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Foreign Direct Investment and the Digital Economy

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1 Premila Nazareth Satyanand is a Nonresident Senior Fellow at India’s National Council of Applied Economic Research and Founder of foreign direct investment.in. She was commissioned to develop this working paper under UN ESCAP’s development account project on Fostering inclusive and sustainable development through increased participation of small and medium-sized enterprises in global value chains. Parts of the paper were used in the forthcoming second edition of UN ESCAP’s Handbook on Policies, Promotion, and Facilitation of Foreign Direct Investment. Comments and questions about this paper can be directed to the author at premilanazareth@gmail.com, with a copy to Heather Taylor-Strauss, taylor21@un.org.
Abstract

The digital economy is now here to stay. The new technologies and modes of business it has created add immensely to speed, convenience, productivity, and transparency, boosting trade and GDP. This digital economy is fundamentally transforming the global economy and unleashing a Fourth Industrial Revolution that will disrupt the existing economic order. This disruption will both drive – and be driven – by shifts in global patterns of FDI as MNEs all over the world take to digital technology and modes of organization to compete. The digital economy is also driving sustainable development through more resource-efficient products, technological inclusivity, and new green technologies, speeding up global progress in meeting the goals of the 2030 Agenda for Sustainable Development.

This paper explores how countries can strategically harness FDI to build and expand their digital economies. It highlights that Investment Promotion Agencies (IPAs) will need to drive this effort by ‘going digital’ in two ways. They will need to tactically identify, target, and attract promising digital economy investors while also developing or upgrading the digital tools they use to reach and impactfully engage with potential foreign investors. In addition to this, the paper considers three fronts on which policies to attract FDI in the digital economy must focus, namely: digital infrastructure, digital business development and wider digital adoption. IPAs and policymakers must work closely together to develop an FDI strategy that promotes and facilitates investment in each on each of these fronts. Finally, the paper also considers how such a digital FDI policy can be especially relevant for more broadly supporting micro-, small-, and medium-sized enterprises (SMEs) and their integration into global and regional value chains.

Keywords: Foreign Direct Investment, FDI, Digital FDI, MSMEs, Sustainable FDI, Sustainable Development

JEL Codes: F21, F23
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INTRODUCTION

This paper assumes added relevance as the world has hastened to digital strategies and solutions to cope with COVID-triggered disruptions. For this reason, attracting more foreign direct investment (FDI) into the digital sector will not only be a key strategy in economic recovery from the pandemic, but it will also be a key strategy in building the digital infrastructure, digital entrepreneurship, and digital literacy so vital for success in the new digital world and its accelerating, data-driven New Industrial Revolution.

The Asia-Pacific region is fortunate in this context. Already, it is the world’s largest digital market, a global hub of digital innovation and activity, and a major engine of international FDI. However, UNCTAD projects a 30 to 45 per cent drop in 2020 FDI inflows to the region (UNCTAD, 2020). This is because COVID-19 triggered lockdowns, demand slumps and travel bans are compelling global firms with Asia-centric supply and production chains to shift large portions of these closer to consumers in other parts of the world.

Countries in the region will thus have to turn strategically to drawing in new kinds of foreign FDI in sustainable, COVID-19 proof economic activity. Most urgently, they will need to support local MSMEs in linking into new types of value chains, especially those displaced by the out-migration of physical value chains from Asia,

Investment Promotion Agencies (IPAs) will need to drive this effort by ‘going digital’ in two ways. Firstly, they will need to tactically identify, target, and attract promising digital economy investors: that is, firms most likely to help build digital infrastructure, digital business, digital skills, and digital adoption (or usage). In tandem, their governments will need to create carefully-crafted policies, rules and institutions to ensure that ‘digital FDI’ (WEF, 2020) – that is, FDI in the digital economy – maximally contributes to national economic competitiveness and expanding income opportunity. Secondly, they will have to develop or upgrade digital tools to reach and impactfully engage with potential foreign investors, so their countries do not lose out in a transforming global investment environment. Fortunately, pioneering IPAs are already forging the path in this respect, including in Asia-Pacific.
All this will require a much deeper governmental understanding of the evolving nature of digital economy firms and their contribution to sustainable economic development, their potential challenge to policy, their major compulsions and investment drivers, and how best to attract them economically. This paper offers a brief, but comprehensive, review of these issues.

Section A, ‘The Digital Economy and the Role of Foreign Direct Investment,’ will outline the salient features of the digital economy, its principal foreign direct investors and their investment drivers, its contribution to the global economy and sustainable development, and how it is impacting the contours of global production and FDI. It also explores the novel and unique policy challenges posed by the digital economy.

Section B, ‘Promoting, Attracting and Facilitating Sustainable FDI in the Digital Economy,’ considers the three fronts on which governments need to act to harness FDI in developing their digital economies. The first is to create the ground conditions that digital economy investors will find particularly alluring. Most basic is a strong and modern policy, institutional and regulatory framework for the sector, spearheaded by visionary, accountable leadership, and a clear developmental game plan. This framework should work in synergy, not in conflict, with rules for traditional sectors since digital business models and digitalization have now spread into these two. Alongside, countries might need to update their international trade and investment agreements to address the distinctive policy issues thrown up by the digital economy. Governments should also actively encourage digital economy firms to contribute to sustainable development, by working sustainability requirements into digital FDI policy and into international investment agreements (IIAs) that address digital FDI issues. In this context, a special priority is to encourage digital economy investors to bring micro-, small - and medium-sized firms (MSMEs) into their own value chains or to help launch them into others.

The second – and most complex front is to defend against the dangers arising from the novel operating structure and growing power of digital firms. Principal amongst these is digital firms’ tendency towards monopolization and tax avoidance, and to commercially exploit the data they collect from foreign customers and host countries without informing or recompensing them. An even greater worry, possibly, are
recurrent breaches in cybersecurity and online privacy, including unscrupulous foreign influence and interference in local politics. Governments are cooperating internationally to address these challenges, but there is still much work to be done.

The third front is to develop the ground conditions that digital economy investors would find most alluring, and to market these engagingly to them. High quality digital connectivity and digital skills are most important, together with a vibrant tech and start-up ecosystem, and a living and working environments that is internationally attractive to skilled, innovative young entrepreneurs and professionals. Investor outreach should also specifically address the differentiated concerns of investors in digital infrastructure, in digital business, and in digital adoption. Digital infrastructure investors care most about licensing, regulations and the availability of skilled engineers and workers. Digital business investors worry about data privacy and security, and intellectual property protection. Investors in wider digital adoption look for well-functioning e-payment systems and support for digital start-ups and digital skills development. Additionally, pioneering IPAs are now using innovative digital tools to target and engage with foreign direct investors, including webinars and online meetings, the virtual showcasing and GPS mapping of investment locations, and the remote conclusion and facilitation of projects. This emerging best practice offers crucial pointers and lessons for is going to have to be a generalized move in this direction going forward, given the COVID-19 pandemic and the rapidly digitalizing world economy.
A. THE DIGITAL ECONOMY AND THE ROLE OF FOREIGN DIRECT INVESTMENT

This section introduces the salient features of the digital economy, its leading firms and their investment drivers, its growing contribution to the global GDP and sustainable development, and the way it is shifting the contours of global production and FDI.

What is the Digital Economy?

UNCTAD’s *World Investment Report 2017: Investment and the Digital Economy* defines the digital economy as “the application of Internet-based digital technologies to the production and trade of goods and services.” More simply put, the digital economy encompasses any transaction that is conducted over the Internet. This could range from a video call to one’s grandmother or the digital purchase of an interesting pop song to the virtual negotiation of a multibillion-dollar deal or a digitally controlled factory automatically producing cars.

As Deloitte explains, the digital economy is “the economic activity that results from billions of everyday online connections among people, businesses, devices, data, and processes. The backbone of the digital economy is hyperconnectivity which means growing interconnectedness of people, organizations, and machines that results from the Internet, mobile technology and the internet of things (IoT).” Since the digital economy is fundamentally predicated upon data-enabled connectivity, it could not exist without the Internet. For this reason, other popularly used terms for the digital economy are the Internet Economy and the Web Economy, though it is sometimes also alluded to as the Knowledge Economy.

While the Internet is the technological spine of this economy, its current rapid growth is being fuelled by dramatic advances in six digitally enabled frontier technologies (box 1): cloud computing, artificial intelligence and data analytics, automation and robotics, blockchain, additive manufacturing, and the Internet of Things (UNCTAD, 2019; UNIDO, 2020). All run on Internet connectivity.
Box 1: The frontier technologies propelling the digital economy

- **Cloud computing** is the online availability of computing, networking, analytics, software, and digital storage capability. Business and consumers buy only what they need, greatly reducing infrastructure and operating costs, dramatically expanding resource access, and boosting innovation.

- **Artificial intelligence and data analytics** apply computerized analyses to huge streams of raw data to discern patterns and determine solutions.

- **Automation and robotics** bring immense precision and continuous processes to manufacturing and services.

- **Blockchain** is a virtual distributed ledger technology for secure and transparent online transactions between a multitude of actors. Currently most used for cryptocurrency and fintech applications, it is now also being applied in a range of other areas, including in land management, transport, health, and education.

- **3D printing or additive manufacturing** is the production of a three-dimensional physical object from a digital 3D model.

- **Internet of things (IoT)** is the embedding of internet-connected devices, including sensors, meters, and radio frequency identification chips, which will enable remote and automated control of all household electronics and machines.


Working in combination, these digitally-enabled technologies have created such historically unprecedented technological capability that experts feel they have unleashed a Fourth Industrial Revolution (4IR) – one that will accelerate with continued leaps in digital connectivity and master computing. This 4IR will upend the way in which the world economy is organized, much as occurred following the invention of mechanization and the steam engine (First Industrial Revolution), electricity and mass production (Second Industrial Revolution), the personal computer and the Internet (Third Industrial Revolution) (UNCTAD, 2019; UNIDO, 2020).
Structurally, as shown in figure 1, the digital economy comprises three distinct layers (UNCTAD, 2019). At its core, is the physical infrastructure of telecommunications and the Internet (including telecom towers, fiber-optic cable, telephones, mobile phones, computers, and laptops), inextricably intertwined with the software that gives it life (including Internet connectivity, encryption systems, order management applications, and financial and payment applications). Riding on this core is the digital and information technology sector, which harnesses digital devices and digital connectivity to develop and deliver software applications and digital offerings to the broader economy, which is the outermost layer of the digital economy. This layer encompasses the myriad consumers, businesses, governments, and institutions worldwide that use the digital connectivity, products and services generated by the underlying two layers in daily life and operations.

The more innovative the core and intermediate layer are, the more the broader economy develops. In turn, the more that the broader economy harnesses advanced digital technology and applications, the more that existing patterns of production and consumption are likely to evolve.

Geographically, the global digital economy has three poles: North America, Asia, and Europe. The United States is the world’s largest digital power by far. Huawei and Oxford Economics (2018) estimate that the United States generated some 35 per cent of the global value-added by this sector in 2016, followed by China, with 13 per cent. China’s share tripled between 2000 (when it accounted for just 4 per cent) and 2015, at the cost of Australia, Germany, Italy, and Japan. In 2016, other top ten digital economy players by global value-added were the United Kingdom, France, Republic of Korea, and India.

The United States and China also dominate other aspects of the global digital economy. Together, they account for 90 per cent of the market capitalization of the world’s top 70 digital platforms (figure 2), 75 per cent of the cloud computing market, 75 per cent of all block chain-related patents, and 50 per cent of IoT-related spending. They are home to 84 per cent of the world’s 70 most valued digital platforms (figure 2). The United States is also home to the world’s top 100 websites and 40 per cent of its co-location centres (UNCTAD, 2020).
Driven by the United States and China, North America and the Asia-Pacific are likely to account for some 70 per cent of all global digital data traffic between 2017 and 2022. (UNCTAD, 2019). These two regions also dominate the emerging ‘next generation’ of digitally enabled manufacturing technologies (figure 3), generating some 70 per cent of all Advanced Digital Production (ADP) technology patents globally, some 40 per cent of all ADP-related exports and some 30 per cent of all ADP-related imports.\(^2\)

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\(^2\) Author’s calculation based on data from UNIDO’s Information Economy Report, 2020.
Figure 3: ADP technologies: Top 50 countries for patents, exports, and imports

1. Key MNE players in the Digital Economy

While the digital economy’s first contours emerged in the 1990s, it has only grown dramatically after 2010 – catapulting many of its small founding firms into the ranks of the world’s largest mega-corporations. UNCTAD’s *World Investment Report 2017* identifies three categories of multinational enterprises (MNEs) in the digital economy (figure 4), each operating within one of this economy’s three constituent layers. These categories are further elaborated below.

(a) ICT MNEs

The first kind of corporate international digital economy player is the ICT MNE, which builds and creates its core telecommunications and internet connectivity. UNCTAD further sub-divides ICT MNEs into three groups:

i) *Telecommunications firms*, which construct and operate the physical infrastructure of internet and mobile data connectivity.

ii) *IT component and device firms*, which produce the computers, laptops and mobile connectivity devices that enable connection to the internet.

iii) *IT software and services firms*, which develop the software operating systems that control telecommunications and internet connectivity, and the software that underpins the products and services of other ICT MNEs.

Each of these categories is illustrated with real-life examples in table 1. And the world’s top 100 ICT MNEs in annex 1.
Table 1: Illustrative examples of ICT MNEs

<table>
<thead>
<tr>
<th>Telecommunications firms</th>
<th>IT devices &amp; components</th>
<th>IT software &amp; services</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T (United States of America)</td>
<td>Apple (United States of America)</td>
<td>Microsoft (United States of America)</td>
</tr>
<tr>
<td>Nippon Telegraph and Telephone</td>
<td>Samsung Electronics (Republic of Korea)</td>
<td>Hewlett Packard Enterprise (United States of America)</td>
</tr>
<tr>
<td>(Japan)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deutsche Telekom (Germany)</td>
<td>Hon Hai Precision Industry (Republic of Korea)</td>
<td>Oracle (United States of America)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


(b) Digital MNEs

The second type of corporate international digital economy player is the digital MNE, which uses the Internet to create, market and deliver digital products and services.

UNCTAD further divides digital MNEs into two sub-categories:

i) Mixed digital firms, such as e-commerce and digital content platforms, which harness the Internet to sell physical products to consumers and to service customers through a combination of virtual and physical offerings. E-commerce platforms include online retailers, stores, travel agencies, marketing, and advertising agencies. Digital content platforms sell digital media, entertainment, games, and online education. They also sell “big data” analysis, marketing, and customer intelligence, as well as economic, business and credit information.

ii) Purely digital firms, which sell completely digital offerings to consumers in three ways. Some establish and run Internet platforms, which deliver completely virtual services to consumers (search engines and social
networks). Others run platforms that enable the exchange of products and services (transaction platforms), or of open-source software for research and development (innovation platforms). Some provide customers with Internet-delivered digital solutions, including computing, web hosting and email services, electronic and online payments, and digital solutions for business management and for financial applications.

Table 2 illustrates each of these categories with real-life examples.

**Table 2: Illustrative Examples of Digital MNEs**

<table>
<thead>
<tr>
<th>Internet platforms</th>
<th>Digital solutions</th>
<th>E commerce</th>
<th>Digital Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook (United States of America)</td>
<td>Automatic Data Processing (United States of America)</td>
<td>Amazon (United States of America)</td>
<td>Netflix (United States of America)</td>
</tr>
<tr>
<td>LinkedIn (United States of America)</td>
<td>First Data (United States of America)</td>
<td>Alibaba Group (China)</td>
<td>Thomson Reuters (Canada)</td>
</tr>
<tr>
<td>Red Hat (United States of America)</td>
<td>PayPal (United States of America)</td>
<td>Priceline Group (United States of America)</td>
<td>Sky (United Kingdom)</td>
</tr>
</tbody>
</table>


Since the Internet is key to the digital MNE’s operating and delivery model, this type of MNE is fundamentally different from all others, including ICT MNEs. Its characteristic features are:

**Asset-lightness** – The digital MNE can generate much more overseas revenue off much smaller foreign investments, than all other MNEs, ICT MNEs included. This is because they can deliver digital products and services to consumers globally, at the press of a button. Netflix is a typical example. It can instantaneously deliver an Argentinian film to an Internet-connected Japanese subscriber holidaying in the jungles of Borneo. To do this, it does not need investments in film production in Argentina or in cinema houses in Borneo. All it needs is quality Internet throughput with Borneo. Similarly, mixed digital players can instantaneously receive and respond to online
orders from customers all over the world, such as Amazon. While they need to invest in host country employees, warehouses, and partners to deliver goods to customers, the investment would be much smaller than that in factories producing their own proprietary goods.

**Figure 4: ICT MNEs and Digital MNEs**

![Figure 4: ICT MNEs and Digital MNEs](source)

As a result, digital MNEs have a much smaller foreign assets footprint than all other MNEs, including ICT MNEs, and a much higher foreign sales-to-foreign assets ratio. In 2015, the world’s 100 largest digital MNEs had an average foreign assets-to-total assets of 41 per cent and an average foreign sales-to-totals sales ratio of 73 per cent. For other MNEs, the ratios were 66 per cent and 60 per cent, respectively. As box 2 explains, the more digitalized a firm, the lower its foreign assets-to-total assets ratio, the higher its foreign sales-to-total sales ratio, and the greater the difference between the two. Purely digital MNEs have an average foreign sales-to-foreign assets ratio that is two and a half times that of other MNEs (UNCTAD, 2017).
Employment-lightness – For the same reasons, digital MNEs have a noticeably smaller foreign employment footprint than other MNEs.

Box 2: The FDI Lightness Indicator

UNCTAD has devised a new measure – the ‘FDI lightness indicator’ – to gauge the foreign asset-intensity of digital economy MNEs. Applying this indicator to its list of the world’s 100 largest digital MNEs\(^3\) and the world’s 100 largest ICT MNEs,\(^4\) UNCTAD finds that the more that a firm relies on the Internet to create, produce, market, and distribute its goods or services, the higher its score on the FDI lightness indicator. In other words, they sell more overseas off smaller foreign assets.

Individual firms’ scores are calculated by deriving the ratio between foreign sales (as a percentage of total sales) and foreign assets (as a percentage of total assets). If the score is between 0 and 1, it means the firm needs more foreign assets to make a certain quantum of sales. If the score is over 1, the firm’s foreign sales rely less on foreign assets. With a rising score, the firm’s foreign sales are increasingly liberated from foreign assets.

While this indicator was developed for digital economy firms, UNCTAD finds it works as effectively for other types of MNEs as well. More importantly, it also serves to predict how large a firm’s relative global FDI footprint is likely to be when compared to others. The lower a firm’s ‘FDI lightness’ score, the more it will need to invest in foreign operations. The higher it is, the more effectively the firm can operate internationally from out of its home country.

Source: Adapted from Casella and Formenti, 2018.

Large, unspent profits – For the reasons outlined above, digital MNEs (purely digital firms, in particular) generate considerably more profit than other MNEs. Since their

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foreign overheads are low, they save more of their earning in cash. Also, since it costs them little to reproduce or transmit digital products/services, they can inexpensively and simultaneously serve millions of overseas customers. Their global sales are thus immense. Digital MNEs have an average unremitted ‘foreign earnings-to-tangible foreign assets ratio’ of 6:1, contrasting with 1:1 for traditional MNEs.

Concentrated geographic footprint – Since digital MNEs can simultaneously serve millions of overseas customers from out of global headquarters, their geographic footprint is very concentrated in developed home markets. In contrast, the geographic footprint of all other MNE types has rapidly expanded in developing countries, as well. Only 12 per cent of the foreign affiliates of the world’s 100 largest digital MNEs are in developing countries, in contrast to 30 per cent for traditional MNEs. Moreover, these digital MNE’s developed country affiliates concentrate in the United States (40 per cent), as opposed to 21 per cent for other MNEs (Casella and Formenti, 2018).

Differing investment drivers – Digital MNEs’ investment drivers differ from those of other MNEs. Since their products and services do not use natural resources or cheap labour, these traditional determinants of FDI do not determine their choice of investment location. Neither is market size a critical determinant since they can service consumers from anywhere in the world.

Two recent surveys (Stephenson, 2020; KPMG, 2020) throw light on the host country parameters most critical to digital MNEs. Most important are high-quality digital connectivity and digital skills, an urban environment that would be attracted to high-end professionals from all over the world, and a sound and stable regulatory framework. As critical are data security, data privacy, content monitoring and data localization regulations; copyright, contract, and consumer protection laws; and laws making e-agreements legal. Other determining factors are the local availability of venture capital and bank financing; of technology parks, innovation hubs, incubators, and knowledge networks; and a successful history of start-up exits or IPOs. Financial support and incentives are of considerably less priority. These surveys echo academic research that points to digital firms’ driving interest in digitally-connected ‘lead markets’ – where continual synergistic engagement with local tech eco-systems, and tech-savvy collaborators and consumers, enables them to launch and refine products for culturally-
similar nations (Shaheer, 2020). Similarly, local, and international networks and alliances are invaluable in conceiving, developing, and delivering novel and competitive products (Banalieva and Dhanaraj, 2019), though experts differ on how crucial these are in running operations (Hennart, 2019).

(c) Digitalizing MNEs in other sectors

The digital economy’s third group of MNEs operate in the broader economy, producing physical goods and services. This group comprises all MNEs in traditional sectors that have begun to harness digital technologies for greater control, efficiency, quality, customer insight and engagement, and could range from mining, engineering and real estate construction firms to consumer product firms and beauty salon chains. Today the IT and financial services sectors are the most digitalized (EU, 2020a).

Many of these MNEs currently use enterprise resource planning (ERP) software to electronically share intra-firm information across various corporate locations, and online customer relationship management (CRM) systems to deepen customer insight. Manufacturing firms are using digital technologies to integrate and monitor production and supply chains in real-time, facilitate vendor search and due diligence, contracting and payment. Also popular are ‘software as a service’ (SaaS) offerings, in which firms buy one-off software applications from the cloud when needed, rather than sinking money in expensive, rarely used software packages. These MNEs now increasingly sell online and rely on social media to reach and engage with customers (EU, 2020a).

A 2020 survey of 9,640 European firms finds that 42 per cent of them are using at least one AI technology: 25 per cent use two. Of these, manufacturing firms generally use AI to optimize and automate production-related processes. Financial and services firms’ AI applications are more varied, including fraud detection, customer insights and engagement and delivering recommendation engines (EU, 2020b).

Traditional sector MNEs are also being pushed to digitalize by growing competition from digital firms (McKinsey and Company, 2018). The latter are progressively crossing industries to poach customers in old-style sectors. For example, Uber cannibalized the taxi-fleet market, as Airbnb did for conventional hotels, and Amazon
walked away with the Whole Foods grocery chain and all its customers. For the same reason, traditional sector MNEs are under pressure to develop their own digital platforms and strategies, particularly to win/hold on to “tech-savvy consumers happy to use software apps” (McKinsey and Company, 2018).

For this reason, many traditional sector MNEs have systematically begun to build their own digital assets and digital software-development capabilities (Frederick et al., 2020; Gestrin and Staudt, 2018). “Instead of brick-and-mortar retailers using services provided by someone else’s e-commerce platform, retailers are developing their own platforms. Instead of a tractor company using big data to design better tractors, the tractor company itself is becoming an important source of big data by equipping all its tractors with connected sensors” (Gestrin and Staudt, 2018). They have been doing this organically by hiring strategic digital talent, or through mergers and acquisitions (Frederick et al., 2020; Gestrin and Staudt, 2018).

Many MNEs have also begun to set up ‘in-house’ platforms that enable researchers and developers to collaboratively create digital solutions to bring them a strategic advantage in their sector. For example, the world’s leading heavy engineering firms, including GE, Hitachi, Honeywell, Siemens, Schneider Electric and Yokogawa, are using such a model to push the frontiers of IoT technology (Frederick et al., 2020).

Some MNEs are setting up ‘digital subsidiaries’ to bring in additional income through the provision of post-sale maintenance and business/strategy consulting services to customers (Frederick et al., 2020). Many are finding their digital subsidiaries so profitable they are growing them into fully-fledged and complementary businesses. For example, Siemens, the German power equipment, and engineering conglomerate, now has a digital software subsidiary – Siemens Digital Factory – which sells software to analyse immense reams of development, supply chain and production data in real time. In 2017, Siemens Digital Factory’s revenues accounted for 13.7% of Siemens’ total revenue and it was the company’s most profitable segment. (Frederick et al., 2020).
2. Mounting economic influence

The rapid expansion of the digital economy is driving an elemental change in the structure and geography of the world economy as it creates new kinds of global economic value and directs it to a set of companies and countries that differ from the past. Digital firms’ FDI lightness, and their reliance on local networks and partners, has made it possible for them to scale globally at unprecedented speeds. For instance, while it took Marriott Hotels nearly a century to reach 122 countries, Airbnb needed just eight years to begin operating in 190 countries (Banalieva and Dhanaraj, 2019). “The rapid rise of tech MNEs represents one of the most noteworthy trends in the world of global mega-corporations in recent years. Tech MNEs have not only gained weight in the universe of the largest global multinationals, but they also represent by far the most dynamic players” (Casella and Formenti, 2018). These MNEs and their founders now cluster at the top of international rankings, including Fortune 500, Forbes’ Global 2000 and World Billionaires List.

A principal impetus for the digital economy’s rapid growth since 2010 has been the rapid international expansion of digital platforms and tech firms, which has completely upended earlier global corporate hierarchies. So much so that in 2020, seven of the world’s twelve largest companies by market capitalization are digital platforms. Eight such firms now account for some 56 per cent of the market capitalization of the world’s top twenty firms by market capitalization (UNCTAD, 2019). In contrast, seven oil, gas and mining companies accounted for 36 per cent of the top 20’s total market capitalization in 2009. At that time, just three of the world’s top 20 by market capitalization were technology and digital firms, and their share was a mere 16 per cent.

UNCTAD’s annual ranking of the world’s 100 largest MNEs shows a similar trend. In 2020, it contains some 15 tech firms – some of which are now global mega-corporations – up from four in 2010. They are also the most economically dynamic: these 15 firms’ assets grew by 11 per cent a year between 2010 and 2015 (i.e. 65 per

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5 The Fortune 500 list is available at: https://fortune.com/fortune500/2020/search.
7 Forbes World’s Billionaires List is available at: https://www.forbes.com/billionaires/.
8 This observation is originally found in (McKinsey and Company, 2020), but still holds true.
cent in total), over ten times faster than that of other MNEs. Their operating revenue and employment expanded by some 30 per cent. In 2019, their foreign assets represented 11 per cent – and their foreign sales 18 per cent – of the total for the world’s 100 largest MNEs. Just 10 of them – including Alphabet (Google), Apple, Microsoft, Hon Hai, SAP, and Sony - accounted for a quarter of the total market capitalization of all 100 firms in UNCTAD’s list (UNCTAD, 2017).

The other impetus has been the rapidly growing adoption of digital connectivity and technology in the broader economy, particularly individual consumers. Resultantly, the digital economy is believed to have expanded two and a half times faster than the global economy between 2000 and 2015, to reach 15.5 per cent of global value-added in 2016 – or US$11.5 trillion (Huawei and Oxford Economics, 2018). Based on this, it is possible that the digital economy accounted for about a fifth of global value-added in 2020.\(^9\)

Projections are that the digital economy will account for 24.3 per cent of global value-added by 2025 (or some US$23 trillion), this time driven by the ‘industrial Internet’ of traditional sector firms digitalizing (Huawei and Oxford Economics, 2018). McKinsey calculates that a few immense digital ecosystems could generate over $60 trillion in revenue by 2025, or more than 30 per cent of global corporate revenue (McKinsey and Company, 2018). It also estimates that global GDP could swell by an additional US$13 trillion by 2030, should 70 per cent of companies harness just one of five AI technologies: computer vision, natural language, virtual assistants, robotic process automation and advanced machine learning. Even such minimal AI adoption could boost GDP growth by 1.2 per cent annually this coming decade, creating 16 per cent more in cumulative GDP (McKinsey Global Institute, 2018).

3. Impact on international production and foreign direct investment

The continued global expansion of digital platforms and the digitalization of traditional sectors (box 3) is likely to transform international production over the coming decade, according to experts (UNCTAD, WIR 2020). This evolution will both shape – and be

\(^9\) Author’s calculation based on the estimates in (Huawei and Oxford Economics, 2018).
shaped by – global FDI flows, as MNEs employ digital technology and modes of organization to outcompete each other. Experts foresee two principal trends: FDI ‘retrenchment’ and FDI ‘reshoring’ (UNCTAD, 2017; UNCTAD, 2020). Both trends could result in an FDI ‘de-democratization’, that is, a slowing or reversal of the recent FDI surge to developing countries, as FDI once again concentrates in developed economies (Casella and Formenti, 2018).

Since firms deploying digital manufacturing technologies currently concentrate in just ten countries or territories (the United States, Japan, Germany, China, Taiwan Province of China, France, the United Kingdom, Switzerland, the Republic of Korea and the Netherlands), there is a strong risk that FDI reshoring and back-shoring could prompt a further concentration of digital economy power in these markets. Already, these ten countries account for 91 per cent of all global advanced digital production (ADP) patents, 70 per cent of all ADP-related exports and 46 per cent of all ADP-related imports (UNIDO, 2020).

Box 3: The digitalization of supply chains and production

New digital technology is enabling MNEs in traditional sectors to integrate, control and monitor their production and supply chain operations in real-time, triggering shifts in how they organize their businesses.

*Advanced robotics and AI* – Advanced robotics and AI are enabling the remote control of increasingly automated production processes. Manufacturing equipment and processes are rendered ‘intelligent’ through embedded actuators and sensors, which are digitally connected to computing and control devices. While production is in process, these actuators and sensors continually collect and transmits information about the production process, the quality of resulting products, and the operation and health of components to an ‘intelligent’ control centre, which in turn relays data back to fine-tune product quality or manufacturing. Big Data analytics is at the core of these systems, simultaneously processing huge streams of variegated information and sending out automated commands in real-time. Another characteristic feature is virtual reality, which enables human management in a
different location to simulate or ‘observe’ in 3D micro steps components in the production process. These cyber-physical systems can also autonomously manage predictive maintenance of parts and equipment.

Advanced robotics and AI could thus drive an elemental shift from a centralized labour-based, factory model, closely supervised by on-site human management, to an international network of decentralized ‘smart’ production units digitally controlled by a handful of computers and highly skilled employees (UNIDO, 2020). Significantly greater output could be produced by a smaller number of firms, concentrated in a handful of locations. This said, the level of automation is likely to vary across industries, since capital costs are extremely high (UNCTAD, 2020).

Additive manufacturing (3D printing) – Additive manufacturing’s influence on the structure of international production would be akin to that of automation and AI. By ‘printing’ three-dimensional products from a digital design, additive manufacturing eliminates the need for factory labour and minimizes natural resource needs. For this reason, firms with additive manufacturing capabilities would no longer need to invest in elaborate supply chains or be close to raw materials. They could thus create an international network of centrally-controlled ‘3D print shops’ close to end consumers, which could print and sell products as needed, at no extra marginal cost.

While additive manufacturing’s potential to transform international production is much larger than of digitalization or automation and AI, it will likely be used only by niche players over the next decade, given high costs (UNCTAD, 2020).

Digitalization – Digital technology is facilitating supply chain integration and monitoring, particularly vendor search and due diligence, contracting and payment. In some cases, it is even giving lead firms real-time insight and co-management of relevant aspects of suppliers’ operations and processes. This makes it easier for lead firms to confidently expand their supply chains, geographically and in terms of their range of suppliers.
Digitalization is also enabling MNEs to offer customers online service and advice during and after production. During production, firms provide ‘embodied services,’ enabling individual consumers to digitally engage with them in customizing each product they purchase. For instance, some car companies can now produce vehicles with engines, windows and seats individually customized to each buyer. ‘Embedded services’ are offered post-production. Products contain sensors and artificial intelligence that transmit real-time data to the manufacturing firm post-sale, so that it might remotely conduct routine check-ups and maintenance on an ongoing basis. In some cases, the insights from these data are enabling manufacturing firms to offer consulting and advisory services to buyers of their products.


(a) Digital firms and FDI retrenchment

As explained earlier, digital MNEs ‘asset lightness’ permits them to operate globally with minimal foreign assets. Thus, their foreign investment volume is smaller than that of counterparts in traditional sectors, which have typically driven global FDI these past few decades. Thus, the more dominant digital firms become internationally, the more ‘interference’ they will create in existing FDI patterns, which have generally displayed a steady upward trajectory over the past century (UNCTAD, 2017). This same phenomenon will be evident amongst traditional sector firms, as they progressively digitalize (Casella and Formenti, 2018).

Experts thus expect to see a phenomenon they have called ‘FDI retrenchment’, in which the rising trajectory of global FDI will flatten or diminish, as the average size of foreign assets contracts – the more that digital MNEs expand and the more that other MNEs digitalize.

(b) Digitalization and FDI reshoring, regionalization, replication, and diversification

In parallel, experts foresee digitalization prompting traditional sector MNEs to restructure global operations and investment in the following ways (UNCTAD, 2020):
Reshoring – As AI-controlled automation and robotics expand, MNEs are likely to internalize hitherto outsourced international production operations and bring these home, in a process known as ‘reshoring’ and ‘insourcing.’ This trend is most likely to be seen in higher-technology sectors, such as machinery and equipment, electronics, and automotive-related industries, where production is already quite mechanized, and supply chain resilience and intellectual property protection is critical. Some reshoring might also be experienced in less sophisticated service industries, such as retail, wholesale value chains, transportation and logistics, as digital platforms control more international sales and marketing activity out of headquarters.

Regionalization – Some MNEs might regionalize value chains, by downscaling existing networks to be close to key customers, or by upscaling country networks to serve a regional market. Regional networks are generally seen in industries that are dependent on local raw materials, such as food, beverages, and chemicals, or that need to be close to consumers because of the limited shelf life of products.

Replication – Some MNEs might choose to internationally distribute their manufacturing operations in centrally-controlled networks of automated manufacturing hubs, producing standardized products near end consumers. In this model, called ‘replication’, MNEs are more likely to outsource the digitally controlled, standardized production of key products to local contractors, than to make major investments in manufacturing facilities themselves. However, product and system design, and network coordination, would be conducted out of MNE headquarters.

Diversification – As touched on earlier, supply chain digitalization could propel MNEs to further diversify and geographically expand their value chains, to make these more resilient. In parallel, digitalization facilitates the outsourcing of more sophisticated services, due to advances in teleworking and translation software.

Table 3 captures the specific effect each of these trends is likely to have on global value chains and foreign direct investment.
Table 3: Digitalization’s effects on global production configurations and FDI

<table>
<thead>
<tr>
<th>International production impact</th>
<th>Reshoring</th>
<th>Regionalization</th>
<th>Replication</th>
<th>Diversification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shorter, less fragmented value chains</td>
<td>Shorter physical supply chains, but not less fragmented</td>
<td>Shorter, less fragmented value chains, re-bundling of production stages</td>
<td>Continued fragmentation of supply chains</td>
</tr>
<tr>
<td></td>
<td>Re-bundling of supply chain and production stages</td>
<td>More geographically distributed value added</td>
<td>Higher geographical distribution of activities, but more concentrated value added</td>
<td>Increased platform-based supply chain governance</td>
</tr>
<tr>
<td></td>
<td>More concentrated value added</td>
<td>Less offshoring, less outsourcing</td>
<td>Increased outsourcing</td>
<td>Increased offshoring and outsourcing of services</td>
</tr>
<tr>
<td>FDI Impact</td>
<td>Lower FDI, divestment and relocation</td>
<td>More intraregional FDI, relocations</td>
<td>Lower FDI</td>
<td>Lower FDI in physical productive assets, more intangibles</td>
</tr>
<tr>
<td></td>
<td>Possible initial increase in FDI by NEM partners in home markets</td>
<td>More intraregional trade</td>
<td>Increased trade in services, intangibles, data flows and payments of royalties and licensing fees</td>
<td>Increased trade in services and data flows</td>
</tr>
<tr>
<td></td>
<td>Lower GVC trade</td>
<td></td>
<td>Lower GVC trade</td>
<td></td>
</tr>
<tr>
<td>Prevalent industries</td>
<td>Higher-technology GVC-intensive industries</td>
<td>Regional processing industries, GVC-intensive industries, primary sector</td>
<td>Hub and spoke industries, regional processing industries</td>
<td>Services, GVC-intensive industries</td>
</tr>
</tbody>
</table>

Source: Adapted from UNCTAD, World Investment Report 2020: International Production Beyond the Pandemic.

4. Opportunities and risks for MSMEs

The variety of shifts described in the preceding sub-sections present both opportunities and dangers for MSMEs particularly in developing and least developed economies. One set of opportunities arises from the unique new business models of digital economy firms. The other issues from the spread of digitalization, automation, and artificial intelligence in the real-world sectors in which most MSMEs operate. How these
play out will depend on how digitally ready MSMEs are and how supportive government policy is.

**Opportunities within the digital economy** – Digital platforms have suddenly given MSMEs the opportunity to sell internationally, to markets they might not have reached – or known of – on their own. Digital platforms also tend to be more inclusive than physical global value chains (GVCs) since it is in the platform owner’s interest to draw in as many product/service creators and customers as possible. Many platforms thus actively help member MSMEs move up the value chain. Though physical GVCs offer similar support, they only include the few firms that feed directly into the lead MNEs final output.

**Opportunities in traditional economic sectors** – In traditional sectors, digital technology is enabling the earlier-described ‘modularization’ and ‘servitization’ of manufacturing across geographies, creating new opportunities for tech-savvy MSMEs. In modularization, the standardized parts of end products can be produced separately (even by different producers, in different locations) from customizable aspects, which are created on special order from customers. In servitization, lead MNEs contract out product and customer services to third parties and digital technologies enable them to monitor these on a real-time basis.

Digitalization and datafication has also given rise to new channels of value creation across traditional and emerging sector sectors. In agriculture and animal husbandry, for instance, productivity and efficiency could be dramatically enhanced by using drones, sensors, artificial intelligence, and analytics, creating a host of novel opportunities for MSMEs with the necessary software, manufacturing and computing, and farmer training capabilities. ‘Digital agriculture’ could add as much as US$500 billion to global GDP by 2030 (McKinsey, 2020). Emerging data value chains are also throwing up a range of opportunities related to the compiling, processing, analysing, and monetizing of data and images, as a subsequent sub-section of this paper will explain.

**Risks** – The variety of shifts described above do pose risks to developing country MSMEs, particularly those linked to rapidly-digitalizing GVCs, which are currently
concentrated in Asia. This is because MSMEs in developing and least developed economies have been slow to adopt digital technologies for a variety of reasons. Often, ICT connectivity is poor, and digital technologies are expensive and require costly retrofitting of existing equipment. Most crucially, many MSMEs still lack digital skills and exposure. Even when connectivity is not an issue, MSMEs are tending to conduct only simple tasks online. For instance, most tend to use the Internet to research potential investment locations, partners, and competitors, rather than to market, sell or manage delivery of their own products and services (UNCTAD, 2019).

There is thus a risk that MSMEs could be marginalized as digitalization progresses, especially in manufacturing GVCs with highly digitalized lead firms. MNEs turning to digital manufacturing technology will find it progressively harder to partner with those using older technologies and will tend to seek out new suppliers with technological capacity more on par with their own. Yet, even MSMEs that remain within such chains might experience a downside, such as growing digital control and standardization by lead firms (UNCTAD, 2017; UNCTAD, 2019).

In the digital world, MSMEs doing business on e-commerce platforms could see profit margins shrink due to the sudden, vastly expanded exposure to competition. They are also likely to experience exclusionary pressure in platforms dominated by a few large buyers (UNCTAD, 2017; UNCTAD, 2019), which tend to favour a handful of trusted sellers at the expense of smaller, less experienced suppliers.

However, as mentioned earlier, government policy and national e-preparedness will be major factors influencing the smoothness of the transition to digitalization and the continued relevance of MSMEs in the evolving value chains of which they are part. Digital economy firms can also be essential partners, by bringing new technologies and novel modes of economic organization to developing and least developed countries. For this reason, the next section explores how governments and IPAs might best design investment policy, investment promotion and investment facilitation to draw the most from FDI in their digital economies.
5. Unique challenges

The digital economy’s continuous creation and international transmission of data – and the asset lightness of digital firms – confronts the world with a unique and completely unprecedented set of policy challenges. To address these, governments are being compelled to fundamentally rethink long-accepted principles of international economic governance, originally devised for the physical economy. The following policy issues associated with the digital economy stand out:

Profit-shifting and tax avoidance - Tax avoidance by digital firms was the first digital economy-specific issue to provoke major international concern, about a decade ago. Since then, governments have struggled to devise internationally agreed principles and methodologies by which to tax them correctly.

At the root of this problem is digital firms’ ability to virtually deliver products/services to overseas consumers without a local physical presence. A digital platform might, for instance, be headquartered in the United States, its data server might be in Singapore, and all its revenues might be from India. It avoids taxes in the United States, arguing that its revenues were generated in India. It avoids taxes in India, arguing it has no physical operation in this country. It is not taxed in Singapore, where it has neither office nor commercial operation. This type of structure has enabled digital firms to avoid hundreds of billions of dollars in taxes in both home and host countries. (UNCTAD, 2017; UNCTAD, 2020).

This situation arises from two core principles that underpin the international tax regime today: a regime devised for a physical goods economy. The first principle is that countries may only tax firms with a ‘permanent establishment’ (physical presence) in their jurisdiction. The other is that global firms are taxed on a national, rather than international, basis. Thus, each country in which a firm operates taxes this firm separately, and only on that profit generated within its borders. Firms thus attempt to minimize their tax liability by shifting profits from high-tax to low-tax countries. They generally do this through intra-company, cross-border transactions that – as per international tax rules – are to be costed at ‘arms-length’ (open market rates).
This costing becomes uniquely complex in the digital economy, for three reasons. First, is the intangibility of data flows and digital assets (such as software, algorithms, or data), which makes them difficult to value. Second, pricing user engagement is problematic. The larger and more interactive this engagement is, the more it can raise the market value of a digital platform and the data it generates. This issue is particularly pertinent in the developing world, where populations (and, so, user numbers) are large, but few digital platforms have yet established a physical presence (UNCTAD, 2019). Thirdly, data flows freely and continuously across national borders, so it is difficult to value and tax it on national entry or exit, as with physical commerce in which goods can be stopped and evaluated at the border.

With digitalization spreading quickly across the world, governments are collaborating to devise rational principles and methodologies by which to correctly tax the digital economy. This effort has been spearheaded by the OECD, the European Union, and the United Nations. Expert proposals in this regard include:

- Country ‘presence’ should not be determined solely by physical presence. Rather, it should be determined by the availability of, and demand for, an international firm’s products and services in each country.

- Firms should be considered to have a ‘virtual permanent establishment’ in any country housing a server that hosts its global operating platforms and be taxed accordingly.

- All countries should impose a 3 per cent global minimum tax rate on the international revenues of all large technology companies (which would also serve to reduce the incentive to profit-shifting).

- Tax computations should approach each firm as a single global entity (the ‘unitary entity approach’), rather than a network of self-standing, national entities. This should curb firms’ impetus to profit-shift since earnings/profits within a unitary firm would be the same regardless of where they are reported from.
The United Nations Committee of Experts on International Cooperation in Tax Matters is now also actively involved in the search for effective formulae and principles to avoid both non-taxation and double taxation, and to tax turnover rather than profits (United Nations, 2019).

All countries agree on the urgency of international tax reform to properly address the fiscal challenges being posed by the digital economy – and are actively deliberating these issues in the OECD, European Union, and the United Nations. Since, no internationally agreed principles have been devised yet, countries have begun to act unilaterally. Some are taxing income from digital services, expanding the definition of income to include overseas payments for digital services, and extending tax rules to cover digital supplies by foreign suppliers. Some are taxing Internet and mobile money users. Experts caution, however, that unilateral rules are not optimal, since they increase operational complexity and uncertainty. Taxing Internet and mobile money users is also likely to be counterproductive since it could curtail Internet use (UNCTAD, 2019).

**Data ownership and protection** – The other set of digital economy-specific challenges relates to data. The digital economy is underpinned by daily flows of trillions of bits of data over the internet. Data transmission is what enables millions of digitally connected machines to ‘speak’ to each other, making it possible for digital companies to serve billions of consumers globally, and for these consumers to communicate with family, friends, and association through the world. These billions of daily transactions and contacts, in turn, generate immense amounts of data about the underlying consumers and communicators.

**Data ownership** – Global digital firms and others have begun to collect, process and analyze these data for a range of reasons, often without the consent of its originators. Most notable, from a global corporate perspective, is to gain deeper insight into consumer behaviour to bolster market position and enhance commercial offerings. Data-generated insights have now become a prime determinant of corporate competitiveness, which is why firms now invest so heavily in compiling and analyzing it. Many firms also process and analyze data to sell it onto third parties (particularly advertisers and marketing companies), for a large fee not shared with data originators.
However, this presents two problems for those whose data are being studied. First is the issue of data privacy and security, as explained in more detail below. Second is the issue of data ownership and value. In other words, shouldn’t those who have originated the data share in the corporate profits from commercializing it, or at least, be paid a fee for its use? Similarly, should not data-originating countries be the ultimate custodians of their citizens’ data, not the foreign corporations collecting and processing it? Currently, international rules (created for the physical economy) do not give countries this right. Once data exits their originating country, it is bound by the laws of the country in which it is stored and processed.

As, digital firms are largely concentrated in the developed world, and store and process most global data there, developed countries reap the bulk of the economic value from this activity. Other countries in which these data are generated are left out of the equation, particularly developing countries.

Many countries are thus moving to ‘own’ and control the data generated within their jurisdictions, to reap more economic value from it and to nurture a home-grown data processing industry. Some have begun to restrict cross-border data flows, particularly of a personal nature. Some are requiring firms delivering virtual services to establish physical operations locally, especially data centres. Firms are being obligated to process all locally generated data in these centres and then, store them for a specified period, or at least ensure that a copy of these data is locally available for law enforcement purposes. Other drivers for such regulations are data privacy, national security, preventing foreign surveillance and the need for complete control of domestic data in criminal and tax investigations (UNCTAD, 2019).

While, at first glance, such obligations seem reasonable, experts argue they could curb development not just of host countries’ digital sectors, but also of their manufacturing and agricultural sectors. As explained earlier, ‘smart’ manufacturing and the international delivery of services rely heavily on continuous and unfettered data flow. So would Big Data-driven applications in agriculture, traditional services, health, education, and other areas related to the SDGs. In fact, the European Centre For International Political Economy (ECIPE) estimates that data restrictions could negatively impact domestic investments by as much as 3.1 per cent in Viet Nam, 2.3
per cent in Indonesia, 1.8 per cent in China; 1.4 per cent in India; and 0.5 per cent in the Republic of Korea. The negative impact on GDP could be as much as 1.7 per cent in Viet Nam, 1.1 per cent in China, 0.5 per cent in Indonesia; 0.4 per cent in the Republic of Korea and 0.1 per cent in India (World Bank, 2019).

Data protection – The immense daily global transmission of data also renders individuals, companies, and governments vulnerable in a way they have not been before. The more of them that go digital and use the Internet for financial transactions, the higher this vulnerability. To access digital services, consumers must log on to the Internet and often present private information, including address, telephone number, identity card number, and debit or credit card information. This creates the risk that sensitive information stored on their computers, laptops and mobile connectivity devices could become exposed to hackers, cyber thieves, and fraudsters. The Internet’s global spread gives malicious actors a universal reach unattainable by physical counterparts. Also, the virtual world’s anonymity makes discovery and prosecution immensely more complex than in the real world. As box 4 below highlights, no one – not even the world’s most powerful and militarily protected leaders – are safe.

**Box 4: The vulnerability of social media**

Globally, hundreds of millions of people now completely depend on social media to communicate with each other. However, this creates a major risk, as the following highly publicized social media breaches affirm.

**Twitter hack** – In July 2020, hackers broke into 130 Twitter accounts, including that of some of the world’s most renowned personalities (United States former President Barack Obama; United States presidential candidate, Joe Biden; TESLA CEO Elon Musk; and former Microsoft CEO, Bill Gates). Impersonating them, hackers called on their millions of Twitter followers to immediately donate Bitcoin to a charitable cause. Within hours, hackers were able to make away with US$180,000 in bitcoin donations, and Twitter’s was powerless to stop them. It later turned out that this hack had been masterminded by a 17-year old!
Facebook-Cambridge Analytica scandal – In 2013, Cambridge Analytica – a political research company – illegally harvested data on millions of Facebook users during a supposedly superficial survey. Of even greater concern is that it used this data to reach illegally into all their friends’ accounts as well. It then developed an algorithm to determine the political leanings of these millions of Facebook users and their friends, based on Facebook ‘likes’. These data were then sold to political campaigns in the United States, which – in turn – used Facebook to develop targeted messages to sway voters.

Source: Author, adapted from press reports.

Many countries are thus creating rules to protect sensitive individual or institutional data, as much from malicious actors and illegal commercial exploitation as state surveillance. Further momentum is coming from commercial considerations. As digitalization intensifies, strong data privacy and data protection rules will progressively become a standard in cross-border trade and investment. “…countries that do not put such systems in place, risk being left out of new international opportunities, as many trade transactions require cross-border data flows that comply with minimum legal requirements” (UNCTAD, 2019). Equally, companies do not feel confident about doing business in countries that do not adequately protect their data (Stephenson et al., 2020). Over time, it is also possible that activist investors and consumers might start to prioritize data privacy and protection as a basic human right and censure firms that operate in countries with weak or absent data privacy and protection rules.

The European Union has been in the forefront of the international data privacy and protection effort. Its General Data Protection Regulation (GDPR) defines ‘personal data’ and establishes procedures for how it might be legally collected, used, transferred, or eliminated, with the express consent of the issuer. Among other things, users have the right to have their data held back from certain types of searches or completely deleted. They also have the right to ‘port’ their data: that is, platforms must technologically enable them to take their data with them if they switch to others. Violations are subject to fines or prosecution. Many countries are now fashioning their
data privacy and protection rules around the basic standards of the GDPR, as are some of the world’s leading digital firms, including Microsoft, Apple, and Facebook.

6. Sustainable development contribution

Not only does the digital economy drive economic advancement, it could also be the principal vehicle for a global paradigm shift towards sustainable investment. International experts feel that the digital economy has given the world such immensely enhanced technological capability that major progress could be made on achieving all 17 SDGs (TWI2050, 2019). Additive manufacturing could dramatically minimize resource use, wastage, and pollution, by relying on stronger, more efficient synthetic materials and boosting precision in production. Artificial intelligence, digital connectivity and analytics could significantly boost agricultural yields and end hunger. Big Data and 3D virtual reality can help breakthrough innovations in medicine, which combined with telemedicine could revolutionize health outreach, even to the world’s poorest and most remote communities.

The digital economy is already advancing sustainable development on three fronts. Initial impacts will deepen and spread, as this sector further expands and innovates.

Technological inclusivity - Digital technology has reached the world’s poor much faster than any previous technology. It took the computer just 15 years after it was invented to reach Viet Nam, while it took electricity 60 years to reach Kenya and the steamship 160 years to reach Indonesia. (World Bank, 2016). Mobile telephony and banking are benefitting both rich and poor. Digital platforms are creating new types of economic activity and giving small firms and entrepreneurs radically expanded access to global markets. Digital innovation is driving novel applications in health, agriculture, and other SDG areas, improving the human condition.

Smaller ecological footprint – The digital economy has birthed the ‘sharing economy’ which – by driving the common use of various assets – curtails the impetus for more production. By creating unparalleled virtual connectivity, the digital economy is helping to condense humankind’s carbon footprint in a variety of ways. Online meetings and video conferencing now enable business and deal-making to be conducted entirely
online, reducing the need for carbon-emitting international travel. Local travel, too, is shrinking as growing numbers of office-workers opt to work from home.

**Greener, more efficient manufacturing** – Digital technologies are enhancing the speed, efficiency, and precision of industrial production, reducing natural resource use, energy consumption, waste, and pollution. They greatly minimize the physical risk to labour in the factory. They are also affording companies with insights into enhanced product and service design, product life-cycle management and supply chain operations. This is facilitating the development and dissemination of novel ‘green’ products, including some created from recycled materials and designed to be further recycled post-disposal.

Moreover, digital production technologies are being designed to be sustainable. In the past twenty years, three times as many ADP patents mentioned environmental objectives than other patents did, particularly greenhouse gas reduction (UNIDO, 2020). Since the manufacturing sector currently accounts for one-third of global carbon dioxide (CO2) emissions, the practical impact of these technologies could be considerable.

**B. PROMOTING, ATTRACTING AND FACILITATING SUSTAINABLE FOREIGN DIRECT INVESTMENT IN THE DIGITAL ECONOMY**

To attract FDI into the digital economy, governments will need to work on three fronts. First, they will have to create the policy and regulatory scaffolding to give life and strength to their digital economies, in a manner that protects and balances the interests of all stakeholders and maximizes its contribution to national development. Second, they will need to craft rules for sustainable foreign participation in this sector. Third, they will need to foster the ground conditions and engagement that would most compel digital economy investors to locate projects in their economies.

1. **Institutional framework, sector policy and regulation**

**Strong sector governance** - The starting step is to establish the institutions to spearhead development in this sector. Ideally, countries should create a unified digital
Currently, most countries spread policymaking and regulation for digital economy issues across a range of ministries, including Telecommunications, Information Technology, Commerce, Industry, Finance and Consumer Affairs (UNCTAD, 2017). For instance, e-commerce is typically the Ministry of Commerce’s remit, while the Central Bank and/or Ministry of Finance governs e-payments. This hydra-headed structure impedes effective policymaking and administration, hampering digital sector growth and evolution. If the establishment of a unified ministry is not immediately possible, then close inter-ministerial collaboration must be instituted on a priority basis. So should regular, structured consultation with digital economy investors, sector experts, and consumer/civil society groups to ensure that policy is rational and far-reaching.

Alongside, well-designed sector regulations and a strong, independent regulator are necessary to ensure fair play and competition, to protect data privacy and security, to maximize domestic value-addition, and to reassure investors about the safety of their investments.

It is imperative to staff digital economy ministries and regulators with erudite and experienced experts, given the novel, complex and constantly evolving regulatory issues they will continually be called upon to analyse and adjudicate. Amateur and poorly thought-out policy and regulatory decisions could substantially minimize the potential benefits flowing from the digital economy.

**National Digital Economy Plan** – The digital economy ministry’s first task should be the formulation of a detailed national plan to drive the development of this sector. For this plan to be effective, it must enunciate a clear vision for the national digital economy (box 5) and a clear strategy for how to achieve it, comprising of sequenced, monitorable targets and time-bound action steps. (UNCTAD 2017; World Bank, 2019).

Box 5 lists the most important targets of a clear vision for developing the digital economy.
Box 5: A clear vision for the digital economy

Asia’s most advanced digital economies enunciate clear targets in their national digital economy plans, and then actively work to achieve these. Common examples are:

Target GDP share (national or global) by a specified year – For example, Malaysia aims for its digital economy to generate 20 per cent of national GDP by 2020, and Thailand for 25 per cent by 2027.

Target global rank – For example, Malaysia aims to rank twentieth in the global Digital Economy Rankings and to appear within the World Competitiveness Yearbook’s Top Ten, and Singapore seeks global top spot in harnessing digital technologies to add value to economy and society.

Broadband infrastructure and connectivity targets – Plans set targets for the reach/length of broadband infrastructure, including submarine cables, and the quality of connectivity, including 5G. For example, the Philippines targeted an average download speed of 20 Mbps in all its central business districts, and an average download speed of at least 2 Mbps for 80 per cent of its household customers by 2016.

Targets for device ownership and usage – Illustrative examples are 100 per cent computer ownership in homes with school children (Singapore), 90 per cent home broadband usage (Singapore), 30 per cent of the population should be shopping online (Viet Nam), online presence for 60 per cent of the country’s businesses (Viet Nam), and electronic payments should be available for 70 per cent of utilities and at all supermarkets (Viet Nam).

Other common targets relate to (a) national digital literacy- and skills- building programmes, especially for youth, small business and women, (b) support to digital entrepreneurs and local digital content creators, and (c) e-government initiatives enabled powered by a specially created digital national identity card.

Source: Author, adapted from World Bank (2019).
National digital economy plans must also include a carefully thought-out investment strategy, outlining how much it will cost to realize each plan target, from where this money could be sourced, and – most specifically – how much should come from FDI. Investment promotion planning should thus be fundamentally entwined with investment policy planning, and vice versa. This is a fundamental step to maximize the economic benefit from FDI in the digital economy (UNCTAD, 2017).

Currently, there is a marked disengagement between investment policy and investment promotion. Over half of the 102 digital development plans UNCTAD analysed failed to mention FDI as a source of funding, despite the role digital economy MNEs play in developing this sector today. Four-fifths of the IPAs UNCTAD surveyed said they had not been asked to participate in preparing the national digital economy plan, even though they actively prioritize FDI promotion into broadband infrastructure and digital business development (UNCTAD, 2017). A recent survey underscores the priority IPAs now give to digital FDI: five of their top ten eleven target sectors are in the digital economy (Sanchiz, Alex, and Ahmed Omic, 2020).

**Foundational digital sector policy**

With sector institutions and a sector development plan in place, countries then need to create the policy and regulatory scaffolding that will give life and strength to their digital economies, in a manner that protects and balances the interests of all stakeholders and maximizes its contribution to national development. Experts point to the following as foundational aspects of digital sector policy (WIR, 2017; ASEAN, 2018; World Bank, 2019; APEC, 2019), which would pertain equally to domestic and foreign investors.

*E-commerce and e-payments* – Governments will need to authorize the modalities and technical standards by which consumers, businesses and institutions might digitally do business and remit money, including digital banking, mobile wallets, and cryptocurrencies. A related challenge is to ensure the standardization of digital payment technologies and services to enable the interoperability of services, across service providers and geographies. Governments would also need to decide which digital financial services banks and non-banks would be permitted to offer, including formal credit and peer-to-peer lending, savings, insurance, and securities.
**E-transactions** – As digitalization spreads, more firms and consumers would like to transact completely digitally, when doing business, dealing with government, or in other routine matters. To enable such transaction, governments will need to officially recognize electronic transactions, documents, and signatures as equivalent to conventional ones and set up the necessary authentication systems. In this regard, many governments are finding it convenient to issue electronic IDs or digital identities to individual business, institutions, or consumers.

**Consumer protection** – Consumers could be especially vulnerable to fraudsters on the Internet if they are not properly protected. They might buy products online, but never receive them. Or they might fall prey to false advertising and the fabrication or alteration of online reviews. Targeted consumer protection legislation is thus of the essence, as much to safeguard buyers as to encourage the mass of others to come online. Most crucially, protective regulation should delineate the specific responsibilities of online sellers and platform operators, and how they can be penalized for fraudulent or sub-par products and services. It should also give consumers the right to effortlessly move between online platforms/service providers, taking their enabling data with them.

**Data privacy, security, and ownership** – Closely related to the issue of consumer protection is the safeguarding of online data, whether it belongs to consumers, institutions, or business. As the preceding section explained, hackers and cybercriminals can wreak immense damage by stealing online data or digital and financial identities. Strong cybersecurity and data privacy regulation can guard against these dangers, and that of unwanted government surveillance. Data rules would also need to specify the ownership of varying categories of data to safeguard the interests of all stakeholders.

**Competition** – The digital sector’s natural tendency to monopoly renders competition regulation imperative. Ensuring competition amongst digital infrastructure firms would expand coverage and reduce what consumers pay for connectivity. It would also ease the advent of new players and business models and bring down the prices of digital services.
2. Investment policy for the digital economy

With an institutional framework and detailed national digital plan in place, governments must then craft a digital investment policy setting goals, actions, and rules for investment in this sector. This policy will create the conditions by which foreign (and domestic) firms would contribute to local digital sector development. For this reason, governments should be clear about their specific objectives in seeking foreign participation, after a thorough assessment of the requirements in digital infrastructure development, digital business creation, and digitalization within the wider economy.

Individuated approach to each major category of digital economy investor - A detailed and individuated approach to each component of the digital economy will systematize investment policy and yield considerably greater development impact (UNCTAD, 2017). Investment policy should thus include customized sub-policies that (a) address the specific developmental needs within each component, and (b) speak to the unique investment drivers of the major MNE group that would be targeted to fulfil these. For instance, telecommunications firms and ICT hardware MNEs would be principal investors in digital infrastructure, with complementary participation by software firms who create the software applications that control the operation of digital connectivity systems. Mixed digital firms and purely digital MNEs would invest in creating local e-platforms and other digital businesses. Hardware, software, purely digital and mixed digital MNEs would drive business- and consumer-focused investments that encourage wider digital adoption throughout the economy. Table 5 captures these differences.

| Table 4: Digital investment policy must address all three aspects of the digital economy |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| **Typical investors** | **Digital infrastructure** | **Digital firms** | **Wider digital adoption** |
| (Mobile) network operators and internet service providers (ISPs) Global digital firms Governments | Global digital firms Data centre providers Venture capital, private equity, other funds Local firms (e.g. media firms) | Local businesses Public institutions and governments |
Typical investment needs

| International, national, last-mile connectivity | Local platforms (e.g. social networks, e-commerce) | ICT adoption/devices Training |
| Internet exchange points (IXPs) | Local enterprise development Data centres Training and capacity-building | |


Results from a World Economic Forum (WEF) survey throws light on what these might be (Stephenson, 2020). The 310 responding global tech firms listed the three issues most likely to influence their investment decision with respect to investing in digital infrastructure, digital firms, or wider digital adoption throughout the economy (table 4).

Table 5: What digital economy firms want from digital investment policy

<table>
<thead>
<tr>
<th>Digital infrastructure</th>
<th>Digital firms</th>
<th>Wider digital adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of receiving licenses</td>
<td>Data security regulations</td>
<td>Availability of e-payment services</td>
</tr>
<tr>
<td>Availability of skilled local engineers and other workers</td>
<td>Copyright laws to protect intellectual property</td>
<td>Support for starting digital businesses</td>
</tr>
<tr>
<td>Use of international standards Regional coordination for infrastructure investment.</td>
<td>Data privacy regulations</td>
<td>Support for local digital skills development</td>
</tr>
</tbody>
</table>

Source: Author, adapted from Stephenson et al., 2020.

As is evident, the principal concerns of digital infrastructure investors mirror those of counterparts in traditional economic sectors. So, there is much policy precedent in addressing these. Facilitating digital adoption should also not be too difficult, and governments already have a variety of initiatives in this area. The challenge for governments will be to devise successful policy in completely novel and complex areas, such as data security, data privacy, source code disclosure, content monitoring and access to foreign websites, and to rework existing physical world policy for a digital context – most especially intellectual property protection and contract law. The WEF survey finds these are the areas of critical concern for both digital and digitalizing firms (figure 5), whose investments will be crucial to advancing global economic development on several fronts.
Figure 5: How important are the following for investing abroad in digital activities?\textsuperscript{10}

<table>
<thead>
<tr>
<th>Issue</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data security regulations</td>
<td>8.4</td>
</tr>
<tr>
<td>Copyright laws to protect intellectual property</td>
<td>8.2</td>
</tr>
<tr>
<td>Data privacy regulations</td>
<td>8.0</td>
</tr>
<tr>
<td>Contract law to protect agreements</td>
<td>7.8</td>
</tr>
<tr>
<td>Ease of receiving licenses for digital activities</td>
<td>7.6</td>
</tr>
<tr>
<td>Company law that permits new business models</td>
<td>7.4</td>
</tr>
<tr>
<td>Consumer protection laws</td>
<td>7.2</td>
</tr>
<tr>
<td>Laws making e-agreements legal</td>
<td>7.0</td>
</tr>
<tr>
<td>Competition policy and regulations</td>
<td>6.8</td>
</tr>
<tr>
<td>Free flow of cross-border data</td>
<td>7.4</td>
</tr>
<tr>
<td>Requirement for source code disclosure</td>
<td>7.2</td>
</tr>
<tr>
<td>Requirements to monitor third-party content</td>
<td>6.8</td>
</tr>
<tr>
<td>Burdensome restrictions on online content</td>
<td>7.0</td>
</tr>
<tr>
<td>Burdensome data localization requirements</td>
<td>6.8</td>
</tr>
<tr>
<td>Prohibition on access to foreign websites</td>
<td>7.0</td>
</tr>
<tr>
<td>Burdensome ICT regulations</td>
<td>6.8</td>
</tr>
</tbody>
</table>


Resolve potential conflict with existing policy frameworks – Digital investment policy will also need to resolve potential policy conflicts with existing policy and regulatory frameworks. Left unaddressed, these could stymie digital sector development. Going forward, inter-sector linkages will mushroom, as digital firms pursue new ideas in old sectors and firms in old sectors digitalize.

It would be tragic if the rules created for the physical economy now curb the digital economy’s prospective contribution to achieving key SDGs, such as health, nutrition, education, water and sanitation, and energy.

Digital sector liberalization – Countries will first need to relax restrictions on foreign participation in sectors of relevance to the digital economy. For example, most countries restrict foreign ownership in telecommunications and media, both of which are central to the digital economy, even while they permit 100 per cent foreign ownership in ICT hardware and software (UNCTAD, 2017).

\textsuperscript{10} Respondents were asked to grade each issue on a scale of 1 to 10 (with 1 being least important and 10 being most important). Each bar captures the mean for that issue.
Traditional sector liberalization – They will also need to relax restrictions on foreign ownership and participation in traditional sectors, since these too are now being encompassed by the new businesses of the digital economy. For instance, continuing restrictions in the retail and transportation sectors are limiting potential domestic value-creation in e-commerce and online taxi aggregation and generating administrative headaches for governments. Restrictions on foreign investment in MSMEs prevent digital investors from partnering with them, hurting their interests in a digitalizing world.

Regulatory convergence with multilateral investment and trade commitments – Potential regulatory dissonance with multilateral, regional and bilateral investment and trade commitments will also need resolution. Most existing instruments were designed for a completely physical economy, and so do not deal with digital economy issues such as the protection of digital assets or the rights and responsibilities of purely digital businesses. Key provisions in these agreements might thus need to be revisited, renegotiated, and modified.

3. Sustainable investment policy

Digital investment policy should also animate foreign (and domestic) investors to noticeably contribute to sustainable development if the goals of the 2030 Agenda for Sustainable Development are to be achieved.

An essential first step is to enunciate standards for responsible investment in the digital economy. In devising these, governments could refer to two recent sustainability indicator checklists (OECD 2019; Sauvant and Mann. 2019) developed “to equip policy makers with an actionable tool to mobilise FDI that maximises inclusive and sustainable growth (OECD, 2019). Since both checklists are sector-agnostic, they can easily be adapted to the digital economy. By auditing policy and investments against these indicators, governments will find it easier to identify sustainable digital economy investors and projects, and strategically partner with them in meeting sustainable development targets. Host and home country governments could also use these indicators as a guide in instituting awards and incentives for sustainable foreign direct investors (Sauvant and Gabor, 2019).
Table 6 combines both checklists, extracting only indicators that would be most applicable to digital economy investments. As table 6 make clear, digital economy investors could contribute to sustainable development in a variety of ways. They could create employment, link up with local entities to transfer technology, and upgrade productivity and skills. They could advance digital infrastructure, digital inclusion (via community development) and local R&D and innovation. They could reduce their carbon footprint, energy use and waste, and rely more on renewable energy.

<table>
<thead>
<tr>
<th>Economic development</th>
<th>Environmental protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment/job creation per unit of FDI</td>
<td>Low carbon and greenhouse gas footprint</td>
</tr>
<tr>
<td>Local linkages</td>
<td>Energy efficiency</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>Waste reduction</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Renewable energy</td>
</tr>
<tr>
<td>Community development</td>
<td></td>
</tr>
<tr>
<td>Tax accountability</td>
<td></td>
</tr>
<tr>
<td>Research &amp; development (R&amp;D)</td>
<td></td>
</tr>
<tr>
<td>Worker productivity growth</td>
<td></td>
</tr>
<tr>
<td>Product innovation</td>
<td></td>
</tr>
<tr>
<td>Process innovation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social development</th>
<th>Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour rights (wages and job security)</td>
<td>Corporate governance and transparency</td>
</tr>
<tr>
<td>Non-discrimination</td>
<td>Supply chain standards</td>
</tr>
<tr>
<td>Gender equality in employment and wages</td>
<td>Consumer protection</td>
</tr>
<tr>
<td>Local management, female top management</td>
<td>Legal compliance</td>
</tr>
<tr>
<td>Female empowerment</td>
<td>Stakeholder engagement</td>
</tr>
<tr>
<td>Female entrepreneurship</td>
<td>Social/ environmental impact assessment</td>
</tr>
<tr>
<td>On-the-job training; technical skills development</td>
<td>Anti-corruption</td>
</tr>
<tr>
<td>Workplace safety</td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Sauvant and Mann, 2019 and OECD, 2019a.

However, some of these standards should be obligatory, and most countries have already written them into law. Most crucially, investors should be honest and transparent, pay tax properly, treat workers and stakeholders fairly and equally, and ensure a safe and healthy workplace.
Governments could be further guided by expert recommendations to the G20 on advancing sustainable digital investment (Stephenson et al. 2020). These could quite easily be adopted by non-G20 countries since they draw on universal concepts. First is to incorporate the key ideas and provisions of internationally accepted standards and guidelines for responsible investor behaviour in domestic investment policy frameworks and IIAs. Second is to obligate firms above a certain size to undertake corporate social responsibility. Third is to require corporate sustainability reporting. Fourth is to reward projects and investors that contribute to sustainable development. Fifth is to ensure that all new digital infrastructure is ‘green’: maximizing its reliance on renewable energy, enhancing energy efficiency, and minimizing carbon emissions and negative environmental impact.

Similarly, governments could incorporate sustainability provisions into relevant international investment and trade agreements. Such provisions would enable host countries to require environmentally- and socially- responsible investor behaviour in accordance with an internationally agreed standard from digital economy investors, with the explicit support of host countries. In this context, the Digital Economy Partnership Agreement is a ground-breaking first step (box 6), and its signatories hope that it will “generate new ideas and approaches that can be used by members in the WTO negotiations, and by other countries negotiating free trade agreements or engaging in international digital economy or digital trade work.”

Box 6: Sustainability provisions in the Digital Economy Partnership Agreement (DEPA)

Singapore, New Zealand, and Chile signed the world’s first digital commerce treaty – the Digital Economy Partnership Agreement (DEPA) – in June 2020. DEPA is pioneering because it creates international rules and practices for cross-border

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11 Leading amongst these are the United Nations Guiding Principles on Business and Human Rights, the International Labour Organization Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy, the OECD Guidelines for Multinational Enterprises (OECD 2011), and sector-specific standards, such as for mining and agriculture.

business in the digital economy, anchored by strongly enunciated sustainable development objectives. In opening, the Agreement emphasises “the importance of the digital economy in promoting inclusive economic growth…particularly Goal 8 and Goal 9.” Moreover, it reaffirms “the importance of promoting corporate social responsibility, cultural identity and diversity, environmental protection and conservation, gender equality, indigenous rights, labour rights, inclusive trade, sustainable development and traditional knowledge.”

Moreover, DEPA has a dedicated chapter on digital inclusion. In it, signatories pledge “to ensure that all people and businesses have what they need to participate in, contribute to, and benefit from the digital economy,” particularly women, rural populations, low socio-economic groups, and indigenous people. Signatories commit to work together in “enhancing cultural and people-to-people links, including between Indigenous Peoples, and improving access for women, rural populations and low socio-economic groups.”

DEPA also has a dedicated chapter on promoting jobs and growth for SMEs. Signatories commit to “exchange information and best practices in leveraging digital tools and technology to improve SMEs access to capital and credit, SMEs participation in government procurement opportunities and other areas that could help SMEs adapt to the digital economy” and “encourage participation by SMEs in platforms that could help SMEs link with international suppliers, buyers and other potential business partners.” To fulfil these objectives, the three signatories will convene an ongoing “Digital SME Dialogue” to promote the benefits of the Agreement for the Parties’ SMEs,” through consultations with experts from the private sector, non-governmental organizations, academia, and other stakeholder groups.


13 These refer to SDGs 8 and 9 of the United Nations’ *Agenda 2030 for Sustainable Development*. Goal 8 is ‘Decent Work and Economic Growth.’ Goal 9 is ‘Build resilient infrastructure, promote sustainable industrialization and foster innovation.’
A related strategy is to actively search out those digital economy firms most likely to contribute to sustainable development and to encourage them to invest. Fortunately, this should be easier than it sounds. A plethora of responsible business initiatives has mushroomed globally and hundreds of firms – especially from the digital economy – have voluntarily begun to sign on to such programmes. To illustrate with an example: the *We Mean Business* Coalition works with 1,943 world-leading companies “to accelerate the zero-carbon transition... while delivering sustainable growth and prosperity for all.” Participating companies publicly commit to one or more of the Coalition’s twelve ‘climate action’ agendas (table 7) and are then guided by it in publicly delivering on their commitments. Also lending support are concerned investors, cities, states/regions, and civil society also lend support.

**Table 7: We Mean Business Coalition’s Climate Action Agenda**

<table>
<thead>
<tr>
<th>Table x:</th>
<th>Climate Smart Agriculture</th>
<th>Responsible climate change information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Based Targets initiative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RE100 – 100% renewable power</td>
<td>Remove deforestation</td>
<td>Report climate change information</td>
</tr>
<tr>
<td>EP-100 – Smart energy use</td>
<td>Reduce SLCPs</td>
<td>Improve water security</td>
</tr>
<tr>
<td>EV100 – Commit to electric vehicles</td>
<td>Carbon pricing</td>
<td>Other</td>
</tr>
</tbody>
</table>

*Source: We Mean Business Coalition website, available at: https://www.wemeanbusinesscoalition.org/*.

Since the 1,943 participating companies are categorized by sector on the *We Mean Business* website, it is easy to find all digital economy firms and to study the detail of their sustainability commitments. So – for instance – Apple, Alphabet, Facebook, eBay and Taiwan Semiconductor Manufacturing have only committed to one ‘climate action’ area (100 per cent renewable power), as has China’s Baidu (100 per cent use of electric vehicles) and India’s HCL and Tech Mahindra (net zero emissions). Microsoft, Adobe and Mastercard have committed to two (100 per cent renewable power and net zero emissions). Autodesk has committed to seven (i.e. net zero emissions, renewable power, removing deforestation, reducing SLCPs, carbon pricing, responsible carbon policy and reporting climate change information).

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14 There are currently 150 participating digital economy firms: 56 in Software and Services, 14 in Semiconductors and Semiconductors Equipment, 38 in Technology Hardware and Equipment and 42 in Telecommunications Services.
Other global, regional, national, or sector-specific sustainability initiatives and awards would have similar listing of participating companies and their sustainability commitments. A third source of information is corporate annual reports, since most countries obligate firms to publicly report on sustainability programmes targets and achievements alongside financial reporting. These varied sources will prove useful not just in compiling lists of target investors. Firms’ publicly announced sustainability targets will empower home and host countries to ensure investors are delivering on their commitments. They also present governments with more ideas for responsible investor behaviour in the digital economy.

4. Promoting Linkages with MSMEs

Since local linkages, technology transfer, productivity enhancement and skills upgradation are key sustainable FDI indicators, both sector and investment policy should combine to incentivize digital economy investors to support and partner with local MSMEs. This effort should also be complemented by targeted policies and action to build a vibrant tech and start-up ecosystem, for the reasons described earlier in this chapter.

Launch into international value chains – Investor support to MSMEs could take three forms. In the first, investors create and/or harness digital tools to introduce MSMEs to new markets and business partners, while building their capacity to engage successfully. Virtual meeting and platform technologies are already greatly facilitating MSMEs’ ability to engage and do business with potential partners, buyers and clients all over the world (box 7).

**Box 7: Launching MSMEs into global value chains: virtually**

The Republic of Korea’s trade and investment promotion agency (KOTRA) has created a video-conferencing platform that connects Korean SMEs with potential global investors, partners, or buyers. Using this platform, KOTRA now runs a stream of ‘virtual meetings’ for small local businesses to scope potential overseas opportunities, despite COVID-19 lockdowns and travel disruptions. Local entrepreneurs now meet, negotiate and deal-make with overseas businesses.
entirely online, drawing on KOTRA advice and support at each step, including market entry, advertising, and delivery.

An especially interesting innovation is KOTRA’s online trade fair, *K-Food in Bangkok*. Using the above-mentioned platform, twenty Korean food manufacturers and their products were showcased to over forty potential Thai partners, the country’s largest retailers amongst them. KOTRA’s Bangkok office then physically distributed food samples to all participating Thai companies. KOTRA is now developing similar methods to launch local SMEs into major global e-commerce value chains, training some 1,500 SMEs annually to break into such networks independently.

In the digital economy, KOTRA’s *Global Jump 300* programme uses this same platform to help innovative Korean digital economy start-ups access global markets, partners, and foreign direct investors. It is also enabling such entrepreneurs to participate in global tech festivals, such as Collision Conference or Tech Crunch Disrupt, and to make virtual pitches to participating investors.

Another example is SME HIVE, a virtual meeting place for Asian MSMEs and start-ups, global firms, financial institutions, and business service and advisory firms. Launched by the ESCAP Sustainable Business Network (ESBN), it started as an initiative to build a matching and information platform for SMEs in Myanmar, and later expanded and merged with a similar initiative in Kazakhstan. Members can post descriptions of their business, proposed projects, desired investments/partnership, service, and training needs, and interactively search for solutions 24/7, further aided by the platform’s logarithms. Also available on the platform are country- and sector-focused business advisors, business coaches and trainers, and other types of business services.

What distinguishes SME HIVE is its variety of beneficiaries. It is not designed solely for Asian MSMEs looking outward, but as much for global firms looking inward – that is, to invest in the Asia-Pacific region, especially its fast-growing tech and digital ecosystem. Equally, it is designed for large Asian firms looking to invest or do business globally or within the region. In all cases, SME HIVE’s business information
and match-making services greatly reduce the complexity of researching and setting up in overseas markets, and of making contact and establishing trust with potential foreign collaborators. The challenge is to convey country ownership of the platform and make it sustainable.

Source: Author (Adapted from the KOTRA and SME HIVE websites, available respectively at https://www.kotra.or.kr/foreign/main/KHEMUI010M.html and https://www.smehive.com/).

Incorporation in digital value chains – The second strategy is to bring MSMEs into evolving digital value chains.

For instance, they might become sellers and service providers on e-commerce and shared economy platforms. To illustrate, Shopify's ecommerce ecosystem includes MSME partners that develop ‘plug in’ apps for participating merchants, and that offer website, design, digital marketing, and training services. App developers can even use the Shopify App Store to sell these globally. The COVID-19 pandemic has further expanded its ecosystem: Shopify has enabled corner grocery stores to take local online orders, creating employment for hundreds of individual delivery agents and extra income for shops.

An alternative for MSMEs is to become data compilers, processors, or analysts in Big Data operations. In some countries, MSME sub-contractors, now ‘label’ millions of photos, voice clips or urban images for MNE clients to ‘train’ facial and voice recognition software and algorithms required to successfully operate self-driving cars. Other examples are the inputting and analysis of billions of bits of medical data to develop new vaccines, or of agricultural data to enhance crop yields and water efficiency. There are also opportunities for MSMEs on research and innovation platforms, where they would help to develop software solutions to tackle real world problems.

Incorporation in digitalizing manufacturing chains – The third strategy is to draw them into digitalizing global manufacturing value chains, as modular parts producers or as design, manufacturing service and post-sale service providers: all models are briefly described in section 1.
While many MNEs already find it in their self-interest to bring MSMEs into their value chains, there will undoubtedly be sectors or instances in which government and business will need to jointly invest in building capacity and in offering the requisite financial support, business advice and mentoring. MNEs that do the most for local MSMEs could also be rewarded with awards and incentives.

5. Sustainable Investment Promotion and Facilitation for the Digital Economy

The digital economy’s unique requirements, and the novel and evolving nature of the MNEs operating within it, will require a differentiated investment promotion strategy from that typically employed by governments and IPAs in the past. Most notably, this strategy will have to rest on skill, talent, and knowledge as the core content for investor outreach and engagement, in place of natural resources, cheap labour and market size. For the first time, countries will also have to advertise their cities to foreign direct investors as world-class living, working, commuting and recreational environments, that would draw a steady stream of skilled young professionals and entrepreneurs. In parallel, they will have to fine-tune the policy frameworks and nurture the networks that would bring innovative new sources of venture capital and funding into their economies.

Digital skills and attractive urban environments: key to digital economy investments – As mentioned earlier, a recent WEF survey of 310 technology firms finds the local availability of digital skills to be their primary determinant in deciding to invest in a country market (Stephenson, 2020) (figure 6).
A KPMG survey – of over 800 technology firms – points to “modern infrastructure, including high speed bandwidth” and an “urban locale that attracts young professionals” as equally crucial parameters for digital economy investors. (KPMG 2020). It also underlines the importance of talent pipelines, and research and knowledge networks in creating a context attractive to digital economy investors (table 8).

**Table 8: Core ingredients of dynamic tech hubs, attractive to digital economy investors**

<table>
<thead>
<tr>
<th>Core Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern infrastructure, including high speed bandwidth</td>
<td>33%</td>
</tr>
<tr>
<td>Urban locale that attracts young professionals</td>
<td>29%</td>
</tr>
<tr>
<td>At least one research-intensive university</td>
<td>27%</td>
</tr>
<tr>
<td>Available investment funding</td>
<td>26%</td>
</tr>
<tr>
<td>A pipeline of skilled talent</td>
<td>24%</td>
</tr>
<tr>
<td>Favourable regulatory environment</td>
<td>23%</td>
</tr>
<tr>
<td>A history of successful start-up exits</td>
<td>20%</td>
</tr>
<tr>
<td>Positive demographic growth trends</td>
<td>20%</td>
</tr>
<tr>
<td>Supporting ecosystem (banks, law firms, accounting firms, etc.)</td>
<td>20%</td>
</tr>
<tr>
<td>Mentoring and access to innovation network (other CEOs, entrepreneurs, etc.)</td>
<td>18%</td>
</tr>
</tbody>
</table>
Not surprisingly, human talent is now at the centre of IPA outreach and marketing in advanced digital economies. Emerging strategies are briefly outlined below.

**Showcasing local talent and technological capability**

Award-winning IPAs now energetically market local digital economy skills, innovation, entrepreneurship, and knowledge networks to target investors in this sector. Principal strategies employed are:

*Talent and capability mapping* – Many IPAs and/or industry associations now compile and publish comprehensive ‘maps’ of digital economy talent and businesses within their jurisdiction. The intent is to gather and showcase specialized local capability for potential foreign direct investors. Poland, for instance, has mapped all current and emerging AI capability nationally, to offer investors a reliable up-to-date picture of the state of its AI technology\(^{15}\) and facilitate foreign collaborations and partnerships. Such mappings are also a vital input to policy, in designing strategies for digital economy development.

*Strategic investor engagement* – IPAs then follow up such mappings with dedicated meetings between showcased businesses/entrepreneurs and relevant groups of potential foreign direct investors. The often result in collaborative FDI projects.

**Attracting outside talent**

Locations with no ready talent are now going all out to get it from elsewhere. However, even locations with a thriving digital economy work to ensure a steady influx of world-
class talent, to further enhance their competitive advantage. In this context, award-winning IPAs now focus on creating structured contexts for engagement with best-in-class foreign talent, while supporting it with ready-made working and research facilities, and innovation networks. Common strategies include:

Red carpet for digital economy start-ups – A unique and especially striking feature of IPA best-practice in the digital economy is an immense attention to foreign start-ups. IPAs are energetically pursuing such firms, in contrast to other sector where larger firms, with proven global track records, command most focus. As distinctive is that IPAs give foreign start-ups similar, if not greater, support than that they give to local ones. In other sector, local start-ups and small firms are nationalistically favoured and protected. The reason is the singular nature of the digital economy in which start-ups can suddenly upscale to global dimensions, generating immense value for home and host economies through break-through technologies and access to high-end global tech networks. InvestHK’s investment promotion programme for foreign start-ups offers a glimpse into the types of activities and initiatives typically being undertaken in this regard (box 8). Other Asian economies with pioneering and vibrant foreign start-up promotion programmes include India, China, Malaysia, and Singapore.

| Box 8: Attracting digital economy start-ups: the example of Hong Kong, China |

InvestHK – Hong Kong’s IPA – actively promotes digital economy start-ups, to promote foreign participation in its digital economy and to build the city into a tech hub. In 2013, it launched StartmeupHK to encourage innovative and scalable start-ups from across the world to set up in the territory and globally launch their businesses from there. In parallel, Invest Hong Kong is trying to build the territory into a global hub for fintech start-ups and fintech R&D operations. To this end, InvestHK holds the annual StartmeupHK festival to showcase the territory to start-ups. It also holds regular road shows and other international events.

To enable start-ups to grow quickly, in and from Hong Kong, China, StartmeupHK offers a one-stop service platform and business advisory support. It also connects
investors and other to the start-up community and provides information about the start-up ecosystem.

To provide the necessary digital bandwidth, it has invested in a cluster of eleven high-tier data centres, the largest cluster of its kind in East Asia. It is also building a 27,000 data technology hub for completion in 2020.


Ready-made opportunities: project shelves and hackathons – Some IPAs now create ready-made opportunities for foreign talent and investment in the digital economy. One tack is to assemble ‘project shelves’: listings of priority investment opportunities required to develop the sector. Interested investors are invited to choose amongst these, greatly expediting approvals – in contrast to traditional FDI projects, in which investors approach countries for permission to set up their own, independently conceived projects. Singapore and India, for instance, have both listed all priority digital economy projects relating to their Smart City initiatives and have invited foreign and domestic investors to submit expressions of interest.

Another popular tactic is to run international technology competitions and hackathons, in which participants compete to quickly find technological or software solutions to real-world challenges.

Both strategies create an initial point of engagement, and of mutual assessment, between foreign talent and host economies. If this first contact is successful, it generally converts into further business opportunity and investment.

Strategic city-to-city or city-to-company engagement – For the same reason, several cities have begun to enter strategic partnerships with foreign counterparts. The Manchester India Partnership is one such instance, intended to boost interaction and investment between the two locations (aided by the recent introduction of a direct flight). As a result, Tech Mahindra – a leading Indian IT services firm – relocated its Northern United Kingdom headquarters to Manchester, so it could strategically collaborate with one of its universities.
'Plug and play' facilities – Many investment locations have set up ‘plug and play’ facilities for foreign tech investors, include office space, state-of-the-art labs and equipment, and advisory support from an international team of specialists. Such facilities enable foreign talent/investors to begin operations from the moment their investment is approved.

Digital innovation hubs and accelerators – Also a popular strategy is the creation of digital innovation hubs offering ready-made technological expertise and experimentation facilities to digital economy investors. Hong Kong, China, for instance, is investing over US1$billion to develop two research clusters: one for artificial intelligence and the other for robotics. At the same time, many locations are setting up ‘accelerators’ to back promising tech entrepreneurs, especially in big data, additive manufacturing, artificial vision, cloud computing and robotics. In some cases, beneficiaries either receive a stipend or start-up funding from the accelerator promotor, who – in turn – receives a share in equity. This support includes co-working facilities; structured networking, mentorship and training in business plan, product development, investor pitching, and commercialization; and introductions to interested investors.

Fiscal incentives and financial support – Many cities or countries offer tax incentives to digital economy businesses, particularly those investing in local innovation and R&D. Some cities, provinces or countries offer research grants to small foreign firms engaged in local innovation and R&D. Quebec Province even gives foreign researchers that undertake local innovation and R&D activity a five-year personal income tax holiday.16

Showcasing the urban locale

Responding to digital economy firms’ strategic interest in the quality of host country urban environments, many national IPAs have begun to innovatively showcase select urban agglomerations. Alongside, forward-looking, and better resourced cities are now independently marketing themselves to tech professionals, skilled expatriates, and

16 Quebec Canada Economic Development Incentives, available from https://blsstrategies.com/quebec
digital economy firms, in a distinct and concerted effort to build local tech ecosystems to attract digital FDI directly into their jurisdictions.

To this end, they are harnessing interactive website tools to offer investors a detailed on-the-ground understanding of the locations being considered. Investors can click on a city of interest, opening an information dossier about it. This typically includes economic, demographic, statistical and infrastructural information (including population, per capita income, local skill and wage levels, natural resource availability, Internet connectivity and transportation logistics). Some websites go beyond investment-relevant information to give potential investors a realistic idea of what it would be like to live and set up business in a particular location. These websites typically contain photos or videos of the host country or city, with an account of its primary draws from a nature or cultural perspective, its schools or universities, medical facilities, or its night life. Some even provide a ‘relocation guide’ for entrepreneurs or businesses migrating to the city, with links to office space, rental consultants, salary comparator, and so on.

Pioneering IPAs are now further enhancing these functionalities with Geographic Information System (GIS)-enabled geo-mapping and virtual reality capabilities. These give potential investor a ‘real world’ feel of a location through a virtual reality tour through its streets. Typically, these open with a birds’ eye of the location. Investors can then zoom in on specific areas to understand how each one of them looks and feels, facilitating their investment decision.

Virtual reality is now also being actively harnessed to give investors online tours of technology parks, digital innovation hubs, and other potential investment locations, to give them a ‘real world’ feel of potential project sites. This includes moving images of where the site is located, what it looks like, how close the road is, and who neighbouring businesses might be. They can even zoom in on individual plots, to understand sizes, costs, connectivity, infrastructure, and transportation logistics. In some cases, companies can also view all other plot allocations in each location, to understand which other businesses are in neighbouring plots.
Going a step further, some IPAs have now created GIS-enabled platforms containing interactive data on all development/investment sites of a location, whether it is a city, region, or country, including analytics and property information. Invest India is an example. Thus, for example, a company wishing to locate in a special economic zone located 15 kilometres from a port could enter these details into the portal’s search bar, which would pull up all the options that meet these criteria. The company could then shortlist potential locations and zoom in on each to study it in detail, before arriving at a decision.

**Other strategies**

*Cornerstone and second footprint investors* – Some IPAs now strategically go after digital economy investors already invested in the same continent or country. They convince them to create a ‘second footprint’ by investing in their location as well. Using this strategy, Catalonia Trade & Investment (a regional Spanish IPA) attracted a greenfield project from Amazon, which was already operating in Europe.

In many cases, IPAs focus on bringing in a leading global company, which becomes the ‘cornerstone’ around which a cluster of complementary investments develop. For instance, Costa Rica first persuaded Intel to invest – and then aggressively courted other technology companies, including other electronics firms, such as Acer, and Veba, to create a local tech ecosystem.

**6. Special Economic Zones for the Digital Economy**

Many countries have also created specialized enclaves (physical and virtual) to boost digital commerce and innovation. In many ways, these parallel the role played by Special Economic Zones (SEZs) in manufacturing. By providing SEZ firms with superior infrastructure – and exempting them from many levies and procedures – such zones helped many countries boost manufacturing FDI, exports and innovation.

Currently, the digital economy’s specialized enclaves take the four broad forms below, but will no doubt evolve as each model progresses.
Digital technology parks, software parks, and innovation districts

The oldest form of specialized digital economy enclave is the digital technology park. This is a direct progression from the research & science parks/technology parks first set up over fifty years ago. Firms locating in such parks are provided with specialized and superior equipment, infrastructure, and laboratory facilities, at a subsidized cost, to better enable them to undertake high-end research and innovation of national and commercial use. Asia already has several such parks, producing and exporting electronics hardware (e.g., China, Indonesia, Malaysia, Republic of Korea, Taiwan Province of China, Thailand, and Viet Nam).

Some countries have set up software parks – that is, SEZ dedicated to exporting software and professional service. Founded in 1991, India’s parks are possibly amongst the world’s most successful. Many foreign and domestic firms participate but are carefully selected based on their export proposals – and must export 100% of the software/professional services they generate under the auspices of this scheme. In return, they are exempt from income tax for 5-10 years, can import the necessary hardware and software for their products duty free, and even re-export some of it under certain conditions. Firms exporting more than a certain amount can even sell up to 50 per cent of exports in the domestic tariff area. While initially firms were required to locate in specified physical zones to avail of superior electricity and global connectivity, this requirement has gradually been relaxed and qualifying firms can locate anywhere in India. In 2020, the Indian Government even permitted workers in qualifying firms to work from home.

Many of today’s digital technology parks aim to become world leaders in specific digital technologies. Malaysia’s Multimedia Super Corridor is a specialized hub for both producers and consumers of multimedia media technology and content. Its drone and robotics park at Johor – Southeast Asia’s first – speeds local development and commercialization of these technologies to national advantage. Cyberjaya, just outside Kuala Lumpur – already home to over 2,300 start-ups, SMEs and large tech businesses – is working to become a major hub for ICT and multimedia research and
industry. Target investors include multinational enterprises wishing to harness multimedia technology to guide their global manufacturing and trading operations.

Today’s most advanced digital technology parks typically spread across a wider area, containing residential, commercial, leisure and outdoors facilities, so that they might attract and retain the world’s best talent. They are thus referred to as ‘innovation districts.’ In Asia, Cyberjaya and Singapore’s Jurong Innovation District (JID) are pioneering examples. JID is “designed to be Singapore’s largest living lab” for the development and prototyping of 4IR technologies. Its facilities include (1) research and prototyping labs for advanced manufacturing and digital technologies, including 5G and autonomous vehicles, (2) specialized office buildings for established firms and start-ups focusing on 4IR and ‘smart city’ technologies, (3) advanced manufacturing factories, and (4) logistics facilities for the transportation of supplies and the export of manufactured goods. Resulting innovations and prototypes – including enhanced 5G, autonomous vehicle and smart city technologies – can also be live-tested in the district. Many global companies have already located major 4IR R&D operations in JID, including Hyundai, Siemens, Bosch, Flowserve, and Shimano.

Digital technology parks, software parks and innovation districts generally seek out both foreign and domestic investors. Popular incentives include corporate tax exemptions of ten years or more, duty free import of equipment and other inputs, allowances on core business capital expenditures, tax breaks for R&D expenditures and locally generated patents. Some of China’s software and technology parks offer income tax breaks to employees of participating firms, while reducing the pension payments employers are compelled to make. Investors also receive a variety of non-financial incentives, including preferential access to talent and/or markets, permission to own land, policy advocacy and enhanced approval processes for licenses and visas.

**Technology and innovation sandboxes**

Closely related to digital economy parks are digital ‘technology and innovation sandboxes,’ government-sponsored innovation programmes designed to speed up the

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development and commercialization of strategic digital technologies by local entrepreneurs. By underwriting such ‘sandboxes,’ host governments seek to competitively select the best local technologies and become global hubs for these digital technologies.

Malaysia’s National Technology and Innovation Sandbox (NTIS), for example, enables local digital economy researchers, innovators, start-ups and high-tech entrepreneurs to test their products, services, business models and delivery mechanisms in a live environment, and relaxes selected processes and/or regulatory requirements to speed up commercialization. Current priority areas are healthcare, manufacturing, agriculture, education, travel and tourism. NTIS is thus currently supporting the development of robots to help front line hospital workers treat Covid-19 patients and the recovery of those affected by stroke and other illnesses; semi-ventilators to assist patients with breathing difficulties; agricultural robots to enhance agricultural worker efficiency; automated drone that spray pesticide precisely; and manufacturing robots for pick-and-place functions.

Other examples are Hong Kong, China; and India, which have established digital innovation ‘sandboxes’ for the development and piloting of digital finance and insurance solutions. (Finextra, 2020; disruptive.asia, 2020).

Currently, some sandboxes only permit the participation of local innovators, while other enable foreign firms to take part.

**Cross-border e-commerce Zones/ Digital Free Trade Zones**

A completely novel type of enclave is the ‘Cross-Border E-Commerce (CBEC) zone,’ first piloted by China in 2015 at Hangzhou. The express purpose of such zones is to boost cross-border e-commerce, by facilitating international e-commerce shipments to individual consumers. Local firms locating in such zones can directly ship online orders to individual customers overseas. In parallel, overseas e-commerce platforms fulfilling orders from overseas retail customers can ship products to CBEC zones in their

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country for onward delivery. In China, consumers currently place international orders through the relevant CBEC zone website, and the foreign e-commerce supplier immediately ships the product to this zone, generally by airplane (Dezan Shira and Associates, 2020). Once cleared by the zone’s customs office, the product is delivered to the consumer.

Since, in both cases, e-commerce orders are imported or exported for personal use and cannot be resold, CBEC firms are exempt from licensing approvals, value-added tax and pay reduced corporate income tax. CBEC exports are also exempt from retail consumption tax. However, retail importation is only permitted for products appearing on the Government’s “List of Goods under Cross-border E-commerce Retail Importation” 20, which range from infant formula, health food and medical devices, to frozen aquatic products, alcohol, and consumer goods. Consumers do not pay duties for single transactions worth up to RMB 5,000 (US$729). The maximum individual quota for annual importation is RMB 26,000 (US$3,791) (Dezan Shira and Associates, 2020).

China now has 105 pilot CBEC zones spread across the country, including more remote, internal areas (Dezan Shira and Associates, 2020a). Participating firms can now fulfil all customs procedures within their respective zone, greatly speeding shipments to foreign and Chinese customers, and facilitating returns. This also makes it significantly easier for SMEs, listed on e-commerce websites, to service individual customers overseas. In 2019 alone, China’s CBECs dispatched more than 300 million parcels globally, of which 29.29 per cent went to the United States, followed by France (6.42 percent), Russian Federation (6.10 percent), the United Kingdom (5.55 percent), and Germany (4.59 percent) (Dezan Shira and Associates, 2020a). CBEC exports now account for over 11.25 percent of total Chinese exports – up from 2.2 percent in 2015 – and are likely to further increase rapidly this coming decade (Dezan Shira and Associates, 2020a).

An added benefit has been the mushrooming of new value chains, locally and internationally, since each zone contains a mix of e-commerce platforms and supply partners, manufacturing firms, transportation firms and financial services firms. China’s

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CBEC firms have also jointly invested in 1,200 warehouses internationally, in/from which they agglomerate and dispatch orders (Dezan Shira and Associates, 2020a).

Malaysia has been the first and only country so far to replicate and adapt this model, setting up a Digital Free Trade Zone (DFTZ) on the outskirts of Kuala Lumpur in early 2017. Its DFTZ’s key objectives are to (1) facilitate international purchases of Malaysian goods through international e-commerce platforms, (2) boost SME exports, and (3) grow Malaysia into an ASEAN fulfilment hub from which global e-commerce firms can service regional consumers. Firms locating in – or virtually affiliating with – the zone avail exemptions like that offered by China’s CBECs and practical support in e-fulfilment, finance, insurance, logistics, and customs and other clearances. The zone has also drawn investments from foreign e-commerce, real estate development, finance, and logistics firms, among others.

*Virtual SEZs* – A fourth – still emerging – model is what, for the purposes of this paper, could be named the ‘virtual SEZs’, in which host governments create digital platforms and skills that enable local workers to sell digital services globally. They could do this in partnership with – or with investments from – foreign firms.

Malaysia’s GLOW (Global Online Workforce) Penjana21 programme offers a pioneering example of this idea. This programme helps qualified Malaysians become “competitive digital freelancers, winning international jobs and project contracts on freelance platforms and earning sustainable income.” Launched in mid-2020, its digital platform and intensive training programme connects local workers with global assignments in the areas of website design, IT and software; writing and content; design, media, architecture; sales, marketing and social media; and data entry, administration and social assistantship. In tandem, the Malaysian Government’s Digital Talent Development Strategy continues to build the digital skillsets of local citizens, since workforce quality is the principal attraction for FDI in this sector.

Since ‘virtual SEZ’ workers deliver services digitally, they need not work from specified geographic locations, as in physical SEZs, but even from the comfort of their homes.

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21 For more information on the GLOW Penjana, please see [https://erezeki.my/glow](https://erezeki.my/glow).
However, their participation in a government-intermediated and government-supported programme is the digital equivalent of physically locating them in the geographically delimited area of an SEZ. More importantly, as in physical SEZ, their ‘export’ of digital services creates foreign exchange earnings.

7. Digital tools for investment promotion and facilitation

The digital economy has created powerful new tools that can be harnessed innovatively to promote and facilitate investments across sectors. All IPAs use at least one of these to identify, engage and support foreign direct investors. In fact, the digital economy will increasingly require the use of such tools since its investors will judge the suitability of an investment location from the level of digital connectedness and competence of their first point of contact: its IPA.

IPAs are using three types of digital economy applications to promote and facilitate investments, each briefly discussed below.

(a) **Websites** - Websites were IPA’s first digital tool, with developed country pioneers setting up their portals about twenty years ago. Typically, these early websites presented static narratives about the key features of the host location, accompanied by maps, local economic and demographic data, and, sometimes, photos. They also listed and described the IPA’s services, relevant FDI and sector regulation, and star foreign direct investors and their projects.

Today’s best practice websites are far from static. They employ a variety of interactive content, often in multimedia format. Common elements include welcome videos from host country officials and testimonials from satisfied investors. Some have investors sharing their local success stories and observations. Websites now, increasingly, serve as matchmaking platforms, presenting listings of local businesses in a particular sector or location. They variously contain interactive maps, economic data reports and newsletters, podcasts, photo galleries and blogs.
As the previous sub-section highlighted, more advanced websites now also enable virtual tours of cities and potential project sites.

(b) **Social Media** - Additionally, IPAs now employ social media for various purposes. A total number of 91 IPAs responding to a World Bank- WAIPA survey said that they rely heavily on LinkedIn to identify investors, gather investor intelligence, engage with investment promotion consultants, and identify and recruit staff (table 9). They also principally use LinkedIn to obtain meetings, though in this case Twitter, Facebook, WhatsApp and blogs also play a role. These IPAs mostly use Facebook to advertise their host location and service offerings, though LinkedIn, YouTube and Twitter also play a role here. They use a mix of social media to research and engage with other IPAs and competing investment locations.

<table>
<thead>
<tr>
<th>Table 9: IPAs’ use of social media</th>
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<tbody>
<tr>
<td>LinkedIn</td>
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<td>-----------------</td>
</tr>
<tr>
<td>Identifying investors</td>
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<tr>
<td>Gathering investor intelligence</td>
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<tr>
<td>Engaging/following investment promotion consultants</td>
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<tr>
<td>Getting meetings</td>
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<tr>
<td>Advertising or sharing investment opportunities with investors</td>
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<tr>
<td>Enhancing the image of the IPA’s location</td>
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<tr>
<td>Informing the general public about the value of the IPA’s activities</td>
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<tr>
<td>Engaging/following other IPAs</td>
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<tr>
<td>Tracking what competing locations and IPAs are doing</td>
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<tr>
<td>Identifying and recruiting staff</td>
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</tbody>
</table>

*Source: Sanchiz, Alex and Ahmed Omic (2020) State of Investment Promotion Agencies.*
Eighty-three per cent of these responding IPAs employ the equivalent of two full-time employees to run their social media programmes, though some employ six. Nearly a half of these IPAs spend some US$10,000 a year on their social media programmes; over a quarter spend over US$100,000.

Across the world, IPAs are now investing in social media campaigns to internationally advertise their host locations and direct potential investors to their website. They are employing and adapting the digital marketing techniques innovated by corporates to segment and reach a mass market of consumers. Best practice digital IPA campaigns now typically comprise catchy tag lines and visuals that capture the main draws of their country or city. Each campaign is integrated across the IPAs various social media accounts, including Twitter, Facebook, Instagram, Snapchat, We Chat and, in turn, strategically cross-promoted with a variety of other local organizations. Some have launched hashtag campaigns, advertising new projects or business successes in the city. Many have live SMS chat for queries, webinars, livestreams, podcasts, and videos. Other websites run a news feed for prospective investors and/or newsletters offering readers an in-depth view into the latest local business developments. InvestHK applies an integrated approach to their online marketing and communications activities, which includes advertising, social media, public relations activities, and publications across two main websites (one for its StartmeupHK initiative). They also coordinate social media channels and online and email marketing campaigns. Some IPAs, such as InvestHK, have even started their own mobile apps.

Video-conferencing and virtual meetings – IPAs have suddenly been forced to turn to video-conferencing and virtual meeting software to remotely pitch their countries to foreign audiences, showcase investment locations, and answer queries from interested parties. Eighty-nine per cent of IPAs surveyed by WAIPA and the World Bank had to postpone investment promotion events and 83 per cent had to cancel all overseas travel. In parallel, they need to keep digitally in touch with foreign firms already invested in their countries to handhold them through the COVID-19 pandemic, understanding

22 See, for example, Kingston Economic Development Corporation (Canada). Accessible from https://www.fdiintelligence.com/article/70510.
their lockdown difficulties and helping to find solutions, explaining government COVID-19 regulations and ensuring compliance.\textsuperscript{23}

Most importantly, many have successfully used virtual meetings to remotely negotiate, conclude and facilitate investment deals with digital economy investors. One successful example is Pegatron Corporation’s decision to invest in India after an entirely online interaction, all the way from the first point of contact with Invest India and months of detailed negotiations, to the final signing of the contract.

C. CONCLUSIONS

The digital economy – “the application of internet-based digital technologies to the production and trade of goods and services” (UNCTAD, 2017) – is now here to stay. The new technologies and modes of business it has created add immensely to speed, convenience, productivity, and transparency, boosting trade and GDP. This digital economy is fundamentally transforming the global economy and unleashing a Fourth Industrial Revolution that will disrupt the existing economic order. This disruption will both drive – and be driven – by shifts in global patterns of FDI as MNEs all over the world take to digital technology and modes of organization to compete. The digital economy is also driving sustainable development through more resource-efficient products, technological inclusivity, and new green technologies, speeding up global progress in meeting the goals of the 2030 Agenda for Sustainable Development.

While digital adoption is accelerating globally, digital innovation, digital value-creation and the use of advanced digital production technologies are concentrated in a handful of companies and countries. Their position is likely to grow more entrenched if competitor companies and countries do not make a greater effort to generate more of this value themselves. The related risk is that spreading digitalization and ‘asset lightness’ could cause marked reshoring and retrenchment in global FDI flows.

\textsuperscript{23} This was supplemented with communication via websites, newsletters, and social media to update investors daily on developments related to the virus and government responses.
Nonetheless, countries can strategically harness FDI to build and expand their digital economies. This effort must be strongly directed by a lead agency, and carefully targeted, structured, and monitored. A strategic national digital development plan is of the essence. It must enunciate clear, time-bound targets and accompanying, monitorable action steps. It must also detail investment needs and a concomitant blueprint for investment promotion. In other words, governments and IPAs must partner closely to identify specific financing needs for digital infrastructure, digital business development and wider digital adoption, and develop an FDI strategy to help meet these requirements. This said, countries would be misguided to look to foreign direct investors to single-handedly develop their digital economies. They will first need to lay the groundwork to make their digital economies potentially interesting to investors and high-end professionals, such as high-quality digital connectivity, a digitally skilled talent pool, a healthy and attractive living and working environment, a rational and well-functioning framework of rules and regulations, and support for innovation and R&D.

Digital economy policies and regulations will also need to specifically address the differentiated needs of this sector’s three functional verticals (digital infrastructure, digital business and digital adoption) and its three major categories of foreign direct investor (ICT MNEs, digital MNEs and digitalizing non-digital MNEs) to be effective. Preliminary results from a WEF survey show that digital infrastructure MNEs’ investment location decisions are mostly influenced by the ease of licence issuance, the availability of skilled engineers and labour, international technical standards, and regional cooperation. Digital MNEs are mostly influenced by data security, data privacy and copyright protection. Digital adoption by the broader economy is most impacted by the availability of e-payment systems, and support for digital start-ups and digital skills development.

At the same time, digital FDI policy should actively promote and reward sustainable FDI, that is, FDI which is responsible for people, planet, and prosperity. In this context, governments can refer to two overlapping sets of FDI sustainability indicators developed specifically to guide them. Key indicators are active linkages with domestic firms, skills building, and technology transfer. So, sector policy should strongly encourage digital economy MNEs (including digitalizing firms) to incorporate local MSMEs into their value chains. Digital technologies can also be usefully employed to
support MSMEs to also hook into other value chains, in the same way that some forward IPAs have begun to do.

Far more complex will be to craft policies and rules that minimize the risk of host country technological ‘exposure’ to digital economy firms, while relying on them to develop digital connectivity, digital business, and a variety of digital services. As problematic will be to nurture and fortify local digital business while, simultaneously, encouraging greater participating by digital economy MNEs. At a technological level, governments will have to guarantee online privacy and security, and prevent cybercrime, fake news, and improper interference in elections. Without these protections, consumers and businesses could suffer badly from digitalization and stay away, losing out on its potential benefits. At a commercial level, governments will need to curb monopoly and unfair trade practices and prevent digital firms from unscrupulously exploiting the reams of personal data to which they will gain access. They will also need devise the correct formulae by which to tax foreign digital economy firms, which often reap huge profits from host economies with no directly taxable physical presence within them. However, there will be little policy precedence to look to, given the novelty of issues thrown up by the digital economy, and the rapid evolution of firms within it. Governments will have to invent the wheel even as they steer the cart forward.

In attracting FDI into the digital economy, investor outreach will need to address the specific investment drivers of digital economy firms. In the case of digital firms, whose investment drivers tend to differ markedly from those seen in all other MNEs, messaging should highlight the availability of digital talent, global connectivity, tech-savvy local partners, knowledge networks and innovation systems, and an attractive urban environment. This is why in advanced digital economies IPA strategies now focus on mapping and showcasing local talent, arranging targeted in-person or virtual meetings, creating technology hubs and innovation clusters, and profiling individual cities. An investment promotion strategy unique to the digital economy is to energetically go after foreign tech and digital start-ups, since these can be the big global firms of tomorrow.
Investment promotion agencies now actively use digital technologies in investment promotion, a trend that has intensified sharply due to the COVID-19 pandemic. Their websites are becoming progressively richer and more sophisticated, now even going as far as showcasing investment locations using virtual reality and drone photography. Many have begun to rely completely on virtual meetings, even going so far as initiating, negotiating, and concluding business deals entirely online.

Virtual meetings have brought a reach unimaginable even a year ago. IPAs can now reach an audience of thousands at a time, with simultaneous translation into a variety of languages. The possibilities this presents for investor outreach and location showcasing are quite incredible and will completely transform the manner in which investment promotion is conducted henceforth. Countries that do not adopt and improve these methods are likely to remain ‘invisible’ and could thus be bypassed by foreign direct investors. The travel dislocations wrought by the COVID-19 pandemic will compel IPAs to employ progressively more sophisticated digital means to target and engage investors, rather than just enthusiastically showing them around when they come. Already, such proactive outreach strategies are visible vis-a-vis digital economy investors, including the virtual showcasing of local entrepreneurs, the offerings being made to start-ups and skilled professionals, and strategic city-to-city partnerships.

Another frontier will be the use of Big Data analytics to predict investor behaviour and investment decisions. IPAs that most intensively and innovatively harness digital technology are those most likely to draw the largest flow of FDI for their countries. To put it simply, to better compete for digital economy FDI, IPAs will need to go increasingly digital themselves.
REFERENCES


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