



STUDY

Global Justice 4.0

The impacts of digitalisation
on the Global South

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A weather app helps smallholder families get higher yields from their crops, cargo drones deliver vital medicines to people in remote areas and digital fingerprints make it easier for people in need to access basic services – digitalisation appears to unlock countless opportunities for the Global South. But are the great hopes for change being fulfilled?

The World Bank, one of the biggest promoters of information and communication technology in developing and emerging countries, admitted self-critically in its 2016 World Development Report *Digital Dividends* that digital change had lagged far behind its (self-imposed) expectations. Digitalisation, it said, was threatening to destroy jobs in Africa, Asia and Latin America. It was also increasing social inequality because it is often only the better-off who participate in digital change while others – perhaps because of poverty or illness – are excluded from it. In the Global North digitalisation is viewed with considerable scepticism. Political efforts often focus on ways of regulating digitalisation and on attempts to restrict the actions of monopolistic tech companies. Issues of data protection and the collection of taxes are frequently raised.

This publication discusses the extent to which digital technology can help tackle poverty and social inequality. Does it increase or restrict the opportunities for social and economic participation open to disadvantaged people?

We analyse the history of e-commerce in the light of this question. We consider current developments in the world trade regime, because a new dynamic has developed in trade policy almost unnoticed. As the Digital Agenda adopted by the US government in 2000 shows, leading tech companies – principally those from Silicon Valley – are increasingly using commercial law to promote their own interests. This is no longer just about reducing tariffs on digital products such as software, or about uniform standards for telecommunications services. Patents on artificial intelligence and the (non-)regulation of data flows are now elements of commercial regulations and the subject of controversy in the World Trade Organization (WTO). For the countries of the Global South – but not only for them – there is a lot at stake, including the risk of a new, digital colonialism.

This publication explores the potentials and limits of digital solutions. It analyses the lessons to be learned from supposedly model projects such as the mobile payment system M-Pesa and the spread of cashless payment

in India. We also examine whether the digitalisation of transnational supply chains not only boosts transparency but also increases value creation for workers on the coffee and soya plantations or in factories.

The question of how digitalisation can be organised so that it contributes to the welfare of everyone must focus on one issue in particular: how can disadvantaged population groups in the rural parts of Africa or the inhabitants of slums in the megacities obtain better access to work and basic services? What steps must be taken to minimise the risks of the digital transformation for people in Asia and Latin America and enhance its potential?

The study therefore concludes with a list of nine ideas that would help make digitalisation fair. Consider them as an invitation to engage in discussion of globally just and humane digitalisation.

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Summary

The digital economy and e-commerce often inspire great hopes for the Global South. The Internet, mobile phones and the platform economy are supposed to offer the countries of the South the prospect of economic progress, new employment opportunities and a reduction in poverty. But unless it is regulated, digitalisation runs the risk of amplifying the existing inequality within countries and between the Global South and the Global North.

Studies by the United Nations show that developing and emerging countries have so far achieved only a small share in cross-border e-commerce. At the same time, many of them are posting trade deficits in this area. A notable exception is China, which has a substantial stake in cross-border online trade (see Chapters 3 & 4).

The unequal development in online business is also reflected in the negotiations of the World Trade Organization (WTO), as Chapter 4 describes. For example, at the WTO conference in December 2017 African countries and India blocked an EU proposal to open negotiations on specific e-commerce rules. They feared that these rules could lead to a loss of customs duties and hinder the development of a local digital economy (Chapter 4).

But other developing and emerging countries are among the signatories of a declaration by 49 WTO members (including the EU, the USA and China) who in January 2019 announced the commencement of WTO negotiations on e-commerce rules.

There are currently 75 bilateral and regional trade agreements that contain provisions on e-commerce. The most controversial rules include free cross-border movement of data, indefinite bans on customs duties and bans on localisation requirements that compel companies to store data on local servers. In recent years localisation laws have been passed by more than 60 countries, among them China, India, Indonesia and Nigeria (Chapter 4). Developing countries use localisation laws in an attempt to regain sovereignty over their data. They regard data sovereignty as crucial to the ability to adopt digital economic and tax policies adapted to their needs. They also hold that the monopoly position of digital platforms cannot be kept within bounds unless national companies can establish their own data stock.

Internet giants, on the other hand, are calling for trade rules that not only hinder the introduction of localisation requirements but also make it more difficult to levy digital taxes. India has led the way in digital taxes: in 2016 it introduced an equalisation levy on ad-

vertising revenue generated on foreign online platforms. A number of other countries, including Argentina, Mexico, Indonesia and Uganda, are planning similar taxes.

Chapter 6 shows that many developing countries are part of industrial value chains that are being transformed by digitalisation. Some governments in the Global South therefore fear that digital process innovations could impact on their traditional competitive advantage – their lower labour costs. They could lose production share if some manufacturing returns to North America or Europe as a result of 3D printing. Empirical analysis shows that reshoring of this sort is indeed taking place, but offshoring to foreign locations is still more frequent. Nevertheless, studies by the United Nations of the use of robots demonstrate that emerging countries have been far more severely affected by job losses than industrialised ones. In other words, the fears of developing countries are not unfounded.

At first glance, crowdworking appears to provide hope for new employment opportunities for people in the Global South, as Chapter 6 describes. Crowdworkers are assigned work on online platforms. The majority of crowdworkers are located in Asian countries such as India and the Philippines. However, initial studies deliver a mixed verdict on online work platforms. Some crowdworkers have indeed built up savings that they have used for their own business ideas, but many suffer on account of the low fees that are paid and the lack of security that results from the uncertain flow of work. In addition, many crowdworkers are over-qualified – the high cost of education in their home countries does not translate into high incomes.

A glance at the digital economy in Africa also raises doubts, described in Chapters 7 & 8, about whether the wave of tech start-ups there encourages autonomous development. It is true that some start-ups are developing digital solutions to local problems, but the successful projects are often backed by investors in industrialised countries who cream off a significant portion of the profits. This is the case with the payment service M-Pesa.

The impact on poverty of the business models adopted by digital start-ups is sometimes also questionable. This is the case with the frequently encountered digital pay-as-you-go systems for access to basic services. These systems are often only available to affluent customers, who can release supplies of water or cooking gas by paying online or by mobile phone. Everyone else gets nothing (see Chapters 7 & 9).

Many digital projects in developing countries take place in the growing digital finance sector, which involves banks, insurance companies, credit card companies and fintechs. Yet these projects have on the whole had no positive impact in terms of reducing poverty; this is illustrated by the case of the mobile payment service M-Pesa, which is widely used in Kenya (Chapter 8).

Because of inadequate consumer protection, digital loans organised by mobile phone also have major poverty-related risks. For example, a considerable number of customers in East Africa who took out loans by mobile phone fell into the debt trap (see Chapter 8). A further issue is that the risks of over-hasty abolition of cash in favour of digital payment systems are underestimated: for people working in the informal sector, cash is usually not just the only means of payment available to them but also the cheapest.

Many fintech companies depend on clear identification of their customers, which they seek to achieve by using biometric databases. Chapter 9 explores this issue. Because developing countries often lack effective data protection rules, biometric databases risk infringing people's privacy rights. Furthermore, such systems are susceptible to error, which can prove life-threatening to people in need – for example, if government authorities link access to food aid to biometric identification.

Making digitalisation fair and organising it in ways that reduce poverty is undoubtedly one of the biggest challenges currently faced by development policy, as Chapter 10 describes. It is also important not to restrict the Global South's scope for action through premature liberalisation. Trade-policy rules on e-commerce that specify conditions such as the free movement of data or impose bans on localisation or taxation should therefore be avoided.

To close the significant digital gap, support should be provided to developing countries to enable them to establish their own public IT and data infrastructure. This requires stronger regulation of the global players in the Internet economy. If the role of developing countries is not to be reduced to that of suppliers of data to these monopolists, less advanced nations should be able to set up their own digital platforms.

Digital centres that are emerging in some metropolises of the South need a system of linking so that other cities and rural regions are involved too. Alongside this, start-ups in the South need cross-border access to technological know-how and digital learning platforms.

Finally, because developing countries are disproportionately threatened by job losses as a result of digitalisation, they need special support to enable them to pursue an active labour market policy and develop social security systems. Only then can digitalisation promote development.

1. Introduction

Mention technological change and developing countries and there seem to be limitless grounds for enthusiasm – a vista opens up of mobile phones for banking in remote areas, apps to provide technical assistance in agriculture, and platforms for events or for the sale of the products of small traders. Thanks to the digital economy and electronic trade, the countries of the South seem to be able to leapfrog several development stages very quickly. At least, that is the impression that the IT giants and some development agencies like to convey. The idea is that mobile phones, the Internet and platform economies would enable the developing countries not only to close the gap to the industrialised states but also to overcome poverty and inequality.

But despite the euphoria, caution is needed. Can a technology, whether digital or analogue, really replace policies for tackling poverty and discrimination? On the contrary, practical experience indicates that the effectiveness of technical solutions is limited if the appropriate political conditions are not in place. A weather app does not by itself make smallholders less vulnerable to the impacts of climate change. The present study therefore explores whether the hope placed in the new technologies by governmental aid organisations and the digital start-up scene is justified – or whether their expectations are perhaps far too high. The analysis focuses on electronic trade, digitalised value chains and mobile applications such as mobile payment systems, because these are said to have particular potential in the field of development.

The authors outline what is meant by electronic trade and what it has achieved so far, especially with regard to the global trade between North and South. They describe the highly contentious negotiations on the liberalisation of e-commerce in bilateral and multilateral trade agreements. They examine how global production networks could change as a result of digitalisation and the global distribution of value creation.



The majority of people in developing countries still have no Internet access. Mobile phones are the most important means of communication.

The study also explores the digital economy of some African countries, the steady growth of digital finance and the spread of biometric databases. It concludes by describing the issues that policy-makers will have to tackle if digital trade is to be fair and development-oriented. The underlying development discourse should focus on the basic needs of disadvantaged groups and how they can be empowered to participate equitably in digitalisation.

2. Just what is electronic and digital trade?

According to The New York Times, the Internet first opened for business in 1994. The first customer was an Internet user from Philadelphia who logged onto the computer of a start-up enterprise, the Net Market Company in Nashua in the US state of New Hampshire. He used his credit card to buy a CD by the singer Sting for USD 12.48 (Lewis 1994). Electronic trade was born. A year later Amazon sold its first book via the Internet. The American e-commerce giant started up in 1995 as a small online bookseller, because books were robust enough to send by mail and yielded a respectable profit margin (DPA 2015).

As these examples show, electronic trade in its early days involved mainly tangible material goods such as CDs and books, which were typically ordered from a webshop on the Internet and then delivered to the customer in the mail or by a private parcel service. And it has stayed that way. Sales of physical goods still make up the majority of electronic trade.

But as technology progressed, new products and new channels of communication between buyers and sellers emerged, so that numerous services such as hotel reservations, online courses and insurance are now also offered and transacted digitally.

In addition, some goods took on a different form, changing from a physical product to a digital one. Thus e-books are now traded on the Internet alongside printed versions. These digital products consist mainly of data and programmes. Audio and video CDs have undergone a similar transformation: these days their content can be accessed via web radio or streaming services (UNCTAD 2017a).

As a result of progress in mobile communications and the development of smartphones, many other physical goods became digital: air tickets, cinema tickets and maps are just a few examples. They can be used in digital form via apps, which enable users to check in at the airport, gain admission to the cinema or find their way on a walking tour. These digital products, too, are traded on the Internet.

As traded goods shifted from material products to immaterial ones, the terminology used also changed. For example, references to “electronic trade” were increasingly replaced by the term “digital trade”. This terminology shift also demonstrates the importance of digital data for online trade.

A final point is that digital trade is becoming increasingly transboundary. As part of the general trend towards globalisation, cross-border sales and purchases via webshops and online platforms are growing, although the majority of online business is still transacted within national borders.

And digital trade is transforming not only retailing and the service sector, but also industry. As labour-intensive activities have been moved to other countries and global value chains have been created, the dependence of industrial manufacturing on cross-border trade has increased rapidly. Industrial companies now turn to the world markets or to overseas subsidiaries to procure not only raw materials but individual components too. Digitalisation is transforming international value chains at all levels: in the development of goods, procurement, production and sales (see Chapter 6).

Digital trade is thus very closely linked to the concepts of Industry 4.0. Without cross-border data flows, many of the applications of Industry 4.0 – such as the remote monitoring of engines by smart sensors – would not be feasible. Companies that build cars, trains, ships or aeroplanes rely on data transmission lines and wireless networks that enable the data collected by their products to be transferred all over the world.

Development departments and engineering firms also need these facilities so that the digital blueprints that they produce using computer-aided design (CAD) can be transmitted to any part of the world. As a result it is not only telecommunications and Internet companies but also industrial companies that are campaigning for trade agreements to include the free movement of data.

Definitions and types

International organisations have produced various definitions of electronic trade for statistical or regulatory purposes. As yet, however, there is neither a standard definition nor reliable data.

For its specific purposes the World Trade Organization (WTO) has put forward a working definition that is widely used as a reference point for academic studies. At its Second Ministerial Conference in 1998, the WTO defined e-commerce as “the production, distribution, marketing, sale or delivery of goods and services by electronic means” (WTO 1998, 1). In 2009 the OECD agreed on the following definition: “An electronic transaction is the sale

or purchase of goods or services ... conducted over computer-mediated networks” (OECD 2011, 72). The definition goes on to state that, while e-commerce involves goods and services being ordered online, payment and delivery may be conducted either on- or off-line.

During Germany’s presidency of the G20, the OECD was commissioned to produce a conceptual framework for cross-border digital trade for statistical purposes. In March 2017 the organisation presented its typology. In it the OECD distinguishes three dimensions of digital trade: the nature of the transaction, the product and the partners involved.

Dimensions of digital trade

Nature (how?)	Product (what?)	Partners (who?)
Digitally ordered	Goods	Business
Platform enabled	Services	Consumers
Digitally delivered	Information	Government

Source: OECD 2017a, 5

The digital nature of transactions

Digital ordering is the distinguishing feature of e-commerce in the narrower sense – that is, the purchase or sale of goods and services that are bought online and delivered physically. Platform-enabled is a term used to describe modern services such as online traders (e.g. the American company Amazon or its Chinese counterpart Alibaba), auction sites (e.g. eBay and Taobao), transport providers (e.g. Uber and Didi), accommodation portals (e.g. Airbnb and Tujia) and crowdworking services (e.g. Freelancer and Guru). If the platform operators are based in another country and there is cross-border transfer of data and payments, these services become a component of international trade.

Digital delivery captures services and data flows that are supplied digitally and can be downloaded from the Internet. Examples are software, e-books and online databases (OECD 2017a).

Products of digital trade

As products of digital trade the OECD now recognises not only goods and services but also data, which it puts in a separate category. This underlines the importance attached by both digital companies and international organisations to cross-border data flows that are as free of barriers as possible.

The shift from material goods to immaterial products that are themselves largely composed of data throws up complex issues of differentiation. Should an e-book or a CAD blueprint be regarded as a commodity, a service or simply a set of data?

Classification questions of this kind are frequently contentious because the answers determine which international norms apply to the product in question. For example, the World Trade Organization (WTO) has different trade agreements for goods and services. WTO members disagree not only on how these goods are to be differentiated from each other but also on how the resulting data flows should be treated, since there are very few internationally binding rules that apply to them (see Chapter 4).

Partners in digital trade

Changing technology also affects the way in which the partners in digital trade (companies, governments, consumers) interact with each other. The OECD identifies the following relationships:

- Business-to-business (B2B): electronic trade between companies (including within a group). UNCTAD estimates that the vast majority of e-commerce is business-to-business (UNCTAD 2017b).
- Business-to-consumer (B2C): transactions involving businesses that bypass traditional retailers and sell goods and services direct to customers over the Internet (e.g. online pharmacies, direct banks).
- Consumer-to-consumer (C2C): transactions between consumers, often mediated by platforms (such as eBay and Airbnb).
- Business-to-government (B2G): transactions involving businesses that supply governments or public bodies. As a consequence of the liberalisation of trade, contracts of this sort are increasingly being awarded through cross-border public tendering processes (OECD 2017a).



The number of people buying e-books has increased almost fivefold since 2010. In 2017 more than 29 million e-books were sold in Germany alone.

Traditionally trade was conducted mainly between businesses and only rarely between businesses and governments. As a result of digital trade, consumers also become involved. They can order goods and services direct from foreign businesses via the Internet or using mobile communications. Increasingly often, too, government bodies at the lower tiers of administration are procuring goods from suppliers in other countries. Digitalisation also enables small and medium-sized enterprises (SMEs) to offer their goods to foreign customers (OECD 2017a).

However, the stakeholder typology produced by the OECD does not adequately depict the range of trading partners and their particular interests. For example, C2C transactions do not simply take place between consumers: commercial platforms often act as intermediaries. And some consumers are commercial players as well, for example when they offer accommodation on Airbnb.

3. The North dominates: data on digital trade

Although there is little comprehensive data on digital trade, initial studies show that, with a few exceptions, the Global South is severely marginalised. Future changes could actually exacerbate this inequality and undo some of the successes of the past.

UNCTAD estimates that worldwide e-commerce sales in 2015 totalled USD 25 trillion. The vast majority of this (USD 22 trillion) was in the form of business-to-business (B2B) sales. The remaining share of just under USD 3 trillion involved online business-to-customer (B2C) transactions (UNCTAD 2017b). By far the largest e-commerce market is the USA, followed by Japan, China, South Korea and Germany. Not a single country of the Global South is among the top ten e-commerce markets (ibid.).

Only some digital trade is cross-border trade, and the quoted figures vary considerably. The International Post Corporation estimates that cross-border transactions constituted 15 per cent of global e-commerce in 2015 and that this proportion could rise to 22 per cent by 2020 (IPC 2017).

UNCTAD puts the percentage of cross-border online B2C business in 2015 somewhat lower, estimating that of the nearly USD 3 trillion spent on B2C transactions worldwide, just USD 190 billion or about 6.5 per cent was cross-border trade. The majority of cross-border online purchases were made in the USA and China, followed by the United Kingdom, Germany and Canada. The only former developing countries among the top ten countries for online B2C purchases are China and South Korea (see figure) (ibid.).

Statisticians also attempt to quantify the proportions of digital trade accounted for by material and immaterial products. While physically tangible products still constitute the lion's share, there is an increase in the proportion of immaterial products – that is, goods that can be sold over the Internet in digitalised form.

A study for UNCTAD estimates that cross-border electronic trade in material and immaterial products (excluding additive manufacturing, see Chapter 6) in 2015 amounted to USD 1.6 trillion, of which USD 66 billion was attributable to immaterial products (UNCTAD 2017a).

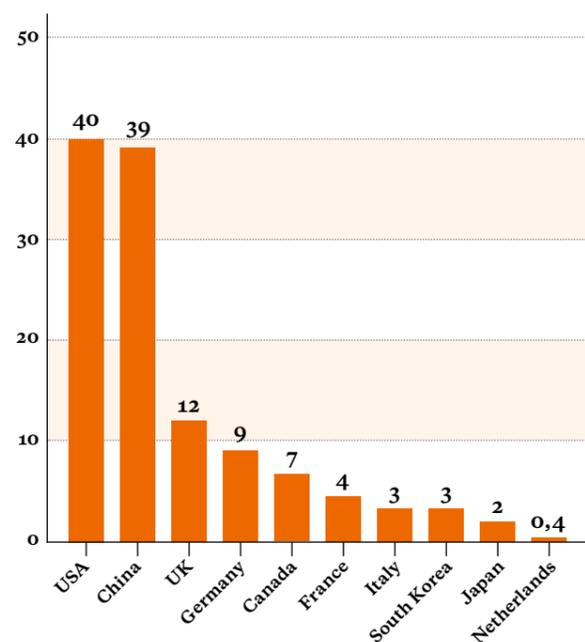
Material goods: customs agencies swamped by parcels

As a result of the growing digital trade in material goods, more and more relatively small parcels are being sent across borders. The World Trade Organization calls this “parcelisation” (WTO 2018a). The Secretary General of the World Customs Organization (WCO) has spoken of a “tsunami of small packages” with which underfinanced customs authorities and regulatory agencies are struggling to cope (Gooley 2018).

Customs agencies are used to checking comparatively large consignments being shipped by familiar import and export companies. Now, though, customs officers must check vast quantities of small online orders, many of which fall below the de minimis value (i.e. the threshold) for customs duties or value added tax and thus do not require completion of the relevant paperwork.

Top 10 cross-border online B2C purchases

(in USD billion, 2015)



Source: UNCTAD 2017b



Online shopping is becoming increasingly popular. But the customs authorities are struggling to cope with the flood of parcels, some of them containing illegal items.

Moreover, the flood of parcels makes it more difficult to detect illegal or hazardous goods including drugs, weapons, pirated material, falsified medicines and contaminated food. To evade checks, criminals now divide illicit or higher-value goods into small parcels so that the declared value of the goods is below the customs thresholds (Johnson 2018).

As a result of the flood of packages ordered online, there is an increase in the number of consignments that pass through customs unchecked. “Parcelisation” thus not only encourages criminal activities; it also means that customs and tax authorities lose revenue. The losses are considerable: in the EU alone the European Commission estimates that lost value added tax in e-commerce amounts to EUR 5 billion annually (European Commission 2016), and this excludes losses as a result of missing customs declarations.

If e-commerce is causing such heavy losses of customs and tax revenue even in the EU, the less well-resourced customs authorities in developing countries

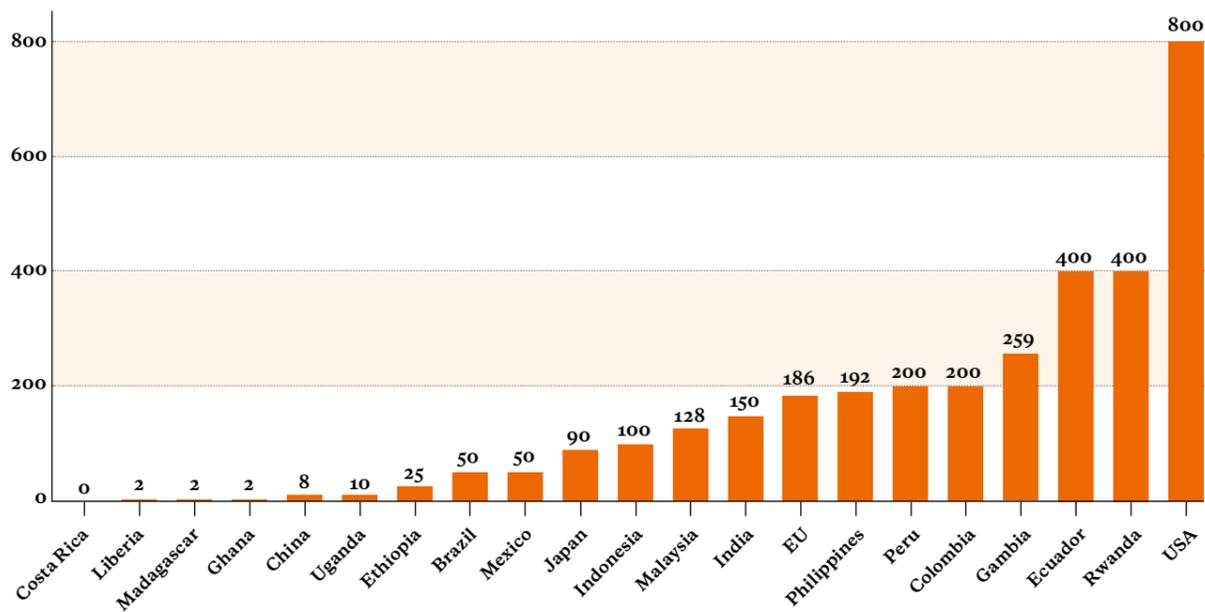
will have still more difficulty coping with a future flood of parcels. Moreover, the losses could mount further if developing countries bow to the demands of online traders and international organisations and raise their thresholds for customs and tax exemptions.

In their Aid for Trade Report, the WTO and OECD claim that “raising de minimis thresholds” is a “silver bullet” for fuelling trade by SMEs. Low thresholds, they say, are inefficient, because the costs of checks outweigh the revenue raised (OECD/WTO 2017). In the same vein, the IMF and the World Bank recommend “concerted action by a range of countries to raise such de minimis levels”. This could also be done in the WTO (IMF/World Bank/WTO 2018).

The thresholds for exemption from duty and tax vary widely across the world (see figure). Some countries – such as Costa Rica – apply no de minimis threshold at all, while in the USA goods worth up to USD 800 can be imported duty-free (GEA 2018).

De minimis values for exemption from duties and taxes

(in USD, exchange rate of 6 April 2016)



Source: GEA 2018

The high de minimis value in the USA has been in place only since March 2016, following then-President Obama’s authorisation of the drastic increase from USD 200 to USD 800. Since then U.S. Customs and Border Protection (CBP) has been struggling to cope with the rising tide of parcels from abroad – despite recruiting an additional 15,000 officials (Putzger 2018).

Developing countries should bear in mind the CBP’s bad experience with the increase in the duty-free threshold when international organisations such as the WTO and the OECD urge them to follow suit. China’s experience in this regard is also instructive. Against the advice of the international organisations, China applies a low de minimis value – the equivalent of USD 8 – for duty-free imports (see figure), but it is also a successful e-commerce country.

To cope with future floods of parcels ordered online, what customs authorities and supervisory bodies in the Global South need is not further deregulation but financial support to enable them to develop their human resources and technical capacities, for besides the loss of

revenue, other risks associated with e-commerce have more severe impacts in the Global South.

For example, online pharmacies provide a popular means of bypassing the regulatory authorities and putting counterfeit and falsified medicines on the market. The World Health Organization (WHO) estimates that over ten per cent of medicines in developing countries are falsified and that this leads to frequent deaths and significant additional costs to countries’ health systems (WHO 2017). Internet pharmacies are currently doing their biggest business in industrialised and emerging countries, but if online ordering increases in developing countries as well, this could result in even more falsified medicines entering circulation there.

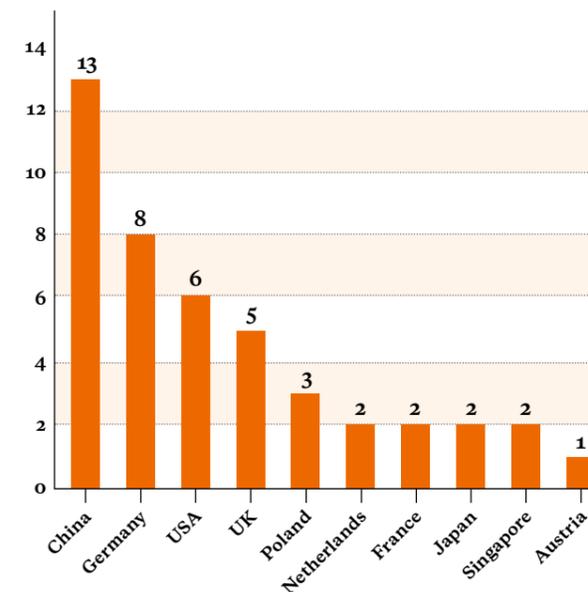
Because of the major health risks of falsified products, the EU introduced a new system for coding and sealing all prescription medicines at the start of 2019, with the costs of EUR 100 million being borne by the pharmaceutical industry and importers (Grabitz 2019). It would certainly make sense for developing countries to adopt a similar model.

Immaterial goods: the trade in digital products

An UNCTAD study published in 2017 attempts to quantify the international trade in immaterial or digital goods. It defines these goods as “electronically transmitted products”. The term refers to goods that were previously supplied only in physical form but which are now also sold in a digitalised version via the Internet (e-books, video games, films, music and software). The study calculates that in 2015 the global trade in these products was worth USD 63 billion. The biggest exporter was China, followed by Germany, the USA and the United Kingdom (see figure) (UNCTAD 2017a).

Top 10 exporters of electronically transmitted products in 2015

(in USD billion)



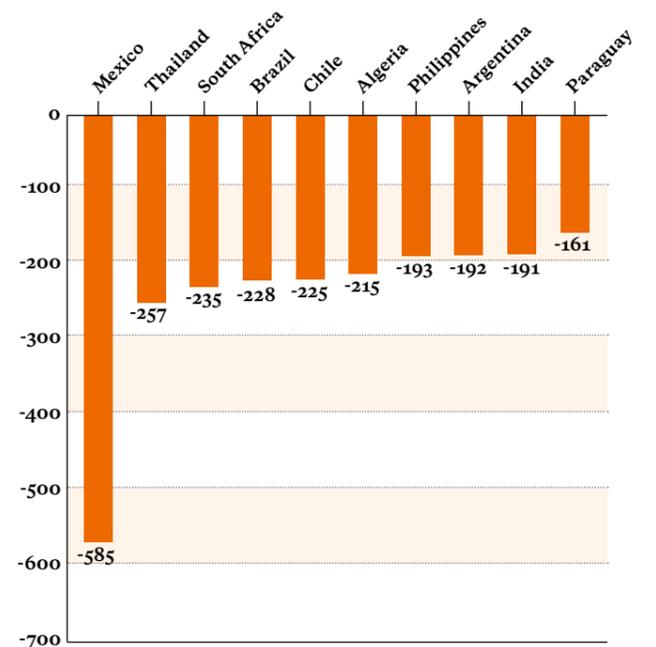
Source: UNCTAD 2017a

China achieved significant trade surpluses in this product category, while many developing and emerging countries were net importers of digitally transmitted products and in some cases had high trade deficits. For example, Mexico’s trade deficit in this area was almost

USD 600 million, while Thailand, South Africa and Brazil each had a deficit of over USD 200 million (see figure) (ibid.).

Trade balances of electronically transmitted products in 2015

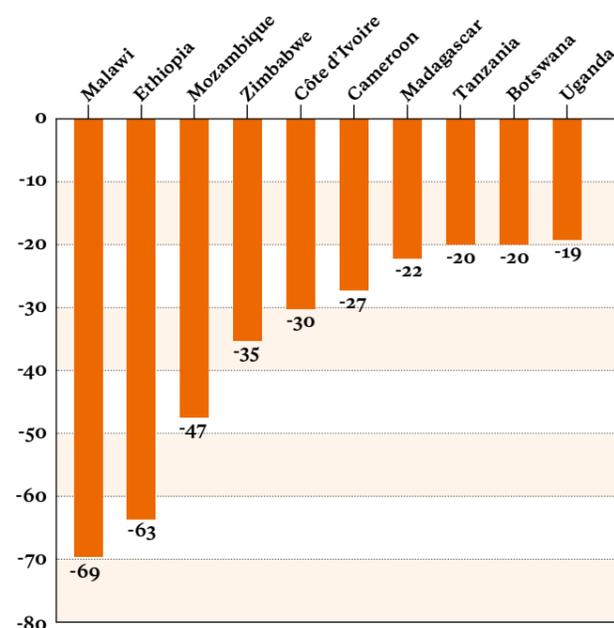
(in USD million)



Source: UNCTAD 2017a

Southern Africa: trade balances of electronically transmitted products in 2015

(in USD million)



Source: UNCTAD 2017a

Many countries in southern Africa also imported far more of these products than they exported. For example, the small country of Malawi had a deficit of around USD 70 million (see figure). If Internet access improves in these countries and the existing patterns of trade relationships do not change, the deficits could increase further in future.

Technological innovations such as 3D printing could also contribute to an increase in the deficit. Until a few years ago 3D printing was used mainly to produce single items, but the technique is increasingly being put to use in serial production in sectors such as mechanical engineering and medical technology. Such innovations could further amplify the weaknesses of developing countries in e-commerce (Hallward-Driemeier/Nayyar 2018). If more and more products are produced locally by downloading CAD files and using 3D printing, the demand for the primary and intermediate products that many developing countries currently produce will fall further. In this case all efforts to support the development of domestic markets in the countries of the South through external protection that controls trade (see Chapter 6) will be in vain.

4. E-commerce in trade agreements

International trade law already includes various multi-lateral, plurilateral and bilateral agreements relating to digital trade. At multilateral level, numerous relevant provisions can be found in the World Trade Organization (WTO) agreements. However, because the Doha Development Round – the latest round of trade negotiations among WTO members – has stalled, e-commerce is currently regulated mainly through bilateral agreements.

Multilateral: the WTO agreements and digital trade

Various WTO agreements and supplementary provisions relate to digital trade. Most were developed in 1994, when the WTO was established.

The key agreements include:

- the General Agreement on Tariffs and Trade (GATT) covering international trade in goods,
- the General Agreement on Trade in Services (GATS),
- the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS),
- the Agreement on Technical Barriers to Trade (TBT), and
- the Information Technology Agreement (ITA), a plurilateral agreement on information technology products, concluded within the WTO framework.

In addition, a Declaration on Global Electronic Commerce was adopted at the Second WTO Ministerial Conference held in May 1998. It deals with:

- the establishment of a comprehensive work programme to examine trade-related issues of relevance to global electronic commerce, involving all four WTO bodies,
- a temporary moratorium on customs duties on electronic transmissions. The Declaration states that WTO members will continue their current practice of not imposing customs duties on electronic transmissions.

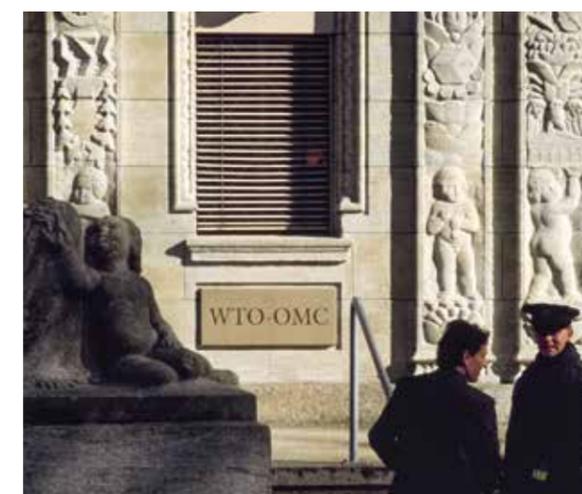
The scope of the obligation not to impose customs duties on electronic transmissions is, however, a highly contentious issue (see below). Nevertheless, the moratorium has repeatedly been extended by subsequent Ministerial Conferences, including the most recent, the Eleventh WTO Ministerial Conference, held in Buenos Aires in December 2017 (WTO 2017a).

The EU proposal and the dispute over new rules

As the agreements were signed more than two decades ago, there are increasingly vocal calls for new rules to be adopted for e-commerce. However, this is not in the interests of all the WTO members and it led to the eruption of conflicts between various groups of developed and developing countries ahead of the last Ministerial Conference, triggered in particular by a proposal by some EU Member States that a working group be set up to negotiate rules specifically for e-commerce (Business Europe 2018; WTO 2017b).

There were vocal objections from those who feared that these negotiations would open the way for another plurilateral agreement under WTO auspices, akin to the Information Technology Agreement (ITA), which requires the elimination of customs duties on IT products from PCs to mobile phones. It is mainly the multinationals – such as the corporations that have joined forces within the BusinessEurope lobby – that are currently calling for a new plurilateral e-commerce agreement (Business Europe 2018).

However, the governments of developing and emerging countries were unable to agree a unified position on the EU's proposal. Some were relatively receptive; others rejected it outright. With resolute opposition from India



The WTO's liberalisation of trade in digital goods has increased global inequality.

and some African WTO members in particular, the EU's proposal ultimately failed.

Many of the developing countries in Africa are worried about the prospect of another new agreement as they currently enjoy "special and differential treatment" under the WTO agreements. These special provisions allow them to adopt fewer market liberalisation commitments; they also benefit from longer time periods to implement tariff reductions. India, for its part, has already had its fingers burned with the ITA: as a consequence of the elimination of customs duties required under this agreement, the country was hit by the actions of multinational corporations in the telecommunication and consumer electronics industries who flooded the country with imports – mainly cheap goods from China that squeezed Indian manufacturers and suppliers out of the market.

In consequence, the only consensus that the WTO Ministerial Conference was able to reach on e-commerce was to continue the work programme on the basis of the 1998 mandate and to extend the moratorium on customs duties on electronic transmissions until the next Ministerial Conference in 2019 (WTO 2017a).

Undeterred, a group of 43 WTO members produced a Joint Statement designed to prepare the way for rules relating specifically to e-commerce. In this document they announced their intention to initiate "exploratory work" toward future WTO negotiations on trade-related aspects of electronic commerce (WTO 2017c). Signatories included the EU, Japan and the USA, as well as various developing and emerging countries that hope to benefit from electronic trade, among them Mexico, Argentina, Brazil, Colombia, Peru, Russia, Malaysia, Myanmar and Nigeria. The Joint Statement included a reassurance that participation will be open to all WTO Members at any time. Non-signatories included China, but also India and the African Group, which thus maintained their oppositional stance.

On the margins of the 2019 World Economic Forum in Davos, the countries behind the Joint Statement then issued a second declaration, now endorsed by 49 WTO members, in which signatories confirmed their "intention to commence WTO negotiations on trade-related aspects of electronic commerce". This time, the signatories included China (WTO 2019).

China had voiced reservations until the day before the second Joint Statement was released and had withheld its signature. China's WTO ambassador justified its change of heart in terms of its concern over the broader

crisis surrounding the WTO, which China was keen to avert. Against this background, the launching of e-commerce negotiations, according to China, would help to reinvigorate the WTO's negotiating function and shore up confidence in the multilateral trading system (Baschuk/Donnan 2019).

Trade in goods: the GATT and the controversial moratorium on customs duties

Material goods that are ordered online and delivered physically are currently subject to the GATT provisions on trade in goods. However, there is ongoing controversy within the WTO over whether the GATT provisions also apply to digitalised products. This disagreement was likewise apparent ahead of the last WTO Ministerial Conference, when WTO members extended the moratorium on customs duties on "electronic transmissions" (WTO 2017a).

In July 2017 South Africa and India therefore presented a joint paper in the WTO calling for a re-examination of the moratorium in light of new technological developments. Previously, electronic transmissions were mainly used to deliver digitalised products such as e-books, music and a variety of services, but new technologies such as 3D printing have substantially increased the range of salient products. A disproportionate loss in customs revenue would be suffered by developing countries if the temporary moratorium were made permanent, as their budgets continue to be more reliant on tariff revenue than those of industrialised countries (Kanth 2018a). In UNCTAD's view, a permanent moratorium on the custom duties would mean that "effectively the countries are agreeing on reducing tariffs to zero on almost all of their non-agricultural manufactured products" (UNCTAD 2017a, 15).

India and South Africa also pointed out in their paper that "there is no agreed definition nor common understanding amongst the Membership of what is covered under "electronic transmissions" (Kanth 2018a). This same point was made by Indonesia in a statement during the WTO Ministerial Conference in December 2017. The Indonesian delegation maintained that the moratorium applied solely to the electronic transmissions and not to the products or contents which are submitted electronically (ibid.).

The substantial revenue losses likely to follow from the elimination of customs duties would be especially problematic for the Least Developed Countries (LDCs), whose national budgets rely, in some cases heavily, on tariffs. For example, revenue from trade tariffs is estimated at 40 per cent or more of total tax revenue in Togo, Benin, Sierra Leone and Mali (Bilal et al. 2012).

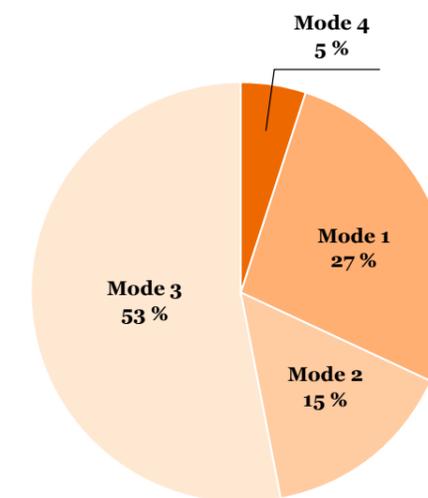
More worrying, however, are the prospects for the development of domestic markets in countries of the Global South. The South Centre, a think tank that provides policy advice to developing countries, voices its concern: "When tariffs are no longer relevant because digitalised goods are being bought by consumers without passing through customs, what does this mean for the domestic/regional markets that we are attempting to build?" (South Centre 2017b, 3). As it points out, regional markets are essential to African industry, as most of Africa's value-added production is absorbed by the African market. This explains Africa's emphasis on the building of the Continental Free Trade Area (CFTA): a key motive is to achieve secure sales channels (ibid.). Without adequate external protection to control electronic trade in digital goods, some of these efforts may fail.

In the e-commerce debate, comparatively little attention has yet been paid to the Agreement on Technical Barriers to Trade (TBT) which, of course, is closely connected to trade in goods. This Agreement is also highly pertinent in the context of efforts to expand the digital economy as it supports the diffusion and enforcement of relevant international norms: standards for communication networks, technical interfaces, encryption and authentication, and data protection and data security.

Trade in services: the GATS and online transmission

A WTO agreement of great importance to digital trade is the GATS, which covers trade in services. The GATS distinguishes between various modes of supplying services internationally (see box). Mode 1 – cross-border trade – is of particular relevance to the digital economy and the provision of services via the Internet or mobile networks. However, some digital businesses not only supply services via the Internet but also establish local branches or subsidiaries in many countries, so mode 3 – commercial presence – is of relevance to them as well.

GATS: importance of trade in services exports by mode of supply (percentage share)



Source: WTO 2018b

The four modes of supply under the GATS

- **Mode 1:** cross-border trade (e.g. services transmitted via the Internet or mobile networks)
- **Mode 2:** consumption abroad (e.g. tourist travel)
- **Mode 3:** commercial presence (e.g. establishment of local subsidiaries or branches by services companies)
- **Mode 4:** presence of natural persons (e.g. temporary migration of service providers or deployment of workers abroad)

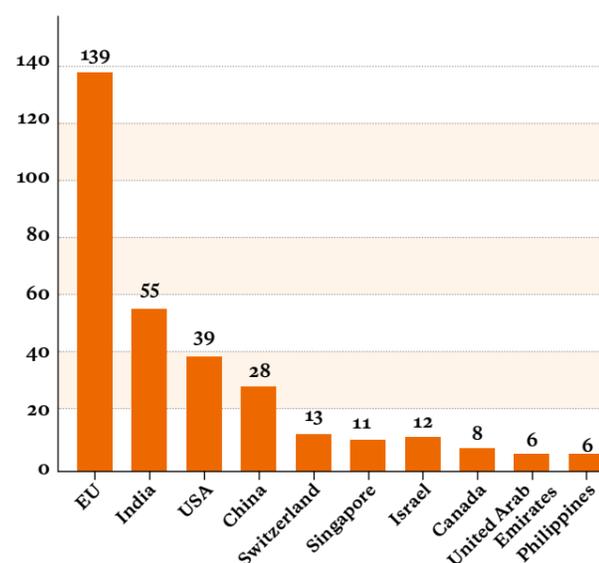
The broad range of services sectors covered by the GATS includes several that are essential for electronic trade, such as telecommunications, computer, financial and distribution services. However, the liberalisation obligations undertaken by WTO members in their individual schedules of commitments (which are integral parts of the Agreement) vary in scope, as we have seen, with developing countries signing up to a much lower level of commitment than developed countries (Adlung/Roy 2005).

The WTO recently updated its methodology for calculating the relative shares of the various GATS modes of supply in the value of the total international services trade. The use of this new methodology revealed that mode 3 (commercial presence) represents more than half of services transactions, while mode 1 (cross-border supply) is estimated to account for 27 per cent. However, the WTO states that this distribution may change with the growth of digital trade (WTO 2018b). If online trade in services continues to rise disproportionately, mode 1 is likely to account for a growing share of total trade.

Although international trade in services is dominated by developed countries such as the USA, the United Kingdom and Germany, some emerging economies have achieved high market shares in individual categories (ibid.). This is particularly apparent in telecommunications, computer and information services, a sector of dynamic growth in which India is a front runner; it comes second – after the European Union – in the ranking of the world’s top exporters in this category (see figure). India’s success as an exporter no longer stems

Major exporters of telecommunications, computer and information services 2017

(in USD million)



Source: WTO 2018b

from simple call centre and back office services but is primarily due to its software development industry and related online exports (which fall within the scope of GATS mode 1).

WTO rulings and the “technological neutrality” of the GATS

The WTO’s Dispute Settlement Body (DSB) has already handed down various rulings on the scope of the GATS provisions. According to these rulings, the provisions do indeed apply to online services. In 2003, for example, Antigua and Barbuda filed a successful complaint in the WTO against the US prohibition on the cross-border supply of online gambling and betting services. The DSB concluded that the USA had entered into liberalisation commitments for gambling and betting services and that these include recreational services offered via the Internet and hence supplied via GATS mode 1 (WTO 2013).

The WTO Panel granted Antigua and Barbuda the right to impose trade sanctions on the USA. It also allowed the Caribbean state to authorise the suspension of concessions and obligations to US companies in respect of intellectual property rights under the TRIPS Agreement at a level not exceeding USD 21 million annually (ibid.).

In a second GATS-related case in 2007 the USA successfully challenged import restrictions imposed by China on the online distribution of various items including sound recordings (music) (WTO 2012). The WTO’s Appellate Body found that the distribution services sector liberalised by China in its GATS schedule did not encompass only the distribution of physical goods but that “the relevant sector may extend to services relating to content not embedded in physical products.” It therefore applied also to sound recordings distributed through electronic means, such as the Internet (WTO 2009).

In both these rulings the WTO thus reinforced the contentious interpretation that asserts “technological neutrality” in relation to the means by which services are supplied under the GATS.

Risk: technological neutrality

The argument that the GATS is neutral to the different technological means through which a service may be supplied is propounded by, inter alia, the USA, the EU and the WTO itself. The WTO Secretariat refers in this context to the “principle of technological neutrality” (WTO 1999).

Developing countries, however, have repeatedly taken issue with this interpretation and draw attention to its inherent risks. They argue, for example, that the liberalisation commitments undertaken under the GATS in 1994 would thus apply to entirely new technological means of distribution that could not have been predicted at that time and may well pose significant risks to society (South Centre/African Trade Policy Centre 2017, 14f).

For example, a CAD file sold online may have substantial defects that would be immediately apparent in the physical counterpart of the workpiece detailed in the file. The use of defective files sold online for 3D printing of medical equipment could cause harm to health.

However, the EU comes across as less risk-aware. A proponent of technological neutrality, it threw its weight behind the USA’s 2007 WTO complaint against China and noted in a written submission: “The European Communities supports the position that the GATS Agreement is generally neutral to technology” (European Communities 2008, 14f).

The EU asserted this position in its free trade agreement with Japan (JEFTA), which entered into force on 1 February 2019. JEFTA’s chapter on electronic commerce states: “The Parties recognise the importance of the principle of technological neutrality in electronic commerce” (Article 8.70(3), European Commission 2018a).

The rentier state: TRIPS and the role of intellectual property rights

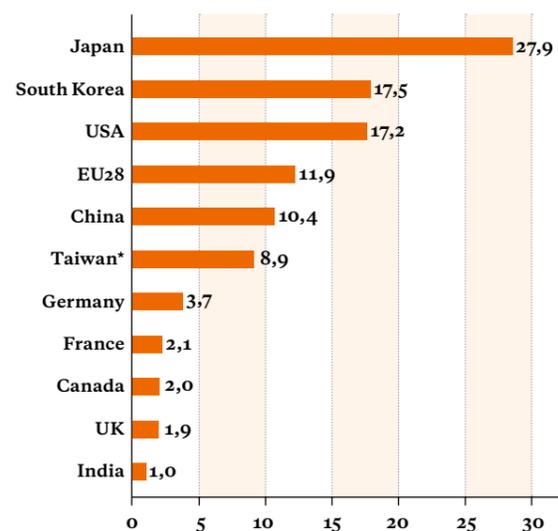
The Agreement on *Trade-Related Aspects of Intellectual Property Rights* (TRIPS) is of particular relevance to the digital economy. The Agreement requires WTO members to protect intellectual property rights, such as patents, trademarks and copyrights, in cross-border trade. The TRIPS Agreement is essential to the major digital corporations in order to preserve their business models: to maintain their profit generation capacities over the long term, they need to do their utmost to shield their products from potential rivals and imitators. Their aim is to retain the exclusive use of their software, algorithms, designs and brands for as long as possible.

Accordingly, a substantial and growing proportion of international patent applications and trademark registrations are now submitted by information and communication technology (ICT) companies (WIPO 2017a). Experts, though, view this trend with considerable concern, due to the questionable nature of many of these patent applications. There is particular controversy around patents on software products, which now account for more than a third of all patent applications. For many years, software was protected solely by copyright and did not qualify as patentable. However, this changed after digital industry companies in the USA successfully pushed for patents on their software. The very poor quality of these patents precipitated a constant flood of lawsuits for alleged rights violations. Above all, smartphone industry companies inundated each other with patent lawsuits; even developers of open source software found themselves in court. Poor quality, in the case of many of these software patents, means that they fail to meet formal patentability criteria for the product in question, namely newness and invention (Comino et al. 2017).

The digital industry’s preoccupation with protecting its interests is currently apparent, too, from the surge in patent applications in the artificial intelligence (AI) sector. According to the OECD, the number of these applications increased by an average of six per cent per year between 2010 and 2015, twice the average annual growth rate observed for all patents (OECD 2017b). By far the majority of these applications come from a small number of developed countries. Developing countries are almost completely marginalised in this sector.

Artificial intelligence: patent applications

(2010–2015, top 5 patent offices, percentage share)



*Province of China

Source: OECD 2017

The digital companies rely on the national authorities to enforce their proprietary interests. It is precisely for this reason that protection of their intellectual property rights has found its way into trade agreements. If the companies had their way, this protection would be enforceable in digital trade as well, indeed most particularly, as this would enable them to take action against infringements (AmCham EU/DigitalEurope et al. 2018).

In the USA, companies can notify intellectual property (IP) violations to the Office of the United States Trade Representative (USTR), which uses them to compile its annual Special 301 Report. The Report includes an extensive blacklist of countries that US firms allege are violating intellectual property rights. Countries that have the most onerous or egregious acts, policies or practices are placed on the USTR's Priority Watch List, which currently includes China, India and ten others. Many of the complaints come from the digital industry and relate to a range of IP-related concerns, including trade secret theft, online piracy, copyright infringements and use of unlicensed software (USTR 2018a).

From the digital companies' perspective, the protection afforded by the TRIPS Agreement is far from adequate, which is why they are calling for additional rules for digital trade. For example, they are demanding protection from disclosure for their source codes, algorithms, encryption keys and trade secrets, as well as prohibitions on forced technology transfer (AmCham EU/DigitalEurope et al. 2018). Many of these demands have already found their way into official negotiating documents tabled by the EU and the USA in the WTO (WTO 2017j; WTO 2016a).

The calls for a ban on forced technology transfers are mainly directed against China, whose granting of market access to foreign investors is often conditional upon their meeting certain performance requirements that include setting up joint ventures with Chinese firms and an undertaking to transfer technology to their Chinese partners. The necessary administrative approvals by the Chinese authorities for these investments are contingent upon the provision of detailed information about the type of technology to be transferred, which may include digital technology and software. China's technology transfer-related performance requirements are currently the subject of a WTO complaint by the EU (European Commission 2018c).

The plurilateral agreements: ITA and TISA

Various other international agreements are of relevance to digital trade. They include in particular the Information Technology Agreement (ITA), a plurilateral agreement concluded within the WTO framework in 1996 and now covering 81 WTO members. The ITA requires participants to eliminate customs duties on a range of IT products, from PCs to mobile phones (WTO, no date). However, the ITA has also attracted a measure of criticism. India is an instructive example of the type of risk that the ITA may pose to development.

The ITA: India's experience

India is one of the signatories to the plurilateral Information Technology Agreement (ITA-1), which entered into force under the auspices of the WTO in 1996. However, as a consequence of the elimination of customs duties required under this Agreement, the country was hit by a flood of telecommunication and consumer electronics imported by multinationals, mainly cheap goods from China that squeezed Indian manufacturers and suppliers out of the market. The IT imports contributed to India's substantial current account deficit. This was why in 2015 India decided not to participate in ITA-2 negotiations on expanding the product lists for liberalisation under the Agreement (Ernst 2016).

In order to protect its domestic industry, India levied and then increased customs duties on smartphones and other IT products in 2017 and 2018. The move drew protests from the EU, the USA and Japan, which claimed that it violated India's ITA-1 commitments. The USA is therefore considering filing a dispute at the WTO (Sen 2019). India, however, has defended its actions, presenting the same argument that the African Group puts forward in the e-commerce debate: innovations such as smartphones and wearables including activity trackers and smartwatches did not exist when the ITA-1 was negotiated, so they should not fall within the scope of the Agreement (Kanth 2018b).



Bangalore used to be the Silicon Valley of the Global South, but India currently has a balance of trade deficit in IT products.

Another plurilateral agreement that was to include particularly detailed provisions on digital trade is the Trade in Services Agreement (TiSA). TiSA negotiations were launched in 2013 by a group of countries, latterly 23, on the margins of the WTO in order to circumvent the impasse in the Doha Round.

However, as of December 2016 these talks are also on hold, largely due to the US administration under Donald Trump, whose position on TiSA is ambivalent. A number of other developed countries took part in the talks besides the EU and the USA; developing country participants included Colombia, Peru, Costa Rica, Mauritius and Pakistan (Kelsey 2017).

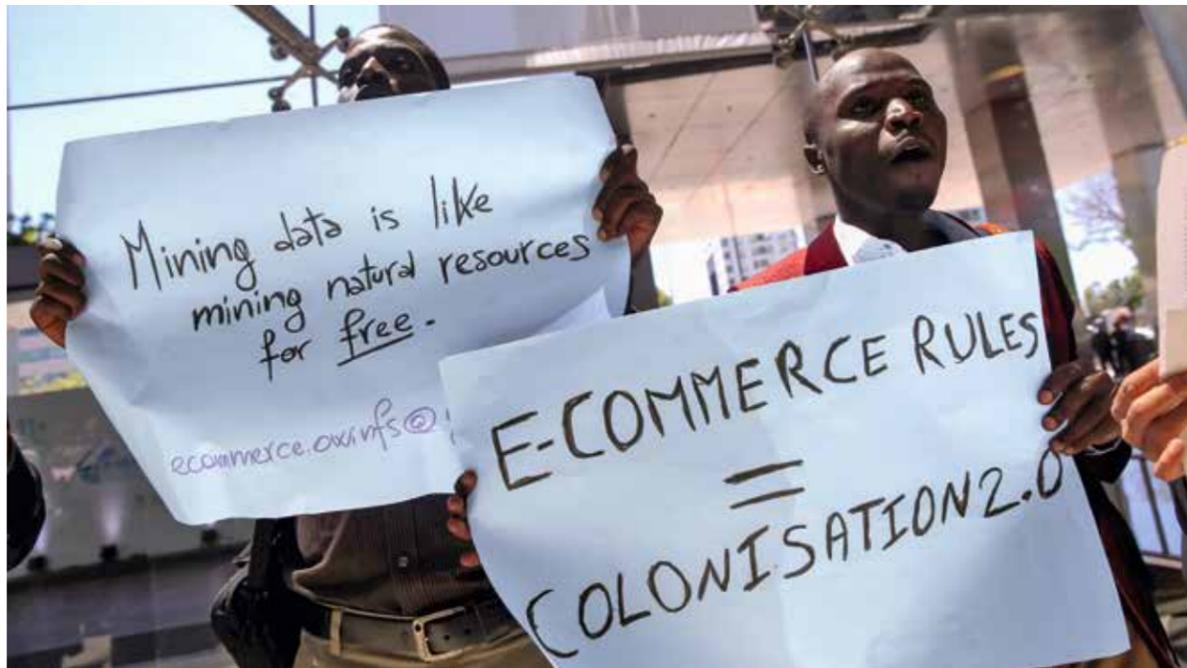
TiSA includes extensive provisions with implications for government regulation of transnational digital industry companies, including the following:

- unrestricted data flows, including across borders,
- a ban on data localisation and "buy local" requirements,
- Internet platforms are not liable for user-generated content
- a permanent moratorium on customs duties on data transmissions (bilaterals.org 2016).

China's participation in the TiSA negotiations has been repeatedly blocked, mainly by the USA. This is noteworthy, given that China has emerged as the global leader in the digital economy alongside the USA. Chinese firms including Tencent, Alibaba, Baidu and JD.com are now some of the world's largest Internet-based companies and compete with USA corporations such as Alphabet (Google), Amazon and Facebook (Seth 2018).

TiSA is thus regarded as one of the agreements initiated by countries of the Global North in an effort to enforce international norms against the interests of China and other emerging economies. The EU is particularly keen to eventually establish TiSA as a plurilateral WTO agreement (Kelsey 2017).

So what happens next – will the TiSA talks be resumed, and if so, in what format? That is still uncertain. There are three possible scenarios: 1) the suspension becomes permanent; 2) the USA withdraws from the project and talks resume under the EU's leadership, or 3) the USA returns to the negotiating table. The third option cannot be ruled out, given that the digital industry in the USA will be a key beneficiary if TiSA is concluded (Prausmüller 2019).



Activists protest at the 11th WTO Ministerial Conference in Buenos Aires in 2017, fearing a new digital colonialism.

E-commerce negotiations: the various country groups' positions

During the disagreement over the establishment of a WTO e-commerce working group in the run-up to the Buenos Aires conference, there emerged three groups of countries with divergent interests: the proponents of further liberalisation of digital trade, the firm opponents of such negotiations, and a group of developing and emerging countries that occupy the middle ground. Countries in this third group certainly recognise the opportunities afforded by global digital trade but have no desire at this stage to submit to the constraints of liberalisation (Singh 2017a).

Proponents of the liberalisation of e-commerce

The proponents of liberalisation include not only the EU but also Australia, Canada, Chile, Korea, Mexico, Paraguay, Peru and Ukraine. At the WTO Ministerial Conference, this group called for the establishment of a

working group specifically to conduct negotiations on new e-commerce rules (WTO 2017d). Russia, Japan and other countries were also in favour of this (WTO 2017e).

Before any decision to commence negotiations on new trade rules, however, an evaluation should be conducted to determine “whether the clarification or strengthening of the existing WTO rules is necessary” (WTO 2017f, 1). This stepwise approach had previously been advocated by Japan in a separate communication (WTO 2017g).

The USA also circulated proposals for sweeping measures to liberalise e-commerce, including a comprehensive prohibition on customs duties for digital products, unhindered data flows, no localisation barriers, a ban on forced technology transfer, and protection of source codes from access by the state (WTO 2016a). Unlike the EU and its allies, however, the USA did not adopt a clear position on the way forward and possible negotiations. Because of the ambivalence of the USA, the EU has become the leading proponent in the liberalisation camp (Singh 2017a).

Opponents of the liberalisation of e-commerce

The main opposition to the EU and its allies on the liberalisation of e-commerce comes from India and the African Group, which consists of all the African members of the WTO.

According to the African Group, the contentious issues raised by the 1998 WTO work programme have still not been resolved: these include the divergent views on the technological neutrality of the GATS and the classification of digital products as goods or services. The African Group also objects to the assumption that existing WTO Agreements automatically apply to new technologies such as 3D printing, robotics, drone delivery and artificial intelligence, arguing that technologies and business models that did not exist at the time the WTO agreements were negotiated do not fall within the scope of these agreements post-hoc (ibid.).

In the African Group's view, a new multilateral forum such as the proposed e-commerce working group would develop rules that would serve to further marginalise economic latecomers, including:

- a permanent moratorium on customs duties,
- the free movement of data,
- a ban on data localisation requirements,
- non-disclosure of source codes,
- barring forced technology transfer.

India supported the African Group, merely calling for the talks under the 1998 Work Programme on Electronic Commerce to continue (WTO 2017h). There was a lively public debate in India ahead of the WTO Conference, with the Indian government arguing that negotiations on new rules in e-commerce would be highly premature at this stage. The government fears that liberalisation commitments could hurt India's rapidly growing domestic e-commerce platforms (Mohammad 2017). Another reason for India's wariness is its bitter experience of the Information Technology Agreement (see box on page 25).

The “middle camp”

In addition to the proponents and opponents of e-commerce liberalisation within the WTO, there is a “middle camp” that is open to further talks on this topic but would only wish to negotiate new multilateral commitments subject to certain provisos. This group includes

developing and emerging countries such as Thailand, Malaysia, Bangladesh, Pakistan, Brazil, Costa Rica, Nigeria and – the key player – China.

In its statements within the WTO, China assumes an intermediary role, taking account of WTO members' divergent positions yet not neglecting its own interests. In a joint communication with Pakistan issued in November 2016, China states that in view of the wide digital gap among WTO members, e-commerce-related work in the WTO should embody inclusiveness and “proceed progressively in the spirit of solidarity. Priority should be given to easy issues to avoid pushing members to opposing ends and bringing harm to the multilateral trading system.” To this end, China proposes that the discussions focus on promotion and facilitation of cross-border trade in goods enabled by the Internet, together with services directly supporting such trade in goods, such as payment and logistics services (WTO 2016b).

In a solo WTO communication issued in October 2017, China lists further e-commerce topics that it believes to be acceptable to members: a temporary extension of the moratorium on customs duties on electronic transmissions until the next session of the Ministerial Conference; facilitating cross-border e-commerce through free zones; promoting paperless trading; and mutual recognition of electronic signatures and contracts. Furthermore, in order to take full account of the developing countries' interests, the principle of special and differential treatment should be an integral part of all WTO work on e-commerce (WTO 2017i).

In its communication, China focuses in particular detail on the model of digital free zones and customs warehouses as logistics hubs designed specifically to facilitate online trade in goods. The WTO, it says, is well-placed to support the diffusion of logistics hubs such as these. This recommendation is not entirely altruistic (ibid.): a model for logistics hubs was developed and is currently being rolled out by China's online giant Alibaba in a number of countries.

Digital free trade zones: Alibaba develops the Electronic World Trade Platform

Alibaba, the world's largest e-commerce company and Amazon's Chinese rival, is building an Electronic World Trade Platform (eWTP) that is intended to connect a global network of digital free trade zones. The eWTP is also a key project in China's trade policy initiative for a New Silk Road (Belt and Road Initiative).

According to Alibaba, the aim of the eWTP is to promote exports, mainly by SMEs, by fostering their participation in global e-commerce, thereby ensuring that it is not only the transnational corporations that benefit from this opportunity. The eWTP initiative therefore offers companies in China and elsewhere easier access to Alibaba's online marketplaces (including Taobao, Tmall and AliExpress) by digitising customs clearance and offering one-stop services such as warehousing, logistics, finance, cloud computing and mobile payment services (CCTV 2017).

The first digital free trade zone outside China is currently being established by Alibaba near Kuala Lumpur International Airport in the Malaysian capital in an e-commerce project backed by the Malaysian government. However, Alibaba's logistics hub will cater not only for Malaysian firms wishing to export to China but also for Chinese exporters keen to deliver to Malaysia and neighbouring countries. Some observers are therefore worried that more competitive Chinese exporters could squeeze Malaysian firms out of the market. Adding to this fear, Malaysia has increased the de minimis threshold for duty-free imports into Alibaba's digital free trade zone from the previous USD 128 (local equivalent) to around USD 200. In contrast, China has established a much lower de minimis threshold – the equivalent of USD 8 (see Chapter 3). The difference in duties at least gives Chinese exporters a competitive edge over their Malaysian rivals (Tham 2017).

Alibaba is currently planning to set up various other digital free trade zones in Hong Kong, Dubai, Moscow and the Belgian city of Liège. The company recently signed a Memorandum of Understanding (MOU) with the Belgian government. Alibaba will build its main smart logistics hub for Europe at the airport in Liège, while Belgium will join the eWTP and will work with Alibaba on digitisation of customs procedures (Aircargo News 2018).

Rwanda is the first eWTP partner in Africa. Under the agreement reached with the Rwandan government, Alibaba will help the country's SMEs to sell their products – including agricultural goods such as coffee – via Alibaba's online marketplaces in China (Hsu 2018). In addition, Alibaba is training Rwandan officials from various ministries and public authorities in building a digital economy (Ecofin Agency 2019). However, governments should carefully weigh up the opportunities and potential risks of this type of cooperation. While it can facilitate more dynamic trade, there is also a danger that the local economy will be weakened by an increase in imports from China or will lose revenue as a result of customs facilitation measures. Consumer protection and data privacy may also be at risk.

As Alibaba does not sell goods itself but acts as an intermediary between sellers and purchasers, numerous counterfeit goods have found their way onto its platforms. For that reason, the Office of the United States Trade Representative (USTR) has repeatedly placed Alibaba's Taobao platform on the blacklist of "notorious markets" that serve as outlets for the sale of pirated or counterfeit goods. The USTR also deals with infringements of intellectual property rights (particularly trademark rights) affecting US companies whose products have been copied and offered for sale on Alibaba's platforms (USTR 2018b).

It is true that the blacklist partly reflects the profit motives of the transnational corporations, which are keen to secure exclusive rights of exploitation

and lucrative revenues from their branded goods for as long as possible. Nevertheless, untested imitation goods can indeed pose a risk to consumers, particularly in the case of medicines and electronics. Consumer organisations are therefore alerting purchasers to the pitfalls of buying goods at bargain prices from the Alibaba marketplaces (Hickey 2017).

Alibaba also has a strong presence in the computing services sector. It is the cloud computing leader in China and is massively expanding its artificial intelligence and big data processing capabilities (Harvey 2018). What's more, under provisions recently introduced by the Chinese authorities, "personal information" and "important data" collected or generated on Chinese subjects in China must be stored and processed in China (Ng 2018).

Rwanda, however, has no such policy and the practical effect of its cooperation with Alibaba is to allow an outflow of its data to China or other countries. Nigeria is currently the only African country to have adopted legislation on data sovereignty (Kuti et al. 2017).



Alibaba is not just the largest e-commerce company in the world: it is also pioneering the creation of digital special economic zones.

Bilateral agreements: fast-tracking liberalisation

Since the turn of the millennium, the number of bilateral trade agreements that include e-commerce rules has steadily increased. According to the World Trade Organization (WTO), e-commerce provisions can be found in 75 out of a total of 275 regional and bilateral trade agreements notified to the WTO. These provisions take the form of separate e-commerce chapters or are dispersed across various sections of the agreements. Of the 75 agreements that incorporate e-commerce provisions, 47 were concluded between developed and developing countries, 25 between developing countries and only three between developed countries (Monteiro/Teh 2017).

The scope of the provisions has steadily broadened over the years. The WTO identified 25 types of e-commerce provisions, with the following three being among the most important and contentious:

- prohibitions on customs duties on electronic transmissions,
- free cross-border data flows, and
- bans on data localisation requirements.

Prohibitions on customs duties on digital transmissions or digital products are a very common feature of e-commerce agreements. According to the WTO, such prohibitions can be found in 56 agreements. In the majority of cases, the provisions go further than the WTO moratorium and stipulate that the parties may not impose customs duties, fees or other charges on digital products supplied by electronic transmission, with no time limit specified (ibid.). In light of this situation, the fears expressed by some developing countries about a permanent moratorium on customs duties in the WTO appear to be entirely justified (see above).

According to the WTO, 19 agreements include specific provisions relating to cross-border transfer of information by electronic means. The majority emphasise the importance of cooperation to maintain cross-border flows of information. The *Comprehensive and Progressive Agreement for Trans-Pacific Partnership* (CPTPP) contains the state-of-the-art provisions (ibid.).

This Agreement stipulates that signatory states should as a general rule allow cross-border data flows, including the transfer of personal information, when this activity is for the conduct of a business. The state may only regulate information flows for a "legitimate" public

policy objective but such a measure may not constitute “a disguised restriction on trade” (Wu 2017).

Very few agreements currently include the highly contentious bans on localisation requirements. Such prohibitions are very much in the interests of transnational digital corporations but are regarded as a major threat to efforts to establish a domestic digital economy in countries of the Global South (South Centre 2017a).

These provisions prohibit governments from imposing conditions on companies that compel them to store data on local servers. More stringent variants of such conditions require data to be stored and processed exclusively on local servers and prohibit the cross-border transfer of certain types of content (e.g. personal data). Softer variants merely require copies of certain types of stored data (e.g. customer data) to remain on local servers but permit data transfer as long as certain conditions are met.

Here, too, the CPTPP contains the state-of-the-art prohibition, which states that no Party may require a covered person to use or locate computing facilities in that Party’s territory as a condition for conducting

business in that territory. Exceptions are permitted only if localisation requirements are needed to achieve a “legitimate” public policy objective and do not constitute a “disguised restriction” on trade (Wu 2017).

The trend towards localisation requirements

The ban on localisation requirements in trade policy is the outcome of the trend towards the establishment of basic rules for the transnational digital economy. Data localisation requirements have mushroomed globally since the early 1990s. One analysis counted 87 measures in force in 64 countries in 2017. They can be found in developed, developing and emerging economies alike (Ferracane 2017).

In imposing localisation requirements, governments may pursue a variety of objectives, many of which relate to public policy. For example, many of these provisions apply to key financial, tax, health, law enforcement and registration data which governments wish to keep safe

and accessible. As an example, banking regulators may require access to data from financial institutions in order to stabilise the currency or prevent money laundering. The tax authorities, for their part, require access to records and financial statements in order to tackle corporate tax evasion. Indeed, the majority of EU member states require these or other data to be stored locally (European Commission 2017).

However, localisation requirements may also be adopted with the stated aim of supporting the development of the national digital economy. For example, this is the case in Nigeria, where the government has been pursuing a data localisation policy in the interests of the local economy for many years (Kuti et al. 2017). Thus in 2011 Nigeria’s Central Bank introduced a measure preventing payment services providers from processing their data outside the country. Channelling data via switches outside Nigeria is therefore also prohibited (Central Bank of Nigeria 2011).

Furthermore, in 2013 the *National Information Technology Development Agency* (NITDA) issued comprehensive guidelines requiring the ICT industry to use local technology and to host all subscriber and consumer data locally within the country (NITDA 2013). Nigerian MPs recently urged the government to be even more rigorous in enforcing its localisation policy in the interests of the domestic industry (PLAC 2018).

Numerous other countries including China, India, Indonesia, Russia, South Korea, Turkey and Vietnam have followed suit and adopted similar provisions in recent years. However, these measures do not sit easily with official US and EU trade policy. For example, in its recently published list of key barriers to digital trade the Office of the United States Trade Representative states that from a US perspective, domestic digital trade such as cloud computing is under threat from laws and regulations such as these (USTR 2018c).

The European Commission, for its part, is taking a tough line on India’s draft Personal Data Protection Bill. In a submission on the draft legislation to India’s Ministry of Electronics and Information Technology (MeitY) in September 2018, it criticises the proposed data localisation requirements, particularly the provisions of the draft law which require at least one copy of personal data to be stored on a server or data centre located in India and stipulations that “critical” personal data must be exclusively processed within India (European Commission 2018b).

The European Commission describes these data localisation requirements as “unnecessary” and “potentially harmful”. Such an approach, it claims, will create “significant costs” for companies – in particular foreign ones – linked to setting up additional processing and storage facilities in India. Moreover, this kind of provision is likely to adversely affect trade, as well as the bilateral EU-India negotiations on a possible free trade agreement (ibid.).

From a civil rights perspective, localisation requirements also raise the issue of whether the countries concerned guarantee adequate protection for the personal data being stored on local servers, given that the misuse of this data by the private sector and governments is a global problem that is causing justified concern in North and South alike (see Chapter 9).

From a development perspective, however, a defence of the status quo – which involves the bulk of data being stored on servers in the USA, Europe and China – is not a particularly convincing model. The extremely inequitable distribution of data centres, with Africa and Latin America largely under-provisioned, is a further obstacle to development in these regions (Christian 2018).

Instead, calls for data sovereignty should be accompanied by obligations on governments to guarantee appropriate protection of data and privacy. Prohibitions on localisation requirements in trade agreements would appear to be less than helpful here, especially since they do not consider the need for protection of privacy.

Civil society organisations from developing and developed countries alike are therefore opposed to bans on localisation requirements as a trade policy instrument (Gurumurthi et al 2017). The European civil rights organisation European Digital Rights (EDRi) argues that data flows and data localisation provisions should not be part of EU trade agreements; there are other more suitable legal fora and international agreements that the EU should use instead to address issues such as data protection (EDRi 2017).



Data flows are now an element in trade agreements. Around 64 countries have introduced rules on the local storage of sensitive data.

Corporations against digital taxes

Besides advocating a ban on localisation requirements, transnational corporations in the digital industry are attempting to utilise trade agreements as a means of campaigning against the digital taxes that various countries plan to introduce. These corporations reacted with alarm to the European Commission's proposals, unveiled in March 2018, for EU-wide taxation of digital services. However, the proposals lapsed in March 2019 when the Economics and Financial Affairs Council (Ecofin) failed to reach agreement. France and Austria subsequently announced plans to introduce national digital taxes (Spiegel Online 2019).

Digital industry associations, by contrast, are calling for WTO negotiations on trade-related aspects of electronic commerce to advance efforts to prohibit tariffs and taxes on cross-border data flows and digital products (AmCham EU/DigitalEurope et al. 2018).

At bilateral level, too, Internet companies have pushed back, urging the Office of the United States Trade Representative to take action against several countries' planned taxes on digital services. In its comments to the USTR, the Computer/Communications Industry Association (CCIA) lists as examples the taxes on digital services planned in Argentina, Australia, Chile, Colombia, the EU, India, Indonesia, Mexico and Uganda. In other words, the digital corporations have the developed and developing countries and the emerging economies alike in their sights (CCIA 2018).

The CCIA takes the view that the proposed taxes single out the US digital economy for additional taxation and therefore constitute discrimination, which is prohibited under the World Trade Organization (WTO) General Agreement on Trade in Services (GATS). CCIA members include Facebook, Google, T-Mobile and Uber. CCIA has so far been extremely successful in asserting its grievances, which feature in the USTR's most recent Report on Foreign Trade Barriers (USTR 2019).

Similarly, the Peterson Institute for International Economics in Washington regards the digital tax imposed by France as a violation of the GATS on the grounds that it constitutes de facto discrimination. Although the tax formally treats all companies equally, the high revenue threshold applicable to the tax on advertising revenue generated by digital platforms means that it is predominantly US firms that are affected. The Institute recommends that the US government respond with

unilateral trade sanctions, accompanied by an appropriate complaint in the World Trade Organization, in order to deter other countries from introducing digital taxes (Hufbauer 2019).

India is among the front runners in digital taxation, having introduced an *equalisation levy* on the advertising revenue of foreign online platforms in 2016. The six per cent tax is levied on the amount paid to overseas internet companies by advertisers in India for online advertising. As it mainly applies to advertising on platforms such as Google and Facebook, the levy is often called the "Google tax". If advertisers switch to foreign platforms with a branch in India, they become exempt from the tax (Jha 2018).

As the equalisation levy does not apply if Indian platforms are used for advertising purposes, it may constitute an infringement of the principle of national treatment under the GATS, which requires foreign service providers to be given the same treatment as a country's own nationals. However, India has retained some room for political manoeuvre since it excluded advertising services from its GATS schedule of commitments, which lists the sectors it intends to liberalise. This means that India's equalisation levy cannot be challenged under the GATS non-discrimination clause as long as it applies solely to payments for advertising (Rajgopalan 2018).

This leeway could be lost, however, if a future plurilateral e-commerce agreement in the WTO introduces a general ban on digital taxes on cross-border transactions and India signs up to this agreement. Similar obstacles to the introduction of digital taxes could arise if India were to accede to an agreement such as the CPTPP. Although this agreement grants negotiating partners scope to levy taxes, charges or fees on electronic transmissions, this is only permitted if the taxes in question comply with the Partnership Agreement, which simultaneously requires non-discrimination between domestic and foreign suppliers (CPTPP 2016). India's equalisation levy could thus be challenged under the CPTPP as it only applies to advertising on foreign platforms.

5. Data – the oil of the 21st century



In terms of structure and structural dependencies, the data economy resembles the oil industry.

"The world's most valuable resource is no longer oil, but data," wrote *The Economist* in May 2017 (*Economist* 2017). The analogy between oil, the most important natural resource of the 19th and 20th centuries, and digital data, is more than just a play on words. The obvious differences between the two commodities should not blind us to their functional similarity. Oil, more than any other raw material extracted from the earth, forms the foundation of our modern production and consumption habits.

The growing strategic importance of data

In the near future, data is likely to acquire a strategic importance comparable to that of oil, since it forms the basis of the key technologies of the digital age: cloud computing, 3D printing, robotics, Industry 4.0. and artificial intelligence.

And like oil, data also depends on a comprehensive and smoothly functioning global infrastructure (hardware). Without drilling rigs, pipelines, ports, tankers, filling stations and chemical parks there would be no petrol

for our vehicles, no oil for our heating systems and no plastic for the countless objects we use every day. Similarly, the Internet, smartphones and automated industrial parks cannot function without the existence of submarine cables, complex network hubs and data and computing centres, as well as algorithms and artificial intelligence that enable big data to be analysed and used.

The "Big Five" of Silicon Valley have only been able to oust the "Big Four" oil giants (ExxonMobil, Royal Dutch Shell, BP and Chevron) from their long-held positions at the top of the stock exchange rankings because from their servers in California and Seattle they have virtually global control of the infrastructure of the Internet. Without direct access to these supercomputers, Facebook and Google would not be able to collate, analyse and evaluate millions of items of data profitably and in a second.

The importance of data is constantly growing and changing, both in terms of its quantity and quality and with regard to its value and form. We are witnessing the dawn of a new data-based economy, the structure of which is only slowly taking shape.

Big Data

Big data is growing and growing. It is conservatively estimated that the quantity of data available worldwide doubles every twenty months. In other words, the past two years have seen a doubling of the amount of data and information that we have collected since the invention of cuneiform writing more than 5,000 years ago. And so it continues. According to the market intelligence firm the International Data Corporation, which specialises in information and communication technology, the global quantity of data will increase ten-fold in just eight years, from 16 zettabytes in 2017 to a predicted 175 zettabytes in 2025 (International Data Corporation, 2018). The number of bytes in a zettabyte is one followed by 21 zeros. Anyone can see how rapidly the quantity of data is likely to grow by 2030, 2040 or 2050.

The changing quality and value of data

But it is not only the quantitative increase in data that is boosting its importance to business and society. The quality of data is also changing and making it increasingly valuable as new technical developments enable it to be used for completely new commercial purposes. In the *first* phase of digitalisation, digital databases contained mainly names and other precisely defined personal details such as age, gender and income. In the second phase the emphasis was on analysing and utilising unstructured flows of data (photos, videos, etc.) from users of social networks as quickly as possible, preferably in real time. Algorithms and AI were essential for this development. In the third phase that is now under way, the focus of interest and economic activity is shifting to the data collected by sensors. Big data thus consists to a growing extent of factual data, much of it generated by the Internet of things. Devices of any type – cars, subway trains, wind turbines, toasters – become sources of data, regardless of whether people are connected to the Internet or not.

The increase in the quantity and quality of data is accompanied by a third, shifting component that may be the most important of all: the value of data is increasing. Facebook and Google initially used the data collected from users to improve targeted advertising. In recent years, however, they have discovered that data can be converted into countless artificial intelligence or cognitive

services that in turn provide a new source of revenue. For example, these services include visual recognition and the assessment of an applicant's personality that can be sold to other companies (Economist 2017).

The rise of a new type of business: the data economy

The huge increase in the quantity of data and changes in its quality and value are not just signs that we are witnessing something new: we are seeing the emergence of a data economy, the form of which is slowly but surely becoming clear. Since the first industrial revolution, it is energy resources (oil, gas and coal) that have driven growth and change. Now it is data that is increasingly performing this function. The global flow of data is creating not only new infrastructures but also new businesses, new monopolies and new policies. Again and again, digitalisation is referred to as “disruptive” technology.

In smart cities in which homes are equipped with intercommunicating devices (refrigerator, blinds, light systems and so on) and people are ferried about in autonomous vehicles controlled by a smart transport grid, data is not just an important requirement – it becomes an essential element of our everyday lives. Without data that is constantly processed and applied in real time, everyday life cannot proceed – and the entire world of business and industry cannot function.

Every step that we take along the path to further digitalisation of our working environment and our lives heightens the value and importance of data – and our dependence on it. Self-determined living and working is possible only for people who have access to (their) data. The transport sector provides an example of this. Modern cars are in essence powerful computers around which the bodywork is built. VW calls its new electric car in the I.D. range that is due to be launched in 2020 a “smartphone on wheels” (FAZ 2019). Our grandchildren in their driverless cars will be totally dependent on a smart, data-based transport system: without big data the future vehicle of the 21st century will not move a single millimetre. But who has access to the data needed to set up and operate a smart transport grid? Is it the local authority, or is it private-sector businesses such as Google that not only Hoover up data but also produce cars? Or the transport service provider Uber? The big

question to which we shall have to find an answer in the coming years is “Who does this data belong to”, or rather “Who commands over it?”

Winners or losers? Data sovereignty – the contested terrain

The question of who commands over data is not simply an abstract political or philosophical one. It is an issue that lawyers have explored in depth. Their unanimous view is that because data is not material in nature, there is no *absolute* right to data in the way that there is a right to tangible property. There is therefore no right to the release of data under Section 985 of the German Civil Code (BGB). Nevertheless, the generators of data (in Germany) are by no means defenceless; they benefit from abundant protective rights. The report on data trading and platforms funded by the Federal Ministry of Education and Research (Dewenter/Lüth 2018) concludes that “Access to data by unauthorised third parties is penalised under criminal law, the *content* of data is protected by legislation on copyright, competition and data protection, and *tradeability* is guaranteed partly because the provisions of commercial law apply.”

„Conflicts over oil have scarred the world for decades ... The data economy has the same potential for confrontation.“
Economist 2017

The European Union's General Data Protection Regulation (GDPR) that entered into force in May 2018 also grants the explicit right to data portability: “The data subject shall have the right to receive the personal data concerning him or her, which he or she has provided to a controller, in a structured, commonly used and machine-readable format and have the right to transmit those data to another controller without hindrance from the controller to which the personal data have been provided ...” (GDPR 2018, Article 20).

A telling example in this connection is Microsoft's action in Germany. In the aftermath of the Edward Snowden affair, a growing number of people in Germany

doubted whether their data was safe against spying when they used the digital services of Google, Facebook and Microsoft – such as a cloud. Microsoft decided to adopt a new approach to the control over data stored on its servers: from the summer of 2019, Microsoft is inviting its (new) customers to use “Microsoft Cloud Germany”. This involves transferring trusteeship of the data stored on the servers to T-Systems International, a subsidiary of Deutsche Telekom. This means that access to customers' data is no longer controlled by Microsoft but by T-Systems. Disclosure of this data to third parties is expressly prohibited unless authorised by the customer or required under German criminal law (Microsoft, undated).

Data sovereignty and development

The societies of the Global South will only obtain lasting benefit from the digital transformation if as part of this process they increase their opportunities for social and economic participation. One of the basic requirements for improved participation is the (re)acquisition of sovereignty over their data. Data sovereignty puts them in a position to develop their own digital economic policy geared to their local and national needs. An important aspect of data sovereignty is, firstly, the right to local data storage (see Chapter 4: E-commerce in trade agreements). Secondly, developing and emerging countries must be enabled to establish and expand a public data infrastructure. Thirdly, these countries must set up their own digital platforms in areas such as mobility, health, finance and trade. Fourthly, the policy framework must control and regulate monopolies and their (digital) transactions in both physical and immaterial goods. These four requirements provide the basis for data sovereignty. And data sovereignty is essential if the technological edge at present enjoyed by the big IT companies is not to increase further (see Chapter 10: Making e-commerce development-friendly).

Facebook & co.: the basics of digital platforms

Nowhere is the creation and expansion of digital control and power (centres) as clear as in the digital platforms that have come out of Silicon Valley and its Asian counterparts. The success of Facebook & co. is not only reflected in their value on the stock exchanges: within a short time they have also established a monopoly position at global level that is historically almost unprecedented. Only Rockefeller's Standard Oil Company has had a comparable of power. At the end of the 19th century Standard Oil controlled around 90 per cent of the USA's oil refineries and 70 per cent of the world market. It was not until the early 20th century that this unique monopoly position was brought to an end by President Theodore Roosevelt and the antitrust laws.

In the view of experts (Economist 2017; Singh 2017), the success of the digital platforms rests on five pillars: (1) new business ideas and models, (2) technological edge, (3) network effects, (4) risk capital and (5) aggressive market behaviour and data that is provided by users free of charge.

New business ideas and models

Google's business idea aims to organise the world's information and make it accessible to and usable by *anyone at any time*. Facebook, by contrast, created a platform on which people the world over – regardless of gender, age or origin – can share information and ideas free of charge. Both ideas are simple and easy to put into practice.

These ideas were combined with a new business model that gives rise to a new economy, the digital economy: "The principal feature of platforms is (...) the organisation of access to knowledge and information that users of the platforms make available *free of charge*. In a digital economy, data becomes the key resource, algorithms become the decisive means of production and information becomes the number one commodity" (Daum 2017, 12).

Facebook & co. are not content to assume a dominant role in their particular sector. Rather, their business model involves owning the "marketplace" (ibid.). According to The Economist, this saves transaction costs that otherwise arise on markets where multiple actors trade with each other (Economist 2017); there, deals must be negotiated, contracts enforced and information searched for. It is simpler and more efficient to bring these activities in-house. In addition, it is more profitable to generate and use data inside a company than to buy it on the open market (Economist 2017; Singh 2017b).

Technological edge and network effects

The major role (in other words, the monopoly position) of digital platforms is cemented further by the technological edge that these companies have and that they constantly expand. Amazon and Google have the largest clouds in the western world and are vigorously driving forward research and applications in the field of artificial intelligence. Data can now be analysed and monetised in almost real time. This constantly enlarges the gap between them and other (potential) providers with the same business model or one like it.

Data is the key resource of the 21st century. But just as important as big data is the quality of the algorithms used to crunch and monetise it.

Another core element in the success of digital platforms is the network effect that applies more strongly to the digital economy than the analogue one. The network effect is an economic principle that states that the utility of a product or service for each user increases with each additional customer who uses the good or service. In other words, the more members the network has, the greater the value for each user. The network effect supports the "winner takes all" principle.

The network effect and artificial intelligence are mutually reinforcing: because of the exclusive nature of what they provide (which in the case of Facebook is communication), these platforms represent an exclusive data mine for the relevant sector – a mine that grows in size with each new user and with the ever faster and more precise capturing and utilisation of data by algorithms. In turn, it is the vast quantity of data profitably analysed by algorithms that enables AI to be constantly developed. A successful digital marketplace business therefore has a naturally monopolistic tendency, which in consequence widens existing inequalities.

Risk capital and aggressive market behaviour

Private or state risk capital is another important condition for success. It has enabled the USA and China to be at the forefront of digitalisation and technical change. In its absence, the situation is quite different. India, for example, successfully established an in-



New business models, technological edge, AI, risk capital and aggressive marketing behaviour: Facebook founder Marc Zuckerberg cites these as his recipe for success.

ternationally competitive software industry back in the 1990s (Bangalore was regarded as the Silicon Valley of the Global South), but despite this it was only in 2014/2015 that the country and its industry risked the leap into the digital age (Singh 2017b).

Financially strong companies further consolidate their monopoly position by means of aggressive market behaviour. An established method is the use of subsidies. Amazon, for example, often posts quarterly figures that show its online business to be in the red (Werner 2017). In Europe, in particular, its mail order business operates at a considerable deficit. Jeff Bezos accepts the enormous losses because he hopes that in the long term this strategy will drive all other online suppliers out of the market. Another method involves buying up promising start-ups or small-scale competitors. Successful complementary companies, too, may be taken over before they turn into serious rivals. For example, Facebook bought WhatsApp because its competitor had developed an alternative social graph – that is, a network connecting users/friends – and Facebook's social graph is its most valuable asset. In other words, the digital platform models involve owners of sector platforms whose primary aim is create data mines and accumulate detailed sectoral intelligence that functions as the sector's "brain". These are the central features of the digital economy and the key to understanding it resides in the importance of data.

What are the consequences of this for the countries of the Global South? In the long term they will be able to establish themselves as internationally competitive partners and to pursue forms of digitalisation that benefit all sectors of society only if they adopt a broad approach. We outline some of the key elements of such an approach in Chapter 10: Making e-commerce development-friendly.

6. Industry and value chains

Digitalisation and changes in industrial production processes have ignited prolific debate on the extent to which traditional development strategies can still be relied upon to work. Until quite recently, development of a country's industrial base and integration into global value chains were axioms of successful development. However, the changes in production caused by digitalisation are increasingly calling these approaches into question.

Now there are growing doubts about whether industrialisation can still make the anticipated contribution to economic development, increased employment and poverty reduction. A pre-eminent concern is that digital process innovations are impacting on what has always been the Global South's most important competitive advantage: the lower costs of labour compared with industrialised economies (Mayer 2018).

Despite great hopes that crowdworking could extend alternative income opportunities to the countries of the South, international studies reveal that, in terms of development, online work platforms deliver a very mixed result: clickworkers in the Global South run a particular risk of being trapped in low-skilled and poorly paid work.

Industry 4.0: new manufacturing technologies

A number of digital technologies are driving the changes in the industrial production process which, especially in Germany, are debated under the collective heading "Industry 4.0":

- Computer-aided design (CAD) and computer-aided manufacturing (CAM): these permit the program-controlled development of designs and prototypes and the fabrication of physical objects.
- Additive manufacturing: the most important method of additive manufacturing is 3D printing, a process controlled by CAD files, whereby various materials (plastics, ceramics, metals) are applied layer by layer to produce three-dimensional objects.
- Advanced robotisation: reprogrammable or self-learning industrial robots are taking over numerous routine tasks which were previously carried out by workers or machines.
- Artificial intelligence and machine learning: algorithms allow computers and machines to process and analyse large volumes of data and to simulate human capabilities (vision, speech, deductive reasoning).

- Big data and cloud computing: AI-based analysis tools make it possible to analyse huge volumes of data ("big data") which are processed in remote storage systems ("clouds") that other devices can access decentrally via the Internet.
- Smart factories and the internet of things: the Internet of things (IoT) refers to the connection of automatically identifiable physical objects to the Internet so that these can be controlled or made to cooperate. Smart factories evaluate data generated by the Internet of things in order to control and optimise their production process.
- Platform economy: digital platforms facilitate novel business models in manufacturing; they position themselves between factories and their customers and can cream off substantial shares of the profits. The core of this business model is the collection and analysis of vast quantities of data.

Digitalisation is capable of transforming both the industrial manufacturing process and global production networks. Three relevant characteristics of industrial digitalisation can be identified:

- Firstly, digitalisation elevates the already eminent importance of non-material capital for the generation of profits in global value chains. Elements of this non-material capital include product design, software, brands and qualifications.
- Secondly, digitalisation alters industry's employment needs and qualification requirements. Digital production processes are more knowledge-intensive and less labour-intensive than industrial mass production.
- Thirdly, digitalisation offers ways of achieving a more flexible and decentralised production process. Web-based market research makes it possible to capture customer requests more precisely, while process innovations allow for more highly individualised production, partly to serve niche markets.

Who profits most in value chains?

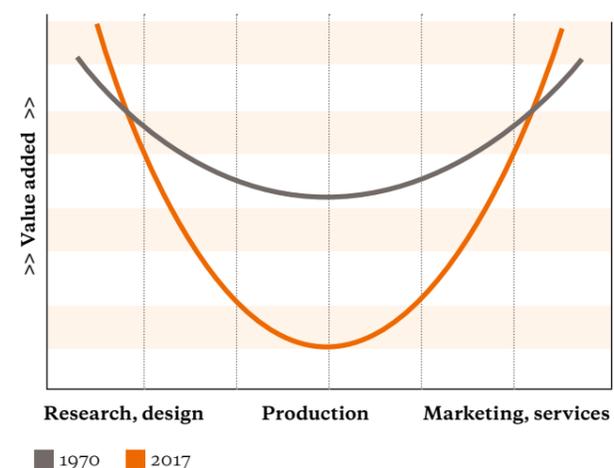
The impact of digitalisation on the distribution of value added in global production networks is frequently illustrated in the literature by a graph known as the smile curve (see figure) (WIPO 2017b).

It illustrates the findings of empirical studies that show that in global production networks, value added is greatest in the pre- and post-production segments. This finding is especially relevant from the perspective of development economics: both the pre-production stages of research and design and the post-production ones of marketing and customer services are dominated by transnational corporations from industrialised countries.

More recent studies go on to indicate that the U-shaped structure of the smile curve has deepened over the years. Since developing countries operate mainly in the labour-intensive production segment in global networks, this means that they must expect to lose a further share of value added (Mayer 2018).

Confirmation of such a trend is seen, for instance, in a recent study commissioned by the World Intellectual Property Organization (WIPO). This documents the shares of income attributable to the individual production factors in industrial value chains (see figure).

Value added in production networks
Smile curve



Source: WIPO 2017

The study shows that between 2000 and 2014 the share of income allocated to labour fell from over 56 per cent to 51 per cent, while the share attributable to capital rose by the same amount. It also indicates that the share of income commanded by non-material capital is almost twice that commanded by material capital. Non-material capital – product designs, blueprints, software, data bases, trademarks, know-how and qualifications – is mainly concentrated in industrialised countries (Chen et al. 2018).

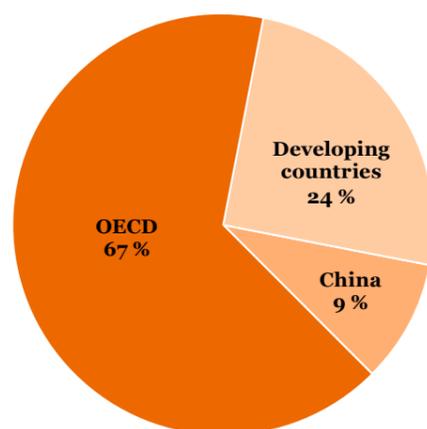
It is now widely feared that advancing digitalisation in production will deepen the smile curve even further, reducing the production workers' share of income and the developing countries' share of value added. Such a development would be all the more likely if the greatest advances in digitalisation take place in industrialised economies, as has been the case hitherto (ibid.).

Yet it must be borne in mind that technology is not the root cause of the very unequal distribution of the share of value added. This inequality is in fact rooted to a substantial extent in the power of transnational corporations, which successfully interact with governments and international organisations to protect their production expertise in global value chains from draining into countries of the South. Important instruments for such protection are intellectual property rights including patents, copyrights and trademarks (see Chapter 4).

Nevertheless, digitalisation can indeed boost the significance of non-material capital, which relies on the power to exploit data by collecting, processing and analysing it – activities that are facilitated by the new technologies. Moreover, studies of the geographical distribution of value added show that the concerns about the polarising effects of digitalisation are not unjustified.

An UNCTAD study estimates that 67 per cent of the value added in global production networks goes to the industrialised economies of the OECD. Just 33 per cent went to developing and emerging countries, among which China stood out with a nine per cent share (see figure below) (Banga 2014). Another research paper based on this study came up with similar results and quantified the industrialised countries' share of value added at 64 per cent (Aguiar de Medeiros/Trebat 2017).

Shares of value added in global production networks
(percentage share)



Quelle: Banga 2014

Risks to employment

What are the effects of digitalised production networks on employment in countries of the South? In principle, digital production processes require more advanced knowledge and fewer simple work activities than industrial mass production. Advancing automation and robotisation can therefore render certain kinds of work superfluous, especially low-skilled routine tasks.

According to an International Labour Organization (ILO) analysis, as a result of digitalisation, “labour costs become less relevant to production and offshoring less attractive” (ILO 2018a). The ILO believes this could lead to a restructuring of global value chains and potentially even the relocation of production back into the industrialised economies – known as “reshoring”. This development has “the potential to displace large number of workers in developing countries, particularly in labour-intensive industries such as apparel and footwear and electronics assembly, industries which have served as important entry points for developing countries into global markets” (ibid.).

What is more, the ILO points out the gendered effect of such a development. Many women are employed in the labour-intensive assembly plants in countries of the

Global South. Should the preponderantly routine jobs here be lost due to advancing automation, women would be disproportionately affected (ibid.).

In this connection the World Bank warns that the share of jobs likely to be rationalised due to digitalisation is considerably higher in developing countries than in industrialised countries, where many such jobs have already disappeared. Indeed, from a purely technological perspective it views two-thirds of jobs in developing countries as automatable, but considers the risks to be mitigated somewhat for people in those countries by the fact that wages are still lower and new technologies are being introduced more slowly (World Bank 2016).

International organisations anticipate particular risks for developing countries as additive manufacturing continues to advance. Whereas until a few years ago the principal use of 3D printing was to fabricate single parts and prototypes, now the technique is also being used to mass-produce more and more products. So far the most important fields of application include mechanical engineering, aviation, the automotive industry, medical technology, and home and entertainment electronics. Numerous other potential applications are currently being tested (Hallward-Driemeier/Nayyar 2018).

The possibility of manufacturing more and more physical products locally from downloaded CAD files may lead to a drastic decline in trade in commodities and intermediate and finished products. The World Trade Organization (WTO) outlines one scenario in which in the year 2040 half of processed goods are produced by 3D printing, concluding that this could result in a 40 per cent decline in global trade compared to the trend scenario (WTO 2018a).

Some cross-border services such as logistics and transportation would also decrease, while others might grow – first and foremost, the trade in CAD files. Equally, there could be growth in attendant online services: software installation, instruction manuals, maintenance, repair and consulting – all activities which, as non-material capital, have until now primarily enriched the companies of the Global North (ibid.).

By contrast, companies based in developing countries which have in the past played a part in international value chains by supplying intermediate products or components could lose some of their share of production if some manufacturing is relocated to the major customer markets in North America, Europe and East Asia as a result of 3D printing. Furthermore, the digital trade

deficit of developing countries (see Chapter 3) is also likely to keep growing if they have to obtain increasing volumes of digitalised products from foreign providers via the Internet.

Who profits from the digitalisation of value chains? Tea production in East Africa

In the tea market, three developments are currently observable. The first is rising demand for differentiated tea products, such as Fairtrade tea. The second is increasing privatisation of the tea sector, which multinational tea companies view as an opportunity to establish growing numbers of subsidiaries in Kenya, Rwanda and elsewhere. And the third is digitalisation of the supply chain.

Numerous East African tea producers see this as an opportunity to integrate into the international market. Preliminary studies confirm their hopes: Internet connectivity has dramatically improved their communication with other actors in the supply chain. They can also organise their work more efficiently. And because more and more data is available, the supply chain has become more transparent. This in turn facilitates improved management and greater control of the entire chain – including auditing of compliance with standards. Whereas growing, harvesting, packing and shipping used to be coordinated regionally (by Tea Boards, for example), it is now easy to organise these processes by means of digital platforms and information systems. Regional coordination is no longer needed.

In other words, as far as the East African tea market is concerned, the promise that digitalisation would improve efficiency, transparency and productivity within the supply chain has actually come true. But has it helped East African tea pickers increase their share of the value added?

From studies by Mark Graham it is evident that, in addition to the successes just mentioned, digitalisation has other impacts on the supply chain and its actors. The various work processes are being

broken down into even smaller units than in analogue supply chains, and their products are being more highly standardised than in the past (Graham et al. 2018). Since consumers are now better able to trace both the tea’s origin and its growing conditions (such as the use of chemicals or fair working conditions), this has become a key factor in enhancing its value. Large corporations are therefore investing heavily in gathering and analysing ever more data in growing regions, and doing so on a global scale.

This in turn yields an ever-larger pool of potential suppliers who can offer equivalent quality and who therefore find themselves increasingly in competition with each other. The globally active corporations can now choose – at short notice – which suppliers to buy tea from. So they are consolidating their position of power. The ultimate outcome of this process, the study finds, is that despite advancing digital integration, the profits of local firms are not increasing but decreasing.

Control of data exacerbates pre-existing asymmetries

The concentration of power in the hands of the international traders cannot be explained as a chance mishap, nor indeed as an unintended side-effect of digitalised value chains. Rather, the traders can make use of digitalisation to extend their control and power over the entire supply chain, and are intent upon doing so. What is more, they are equipped with the most important technical tools of the digital economy (such as the storage capacity of the cloud, and algorithms/AI). In this way they can generate ever-increasing volumes of valuable data about the supply chain (such as growing methods, use of pesticides, working conditions, etc.), evaluate it and pass it on to consumers at a profit.

In other words, transnational corporations with both capital and technical know-how at their disposal can harness the digital connectivity of the supply chain and, quite incidentally – alongside the tea or other product – extract a second raw material

to which tea pickers, understandably enough, currently attach very little importance: data (see Chapter 5: Data – the oil of the 21st century).

The digitalisation of supply chains thus causes value added to develop even more asymmetrically than in analogue supply chains.

Reshoring: Is digitalisation encouraging reverse offshoring?

Some media reports convey the impression that a wave of reshoring of industrial production from low-wage countries to economic centres in the North is taking place. The tenor is that multinational companies are increasingly turning their backs on developing and emerging countries. Such reports are underpinned by isolated examples, in which some German firms feature prominently.

For instance, the model railway manufacturer Märklin, having built a production site in China in 2006, relinquished it just a few years later and has since been producing in Germany again, in a highly automated factory that uses robots (Bruck 2018). Similarly,

the teddy-bear manufacturer Steiff had offshored part of its soft toy production to China, but brought it back to Germany, mainly for quality reasons (Dohmen 2010). Others taking the same route are the household appliance manufacturer Electrostar, which is ceasing the manufacturing of hand-dryers in China, and the metal firm GAH, which is reshoring its hinge production, also from China (Scheele 2018).

The sportswear manufacturer Adidas aroused particular attention. After years of offshoring to China, Indonesia, Vietnam and other Asian countries, it recently built two “speed factories”, one in Ansbach in southern Germany and the other in Atlanta, USA. Making use of robots and 3D printing, these specialise in the ultra-high-speed production of shoes, which in future will increasingly be customised to the buyer’s individual requirements. That said, the planned output of 500,000 pairs per factory amounts to only a very small share of the corporation’s global shoe production of 360 million pairs per year (Busse 2017).

On the subject of the sector’s reshoring potential, the chief executive of Adidas, Kasper Rorsted, puts the dampers on any wildly inflated expectations, pointing out that 90 per cent of corporate production takes place in Asia and calling it an “illusion” to think this will return to Europe on any large scale. Stating his reasons, he cites

not only the cost advantages of Asian countries but also the rising demand in those locations and the fact that automation has its limits: inserting shoelaces, for instance, is an entirely manual process (Hancock 2017).

Empirical findings: more offshoring than reshoring

But isolated examples are not an adequate basis for a conclusive assessment of the reshoring phenomenon. What needs to be asked, instead, is how offshoring and reshoring are developing in relation to one another, what reasons exist for these shifts in production, and what role is played by digitalisation. Empirical findings on the ratio of offshoring to reshoring show that for some time a certain amount of reshoring has been taking place, and in the last few years – partly influenced by Industry 4.0 – it has indeed increased (De Backer et al. 2016).

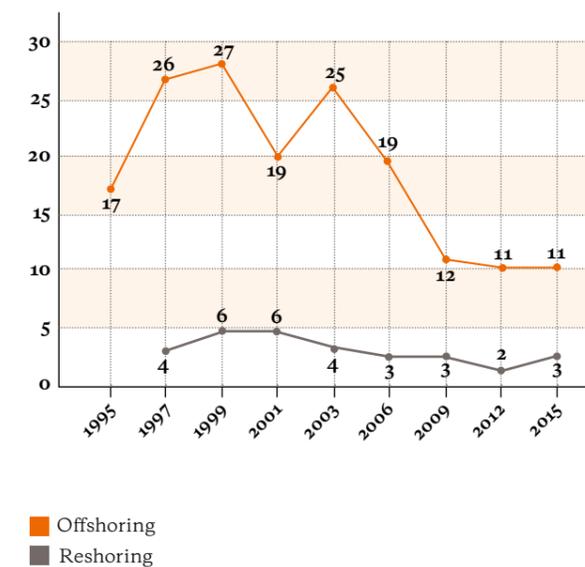
Distinctions are made in the literature between different forms of reshoring: one is the reshoring of functions that had previously been performed at corporate headquarters, while another is the relocation of functions from abroad to the corporations’ home countries, where they are then carried out for the first time. Both forms of reshoring are currently on the increase. But the important fact is this: the offshoring of jobs abroad has never stopped, and although it has decreased, it is still far more significant than reshoring (Kinkel et al. 2017).

Studies of the relocation practices of manufacturing-sector firms from eleven European countries confirm these fundamental findings. According to the research, around four per cent of firms reshored some production in the period from 2010 to 2012. But these reversals of offshoring do not necessarily mean that the overseas plants are being shut down; they may instead be restricted to serving particular functions. At the same time, for every European company that reshored some production, there were three more firms that shifted functions abroad (ibid.).

These trends can be observed in the practices of German companies in the manufacturing sector. Researchers from Karlsruhe surveyed offshoring and reshoring by German metal and electrical industry firms (Kinkel/ Jäger 2017). The number of German companies shifting production abroad was found to have risen dramatically in the mid-1990s.

Germany: offshoring and reshoring

(German metal and electrical industry firms, as percentage of firms)



Source: Kinkel/Jäger 2017

In 1999, 27 per cent of companies in the metal and electrical industries shifted functions abroad. From the mid-2000s, however – and particularly since the financial crisis – there was a distinct decline in offshoring. By 2015 only 11 per cent of firms were shifting functions abroad. During the study period, reshoring was taking place at the same time – but at a markedly lower level. Between 2012 and 2015 there was a slight rise, from two to three per cent, in the number of firms reshoring functions (Kinkel/Jäger 2017).

To be able to assess the significance of this for development, information is also required about the locations from which production is being reshored. Analysis of this revealed that US companies were primarily reshoring aspects of production from China, Mexico and other Asian countries (Reshoring Initiative 2018). Likewise, European firms were engaging heavily in reshoring from Asian countries such as China and India, but also, in parallel, from geographically closer countries in eastern and western Europe (Kinkel et al. 2017). According to the current trend, it is mainly larger emerging countries such as China that are being affected by reshoring.



In 2017 the sportswear manufacturer Adidas re-launched production in Germany. Most of the work in the “Speedfactory” is performed by robots rather than people.

Reshoring: What part is played by digitalisation?

The Karlsruhe scientists went on to analyse the influence of digitalisation on German companies' production relocation practices. They found that firms moving towards more highly digitalised production processes do not have a higher propensity to relocate functions abroad. The technology makes it easier for companies to coordinate international value chains from their bases in Germany, leaving them with fewer motives to relocate functions elsewhere.

When it comes to the propensity for reshoring, however, the effects of digitalisation are very different. Here "a significant positive correlation" is found. Firms categorised as "advanced users" of digitalised technologies had "on average a 10-times higher backshoring propensity" than firms not yet using the new technologies (ibid., p. 27).

Economists at the University of Göttingen arrive at similar findings. They concluded that robots, 3D printing and machine learning (the capability of computers to generate new knowledge autonomously from experience, such as the identification of people by image recognition systems) boost the incentive to bring back parts of production from foreign locations in order to save on tariffs and other costs. The researchers even believe this correlation to be measurable, stating that the addition of one robot per 1000 workers in the manufacturing sector increases reshoring activities by 3.5 per cent (Krenz et al. 2018).

However, studies of the motives for reshoring show that for transnational companies, technology is only one factor among many when it comes to choosing between different locations. Other relevant criteria include costs, quality, flexibility, closeness to customers, and state regulations. In surveys, companies most frequently cite cost factors (Reshoring Initiative 2018).

Nevertheless, digitalisation is a highly relevant factor for employment, as a study by the ILO shows. In particular, its research provides evidence of huge differences in the regional consequences of the increasing use of robots in the world. In the manufacturing sector, for example, robotisation contributed to a 0.5 per cent fall in employment in industrialised countries between 2005 and 2014. In stark contrast, the decline in emerging countries was 14 per cent. Furthermore, robots enabled firms in industrialised economies to reduce offshoring,



A study of the future of the Port of Hamburg forecasts that the growth in production by means of 3D printing in Germany will result in a decline in container shipping. In its place there will be an increase in the use of bulk freighters – ships carrying varying quantities of raw materials and other cargo.

an effect which was found to have reduced employment in emerging economies by five per cent (Carbonero et al. 2018).

It can therefore be concluded that digitalisation both reduces the motives for offshoring and significantly increases the probability of reshoring. This being the case, the fears of some governments in the Global South are not unfounded.

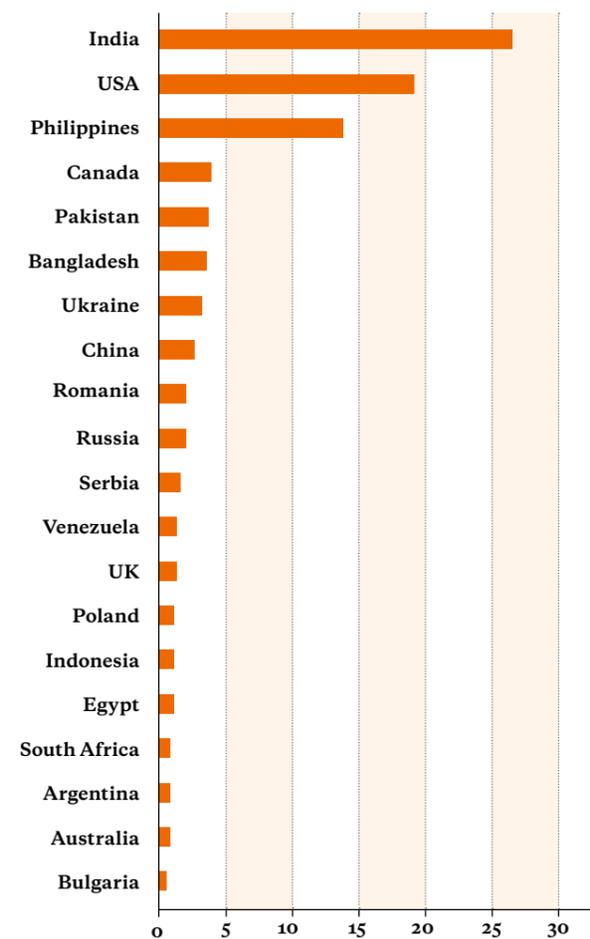
Yet trade policy decisions can clearly exert an influence on transnational companies' choice of location, particularly in the context of growing markets in the Global South. Countries that uphold import restrictions find that, precisely by doing so, they can motivate corporations making advanced use of digitalisation to build or maintain production sites locally. This is borne out by studies (Kinkel et al. 2017). Belying the counsel offered by certain proponents of free trade, it thus appears that regulatory trade protection can have a beneficial effect in attracting transnational corporations to establish industrial manufacturing sites.

Crowdworking: Can online work platforms foster development?

Major hopes are also vested in online platforms on which micro jobs and contracts are outsourced globally, creating prospects of income for freelancers in countries of

Top 20 countries for crowdworkers

(percentage share of crowdworkers on four platforms)



Source: Online Labour Index, 19.1.2019

the Global South and elsewhere. People from all over the world now compete for jobs on these platforms. Companies use crowdworking platforms to publish offers for online jobs worldwide as a cost-cutting strategy. The platform operators generally demand fees from the clients – usually a certain percentage of the fees paid by clients to the crowdworkers.

The business model of crowdworking – sometimes known in Germany as digital "hive work" – is so lucrative that numerous platforms have sprung up all over the world, some of them offering specialised recruitment

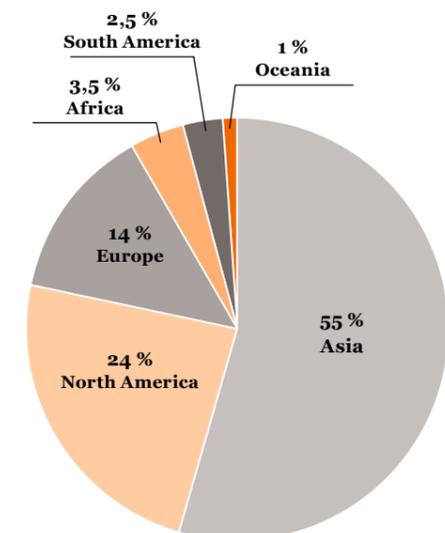
services. Some well-known platforms with global offers are Amazon Mechanical Turk (USA), Guru (USA), Upwork (USA), Freelancer (Australia), Clickworker (Deutschland) and Fiverr (Israel) (Kässi/Lehdonvirta 2016).

Evaluation of the five largest English-speaking platforms (measured in visitor numbers) by the Online Labour Index shows that over half of the jobs offered originate from US companies. Around 16 per cent of contracts come from European companies. Furthermore, on the basis of four of the platforms (Fiverr, Freelancer, Guru and PeoplePerHour) the Online Labour Index analyses the countries with the largest numbers of crowdworkers (see figure). The platforms monitored by the Online Labour Index are scanned every 24 hours and the number of crowdworkers updated accordingly (<https://labour.oii.ox.ac.uk/online-labour-index/>).

According to the Online Labour Index, India, which has long been a preferred target country for the outsourcing of web-based services, is also home to the largest number of crowdworkers. Apart from the country's technical infrastructure, this trend also capitalises on the fact

Regional distribution of crowdworkers

(percentage share)



Source: Online Labour Index, 17.1.2019

that many Indians are fluent English speakers. English is also widely spoken in several other countries of the Global South – which is why there are also many crowdworkers based in the Philippines, Bangladesh and Pakistan.

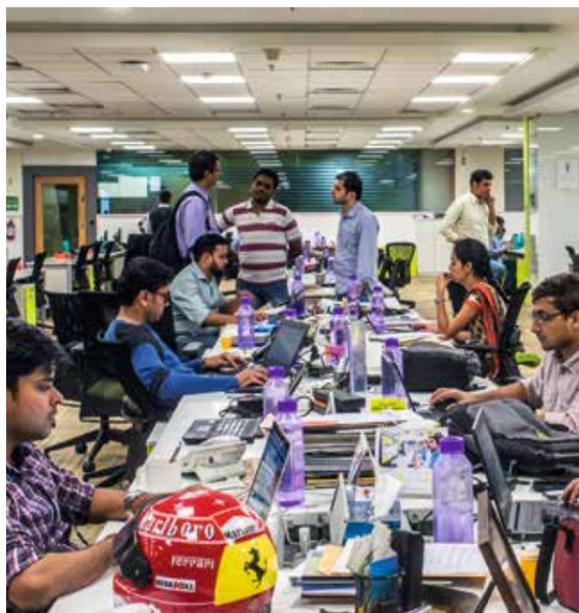
The regional distribution highlights the strong dominance of Asian crowdworkers (see figure). But on-line workers recruited via a platform are also to be found in Africa and South America, albeit in smaller numbers (see figure).

Some countries, such as the Philippines and Nigeria, have launched government initiatives to promote digital crowdworking. However, opinions of the development benefits of crowdworking differ widely. While organisations such as the World Bank consider digital platform work a promising alternative to traditional employment, empirical analyses raise doubts as to whether the “gig economy” – i.e. the part of the labour market in which small jobs are assigned instantly to independent contractors, freelancers or people in marginal employment – can be a meaningful component of national development strategies (Graham et al. 2017).

Admittedly, some crowdworkers have accumulated savings and succeeded in investing in their own business ideas or professional training. But many complain about the low pay, uncertainty about follow-on jobs, and substantial overwork. Crowdworkers do a great deal of unpaid work, because even just searching for jobs on the platforms is extremely time-consuming. In many countries of the South, another issue is the sizeable oversupply of people seeking work on the platforms. The supply of potential crowdworkers is often many times greater than the volume of contracts offered online, which in turn depresses rates of pay (ibid.).

In addition, studies by the ILO show that a considerable proportion of the work done online is rejected by the clients. Sometimes their dissatisfaction is only simulated in order to withhold payment. In these cases, the crowdworkers receive no remuneration at all. And crowdworkers with health insurance and pension coverage are even rarer in countries of the South than among their freelance counterparts in more developed countries (ILO 2018b).

The ILO report also draws attention to the high qualification level of crowdworkers in developing countries, who often hold university degrees. The work platforms thus offer very little potential for poverty reduction or the employment of low-skilled workers. Furthermore, the



Crowdworking is not always an adequate alternative to traditional employment. Poor pay and deskilling of workers are widespread.

report characterises the crowdworkers’ high qualification level as a waste of valuable resources, since they mainly carry out simple, monotonous and repetitive tasks. Common jobs include driving up the click rates of commercial websites or posting fake reviews of individual products. It also notes that for some time now, university graduates in the South have been tasked with trawling through social media postings for offensive content, which ultimately amounts to clearing up the Global North’s online litter (Berg et al. 2018).

Above all, the report argues, the high qualification levels of crowdworkers in the South are wasteful because many governments have invested in their education and training. This was done in the expectation that they would make an important contribution to the economic modernisation of their countries. In the crowdworking context, this innovative potential mostly lies idle. In any case, the report draws attention to a risk of further deskilling because online jobs tend to be broken down into ever smaller and simpler tasks in order to save costs. It warns of the growing danger of skilled work being supplanted by low-skilled work (ibid.).

7. An El Dorado for investors: Africa’s digital economy

If media reports are to be believed, Africa is enjoying a wave of digital start-ups that is enabling the continent to leapfrog several stages of development. But a glance at the digital economy there leads one to doubt whether the process is driving autonomous economic development that can help tackle the continent’s most pressing problem – extreme poverty.

African start-ups: profit transfer to the North

Hubs in which large numbers of new technology companies are being founded are being set up in some African cities, among them Nairobi, Cape Town, Lagos and Kigali. Some hubs are also home to small start-up workspaces such as Fab Labs or makerspaces where African digital businesses are developed. These are already producing some creative business ideas that provide digital solutions to various shortcomings and problems. For example, there are now small businesses (such as AB3D in Kenya) that make 3D printers from electronic waste. Other micro-businesses use plastic waste as a raw material for the production of simple equipment (such as prosthetic devices) for schools and hospitals using 3D printing methods (Birrell 2017).

In countries such as Tanzania and Rwanda, solar kiosks sell telephone and wi-fi credit and provide facilities for charging mobile phones (Jackson 2015). Particularly widespread are mobile payment services such as Kenya’s M-Pesa, which enables a wide range of goods and services – such as a tankful of petrol, shopping purchases or an electricity bill – to be paid for using mobile phone credit and text messaging (Schlenker 2018).

But closer examination reveals that many African digital businesses are backed by foreign investors. Many of the young entrepreneurs who have successfully brought their product to market are earning profits that are siphoned off to the industrialised countries of the North. This was the case, for example, with the Berlin start-up studio Rocket Internet when in 2012 it invested in the Nigerian e-commerce platform Jumia, which now operates in 21 countries of Africa and the Middle East (Handelsblatt 2018).

In April 2019 Jumia International AG was floated on the New York Stock Exchange – a move which earned Rocket Internet about USD 200 million. Other shareholders are the telecommunications group MTN, the

US bank Goldman Sachs and the French companies Axa and Orange (Pilling 2019).

Foreign investors are also raking in large sums from Safaricom, the former subsidiary of the Kenyan telephone company Telkom Kenya. The British company Vodafone acquired a 40 per cent stake in Safaricom in 2000 (Rice 2007). The mobile payment service M-Pesa, which was launched in 2007 and is now available in more than ten countries, belongs to Safaricom. M-Pesa initially served mainly as a payment service for the remittances of migrants who moved from the countryside to the cities. Only later was the system extended to include payments for many services.

For the British company Vodafone its stake is very lucrative because Safaricom is one of the most profitable companies in Africa (Gicobi 2018). Another source of profit is the high fees charged to users of M-Pesa. The charges are particularly high if transfers are made to accounts that are not held with Safaricom (Economist 2016). This particularly affects the small amounts transferred by the poor. A money transfer to another M-Pesa account currently (May 2019) costs up to 11 per cent of the transferred amount, while a transfer to a non-M-Pesa account attracts charges of up to 45 per cent (Safaricom 2019).

The British state development agency DFID facilitated the development of the M-Pesa prototype with a subsidy of one million pounds. For Nick Hughes, who was then working for Vodafone, this support was crucial. Without it Vodafone would not have entered into the risky investment (Urech 2018). DFID’s support thus benefited a company in its own country, which acquires access to new business opportunities abroad – a pattern of state development aid that is still widespread today, including in Germany (see box). This raises the question of whether and to what extent Germany’s official development aid should support foreign investment by companies based in Germany. In countries of the South the competition from transnational companies backed by state development funds can hinder the development of productive capacities.

8. Digital finance: the business of financial inclusion

Solarkiosk and data mining

German development cooperation, too, helps domestic companies gain a foothold in the African digital market. For example, the German Investment Corporation (DEG, a subsidiary of KfW) and the European Union are helping the Berlin-based company Solarkiosk AG install its solar kiosks in several African countries, including Ethiopia, Kenya and Madagascar. These kiosks, which it calls E-Hubbs, provide electricity for charging mobile phones and other devices (Ecosummit 2015).

The company claims to be pioneering “valuable data mining”, because the E-Hubbs are equipped with devices that can monitor their performance wirelessly (Solarkiosk 2019). In the summer of 2018 Solarkiosk and Siemens signed a memorandum of understanding under which Siemens will set up a cloud-based micro-grid gateway in Rwanda to collect and analyse data from the E-Hubbs and monitor the kiosks (Siemens 2018).

Digital pay-as-you-go systems: What about human rights?

In Africa a great deal of investment is currently being poured into setting up digital pay-as-you-go systems for basic services such as water and electricity. These systems are often combined with digital meters or smart meters. In this respect they are a good example of how the Internet of things is affecting people’s everyday lives.

The Kenyan start-up Paygo Energy – financed by injections of capital from international investment companies – has applied digital pay-as-you-go technology to the supply of cooking gas. Customers are supplied with a gas cylinder but they don’t need to pay for the whole cylinder at once; instead, users pay in advance for the amount of gas they need. The cylinders are fitted with a valve that acts as a smart meter and releases only the amount of gas that the customer has paid for via the mobile payment service M-Pesa. Being able to afford the smart gas cylinders enables customers to avoid cooking with fuels such as charcoal or kerosene that are harmful to health (GIZ 2018).

In other words, only those who can pay are able to benefit from these digital projects. Whether and to what extent the system helps the poorest sections of the population remains doubtful.

For example, water and electricity suppliers in South African slums have installed prepaid meters in a move that has repeatedly triggered protests, some of them violent. Staff of the energy supplier Eskom are liable to be attacked by township residents when they attempt to service these meters (Urban 2018). Here, too, the meters only release water or electricity when users have uploaded money to their account using chip cards or codes – a task that poses a major problem for poor people with an irregular income.

Some of these projects do have social benefits, for instance because they involve clean fuels and promote electrification. However, digital pay-as-you-go systems raise the question of whether they are compatible with the human right to universal access to basic services such as water and energy. Under this human right, access to water and energy must not be restricted to affluent customers.



Who profits from M-Pesa? Mainly the Vodafone subsidiary Safaricom. The mobile payment system does nothing to alleviate poverty.

Technology-based finance innovations are among the most dynamic areas of the digital economy, and substantial investment is being put into them. It is not only the traditional financial service providers such as banks, insurers and credit card companies that offer these products, but also start-ups in the fintech (financial technology) sector.

Digital finance business models are crucially dependent on the free cross-border movement of data. For this reason, fintech companies are among those urging the corresponding liberalisation of trade agreements. In addition, they require clear identification of their customers, which is increasingly being performed by networked biometric databases. And fintech companies frequently use countries of the Global South as testing grounds for new products – in some cases, however, with dubious consequences on account of inadequate regulation.

Sometimes, however, government development cooperation views the trend with great enthusiasm. KfW Development Bank, for example, writes: “As a result of the global mobile revolution and the progressive move to digital, unprecedented opportunities to achieve development goals in the financial sector quickly and efficiently are opening up in developing countries and emerging economies through digital finance.” The bank believes that digitalisation reduces business costs, which enables the “financial inclusion” of poor households: “By means of this sort of cost reduction, customer groups who could not previously be reached in an economically sustainable manner become profitable target groups for payment, savings, credit and insurance products” (KfW 2017, 1).

It is of course desirable that poorer households in developing countries should benefit from modern financial services; nevertheless, the risks involved in some digital finance projects should be carefully considered, especially if they are implemented too hastily and without proper planning.

M-Pesa and the poor

Behind the development of M-Pesa, the well-known Kenyan mobile payment service, there is close collaboration between state agencies and transnational corporations, in this case between Britain’s Department for International Development (DFID) and the British company Vodafone. In order to implement M-Pesa in Kenya,

DFID not only provided a million pounds in grant aid but also negotiated with the government and above all with Kenya’s Central Bank, which is also responsible for bank supervision. It succeeded: the Central Bank supported the mobile payment system, even though it would be in competition with the Kenyan banking sector (Håring 2018).

In 2016, in order to lobby for Vodafone’s interests in Kenya, DFID set up the trust Financial Sector Deepening (FSD) Kenya, whose studies aimed to persuade the Kenyan Central Bank of the merits of M-Pesa. The bank eventually sent Vodafone a letter informing it that it had no further objections to the mobile payment system. This letter enabled Vodafone’s subsidiary Safaricom to operate M-Pesa without a banking licence (Gibson 2016).

The green light from the bank regulators gave Safaricom the opportunity to extend its market dominance in mobile phone communications to mobile payment systems, eventually achieving a monopoly with a market share of over 95 per cent. This allowed Safaricom to operate a pricing policy that made it the most profitable company in East Africa (Wyche et al. 2016).

Safaricom makes full use of its network power to increase customer numbers. For example, the charging structure has discriminated against users of rival payment services: money transfers between M-Pesa customers have been considerably cheaper than those to accounts of Safaricom’s competitors (Donovan 2012).

Meanwhile, M-Pesa has been largely ineffective in reducing poverty, as was conceded even in an official impact assessment drawn up by the DFID organisation FSD Kenya in 2016. It admitted that the assumption that rolling out digital financial services such as M-Pesa would also help the poor had so far not proved correct; the user group that had benefited most was the one “above the poverty threshold”. It also stated: “In Kenya there are no quantitative studies proving a link between access to/use of financial services and a reduction in poverty” (Gibson 2016, 30).

On the contrary, M-Pesa can actually exacerbate the social divide. A field study on the use of Safaricom services by women in rural areas of Kenya shows that the business model is not geared to disadvantaged people and sometimes even causes harm (Wyche et al. 2016). The poor are very frequently affected by eye diseases that make it difficult to correctly identify and type in the multi-digit codes needed to load phone credit. These codes are printed on small prepaid cards that can be

bought from M-Pesa agents, kiosks and retailers. Another reason why the poor often make mistakes when loading credit is that they can only afford old, faulty or poorly lit phones; however, entering the code incorrectly invalidates the prepayment.

In addition, Safaricom has designed the user interface of its mobile phone services in such a way that it is possible with a few (often accidental) taps to subscribe to expensive extra services that eat up phone credit. These additional services include ringtones and text messages (for example, news, job adverts or quotations from the Bible). It is very easy to sign up to these services by mistake, but extremely complicated to cancel the expensive subscriptions again. Many poor, sick or elderly users regularly fail when they try to cancel these extra charges – which means that Safaricom profits (ibid). An inclusive and poverty-sensitive system would surely take a different form.

Electronic payments: the anti-cash alliances

The success of M-Pesa encouraged transnational technology corporations to follow suit in promoting digital financial services in other developing countries. In late 2008, the Bill & Melinda Gates Foundation, which was set up by the Microsoft founder, and GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) launched the *Alliance for Financial Inclusion* (AFI) (GIZ 2015). The Gates Foundation contributed a grant of USD 35 million, while GIZ undertook the management of the AFI network (GIZ 2011).

One focus of the AFI's work is to expand digital financial services and push through relevant government regulation. The AFI's members are central banks and financial authorities in more than 90 developing and emerging countries, including the central banks of Argentina, Brazil, China, India, Kenya, Nigeria and Rwanda (Alliance for Financial Inclusion 2018). Apart from the Gates Foundation, donors include the German Development Ministry (BMZ) and the Omidyar Network, an investment company set up by the eBay founder Pierre Omidyar. The industry partners are Visa, Mastercard and GSMA, the international lobbying association of the mobile network operators (Alliance for Financial Inclusion, 2018).

In 2012, based on the same principle, the Gates Foundation sponsored the establishment of the *Better than Cash Alliance* (BTCA), a group promoting the replacement of cash by digital payment systems. Besides a number of developing and emerging countries (including India, Kenya and Mexico), several international organisations and other financiers belong to the Alliance (for a listing of all members see <https://www.betterthan-cash.org/members>). During the German presidency of the G20, BMZ awarded BTCA funding of half a million euros (KfW 2017).

Demonetisation in India: a field trial at the expense of the poor

The consequences of an over-hasty and poorly planned withdrawal of cash in favour of digital payment systems are evident in India where, on 8 November 2016, Prime Minister Narendra Modi announced that, from the following day, 500 and 1000 rupee notes (worth around seven and fourteen euros) would become void and would have to be exchanged for new banknotes by the end of the year. The two notes represented 86 per cent of the cash in circulation (Safi 2016).

The official reason for this was that the Indian government wanted to tackle the shadow economy by flushing out counterfeit money and untaxed “black” money and to speed up the transition to electronic transactions. However, the “demonetisation” unleashed chaos in a country where 97 per cent of payments are made in cash. The dramatic cash crunch particularly affected the informal sector, which provides the majority of Indians with precarious work as street vendors, casual labourers, itinerant workers or harvesters (Sharma/Singh 2017). They received no wages and could no longer afford goods and services. In the formal sector, too, demonetisation left its mark: estimates of job losses vary between 3.5 and 15 million (ENS Economic Bureau 2018).

Another reason why poorer people were disproportionately affected was that they do not usually have access to bank accounts, credit or debit cards, or to the mobile payment methods that more affluent families could use to compensate for the shortage of cash. Although around 80 per cent of adults in India now have bank accounts thanks to various government programmes, almost half of the accounts are inactive owing to the high levels of

poverty and there are very few account movements in the remainder (Anand 2018).

The government's original targets were largely missed: although digital payments increased for a brief period in the first few months after demonetisation, they fell again afterwards. Clearly Indians still cannot do without cash in their daily lives (Nayak 2018). The assumption that counterfeit and untaxed “black” money would not be cashed in for fear of discovery and would therefore largely disappear also proved unrealistic (Saha 2016).

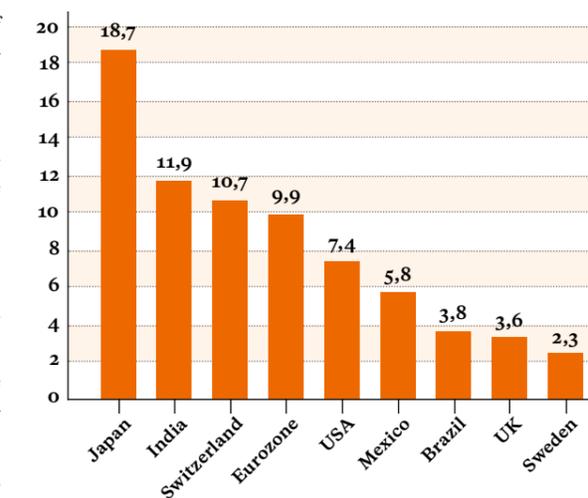
The opposite was the case: according to the Central Bank, more than 99 per cent of the invalidated rupee notes were exchanged, with the result that large quantities of “black” money went back into circulation (Gettleman 2018). Even worse: as the new notes were just as easy to forge, the amount of counterfeit money actually rose after demonetisation (PTI 2018a).

The Indian economists C.P. Chandrasekhar and Jayati Ghosh have published a study illustrating the irrationality of this experiment (Chandrasekhar/Ghosh 2018) as, contrary to the claims made by many opponents of cash, the use of notes and coins is not an indicator of economic backwardness, nor is it anachronistic. This is made clear in an international comparison of the relationship between cash in circulation and gross domestic product (GDP) in various currency areas (see figure).

Thus, for example, a developed industrial country such as Japan has a significantly higher ratio of cash to GDP (18 per cent) than India (around 12 per cent). At the other end of the scale sits Sweden, where there has been a huge reduction in cash use in favour of digital payments. However, one could hardly claim that development in Japan or Switzerland (with cash percentages of 18.7 and 10.7 per cent respectively) lags behind that in Sweden, where the ratio between cash and GDP has fallen to 2.3 per cent. That is why no conclusions about a country's development status can be drawn from the relative importance of cash.

Added to this are the significant costs for users who will be pressured into making electronic payments. Comparisons of payment methods show that cash is still the cheapest option, as financial service providers and fintechs sometimes exact high charges for their digital services, whether accounts, debit and credit cards, or transfers. And it is not only in developing countries but also in industrialised ones that there is a cost benefit in using cash. For example, a study by the European

Cash: relationship to gross domestic product from 2011 to 2015 (percentage share)



Source: Chandrasekhar/Ghosh 2018

Central Bank demonstrates the significantly higher cost of electronic payments compared with cash in the retail trade in the EU (Schmiedel et al. 2012).

In relation to this, Chandrasekhar and Ghosh point out the regressive nature of electronic payment costs, since the poor pay the same charges as the wealthy. Moreover, poor customers usually carry out more transactions for small amounts and are therefore disproportionately burdened by the high rates. Digital payment methods thus involve a questionable transfer from the incomes of people with precarious employment to the profits of banks and fintech companies. Where transnational corporations are involved, the funds are often transferred on to the countries of the North (Chandrasekhar/Ghosh 2018).

School fees: Abolish them or pay them digitally?

Also of concern are digital finance schemes that ostensibly respond to social ills but in fact preserve rather than eliminate them. These ills include the fees for school attendance charged in many countries of the



The 2030 Agenda calls for free schooling. Yet telecommunications companies have an interest in the payment of school fees by mobile phone. Do the poorest people benefit from this?

South by both private and state institutions. For many families, school fees and indirect costs (uniforms, books, transport) are prohibitive – one of the principal reasons why 264 million children in the Global South still attend neither primary nor secondary school, and many more leave school prematurely (Human Rights Watch 2018). Achievement of the target of universal free access to primary and secondary school education by 2030 laid down in the United Nations Sustainable Development Goals (SDGs) still seems a long way off (Deutsche UNESCO-Kommission 2017).

The scourge of school fees is also being addressed by the CGAP (Consultative Group to Assist the Poor), a network of financial institutions, development agencies and corporate foundations coordinated by the World Bank. Unfortunately, however, it has not put forward any proposals for promoting free schooling, but instead gives examples of how mobile phone operators are profiting from compulsory fees. For example, African countries where mobile phone use is very common could learn

from the republic of Côte d'Ivoire, where for several years school fees for almost all secondary school pupils have been paid via mobile payment services (Braniff 2017).

A brochure from GSMA, the global lobbying association of mobile network companies, praises the Ivorian model as an innovative and lucrative public-private partnership and states that several phone operators in Côte d'Ivoire have set up systems for paying school fees by mobile phone. In turn, the Ivorian education ministry pays the mobile phone companies' transaction fees for the money transfers. The mobile phone companies include the French corporation Orange, the Etisalat group from the United Arab Emirates and the South African mobile communications multinational MTN (GSMA 2015). This business model only works, of course, if governments continue to levy school fees and fail to address the important principle of free education.

Several companies have expanded their school fees business and now offer digital loans for education. However, the question remains whether the promotion of deals

like these helps or hinders the development goal of free primary and secondary education. Ultimately, support is being channelled to stakeholders who have an interest in perpetuating fee-based, profit-making education systems.

Digital loans for education

Fenix International, a subsidiary of the French energy corporation ENGIE, is expanding its business activities and is now moving into the African education sector. Until now it has been selling solar modules on credit in Uganda. Buyers repay their loans over two to three years in instalments made via mobile payment services.

The Consultative Group to Assist the Poor (CGAP) has helped Fenix International to diversify this business model and, in addition to solar modules, to offer its customers loans to pay their children's school fees (Waldron/Emmott 2018).

To select the applicants to whom it grants its "ReadyPay School Fee Loans", Fenix analyses the customer data that it has already gathered from its solar loans. Personal credit ratings are calculated from the repayment data, and these are used to approve school loans. Loans can be applied for, authorised and paid off in instalments via mobile phone (ibid). The profits from digitalised school loans go to the mobile network operators involved and the French company ENGIE. However, the digital school loans business is dependent on continuing failure to correct the underlying situation and on the failure of governments to achieve SDG 4 with its focus on free primary and secondary education.

In all, the market for digital credit encompasses a broad spectrum of consumer loans. In the Global South, the sale of such loans via mobiles and smartphones is for the most part completely unregulated. For example, a study of the regulation of digital loans in Africa and Asia concludes that although some countries (including Ghana, Zambia, Indonesia and Bangladesh) are indeed developing licensing procedures for the provision of

mobile loans (Anderson et al. 2017), this often only happens after the companies have already begun marketing their products and have found large numbers of borrowers. And even if financial market rules for digital loans exist, there is frequently a lack of the capacities necessary to monitor and enforce them (ibid).

The lack of consumer protection creates additional poverty risks, as many borrowers become trapped in debt. This is made clear in a study by CGAP of the expansion of digital loans in two East African countries; the study reports that a third of the mobile phone owners in Kenya who were questioned and a fifth of those in Tanzania have taken out loans over their phones (Kaffenberger et al. 2018). However, more than half of these people have fallen into arrears in repaying these loans, while others have had to stop their payments altogether. Thirty-one per cent of the customers in Tanzania and 12 per cent in Kenya could not pay back their loans. Many of the people in debt cut down on food in order to pay the instalments. A significant proportion admitted that they had not realised the cost or understood the terms of the loans that they had set up via their phones (ibid).

9. Biometric databases in the South: surveillance and profit

Many e-commerce products are dependent on the clear identification of potential customers. In consequence, IT companies have for a number of years been working with development agencies to promote the establishment of biometric databases for identifying customers. The World Bank set up the *ID for Development* (ID4D) project, which promotes public-private partnerships that develop digital identification systems (<http://id4d.worldbank.org/>). However, systems like these can be fraught with major social risks, as the example of India shows.

Aadhaar, India's mega database: a digital dystopia?

The Indian identification system Aadhaar, set up in 2009, is the largest biometric database in the world, containing details of 1.2 billion people. The World Bank considers it a reference model and so promotes visits by African government delegations to UIDAI, the Indian identification authority that administers the Aadhaar database (Sharma 2016).

UIDAI allocates each registered person a twelve-digit identification number (Aadhaar). Under each number in its database it stores personal details (for example, name, gender, date of birth, address) and biometric data: fingerprints, iris scans and photographs. UIDAI has already outsourced the collection of this data to registrars, who include not only public authorities but also private-sector companies, mainly banks and insurance firms. These are in turn permitted to subcontract out the entering of citizens into the Aadhaar system (Unique Identification Authority of India, undated).

Even at the data gathering stage there is therefore a real danger of personal information falling into the wrong hands. Yet at present there are still no data protection laws to limit the risks of Aadhaar. A personal data protection bill is currently only at the draft stage and is being debated in the Indian Congress (Chakraborty/Chowdury 2018).

Risks occur especially when biometric databases are linked to other data collections that contain personal information. This, however, is precisely the case with Aadhaar: it made linkage to numerous government and private information systems a fundamental component.

In addition, Aadhaar has been integrated into the *India Stack* project, a system of *Application programming interfaces* (APIs). This enables private-sector companies

to link the Aadhaar identification numbers to their own software and services (IndiaStack, undated). Aadhaar and India Stack are core elements of Indian Prime Minister Narendra Modi's Digital India initiative (Sathe 2018).

The Aadhaar system has been gradually expanded. While being added to the biometric database was initially voluntary, it has now become a requirement in order to access many government services: subsidised gas for cooking, food rations from the *Public Distribution System* (PDS), pension payments, grants and jobs in the rural employment programme MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Fund). Increasingly, private-sector companies also ask for Aadhaar numbers: banks for accounts and loans, telecom companies for SIM cards, insurers for their policies and thousands of start-ups for various services (Dixon 2017).

Aadhaar and the right to food

The digitalisation of government services threatens the social security of the poorest Indians. Because they have no Aadhaar numbers, millions of people have been denied food rations, children have been unable to commence their schooling or to access school meals, and old people have had their pension payments stopped. The technical weaknesses of the system are often to blame. The readers for checking fingerprints are frequently unreliable, as are the Internet or mobile phone connections. Deficiencies like these can be life-threatening: researchers reported that 27 people died of starvation between 2015 and 2018 because Aadhaar prevented them from receiving food aid (Huffington Post India 2018).

Biometric identification often ignores the reality of life for the poor population. People who have to carry out hard physical labour often wear away their fingertips in the process, so that the scanners can no longer read their fingerprints. The prevalence of eye diseases makes iris scanners useless. Furthermore, the switch to biometric identification means that the old, sick and disabled can no longer ask their relatives to collect their government food rations from the subsidised fair price shops (Kolocharam 2018).

Moreover, physical characteristics alter as people grow so that, especially in the case of children and adolescents, the readers often cannot match the individual to their biometric details in the Aadhaar database. These and other weaknesses in the biometric system have been

documented by non-governmental organisations for years. India's Right to Food campaign is also taking the government to task, claiming that its obsession with Aadhaar distracts attention from the true failings of its social programmes, particularly the fact that they are drastically underfunded (The Times of India 2017).

Security breaches: data leaks and fundamental rights

Numerous scandals have already exposed the Aadhaar system's deficient security. Press reports revealed that, because of data leaks, personal details on Aadhaar could be bought online for the equivalent of less than ten euros. Not only that, but millions of Aadhaar numbers, together with personal information, have appeared on more than 200 government websites (Safi 2018).

Amnesty International also believes that security breaches occur as soon as data is gathered (see above), since the companies contracted to do this can store the information and pass it on. Alternatively, it can be stolen from them in the absence of adequate data security (Amnesty International India 2018).

Amnesty sees fundamental rights threatened by this, too, because UIDAI is permitted to deactivate Aadhaar identification numbers for all kinds of reasons. Moreover, UIDAI is not even obliged to tell the people concerned in advance. According to Amnesty, the authorities deactivated more than eight million identification numbers between 2010 and 2016. As a result, these people lose their access to government services (ibid).

Owing to the considerable social and human rights failings of the biometric system, numerous actions have been brought against Aadhaar, including by a former constitutional court judge, a member of parliament, a company, a non-governmental organisation, the state government of West Bengal and further individuals (Bhuyan 2018). In September 2018 the Supreme Court, the highest court in India, ruled that the biometric system was in principle constitutional; however, the court restricted the ability of private-sector companies to ask clients for their Aadhaar numbers. This has now brought a storm of protest from banks and telecom and fintech companies. They are demanding that the government should either create a legal basis for allowing Aadhaar numbers to be used privately as well as by the state (a loophole left open by the Supreme Court



Iris scans are taken and stored for India's biometric database Aadhaar. But the system has many security flaws.

judgement) or permit them to be declared voluntarily (Ganguly 2018). The government has already signalled its willingness to meet the demands (PTI 2018b).

Meanwhile, the issue of particular concern, the linking of social services to Aadhaar numbers, was declared by the Supreme Court to be constitutional – a decision met with incomprehension by critics of the system, who say that this makes it likely that the needy will continue to be excluded from basic government services (EPW Engage 2018).

The lobby for the free movement of data

In view of the lucrative business opportunities of e-commerce, digital finance and “big data”, it is little wonder that transnational companies also want to influence trade policy. The finance industry, for instance, is pressing for the free movement of data so that it can process credit card transactions and money transfers and also market loans. Insurance companies collect data worldwide in order to assess business risks and to seek to sell their policies to the most affluent clients.

Mobile communications companies also zealously collect customer data, which they use not only for their own business but also for the services that they offer via their phone networks. And, lastly, the IT companies provide the technology for all these business models and are arguing the case for the free movement of data, data localisation bans and protection of their intellectual property.

For example, GSMA, the international lobbying association of mobile communication providers, asserts in a position paper that cross-border data flows are essential to the digital economy, but that governments impose more and more unnecessary restrictions such as over-ambitious data protection rules and localisation regulations that stipulate that data must be stored on local servers. GSMA claims that these requirements could “stifle innovation, efficiency and economic activity” and is therefore calling on governments and regulatory authorities to reject localisation regulations, as local storage requirements would “create unnecessary duplication and cost for companies” (GSMA 2017). GSMA members include global telecom giants such as China Mobile, AT&T, Vodafone and Deutsche Telekom.

At the World Trade Organization’s Public Forum, a representative of Mastercard claimed that her company

depended on the WTO setting rules guaranteeing the free movement of data because, she said, data transfer restrictions and localisation regulations were a growing cause for concern, especially in developing countries. Moreover, data localisation increases the number of vulnerable points and data leaks (Macial 2017). However, the fact that data collection and storage is often completely unregulated in countries of the South is played down in statements from industry representatives, as are the resulting risks to personal privacy.

A similar stand is being taken by Bitkom, the lobbying association of digital companies based in Germany, which is specifically targeting the EU’s trade policy. A Bitkom position paper states: “The EU must adopt an approach to future trade agreements that makes it difficult for trading partners to retain and/or introduce barriers to cross-border data flows” (Bitkom 2018, 1).

Bitkom attaches lower priority to data protection and privacy than to trade interests. It calls for the EU to make it impossible for trading partners to “potentially misuse data protection considerations for ultimately protectionist purposes and to introduce localisation requirements” (ibid., 2). Members of the association include SAP, Siemens, Telekom, Alibaba, Amazon, Apple, Facebook, Google, IBM and Microsoft (Bitkom, undated).

10. Conclusions



In the poorest countries of the world, 80 per cent of people have no Internet access. The digitalisation debate must focus on their needs.

Existing experience of digital trade, digitalised production networks and projects to finance the digital economy in countries of the Global South confirm one finding in particular: rarely do such schemes reduce existing inequalities, either within countries or between states.

By contrast, discussion of digitalisation among development experts conveys the impression that it opens up an entirely new form of business activity that offers unique opportunities for development. But more detailed analysis of digital business models, their dominant stakeholders, their social consequences and their impact on human rights casts doubt on over-optimistic expectations.

Inherent in the debate about digitalisation is the risk that it will distract attention from important development issues and approaches. The countless examples of creative entrepreneurs who found digital start-ups in the Global South contrast with a telling silence about the billions of people who, despite new technologies, still lack the basic necessities of life. This gives rise to a number of requirements for development-friendly digital action and business activity (Hilbig 2018).

A key challenge is to ensure that discussion of digitalisation focuses on the increasingly neglected basic needs of the vast majority of disadvantaged people. These are at risk of being ignored, even in discourse on development policy.

- This means that the analysis of digital development should not make the commercial opportunities of transnational companies a key criterion, as is sadly all too often the case. Rather, the deciding factors in the analysis should be poverty reduction, sustainability and socially equitable economic development.
- There is still a lack of clarity about the course and consequences of many trends that are ascribed to digitalisation – for example, in connection with industrial value chains. Support should therefore be provided to governments and civil society in the countries of the South to enable them to analyse these processes without external pressure to act so that they can prepare appropriate legislation and regulations governing the digital economy.
- International processes that create pressure to act and encourage harmful forms of digitalisation should be

11. Making digitalisation fair

curbed or halted. Such processes include unfair trade agreements, questionable standards (such as anti-cash rules) and unilateral interventions by international organisations for the benefit of transnational companies.

- In its project funding, governmental development cooperation should attach greater importance to a functioning system of state regulation. Supporting digital projects in the South without effective consumer protection and data protection and rigorous control of competition poses considerable risks to development.
- When digital projects are involved, UN organisations, international financial institutions (IFIs) and development agencies should therefore be obliged to fulfil their mandate to tackle poverty, respect human rights and consider sustainability.
- Partnerships between UN organisations, IFIs and development agencies on the one hand and digital and fintech companies on the other should be scrutinised. Alliances driven by large companies, such as CGAP (Consultative Group to Assist the Poor), AFI (Alliance for Financial Inclusion) and BTCA (Better than Cash Alliance) seem particularly questionable in this respect, because the competition from transnational companies backed by development funding can hinder the establishment of a local digital economy in the countries of the South.
- Because biometric databases have the potential to be used for increased surveillance, monitoring of behaviour and sanctions, civil society needs to be strengthened vis-à-vis its governments in the countries of the South. Because of the significant security flaws and the potential for misuse, funding of biometric databases by development banks should also be critically examined.
- Digitalisation does not alter the fundamental civil-society criteria for trade agreements. Trade agreements should not be negotiated and concluded until a human rights impact assessment has been performed and it is certain that sustainability and human rights take precedence over the liberalisation of trade.
- Trade-policy rules on e-commerce that specify conditions such as the free movement of data or impose bans on localisation or taxation should be avoided. They undermine autonomous development in countries of the Global South.

It is time to formulate a *progressive* digital agenda that promotes the welfare of the developing countries and their disadvantaged population groups. The coming years will largely determine the future course of digitalisation: a “business as usual” scenario will continue the polarisation that favours financially strong tech giants and accords the majority of people in the Global South a merely subordinate role in the digital transformation. A U-turn in the direction of digitalisation that is the *general interest*, on the other hand, will boost developing and emerging countries’ opportunities for social and economic participation. A fair global digitalisation policy must be designed with two aims in mind: it must harness the **potential** of digitalisation **for the benefit of disadvantaged population groups**, and it must **minimise existing drawbacks and risks**. Formulating a fair and sustainable digitalisation policy calls for **creativity**. Digitalisation is a process that will profoundly alter living/working conditions and business activity for everyone. This means that approaches devised for the analogue society cannot be transferred one-to-one to the digital society. The nine ideas that follow are intended to provide a starting point for shared reflection on the nature of **transformation** to equitable forms of digitalisation that are an appropriate response to development needs and global challenges. Ideas for viable development-oriented digitalisation:

(1) Use **public infrastructure to close the digital gap**

There is an urgent need to close the enormous digital gap that divides our world into two halves. Three out of four people in southern Africa have no Internet connection. In twenty of the poorest developing countries, fewer than ten per cent of people have access to the Internet.

The call to close the digital gap is not coming only from state and non-state actors in the field of development cooperation: the big Internet companies are also strongly behind it. At the forefront are the Big Five from Silicon Valley – and increasingly also Asian IT companies – who are investing in the construction of the necessary analogue infrastructure. The Internet giants are not doing this for altruistic reasons. Google, Microsoft and the rest want to obtain access to new markets and penetrate them in both breadth and depth.

If the technological lead of the big IT companies and dependence on them is not to increase further, development of the infrastructure must not be left solely to

Silicon Valley and the global players from Asia. Instead, developing and emerging countries must be enabled to establish and expand a public data infrastructure on their territory. Development cooperation and the international community of states must take on the task of supporting them. The industrialised countries must in particular make the necessary resources for this available – resources ranging from **financial support to knowledge and technology transfer**.

(2) Control and regulate digital monopolies

Digitalisation contributes to dynamic market development. At the same time, though, the leading IT companies in the USA and China have achieved a historically unprecedented position of market power. This dominant monopoly position makes it difficult for smaller companies that have come on the scene later to coexist on the market. Even established companies in India or Africa are being squeezed by the digital platforms. The Chinese e-commerce company Kikuu, which operates mainly in six African countries, is increasingly displacing domestic entrepreneurs because it can produce consumer goods that are cheaper than domestically manufactured products.

In view of this it is important to create a policy framework that controls and regulates monopolies and their (digital) transactions in both physical and immaterial goods. In addition, policies and legal requirements must do more to promote local industries, including high-tech companies, and protect them against digital monopolies. For example, domestic industry could be given **preference in public procurement processes**.

(3) Enlarge the scope of trade policy

UNCTAD’s Trade and Development Report published in October 2018 warns against the over-hasty inclusion in bi- and multilateral trade agreements of rules that encourage further liberalisation of digital trade, including the (non-)regulation of data traffic. In justification UNCTAD cites two main arguments. Firstly, it says that the long-term impacts of digitalisation are not currently foreseeable. Over-hasty commitment to a particular trade policy could therefore close off opportunities for action that do not emerge until later. Secondly, it states that

experience shows that liberalisation of trade relationships is always at the expense of the countries and regions that are at a lower level of development.

At present, trade law permits **protection of the domestic economy** only under very strict conditions. The law should in future extend these conditions to allow states to put protective measures in place if they enable the state to pursue an economic policy tailored to local needs.

In addition there should be a ban on trade agreements that prohibit local data storage and the levying of tariffs – terms that are included in, for example, the trans-Pacific CPTPP agreement. Such rules place completely unacceptable restrictions on the ability of states to formulate their own policies and condemn developing and emerging countries to a position among the losers from the outset.

(4) Promote national and regional platforms

Developing countries currently have little or no access to the data of the large American and Asian platforms. This restricts their opportunities for offering, producing and marketing their own services and products. If the developing countries are not to be permanently confined to the role of suppliers of data to the global players, they must set up their own platforms in sectors such as mobility, health, finance and trade.

Before national and regional platforms can be established in the Global South, it is essential to **create cross-border regional markets**. Only in regional alliances are the developing countries able to establish strong digital platforms that are competitive on the international market.

Germany and the EU are faced with two challenges in connection with this goal. Firstly, development cooperation must assist countries in creating regional markets. Secondly, the EU must not counteract these efforts with bilateral agreements as it currently does with economic partnership agreements.

(5) Create cooperative platforms

To provide jobs for as many people as possible and strengthen social cohesion, digital platforms should be set up that can provide products and services partly on a

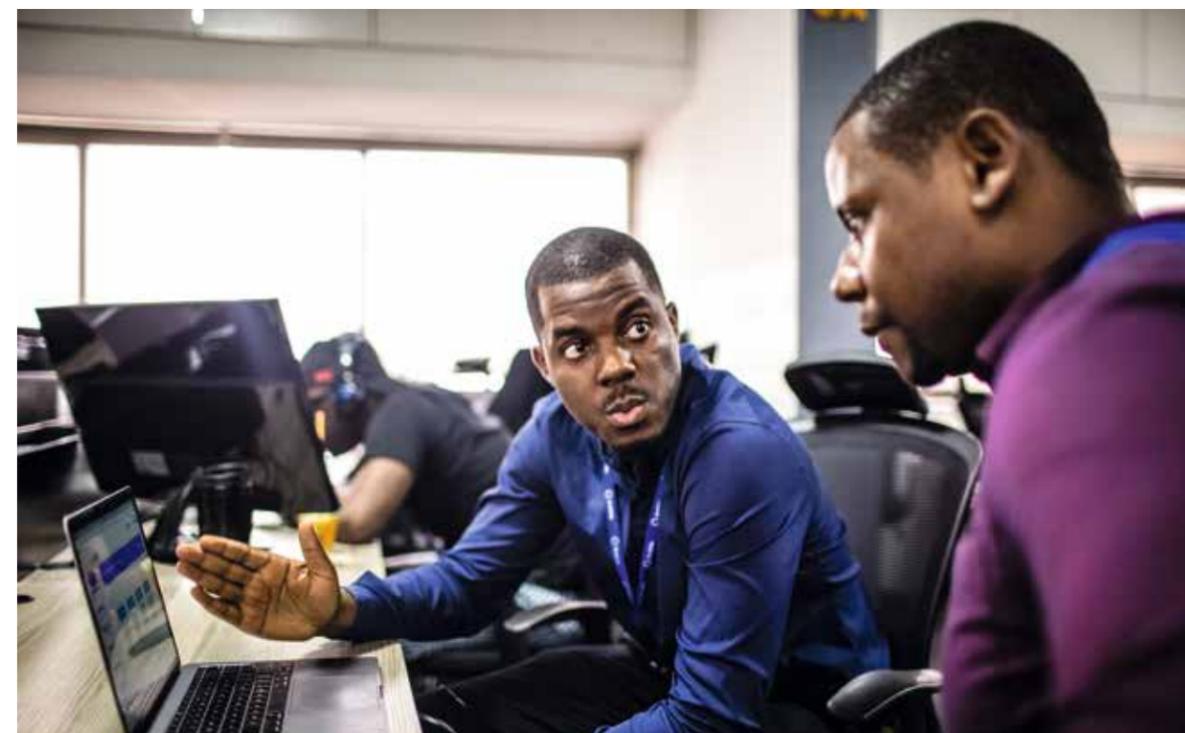
cooperative basis. Digital platforms are fundamentally conducive to the establishment of cooperative ways of working. For example, the providers of transport-sharing services can offer their services and their vehicles on a cooperative platform, thereby becoming members of the cooperative.

At the same time, **new governance processes** must be established that enable these cooperative platforms to become more competitive by comparison with joint-stock companies. The risk capital needed to set up cooperative platforms is often hard to come by because investors tend to avoid forms of entrepreneurship that are not hierarchically organised. State programmes – supported by global investors – can play an important part here by making the necessary capital available to digital platforms in the Global South.

(6) Take a broader view of digital centres

In almost all countries, the digital economy is concentrated in a very small number of centres – often in a single city. In Lebanon, Beirut is the focus of the start-up scene, while in Egypt Alexandria has become an international hub. These digital centres have excellent links with the various digital “valleys” such as Silicon Valley and the Wadi Valley in Israel. But these digital powerhouses are not spreading outwards; they have insufficient links with other towns and cities in their particular country and are insufficiently integrated into rural regions.

In spite of this, the countries of the South will in all probability be unable to avoid setting up digital centres if they are to survive and thrive in the face of international competition. But support for a policy of establishing such centres must be accompanied by efforts to ensure a broad impact. Such efforts should include promotion of technology and knowledge transfer, but they should focus on helping local authorities interact with the digital giants on an equal footing in order to safeguard local interests. To ensure that these centres make a lasting contribution to the **diversified economic development** of the whole country, the establishment of multiple centres in each country should wherever possible be encouraged from the start.



Many start-ups have ideas that can improve the world. Often, however, they have insufficient impact on the population as a whole.

(7) Open up education and adapt education policy

In the digital society, learning becomes a life-long process involving personalised learning pathways. In addition, citizens increasingly become innovative economic actors. They must be permanently able to access knowledge, construction plans, source codes and digital designs so that they can produce products themselves. This is essential if they are to perform their new role for the greatest benefit of society and themselves. A good example of open access is the Open Source Ecology platform (opensourceecology.org/).

To support this important process, developing and industrialised countries should open up their knowledge institutions and **provide access to knowledge free of charge and round the clock**. Western digital learning platforms should be more closely linked with those in the countries of the Global South, so that information can be provided to learners as quickly as possible. Another important step is for (European) universities to establish

and expand partnerships with local universities in countries of the South and for the qualifications obtained there to be recognised in the EU.

(8) View social policy in international terms

Because the automation of industry and agriculture in the North and South puts jobs in the developing and emerging countries at risk, the affected people in those countries need to be supported through social policy. An active labour market policy and social security measures (social transfers) can help provide security for people at times of digital transformation and open up new opportunities for them. Social security measures could prevent people resorting long-term to undesirable survival strategies such as child labour. The International Labour Organization (ILO) calculates that the majority of countries are in principle able to finance a basic level of social security. In reality, however, they often lack

the money – perhaps because of their government’s austerity policy or because of tax evasion – to fund these social transfers. To expand basic social provision, support should be provided to countries of the Global South to enable them to increase their financial scope in this area. International efforts to prevent tax evasion are an important aspect of this, as is the prevention of debt crises and protection against the consequences of an imposed austerity policy. In addition, aid needs to be provided to those developing countries whose budgets do not run to the payment of social transfers. The international community of states must take on the challenge of developing an international funding mechanism that makes the necessary funds available to these countries (long-term).

(9) Support local SMEs

Alongside these overarching measures, support must also be provided to local businesses – usually SMEs – to enable them to cope with the process of transformation and adaptation. These businesses usually have neither the knowledge nor the funds to participate successfully in the digital revolution. This is particularly the case in high-tech sectors such as artificial intelligence. To keep transformation costs low and to benefit from the exchange of knowledge and experience, they need equal-level partnerships with Western companies.

In connection with digitalisation, it is also recommended that the developing countries – like Germany and the EU – should **pursue an “insider” model**. This means that, instead of copying examples from China or the USA, these countries should focus primarily on digital transformation of their traditional SMEs that already have sectoral expertise.

The successful digitalisation of SMEs depends on yet another factor: close **cooperation with local start-ups**. Because – as has already been mentioned – risk capital is in short supply, the international community of states must consider the opportunities for **supporting start-ups and SMEs financially**.

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