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Dutch niches for Global Gateway in the digital domain
An initial enquiry

This Policy Brief explores the status of Global Gateway's digital projects and initiatives, and identifies four digital strengths through which the Netherlands can contribute to this EU initiative. The Netherlands boasts remarkable economic strength and a strong track record in developing innovative solutions in AgriTech, FinTech, Cybersecurity and Data Centres. Enhanced engagement with emerging economies in these four fields will serve not only partner countries' development, but will also contribute to the competitiveness of European companies and the spread of liberal norms such as openness, transparency and privacy in the digital domain. As such, Dutch contributions to the digital Global Gateway will contribute to concrete and useful solutions for partner countries that harness digitalisation for sustainable and secure economic development. Second, they will unlock new markets for Dutch companies operating in these sectors. Finally, they will strengthen the EU's value proposition to third countries, complementing the current Global Gateway focus on hard infrastructure.

Introduction

As a digital frontrunner, the Netherlands boasts strengths through which it can assist developing countries that wish to reap the benefits of the digital transition. Doing so will also contribute to the EU's Global Gateway (GG) agenda in the digital domain. Achieving this potential requires (1) greater understanding of Dutch digital strengths among a larger group of policymakers; and (2) proper insight into the needs of partner countries. This Policy Brief, the first in a miniseries of three, seeks to contribute by offering a short overview of the scope of Global Gateway's digital projects and initiatives, and by detailing Dutch digital strengths in relation to

ongoing GG efforts.[1] Knowing the digital fields and sectors in which the Netherlands excels is a first step towards enhanced engagement with partner countries in this domain that is revolutionising industries and reshaping societies.

Launched in December 2021, Global Gateway is the EU's programme to assist partner countries with their green and digital twin transitions by

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1   Following this analysis of Dutch strengths in the digital domain, a second Policy Brief assesses the needs of three countries: Egypt, Kenya and Vietnam. Finally, a third Policy Brief brings the first two together in a 'matchmaking analysis' of Dutch strengths and local needs.

mobilising up to €300 billion in infrastructure development projects between 2021 and 2027.[2] The programme includes 'up to €135 billion worth of investments made possible by the EU and €145 billion of planned investment volumes by European financial and development finance institutions, complemented by grant financing'.[3] The digital domain is one of five focus areas, alongside climate and energy; transport; health; and education and research.

Looking for digital strengths through which the Netherlands can contribute to GG, four sectors stand out: agricultural technologies (AgriTech); financial technologies (FinTech); cybersecurity; and data centres. The eyes and ears of Dutch embassy staff, country officers and development banks must be especially geared to identifying the needs of partner countries in these fields. With new instruments that steer the relevant Dutch players towards these countries, the Netherlands can extend and complement the EU's Global Gateway focus on hard infrastructure by contributing to the growth of specific sectors.

Global Gateway: the state-of-play on digital

As of June 2023, the European Commission is implementing at least 87 Global Gateway flagship projects. This number is likely to grow, as political agreement and support for the EU initiative is growing in EU member states. For example, during a visit to the Democratic Republic of Congo in March 2023, French President Emmanuel Macron, together with the European Commissioners for Internal Market and for International Partnerships, Thierry Breton and Jutta Urpilainen, announced a set of GG projects investing in geological mapping, urban infrastructure and digital education projects. Another important step was made with the launch of the Global Gateway Business Advisory Group in September 2023.

Looking at the distribution by sector, as visualised in the figures below, the large majority of projects are in the climate and energy domains. Only seven are labelled as Digital – or 8 per cent of total projects.[4] It is unclear whether and how digital elements feature in other sectors, but they are likely to be present to a certain extent, considering the fact that digitalisation is a cross-cutting topic.

Global Gateway's digital projects focus primarily on basic infrastructure development. Partner countries have called for such support for the expansion and improvement of broadband access to develop their digital economies.[5] As detailed in Table 1 below, all of the projects aim at setting or increasing connectivity. This is a common feature across GG flagship projects, as about 80 per cent across the five areas focus on expanding physical infrastructure. Ports, power generation and transmission facilities are examples of such projects. This focus on physical infrastructure is responding to the estimated US$15 trillion of global infrastructure gap – that is, between projected investment and the amount needed to provide adequate global infrastructure – by 2040.[6]

Geographically, GG projects target three regions: (1) Latin America and the Caribbean; (2) Africa; and (3) Asia and the Pacific. Almost half of the GG flagship projects are in Africa, as shown in Figure 2. In addition to country-specific projects, there are also regional projects.[7]
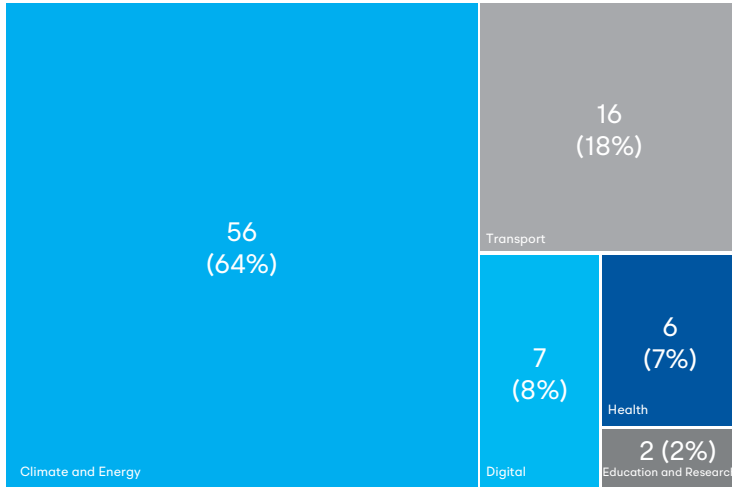
2   European Commission, *Global Gateway*.

3   European Commission, *Global Gateway funding*.

4   Authors' analysis based on public information made available by the European Commission. See European Commission, *Global Gateway*.

5   Dekker, B., Nachiappan, K. and Okano-Heijmans, M., *Fostering digital connectivity in and with the Indo-Pacific*, April 2021.

6   World Economic Forum, *The world is facing a $15 trillion infrastructure gap by 2040. Here's how to bridge it*, 11 April 2019.

7   Examples of regional projects in the digital realm are: the 'Africa Europe Digital Innovation Bridge' (Africa); the 'Medusa Optical Fibre Cable' project (Neighbourhood); the 'Digital for Development (D4D) Hub for Latin America and the Caribbean' (Latin America and the Caribbean); and the ASEAN Team Europe initiative on Sustainable Connectivity (South-East Asia). See European Commission, *Global Gateway projects by region/country*, June 2023.

Figure 1   Global Gateway flagship projects by sector

Source: authors' compilation based on public information by the European Commission.

Figure 2   Geographical distribution of the 87 Global Gateway flagship projects
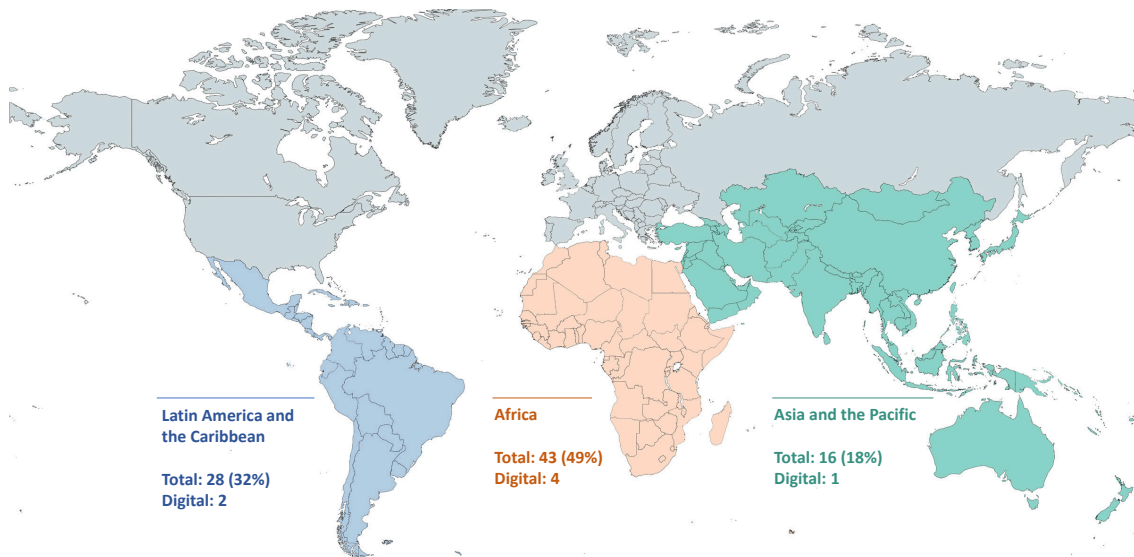
Source: authors' compilation based on public information by the European Commission.

Table 1   Digital Global Gateway projects

Region	Country	Description
Africa	Mauritania	Construction of data centre in Nouakchott and submarine cable
Africa	Kenya	Construction of optic fibre infrastructure and last mile connections
Africa	Egypt	Construction of a high-voltage undersea electrical interconnection between Egypt and Greece*
Africa	Tunisia	Construction of a first undersea high-voltage electricity cable interconnection (ELMED) between Italy and Tunisia*
Latin America and the Caribbean	Uruguay	Deployment of 5G connection to foster digital transformation
Latin America and the Caribbean	Brazil	Deployment of 5G infrastructure to foster digital transformation
Asia–Pacific	Philippines	Scale up of service provision from the Copernicus mirror site to provide high-speed internet capacity

* Note that the digital component of this project is not fully evident.

Source: authors' compilation based on public information by the European Commission.

Zooming in on the seven digital projects, Table 1 shows the focus on infrastructure construction and development.

Building on the European Commission's efforts, individual EU member states – with relatively smaller budgets – can contribute to the digital Global Gateway by assisting partner countries to make the most of digital infrastructure in key domains that contribute to safe and secure economic development. The following section considers the Netherlands as a case study in this regard, seeking to contribute to the Dutch ambition of investing more in the combination of foreign trade and development cooperation, particularly on sustainability and digitalisation.[8] Following a brief introduction to digitalisation in the Netherlands itself, it considers specific sectors and new approaches that can elevate Dutch digital outreach.

Digital Netherlands

The Netherlands stands out as a digital frontrunner in the EU. As Figure 3 shows, the Netherlands comes in third of the 27 EU member states in the 2022 edition of the Digital Economy and Society Index (DESI).[9] It ranks second in digital human capital and connectivity, and fourth in integration of digital technology and digital public services. More than 90 per cent of the country is covered by very high capacity networks and more than 95 per cent of populated areas have 5G coverage. This creates ideal conditions for the development of the digital economy, digitalisation of public services and innovation.

Domestically, the Netherlands has steered digitalisation efforts to specific industry sectors. The 2021 Dutch Digitalisation Strategy (DDS) highlights the importance of further digitalising Agriculture, Healthcare, Education, Research, Industry, Small and Medium Sized Enterprises (SMEs), Energy, Government and Mobility.[10]

8   Government of the Netherlands, *Policy document for foreign trade and development cooperation: do what we do best*, 10 October 2022.

9   European Commission, *Digital Economy and Society Index (DESI) 2022*, 28 July 2022.
10   Government of the Netherlands, *The Dutch Digitalisation Strategy 2021*, 22 June 2021.

Figure 3   DESI 2022 results
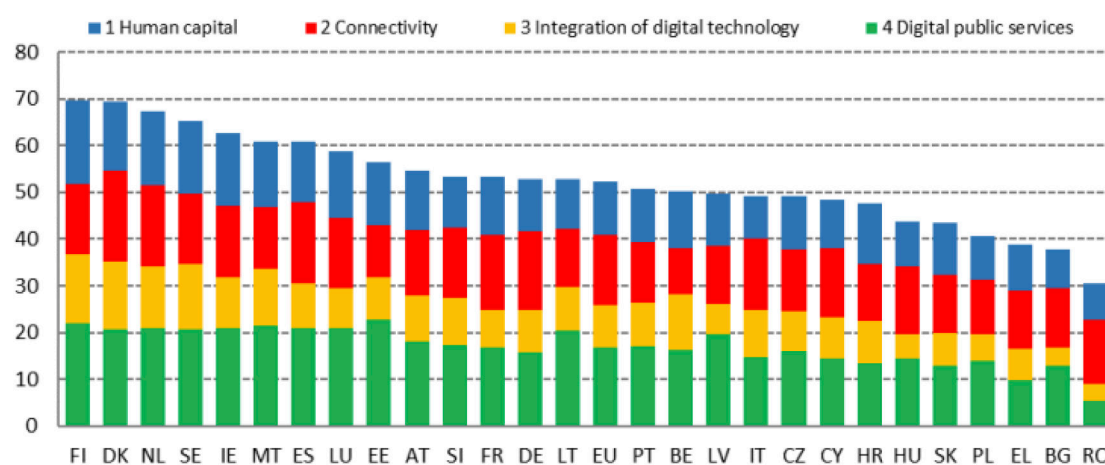
Source: European Commission.

It also emphasises the importance of using data to increase the efficiency and sustainability of these sectors and states how artificial intelligence (AI) is crucial to foster innovation.

Strikingly, however, a proper understanding of Dutch digital strengths is still lacking. Even professionals and experts working in a particular sub-field have an incomplete perspective of the overall digital domain. This is problematic, as a clear proposition – including attractive packages – for partner countries abroad requires that the industry and business landscapes are well known by officials, experts and investors.

Interviews conducted for this project reveal insufficient knowledge regarding the Netherlands' profile as a potential partner or investment destination for digital and tech activities. Proper insight – and even a concise overview – is lacking for the sectors wherein Dutch companies, industry associations or non-governmental organisations (NGOs) stand out, and for how they compare to their counterparts abroad. This lack of overview is no Dutch sin, as the same can be said of the European level. EU member states should take the lead in addressing this flaw, and develop a proper understanding of their digital strengths that can also be promoted abroad.

Zooming in: current practice

The exact number of digital projects being implemented abroad with the support of the Dutch Ministry of Foreign Affairs is difficult to measure, as clear markers for such projects do not yet exist. That said, an internal overview in 2022 counted a total of 69 digital projects.[11] Almost half of these – 33 – focus on social aspects of the digital domain, such as digital rights, civil society and security. Other categories include digital governance (six projects), digital infrastructure (six projects), digital literacy and skills (six projects), and digital entrepreneurship (16 projects). Relatively few projects assist with the development of key sectors of the digital economy or other basic digital necessities, like infrastructural development, although these are key needs of developing countries.

Many Dutch international cooperation projects in the digital domain are governed by the Dutch Enterprise Agency (RVO) and implemented by NGOs.[12] International organisations like the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organisation (WTO) are the lead implementers

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11   This analysis is based on a mapping exercise by the Dutch Ministry of Foreign Affairs, which was confidentially shared with the authors.

12   This includes Hivos, Plan International and Cordaid.

of a handful of projects, while the Dutch Development Bank FMO is the lead on just one. Although the (financial) size of these projects is unknown, the fact that (investment and development) banks are hardly involved suggests that most projects are of relatively small scale.

Finally, looking at geographical spread, the vast majority of these projects focus on less-developed countries in Africa and in the Middle East and Northern Africa (MENA) region. This aligns with the traditional group of Dutch development cooperation partner countries. A few projects are global in scope and several involve countries in Asia and two in Latin America.

Summing up, government-supported digitalisation efforts comply with the traditional picture of Dutch development cooperation: focused on Africa and on social needs, and of relatively small scale. The more recent trend in Dutch international cooperation to combine trade, investment and aid appears not yet to have taken hold in the new domain of digitalisation.[13] Set against this background, the next section looks into potential areas for Dutch action in this field.

The next frontiers: building digital economies of scale

To achieve impact, a shift beyond the traditional Dutch focus on social needs and small-scale entrepreneurship projects towards larger-scale projects with broader economic impact is desirable. This requires a good understanding of the Dutch strengths that may contribute to digitalisation of the economy in partner countries, responding to their needs. Having a clear overview of sectors wherein Dutch digital players excel is an essential first move towards putting together a catalogue of offers that the Netherlands can present to its partners. The following sub-sections constitute a first

step towards such a mapping of Dutch digital strengths.

Our analysis steers us to highlight two thematic sectors: agriculture technology (AgriTech) and financial technology (FinTech); and two industries with a horizontal scope: cybersecurity; and data centres.[14] The Netherlands has a strong track record in these four sectors, which play an increasingly important role in the global economy and have the potential to contribute to the twin green and digital transitions that are a priority of the EU and many other countries alike. Further research into Dutch digital strengths, including in educational technology (EdTech) and health technology (HealthTech), which are two GG pillars, and photonics, can further extend the scope of potential collaboration with partner countries.

AgriTech

Despite its small area, the Netherlands is the second largest exporter of agricultural products in the world, after the US,[15] and home to some of most promising technologies in AgriTech. In a market characterised by very small profit margins, digitalisation offers valuable tools for innovation. Also, digitalisation can help address the intensifying consumer demand for sustainable and safe food supply chains, and assist producers in adhering to stricter requirements and environmental concerns.

Food has been one of four priorities in Dutch development cooperation.[16] This focus now needs to be tailored to the digital age. Over recent years, the Dutch focus in AgriTech outreach has been on seven partner countries: China; Russia; Indonesia; Brazil; Mexico; Nigeria; and South Africa. Although the aim is to extend cooperation to other countries in Asia, Africa and South

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14   This selection of strengths was based on interviews with experts, and on the perceived importance they have for national and global economies. The following two Policy Briefs in this series will show the relevance of these sectors to three selected partner countries.

15   Government of the Netherlands, *Agriculture and horticulture*.

16   Government of the Netherlands, *Food security, sustainable agriculture and water management*.

13   Government of the Netherlands, *Policy document for foreign trade and development cooperation: do what we do best*, October 2022.

Figure 4   Dutch digital strengths that can be leveraged to contribute to Global Gateway
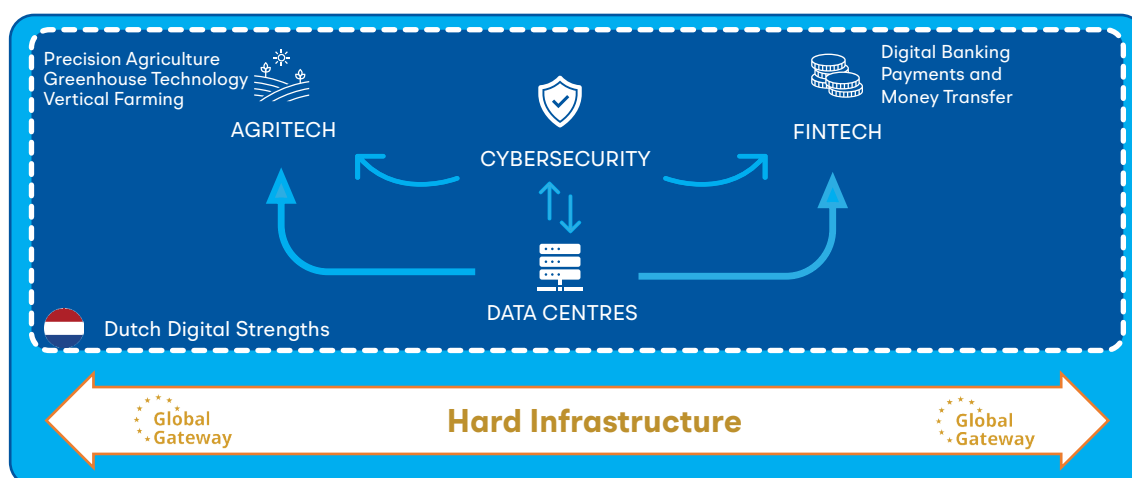
Source: authors' compilation.

America,[17] concrete initiatives to act with a wider group of emerging economies still seem to be lacking. The 2022 policy drive to combine foreign trade and development cooperation to foster digitalisation is set to change this in the longer term.[18]

AgriTech can be used to support farmers in both their daily agriculture operations and in the commercial side of their activities, by improving understanding of customer needs, as well as market standards and pricing. Three sub-sectors have great potential to maximise agricultural management abroad, building on the Dutch experience at home: precision agriculture; greenhouse technology; and vertical farming.

Precision agriculture (or smart farming) uses technologies such as satellite imagery, global positioning systems (GPS), sensors and drones to collect data exhaustively, which enables data-driven crop management. Big data and AI-boosted analysis allow farmers to control soil, weather and crop conditions, thus optimising agricultural output. Furthermore, precision

agriculture reduces the scale of intervention from fields to square metres.[19]

Greenhouse technology enables efficient production in a controlled environment, which in turn offers the best conditions to utilise automation. It also reduces the negative impact of climate and weather conditions. Dutch greenhouse technology can be used in the production of fruits, vegetables, flowers and other crops, and is designed to maximise yields while minimising inputs.[20] Greenhouse cooling, glass, heating, lighting and crop tracking, for instance, benefit immensely from greenhouse technology.

Vertical farming relies on using vertical space to build multi-layered benches, thus multiplying production capacity in a certain area. It can be implemented not only in greenhouses and similar facilities, but also in buildings that would otherwise be empty. Although these solutions are still relatively energy-intensive, the industry is working to address that challenge. PlantLab, a Dutch company that builds and manages

17   Top Sector Agri & Food, *Working area international: new and promising external markets*.

18   Government of the Netherlands, *Policy document for foreign trade and development cooperation: do what we do best*, October 2022.

19   Wageningen University & Research, *Precision agriculture - Smart Farming*.

20   Inputs include, among others, water, seeds, energy and fertilisers.

indoor vertical farms, has one of the world's largest R&D centres in this sub-sector.[21]

The Dutch business organisation for the technology industry, FME, has a chapter dedicated to Agri & Food, which is one of the *top sectors* identified by the Dutch government.[22] A 2022 FME report showcases Dutch initiatives and innovations in AgriTech, and features an extensive set of company profiles.[23]

The Netherlands also hosts several global leaders and active communities in AgriTech. Wageningen University & Research (WUR) is one of the most well-known agriculture research centres worldwide, continuously testing for new solutions. Its 'Farm of the Future' initiative, for example, develops and tests sustainable agriculture concepts in close cooperation with Dutch farmers. It also aims to do so jointly with international partners, in both developed and developing countries, including businesses and other research institutes.

FinTech

As one of the main FinTech hubs in Europe, the Netherlands consistently ranks among the industry's frontrunners on the continent and worldwide.[24] Among the most significant FinTech sub-sectors are digital banking, and payments and money transfer.

Digital banking pertains to the digitalisation of services that were conventionally accessible solely through physical visits to a bank branch. Traditional banking institutions are migrating to digital banking, pushed by emerging digital-native FinTech companies. Most banking services and products, from opening a bank account online to making loan applications, requesting credit services and managing personal finances are now possible online. Websites,

online platforms and mobile apps provide the new channels for clients to manage their bank accounts quickly and conveniently.

FinTech companies operating in payments and money transfer businesses facilitate individuals' and businesses' ability to make financial transactions securely and quickly. These include mobile payments, online payments, cross-border money transfers and peer-to-peer payments.

There is a panoply of other specific functions and needs fulfilled by the growing Dutch FinTech landscape. Examples include multi-banking platforms, solutions tailored for self-employed citizens and for helping start-ups to find early-stage financing, and for specific sectors, including Health – one of GG's pillars.

Holland FinTech is the principal Dutch FinTech network, connecting some of the main players in the sector. Dutch success in FinTech is evidenced by iDeal, the system co-created by Dutch banks to standardise payments in the country that was acquired in 2023 by the European Payments Initiative (EPI);[25] and by Adyen, the globally renowned Dutch payments company that competes with enterprises like PayPal. Together with many other (private-sector) players in the Dutch FinTech landscape, Dutch FinTech companies should be encouraged to invest in emerging countries, to help grow these economies using secure solutions that reach all elements of society. The Indo-Pacific region, as well as some African emerging economies, where cross-border payments (especially remittances) are key elements of economic growth, are particularly appealing.[26]

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21 Plantlab.

22 Top Sector Agri & Food, *Top Sector Agri & Food: societal challenges and economic opportunities*.

23 Top Sector Agri & Food and FME, *Smart farming: a special about Dutch initiatives & innovations*, 2020.

24 McKinsey & Company, *Europe's fintech opportunity*, 26 October 2022.

25 The EPI aims to implement a similar system at the European level. See EPI, *EPI Company announces acquisitions, additional shareholders and the coming launch of its new instant payment solution*, 25 April 2023.

26 World Bank Blogs, *Remittances in East Asia and Pacific*, 1 August 2023; and CNBC, *Southeast Asia moves closer to economic unity with new regional payments system*, 30 July 2023.

Cybersecurity

As new technologies and applications emerge, more devices are connected to the internet and new points of vulnerability emerge. The hardware and software of governments, companies and citizens are now susceptible to more cyber threats than ever. Cybersecurity aims to create shields against these threats and involves two key components: implementing technologies to protect the network elements; and the education and awareness of end-users.

The Netherlands is a leading cybersecurity hub in Europe. Its central information hub and centre of expertise for cybersecurity is the National Cyber Security Centre (NCSC).[27] International security agencies, such as Europol and NATO, with growing teams working on cybersecurity, have established operations in the Netherlands. Fox-IT is one of the most reputable Dutch companies and works with, among others, the Dutch Ministry of Defence on cryptography products and services.[28] Other companies, such as EclecticIQ on threat intelligence technology and ON2IT on managed cybersecurity services (and a close partner of Palo Alto Networks), also show Dutch ability in the field. The Netherlands is also home to Europe's largest security cluster, Security Delta (HSD, as it was formerly known as Hague Security Delta).[29] HSD is a national network of more than 275 public and private organisations working together to accelerate cybersecurity solutions.

In recent years, the Dutch government has invested in leveraging its strength in cybersecurity in its foreign policy. Regular cybersecurity dialogues are held with developed countries, such as the US and the UK, and with emerging economies like Indonesia and India. All countries, especially those with a growing footprint in the cyberspace and digital economies, need to secure and strengthen their networks, or will suffer from malevolent actors, either internal or external, state or non-state. In

that capacity, the Netherlands is in pole position to export its best practices abroad, focusing specifically on countries where EU Global Gateway digital infrastructure development operates.

Data Centres

A data centre is a centralised location used to house and manage critical hardware, digital information and provide services for organisations and businesses. Data centres are a backbone of the information era, as they are key enablers of cloud services. The amount of data that is managed and dealt with in growing digital economies will only increase in the foreseeable future, and so does the need to build new digital infrastructure, including data centres, to accommodate this data.

The Netherlands' strategic geographic position, excellent connectivity and business-friendly environment make the country an important player in this strategic sector. Its cool climate and emphasis on renewable energy are a plus, because data centres are high energy consumers. All big cloud service players have data centres in the Netherlands: Microsoft Azure, Amazon Web Services (AWS), Google Cloud Platform (GCP) and IBM Cloud. Data centre providers such as Equinix (and Interxion, which was originally Dutch before being acquired by Equinix in 2020) also have a strong presence in the country. Notably, all these companies are American.

In Europe, this reliance on the US has raised concerns about the lack of digital (cloud) sovereignty. Developing European offers and sharing the lessons learned will help partner countries to consider how to invest in their own digital sovereignty. Besides, sharing best practices and offering solutions on energy-use optimisation will be indispensable too. A Dutch company worth mentioning is PAIX Data Centres.[30] Founded in 2016 with support from

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27   Nationaal Cyber Security Centrum.
28   Fox-IT, *Who we are*.
29   Security Delta (HSD).

30   PAIX, *About PAIX*.

the Dutch Good Growth Fund (DGGF),[31] PAIX is growing while building data centre services in the African continent. The company is one of 60 members (and one of just two Dutch companies) in the Global Gateway Business Advisory Group.[32]

The Dutch Data Centres Association (DDA) is the Netherlands' trade association for the sector. Among its main lines of action are Energy & Sustainability, Education & Employment and Digital Economy & Mainport. These are also of importance in Global Gateway partner countries in Africa, the Indo-Pacific and Latin America. Vast opportunities exist for investment in data centres and the accompanying capacity-building in these target regions.

Furthermore, the Netherlands is investing in becoming the Digital Gateway to Europe – that is, a data hub that attracts all the main global providers of data centres, cloud, internet exchanges and backbone connectivity.[33] The Digital Gateway to Europe programme is supported by the Netherlands' strong connectivity and technological ecosystem, as well as its focus on cybersecurity, as discussed earlier.

The Netherlands' strength in data centres and its role as a data hub make the country a unique centre for knowledge in this realm. As such, the Netherlands has the potential to lead digital capacity-building missions in GG countries.

Concluding remarks

Complementing the EU's Global Gateway focus on large-scale, digital infrastructure projects, the Netherlands can play an invaluable role in building data centres that are needed to accompany the networks, as well as in putting such infrastructure to use in specific sectors. Cybersecurity is a fundamental layer that must

accompany investments in infrastructure: digital societies can only thrive when technology adoption is secure and trusted by the people. The Netherlands can also contribute to the GG in this sphere.

The full potential of the digital economy can only be achieved with specific applications that serve the wider population. The two main examples presented in this Policy Brief, where Dutch expertise is unique, are AgriTech and FinTech. AgriTech is fundamental to optimise resource usage and agricultural output in emerging economies. FinTech proves very efficient in facilitating and growing the digital economy.

Further research into these Dutch digital strengths can contribute to improved Dutch and EU action towards the Digital Global Gateway agenda. Other areas, such as EdTech, HealthTech (both being GG pillars) and photonics, are also strengths that the Netherlands can – and should – leverage. EU-wide coordination and cooperation in projects and investments will be facilitated if other EU member states make similar knowledge available.

Enhanced digital Global Gateway action in partner countries starts at home. Knowledge and awareness of Dutch digital strengths is needed. Towards this end, the Dutch government should create and regularly update a publicly available database with this information, for the benefit of officials and private actors. This task can be assigned to a multidisciplinary body, led by the Ministry of Economic Affairs and supported by relevant ministries and experts from the Dutch technology community: academic institutions, business organisations and thematic coalitions (such as FME and the AI Coalition). The sectors highlighted in this Policy Brief and in the 2021 Dutch Digitalisation Strategy provide a solid starting point for this knowledge base.

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31 Invest International, *PAIX data centres raise Africa's digital economy to a higher level*.

32 European Commission, *Global Gateway: Commission announces Business Advisory Group*, 18 September 2023.

33 See Digital Gateway to Europe, *About*.

About the Digital Global Gateway Policy Brief Series

This Policy Brief is one of a series of three that, taken together, offer actionable steps for the Dutch government – and, similarly, other EU member states – to contribute to the EU's Digital Global Gateway. The series includes the following pieces:

- *Dutch niches for Global Gateway in the digital domain: an initial enquiry*, by Alexandre Gomes and Maaike Okano-Heijmans
- *Digital Global Gateway: How can we help? Improving Europe's understanding of local needs in partner countries*, by Alexandre Gomes, Daniel Kono and Maaike Okano-Heijmans (forthcoming October 2023)
- *Digital Global Gateway Matchmaking: A Dutch Case Study to Bolster European Action*, Alexandre Gomes and Maaike Okano-Heijmans (forthcoming November 2023)

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