17, 2021. https://unstats.un.org/sdgs/indicators/database/

UNPD. 2019. "World Population Prospects: 2019 Revision: Population, total - India." Accessed June 30, 2021. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=IN

USAID. undated. "Partnering for impact: USAID and the private sector." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/15396/Partnering_for_Impact.pdf

USAID. 2019a. "2018 Digital Download." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/15396/2018-DigitalDownload.pdf

USAID. 2019b. "Advancing digital connectivity in the Indo-Pacific region." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/1861/USAID_DCCP_Fact_Sheet_080719f.pdf

USAID. 2019c. "Private-sector engagement policy." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/1865/usaid_psepolicy_final.pdf

USAID. 2020a. "Digital Strategy 2020-2024." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/15396/USAID_Digital_Strategy.pdf

USAID. 2020b. "Fiscal Year (FY) 2021 Development and Humanitarian Assistance Budget Request." Accessed July 02, 2021. https://www.usaid.gov/sites/default/files/documents/1881/FY2021_Budget_FactSheet.pdf

USAID. 2021. "USAID and Federal Communications Commission sign MoU on 5G coordination." Accessed October 28, 2021. https://www.usaid.gov/news-information/press-releases/oct-14-2020-usaid-and-federal-communications-commission-sign-mou-5g-coordination

USAID, and FCC. 2021. "Memorandum of Understanding for Cooperation on Fifth-Generation (5G) Broadband Internet Technology and Training in Information and Communications Technology between the United States Agency for International Development and the Federal Communications Commission." Accessed October 28, 2021. https://docs.fcc.gov/public/attachments/DOC-367539A1.pdf

USITC. 2020. "U.S. Trade and Investment with Sub-Saharan Africa: Recent Trends and New Developments." Accessed October 07, 2021. https://www.usitc.gov/publications/332/pub5043.pdf

USTDA. 2021a. "ICT project opportunities in Argentina, Brazil and Paraguay: A resource guide for U.S. industry." Accessed July 04, 2021. https://ustda.gov/wp-content/uploads/LAC-RG-Volume-1-2021-0110-FINAL-1.pdf

USTDA. 2021b. "USTDA supports digital connectivity in South Africa." Accessed July 02, 2021. https://ustda.gov/ustda-supports-digital-connectivity-in-south-africa/ Press release.

USTDA. 2021c. "USTDA supports rural connectivity in Nigeria." Accessed July 02, 2021. https://ustda.gov/ustda-supports-rural-connectivity-in-nigeria/ Press release.

Vazzana, Johanna. 2019. "Securing technology is no longer a 'first world problem'." Accessed July 02, 2021. https://www.newamerica.org/cybersecurity-initiative/humans-of-cybersecurity/blog/securing-technology-is-no-longer-a-first-world-problem/

Vincent, James. 2016. "Facebook's Free Basics service has been banned in India: The country has said no to zero-rating schemes." The Verge, February 8. Accessed July 02, 2021. https://www.theverge.com/2016/2/8/10913398/free-basics-india-regulator-ruling

Voelsen, Daniel. 2021. "Internet from space: How new satellite connections could affect global internet governance." Accessed October 28, 2021. https://www.swp-berlin.org/en/publication/satellite-internet

Williams, Lara. 2021. "Advantage China? Digital Silk Road looks to upset US tech supremacy." Accessed October 28, 2021. https://investmentmonitor.ai/ict-and-internet-infrastructure/advantage-china-digital-silk-road-looks-to-upset-us-tech-supremacy

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Wintour, Patrick. 2020. "Europe divided on Huawei as US pressure to drop company grows." The Guardian, July 13. Accessed July 02, 2021. https://www.theguardian.com/technology/2020/jul/13/europe-divided-on-huawei-as-us-pressure-to-drop-company-grows

Woo, Stu, and Drew Hinshaw. 2021. "U.S. Fight Against Chinese 5G Efforts Shifts From Threats to Incentives." The Wall Street Journal, June 14. Accessed July 02, 2021. https://www.wsj.com/articles/u-s-fight-against-chinese-5g-efforts-shifts-from-threats-to-incentives-11623663252

World Bank. 2016. "World Development Report 2016: Digital dividends." Accessed June 30, 2021. https://www.worldbank.org/en/publication/wdr2016

World Bank. 2021. "World Development Report 2021: Data for better lives." Accessed July 09, 2021. https://openknowledge.worldbank.org/handle/10986/35218

Yan, Hui, and Jiaqian Li. 2018. "Balancing between 'de facto' and 'de jure' in standard-setting strategy by a latecomer country: the case of ICT industry in China." Developing Country Studies, 8 12: 24–39.

Yap, Chuin-Wei. 2019. "State Support Helped Fuel Huawei's Global Rise." The Wall Street Journal, December 25. Accessed September 29, 2021. https://www.wsj.com/articles/state-support-helped-fuel-huaweis-global-rise-11577280736

Yu, Sun, and Ryan McMorrow. 2021. "Beijing to break up Ant's Alipay and force creation of separate loans app." Financial Times, September 13. Accessed October 07, 2021. https://www.ft.com/content/01b7c7ca-71ad-4baa-bddf-a4d5e65c5d79

Zhang, Yanbing, Jing Gu, and Yunnan Chen. 2015. "China's Engagement in International Development Cooperation: The State of the Debate." Accessed April 14, 2021. https://core.ac.uk/download/pdf/237086116.pdf

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