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# WORKING PAPER

**The Digital Trade Integration database:  
Description of pillars and indicators**

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### **The Digital Trade Integration project**

The Digital Trade Integration (DTI) database is an open-access repository of regulatory policies in 100 countries pertaining to the digital economy. By providing comprehensive and comparable information on regulatory policies, the database boosts the transparency of digital trade governance, permitting analysis of differences in policies across countries, their effectiveness in supporting international trade and investment in digital intensive products, and identification of good practices.

The project intends to complement existing initiatives mapping regulatory measures while providing a specific focus on policy measures directly relevant to digital trade integration with coverage of all components of digital trade: ICT goods, intermediate goods, and inputs; online services; foreign investment in sectors relevant to digital trade; and data. For the first release of the repository in October 2022, the database contains only entries that are expected to limit digital trade integration. By the end of 2022, these policies will be complemented by measures that are expected to facilitate digital trade integration.



## Abstract

This paper serves as a supplement to the Digital Trade Integration database. It details the structure of the database and its indicators, and it provides key definitions, the methodology for data collection and the main resources used for data collection.

## Keywords

digital trade; regulatory heterogeneity; integration; trade in services

## Introduction

This document provides an overview of the pillars and indicators covered in the Digital Trade Integration database for 100 countries listed in Annex I.<sup>1</sup> For the first release of the repository in October 2022, the database contains only entries that are expected to limit digital trade integration. By the end of 2022, these policies will be complemented by measures that are expected to facilitate digital trade integration. A more detailed user guide will be released later in 2022.

For the purpose of the analysis, the ICT goods are defined in a comprehensive way to include not only final ICT goods, but also all those intermediate goods and inputs which are crucial to manufacture ICT goods. Examples include smartphones, computers, network equipment, storage media, semiconductors, electrical parts, electronics, sensors, processors, rare earths and cables. As a reference list for the analysis, we have employed the “ITA 3.0” list proposed by Ezell and Dascoli (2021), which includes all goods listed in the WTO Information Technology Agreement (ITA) of 1996 and its 2015 expansion, plus additional goods suggested for a further expansion of the ITA commitments.

Regarding the coverage of investment and services policies, the database covers sectors considered relevant for the functioning of the digital economy. These include, but are not limited to, the telecom sector, internet services, online communication services, computer services, e-commerce, manufacturing of ICT goods, cloud computing, social media, platforms, online news, and generally services involving the provision of digital products. The latter can be defined as intangible goods that exist in digital form and that can be sold, delivered, and transferred online. Examples include digital media, such as e-books, downloadable music, internet radio, internet television and streaming media; fonts, logos, photos and graphics; digital subscriptions; online ads (as purchased by the advertiser); internet coupons; electronic tickets; electronically treated documentation in many different fields; downloadable software and mobile apps; virtual goods used within the virtual economies of online games and communities; workbooks; worksheets; planners; e-learning (online courses); webinars, video tutorials, blog posts.

When assessing policies affecting digital trade integration, the database mainly focuses on two aspects. First, the extent of regulatory restrictions to digital trade across borders. Second, the presence of a conducive policy environment to promote integration. The latter includes (i) domestic policies that enhance trust in digital trade (for example, data and consumer protection laws); and (ii) participation in international agreements that enhance cross-border interoperability (for example, signature of the WTO Reference Paper on Telecommunications and adoption of the UNCITRAL Model Law on Electronic Commerce and Electronic Signatures).

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1 The methodology of the DTI project is based on previous work by Ferracane, M.F., H. Lee-Makiyama and E. van del Mare (2018).

## **Summary table of pillars and indicators**

The table summarises the pillars and indicators listed in the digital trade integration database. The database aims to document measures that are expected to have an effect on digital trade integration. The third column of the table shows the expected sign of the impact of each respective policy on digital trade integration: “R” indicates measures that are expected to restrict digital trade integration, while “E” indicates measures that are expected to enable digital trade integration.

While for some of the indicators there is clear empirical evidence confirming the effect of some measures on digital trade, this is not the case for all policies. The DTI project aims to shed light on the impact of these measures by conducting empirical analysis.<sup>2</sup>

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<sup>2</sup> For the first release of the repository in October 2022, the database contains only entries that are expected to limit digital trade integration. By the end of 2022, these policies will be complemented by measures that are expected to facilitate digital trade integration.

**Table I: Summary table of pillars and indicators**

<b>Pillar</b>	<b>Indicator</b>	<b>E/R</b>
<b>1</b>	<b>Tariffs and trade defence measures applied on ICT goods</b>	
1.1	Effective tariff rate on ICT goods (applied weighted average)	R
1.2	Coverage rate of zero-tariffs on ICT goods (%)	R
1.3	Participation in the WTO Information Technology Agreement (ITA) and 2015 expansion (ITA II)	E
1.4	Antidumping, countervailing duties and safeguard measures on ICT goods	R
<b>2</b>	<b>Public procurement of ICT goods, products and online services</b>	
2.1	Exclusion from public procurement	R
2.2	Surrender of patents, source code or trade secrets to win public tenders /Restrictions on technology standards for public tenders	R
2.3	Other limitations on foreign participation in public procurement	R
2.4	Signatory of the WTO Agreement on Government Procurement (GPA) with coverage of the most relevant services sectors (CPC752, 754, 84)	E
<b>3</b>	<b>Foreign Direct Investment (FDI) in sectors relevant to digital trade</b>	
3.1	Maximum foreign equity share	R
3.2	Requirement to engage in joint ventures to invest or operate	R
3.3	Nationality/residency requirement for directors or managers	R
3.4	Screening of investment and acquisitions	R
3.5	Commercial presence requirement for digital services providers	R
<b>4</b>	<b>Intellectual Property Rights (IPRs)</b>	
4.1	Practical or legal restrictions related to the application process for patents	R
4.2	Practical or legal restrictions related to the enforcement of patents	R
4.3	Participation in the Patent Cooperation Treaty	E
4.4	Copyright law with clear exceptions	E
4.5	Enforcement of copyright online	E
4.6	Signature of the WIPO Copyright Treaty	E
4.7	Signature of the WIPO Performances and Phonogram Treaty	E
4.8	Mandatory disclosure of business trade secrets such as algorithms or source code	R
4.9	Effective protection covering trade secrets	E
<b>5</b>	<b>Telecom infrastructure and competition</b>	
5.1	Passive infrastructure sharing obligation	E
5.2	Maximum foreign equity share for investment in the telecommunication sector	R
5.3	Presence of shares owned by the government in telecom companies	R
5.4	Functional/accounting separation for operators with significant market power	E
5.5	Other restrictions to operate in the telecom market	R
5.6	Signature of the WTO Telecom Reference Paper	E
5.7	Presence of independent telecom authority	E
<b>6</b>	<b>Cross-border data policies</b>	
6.1	Ban to transfer and local processing requirement	R
6.2	Local storage requirement	R
6.3	Infrastructure requirement	R

	6.4	Conditional flow regime	R
	6.5	Participation in trade agreements committing to open cross-border data flows	E
<b>7</b>	<b>Domestic Data policies</b>		
	7.1	Framework for data protection	E
	7.2	Minimum period for data retention	R
	7.3	Requirement to perform an impact assessment (DPIA) or have a data protection officer (DPO)	R
	7.4	Requirement to allow the government to access personal data collected	R
<b>8</b>	<b>Intermediary liability</b>		
	8.1	Safe harbour for intermediaries for copyright infringement	E
	8.2	Safe harbour for intermediaries for any activity other than copyright infringement	E
	8.3	User identity requirement	R
	8.4	Monitoring requirement	R
<b>9</b>	<b>Content access</b>		
	9.1	Blocking or filtering of commercial web content	R
	9.2	Presence of Internet shutdowns	R
	9.3	Restrictions on online advertising	R
	9.4	Licensing schemes for digital services and applications	R
<b>10</b>	<b>Quantitative trade restrictions for ICT goods, products and online services</b>		
	10.1	Import ban applied on ICT goods, products and online services	R
	10.2	Other import restrictions, including non-transparent/discriminatory import procedures	R
	10.3	Local content requirements (LCRs) on ICT goods for the commercial market	R
	10.4	Export restrictions on ICT goods, products and online services	R
<b>11</b>	<b>Technical standards applied to ICT goods, products and online services</b>		
	11.1	Open and transparent standard-setting process	E
	11.2	Self-certification for product safety	E
	11.3	Product screening and additional testing requirements	R
	11.4	Restrictions on encryption standards	R
<b>12</b>	<b>Online sales and transactions</b>		
	12.1	Maximum foreign equity share for investment in e-commerce sector	R
	12.2	Limits on e-commerce purchases	R
	12.3	Licensing scheme for e-commerce providers	R
	12.4	Restrictions on online payments	R
	12.5	Threshold for 'De Minimis' rule	E
	12.6	Restrictions on domain names	R
	12.7	Local presence requirement for digital services providers	R
	12.8	Framework for consumer protection applicable to online commerce	E
	12.9	Ratification of the UN Convention of Electronic Communications	E
	12.10	Adoption of UNCITRAL Model Law on Electronic Commerce	E
	12.11	Adoption of UNCITRAL Model Law on Electronic Signature	E



## Summary description of the pillars and indicators

### ***Pillar 1: Tariffs and trade defence measures applied on ICT goods***

Pillar 1 covers tariffs and trade defence measures applied to imports of ICT goods. The selection of tariff lines that refer to ICT goods is based on the “ITA 3.0” list by Ezell and Dascoli (2021).<sup>3</sup> Pillar 1 contains four indicators.

Effective tariff rate on ICT goods (applied weighted average)

The indicator corresponds to the weighted average of the effectively applied tariffs (AHS)<sup>4</sup> applied by each reporting country to imports of ICT goods from the rest of the world. The tariffs are calculated based on the latest year for which tariffs’ data is available.

Coverage rate of zero-tariffs on ICT goods (%)

The indicator corresponds to the coverage rate of zero-tariffs applied by the reporting country to imports of ICT goods from the rest of the world. The entry is computed as the number of free tariff lines for ICT goods divided by the total number of tariff lines for ICT goods, multiplied by 100. The tariffs are calculated based on the latest year for which tariffs’ data is available.

Participation in the WTO Information Technology Agreement (ITA) and 2015 expansion (ITA II)

The indicator looks at whether the country is a signatory of the WTO’s Information Technology Agreement (ITA) of 1996 and its expansion in 2015, i.e. ITA I and ITA II, respectively. The ITA I requires participants to eliminate and bind customs duties to zero on a Most-favored nation (MFN) basis for a list of specified ICT goods,<sup>5</sup> whilst ITA II requires countries to agree on an expanded product coverage.

Antidumping, countervailing duties and safeguard measures on ICT goods

The indicator looks at whether the country has enacted trade defence measures (anti-dumping measures, countervailing duties and safeguard measures) on ICT goods. The database only lists measures that are in force in 2022.

### ***Pillar 2: Public procurement of ICT goods, products and online services***

Pillar 2 covers measures on public procurement related to ICT goods and online services. Note that many of the policies and practices regarding public procurement are horizontal measures and apply across all sectors, or to several products and services sectors, including ICT goods and online services. Pillar 2 contains four indicators.

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3 The list proposed by ITIF has been used as a guidance throughout the analysis. When policies affecting any of the HS codes in the list are patently unrelated to digital trade, they are not listed in the database.

4 Effectively applied tariffs are defined by WITS as the lowest available tariffs. If a preferential tariff rate exists, it will be used as the effectively applied tariff. Otherwise, the MFN applied tariff will be used (see footnote 5 for a definition). For more information, see: [https://wits.worldbank.org/wits/wits/witshelp/content/data\\_retrieval/p/intro/c2.types\\_of\\_tariffs.htm](https://wits.worldbank.org/wits/wits/witshelp/content/data_retrieval/p/intro/c2.types_of_tariffs.htm)

5 Most-favored nation (MFN) tariffs are tariff rates a country applies to imports from all trading partners that are members of the WTO, unless the country has a preferential trade agreement.

### Exclusion of foreign firms from public procurement

The indicator covers restrictions that entail the exclusion of certain foreign firms from public procurement related to ICT goods, products and online services. The measures covered include cases in which foreign companies can only be considered for public procurement when no domestic service suppliers are participating in the procurement, when goods or services are not available locally, or when it is required that the firms bid in cooperation with a national company.

### Surrender of patents, source code or trade secrets to win public tenders /Restrictions on technology standards for public tenders

The indicator covers those restrictions related to source code, encryption, and trade secrets, including the requirement to surrender source code or to use specific encryption or other national standards to participate in public tenders.

### Other limitations on foreign participation in public procurement

The indicator lists any other measure that restricts access to public tenders. These policies cover, among others, local content requirements (including requirements to use local products or services as inputs, hire local personnel or subcontract part of the awarded work to local entities) and preferential treatment to domestic goods and services suppliers over foreign suppliers, including domestic price preferences.

### Signatory of the WTO Agreement on Government Procurement (GPA) with coverage of the most relevant services sectors (CPC752, 754, 84)

The indicator looks at whether the country has joined the WTO's Government Procurement Agreement (GPA) and its commitments also cover the services sectors considered most important for digital trade, namely telecommunication services (CPC 752), telecommunication-related services (CPC 754), and computer and related services (CPC 84).

## ***Pillar 3: Foreign Direct Investment (FDI) in sectors relevant to digital trade***

Pillar 3 covers measures that apply to foreign direct investment (FDI) in sectors considered relevant for the digital economy. The main sectors of interest include the telecommunication sector, telecom-related services, computer services, cloud computing, internet publishing services, electronic retail and manufacturing of ICT products, such as telecom equipment or semiconductors. Pillar 3 contains five indicators.

### Maximum foreign equity share for investment

The indicator looks at maximum foreign equity shares in sectors considered relevant to the digital economy, including limitations on shares in government-controlled companies. Foreign equity restrictions are defined as restrictions on the total equity share that foreign natural or juridical persons can hold in a firm incorporated in the country in question.

### Requirement to engage in joint ventures to invest or operate

The indicator looks at whether there is a requirement for firms to engage in a joint-venture to invest or operate in the country.

#### Nationality/residency requirement for directors or managers

The indicator considers policies regarding the nationality or residency of members of the board of directors and managers. These measures hamper the freedom of foreign investors to appoint board members and managers of their choice.

#### Screening of investment and acquisitions

The indicator covers policies related to the screening of investments and acquisitions implemented by the recipient country. These screening procedures include the need to show the economic benefits of the investment, a screening on whether foreign investments can impair national security, and other restrictions on mergers and acquisitions that go beyond the general restrictions for competition reasons. These measures are expected to create uncertainty around foreign investments and can imply complicated processes that delay the investment procedures.

#### Commercial presence requirement for digital services providers

This indicator covers the requirements to establish a commercial presence in the country in order to offer services cross-border. Companies are therefore required to establish their own office, branch or subsidiary in the country to be able to provide their services.

### ***Pillar 4: Intellectual Property Rights (IPRs)***

Pillar 4 deals with measures relating to intellectual property rights (IPRs) in the digital economy. Since digital sectors are a knowledge-intensive part of the economy, IPRs form a relatively important area in digital trade and play a crucial role in fostering innovation and creativity in the digital economy. Having laws that are neither too strict nor too lax is important for the creation of a good environment for businesses to innovate in digital sectors. This pillar in particular focuses on patents, copyright and trade secrets and contains nine indicators.

#### Practical or legal restrictions related to the application process for patents

This indicator includes national restrictions on the application process for patents applicable to local and foreign patent applicants. It covers issues related to high direct and indirect registration costs, such as lack of transparency, discriminatory registration costs, the requirement to have a local representative to apply for patent protection, or cases in which, whenever substantive examination exists, this examination is reported to be of low quality.

#### Practical or legal restrictions related to the enforcement of patents

This indicator includes restrictions on the enforcement of foreign patents. Although some jurisdictions may have a suitable substantive legal framework with regards to patents, different procedural aspects can cause a direct impact on the ability to enforce patents. Examples of the latter could be the existence of practical or legal requirements creating restrictions for the enforcement of patents from foreign patent owners, different terms of protection assigned to local and foreign rights holders, lack of transparency of the proceedings, lengthy proceedings and/ or inadequate and non-deterrent sanctions.

#### Participation in the Patent Cooperation Treaty

The indicator highlights whether the country is a signatory of the Patent Cooperation Treaty (PCT), which is an international patent law treaty that provides a unified procedure for filing patent applications to protect inventions in each of its contracting states.

## Copyright law with clear exceptions

The indicator looks at whether the country has a clear regime of copyright exceptions, which enable the lawful use of copyrighted work by others without obtaining permission. Such measures are expected to provide flexibility and space for innovation.

The regime can follow different models. One of these is the fair use model, which is merely illustrative and provides a list of purposes or types of use and is, therefore, less stringent. Another model is the one of fair dealing, which allows for specific exceptions to copyright protection and is closer to the exhaustive list of exceptions, which is, consequently, seen as more rigid. Alternatively, the copyright regime might also adopt an exhaustive and broad list of limitations and exceptions to copyright, or it might implement the three-step test as stipulated in the Berne Convention for the Protection of Literary and Artistic Works.

## Enforcement of copyright online

The indicator investigates whether copyright is adequately enforced online based on levels of piracy on software and other digital products in the country and on instances in which foreign right holders are not accorded national treatment with regards to the protection of copyright.

## Signature of the WIPO Copyright Treaty

The indicator highlights whether the country has signed the WIPO Copyright Treaty, which is a special agreement under the Berne Convention which deals with the protection of works and the rights of their authors in the digital environment. Beyond the rights recognized by the Berne Convention, authors are granted certain additional economic rights. The Treaty deals with two subject matters to be protected by copyright: (i) computer programs, whatever the mode or form of their expression; and (ii) compilations of data or other material (“databases”). The WIPO Copyright Treaty and the WIPO Performances and Phonogram Treaty are known together as the “Internet Treaties”.

## Signature of the WIPO Performances and Phonograms Treaty

The indicator highlights whether the country has signed the WIPO Performances and Phonograms Treaty, which deals with the rights of two kinds of beneficiaries, particularly in the digital environment: (i) performers (actors, singers, musicians, etc.); and (ii) producers of phonograms (persons or legal entities that take the initiative and have the responsibility for the fixation of sounds). The WIPO Copyright Treaty and the WIPO Performances and Phonogram Treaty are known together as the “Internet Treaties”.

## Mandatory disclosure of business trade secrets such as algorithms or source code

The indicator covers cases in which the government imposes the mandatory disclosure of trade secrets, including source code and algorithms. These requirements can take different forms and often impose an obligation to take proper measures to protect such information against unfair commercial use. However, in some cases, there are no safeguards against unfair commercial use.

## Effective protection covering trade secrets

The measure looks at whether the country has framework in place that provides effective protection of trade secrets. This could take the form of a comprehensive regime or could be more limited in scope with certain clauses included in the IP law. Such a framework is considered an important enabler of digital trade, as it promotes protection of valuable business information.

## **Pillar 5: Telecommunication infrastructure and competition**

Pillar 5 provides information on the state of the telecommunications sector, which is considered an important foundation of the digital economy. The telecommunication sector forms an essential input for many other (downstream) sectors economy-wide, and even more so in the digital era as it is an enabler of services provision over the internet. Pillar 5 contains seven indicators.

### Passive infrastructure sharing obligation

The indicator considers whether there is an obligation for passive infrastructure sharing in the country to deliver telecom services to end users. Passive infrastructure sharing is the process through which the passive elements of network infrastructure are shared with other operators, these include non-electronic infrastructure at a cell site, such as power supply and management system, and physical elements such backhaul transport networks are shared.<sup>6</sup> This is considered good practice in the market as it can lower the cost of network deployment, especially in rural areas or marginal markets, stimulate migration to new technologies and the deployment of mobile broadband, and enhance competition between mobile operators and service providers, when safeguards are used to prevent anti-competitive behaviour.

### Maximum foreign equity share for investment in the telecommunication sector

The indicator looks at maximum foreign equity shares in the telecommunication sectors, including limitations on shares in government-controlled companies. Foreign equity restrictions are defined as restrictions on the total equity share that foreign natural or juridical persons can hold in a firm incorporated in the country in question.

### Presence of shares owned by the government in telecom companies

The indicator lists all instances in which a certain percentage of shares are owned by the government, including cases in which the telecom operator is a state-owned enterprise.

### Functional/accounting separation for operators with significant market power

The indicator highlights whether the country mandates functional and/or accounting separation for operators with significant market power (SMP) in the telecom market. Functional and accounting separation are generally considered good practices to enhance cost transparency, promote fair market prices, avoid SMP and non-discriminatory practices in telecoms markets.

Functional separation consists in the establishment of independent units operating different activity branches with a separate business division providing wholesale access to the dominant operator's non replicable (or bottleneck) assets. The separate entities belong to the same ownership, but provide separate accounts, have independent incentive schemes for managers, and face limitations in the circulation of employees and information.

Accounting separation consists in the preparation of separate accounts for different businesses and parts of businesses run by the same company, so that the costs and revenues associated with each part of a business can be separately identified and properly allocated.

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<sup>6</sup> Active infrastructure sharing is less common and refers to sharing of active elements in the radio access network such as antenna, radio network controller, entire base stations or even elements of the core network. Active sharing includes mobile roaming, which allows an operator to make use of another's network in a place where it has no coverage or infrastructure of its own. See <https://www.itu.int/itu-news/manager/display.asp?lang=en&year=2008&issue=02&ipage=sharingInfrastructure-mobile>

### Other restrictions to operate in the telecom market

The indicator lists cases of restrictions for obtaining a license to provide telecommunication services or to operate telecommunication facilities. These include discriminatory conditions and fees applied to foreign applicants, limits on the number of licenses, minimum capital requirements to obtain a license, and mandatory performance requirements, among others.

### Signature of the WTO Telecom Reference Paper

The indicator highlights whether or not the country has signed the WTO Telecom Reference Paper, which is a set of regulatory principles on competitive safeguards, interconnection, universal services obligation, public availability of licensing criteria, independent regulators, and allocation and use of scarce resources. The Reference Paper is legally binding only for those WTO governments which have committed to it by appending the document, in whole or in part, to their schedules of commitments.

### Presence of independent telecom regulatory authority

The indicator shows whether there is an executive authority for the supervision and administration of services in the field of telecommunications sector that is completely independent of the government in the decision making process. An independent telecom authority is expected to promote fair competition by ensuring that the regulator is “separate from, and not accountable, to any supplier of basic telecommunications services,” especially the incumbent.<sup>7</sup>

## **Pillar 6: Cross-border data policies**

Pillar 6 looks at the regime applied to cross-border transfers of data, which are a crucial driver of trade in the digital era. In fact, an increasing number of businesses, from services to traditional manufacturing companies, rely on the internet and the free flow of data across the globe for both their production processes and to reach their customers. This pillar includes five indicators.<sup>8</sup>

### Ban to transfer and local processing requirement

The indicator covers policies imposing a ban on the transfer of data abroad or cases of a local processing requirement. The difference between the two types of measures is subtle. In both cases, however, the main data processing activities need to be done in the country. However, in the case of a ban on transfers, the company is not allowed to even send a copy of its data abroad, which can be important for lag-free communication between subsidiaries, or for the security of data.

### Local storage requirement

The indicator covers measures imposing companies to keep a copy of certain data within the country. In such cases, as long as a copy of the data is saved domestically, data storage and processing activities can also take place outside the country.

### Infrastructure requirement

The indicator lists cases in which the company is obliged to set up a local data centre in order to provide certain services in the country.

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7 See WTO Reference Paper: [https://www.wto.org/english/tratop\\_e/serv\\_e/telecom\\_e/tel23\\_e.htm](https://www.wto.org/english/tratop_e/serv_e/telecom_e/tel23_e.htm)

8 For the reference taxonomy of restrictions on cross-border data transfers, see Ferracane (2017).

## Conditional flow regime

The indicator covers measures requiring that data can be transferred abroad only if certain conditions are fulfilled. When these conditions are not fulfilled, the data cannot be transferred and needs to be processed locally. The conditions can apply either to the recipient country (e.g. some jurisdictions require that data can be transferred only to countries with an “adequate” level of protection) or to the company (e.g. a condition might consist of the need to request the consent of the data subjects for the transfer cross-border of their data).

## Participation in trade agreements committing to open transfers of cross-border data flows

The indicator highlights whether the country has joined any agreement with binding commitments to open transfers of data across borders. The commitments can be part of free trade agreements or other treaties and regional regulations.

## **Pillar 7: Domestic data policies**

Pillar 7 covers policies related to use and processing of data, regardless of whether the data is processed by local or foreign companies. Given the importance of data as a driver of the digital economy and of the provision of online services, these policies can impact the ability of firms to engage in digital trade. This pillar covers four indicators.

### Data protection framework

The indicator looks at whether the country has a comprehensive regime of data protection in place, which is considered an important enabler of digital trade as it promotes trust for users. In some cases, the country might not have a comprehensive regime in place for all personal data, but might have sectoral regulation, e.g. in the financial sector or health sector.

### Minimum data retention

The indicator covers regimes of data retention, which regulate how and for how long a company should keep a copy of certain data in order and make it available at its premises, upon request. The data can be retained in any location (and therefore this requirement is different from a local storage requirement) but it has to be made available upon request by the authorities. If this requirement applies, the company has to retain a set of data, which could be about users’ activity or any other activity in the company, for a certain period of time that can go up to two years or more in some cases.

### Requirement to perform an impact assessment (DPIA) or have a data protection officer (DPO)

The indicator covers cases in which the company is required to appoint a Data Protection Officer (DPO) or to perform a Data Protection Impact Assessment (DPIA). These requirements can apply either at the sectoral level or across all sectors for personal data.

### Requirement to allow the government to access personal data collected

The indicator looks at the existence of requirements to provide a government direct access to collected personal data. If the government instead must follow the same procedure that it would follow for offline access to data, that is, the presence of a court decision or a warrant, or when the request follows a judicial investigation process, this is not considered a restriction.

## **Pillar 8: Intermediary Liability**

Pillar 8 looks at the countries' regulatory environment in relation to intermediary liability and additional requirements that intermediaries are requested to fulfil. Internet intermediaries are those companies that act as an intermediary between content producers and the internet, facilitating its use.<sup>9</sup> Such companies include Internet Service Providers (ISPs), search engines and social media platforms. This pillar covers four indicators.

### Safe harbour for intermediaries for copyright infringement

This indicator looks at whether the country has a safe harbour regime in place for copyright infringements. A safe harbour is considered a strategic factor supporting the emergence of innovative services as it provides intermediaries with sufficient legal certainty to conduct a wide range of activities, free from the threat of potential liability and the chilling effect of potential litigation. If the countries have a safe harbour in place, then internet intermediaries are granted broad or conditional immunity for third-party content, provided that certain conditions are respected. Intermediary safe harbour provisions often follow a separate regime for copyright infringement compared to other forms of illegal content and can be diverse: from rare unconditional safe harbours and more common notice and take down regimes to more burdensome notice and stay down regimes which require providers to engage in extensive monitoring of user content or upload filter requirements.

### Safe harbour for intermediaries for any activity other than copyright infringement

This indicator looks into the presence of safe harbour regimes for activities other than copyright infringements. As mentioned in the previous entry, a safe harbour is considered a strategic factor supporting the emergence of innovative services as it provides intermediaries with sufficient legal certainty to conduct a wide range of activities, free from the threat of potential liability and the chilling effect of potential litigation. When this regime is in place, intermediaries do not have to bear the legal responsibility for the illegal and harmful activities performed by their users even when the platforms are unaware of these activities. Intermediary safe harbour provisions that do not cover copyright can be diverse and, in certain cases, can impose significant regulatory and compliance requirements and/or costs.

### User identity requirement

The indicator lists regulations requiring intermediaries to ensure that their users supply accurate personal information when using a service or a network. Monitoring user identity requires a substantial effort of the intermediary to verify user identity, whether it is for access to platforms or the creation of content. Examples of user identity requirements include cases in which identification is required for even the most casual uses of the internet (e.g. when internet cafes are legally required to check or log users' IDs), requirements for providers to verify the identity of non-commercial users of online services for content creation purposes (e.g. when creators need a licence to blog, an ID is required to post comments), or ID requirements for contracting access (e.g. in order to purchase a SIM, or sign-up for an internet connection).

### Content monitoring requirement

This indicator lists regulations requiring the intermediaries to monitor users' activities and remove or block content deemed illegal or harmful, from political content to non-commercial content and IP-based violations. When these requirements are in place, internet intermediaries are forced to police

<sup>9</sup> There is no agreed definition of intermediaries. For more information see the Oxford Handbook of Online Intermediary Liability, available at: <https://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780198837138.001.0001/oxford-hb-9780198837138-e-2>



certain aspects of the internet on behalf of the government. Hence, they need to make a substantial effort to monitor anything that is posted, shared, or transferred by users through the platform.

### **Pillar 9: Content Access**

Pillar 9 looks at restrictions on content access, such as filtering, blocking and removal of commercial websites. Taking down websites, licences for the provision of services, or shutting down the internet altogether, make the usage of online services difficult and pose important challenges to doing business. This pillar covers four indicators.

#### Blocking or filtering of commercial web content

This indicator lists cases of blocking or filtering of web content. Only restrictions on commercial content are listed, while selected filtering of political content is not included. Content restrictions on which there is a broad support to filter, block and remove (such as child abuse material, illegal gambling or intelligence secrets), other non-commercial content (such as defamatory speech) and blocking based on IP violations are also not listed in the database.

#### Presence of Internet shutdowns

This indicator looks at the presence of internet shutdowns occurring in a country. Internet shutdowns prevent access to information, services and products, and have a large impact on the possibilities of doing business. A government might conduct internet shutdowns on a regular basis or occasionally, for instance around election times. This indicator is based on the variable “v2smgovshut” of the Varieties of Democracies Index (V-Dem) that focuses on “6.2.4 - Government Internet shut down in practice.”<sup>10</sup>

#### Restrictions to online advertising

This indicator covers any limitations affecting online advertising, other than requirements that advertising should not be misleading.

#### Licensing schemes for digital services and applications

This indicator lists licensing requirements for digital content providers and applications including news providers, blogs, Virtual Private Network (VPN) and cloud services. Exempt are telecommunication companies, which are covered in Pillar 5, and e-commerce platforms, which are covered in Pillar 12.

### **Pillar 10: Quantitative trade restrictions for ICT goods, products and online services**

Pillar 10 covers quantitative trade restrictions applied to the import of ICT goods (and more rarely also products and online services) from the rest of the world. Pillar 10 contains four indicators.

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<sup>10</sup> The data can be accessed via the website: [https://v-dem.net/data\\_analysis/VariableGraph/](https://v-dem.net/data_analysis/VariableGraph/). The question related to the variable v2smgovshut is “How often does the government shut down domestic access to the Internet?” and the responses can be the following:

0: Extremely often. It is a regular practice for the government to shut down domestic access to the Internet.

1: Often. The government shut down domestic access to the Internet numerous times this year.

2: Sometimes. The government shut down domestic access to the Internet several times this year.

3: Rarely but there have been a few occasions throughout the year when the government shut down domestic access to Internet.

4: Never, or almost never. The government does not typically interfere with the domestic access to the Internet.

#### Import ban applied to ICT goods, products and online services

This indicator covers import bans on ICT goods, products and online services. The bans can vary in coverage, from specific products to all products from certain companies or countries.

#### Other import restrictions, including non-transparent/discriminatory import procedures

This indicator covers import restrictions other than bans and local content requirements, which can limit the volume of ICT goods, products or online services that can be imported. These include quotas, discriminatory import licensing schemes, and lack of transparency on import procedures.

#### Local content requirements (LCRs) on ICT goods for the commercial market

This indicator covers local content requirements (LCRs), which require firms to use domestically-manufactured goods or domestically-supplied services in order to operate in an economy. The indicator covers only LCRs for the commercial market, while the LCRs implemented in public procurement tenders are listed under Pillar 2.

#### Export restrictions on ICT goods, products and online services

This indicator covers export restrictions which can restrict the volume of ICT goods, products and online services that a country can export. These include bans, licences and any other export restrictions aiming at limiting the volume of exported goods, products or services.

### ***Pillar 11: Technical standards applied to ICT goods, products and online services***

Pillar 11 covers technical standards that can act as a trade restriction and prevent digital trade integration for ICT goods, products and online services. Although there are internationally agreed procedures and best practices for standards on ICT goods, products and online services, not all national standards are based on a worldwide common basis. This could create inefficiencies in the market, which result in higher trade costs. This pillar covers four indicators.

#### Open and transparent standard-setting process

This indicator highlights whether foreign participation in standard-setting bodies is allowed and the standards for the telecom sector, ICT goods, products and/or online services are considered to be transparent. Complaints for lack of transparency or inclusion of foreign firms are listed under this indicator.

#### Self-certification for product safety

The indicator lists cases when self-certification is allowed for radio transmission, electromagnetic interference (EMI) or electromagnetic compatibility (EMC). Most electrical products must comply with certain standards, for instance in relation to electromagnetic interference. When this is the case, usually countries allow both domestic and foreign companies to self-certify that they comply with these standards, usually through a Supplier Declaration of Conformity (SDoC), while in other cases companies need to submit their equipment for testing to the regulator or its delegated entity. In some cases, although self-certification is not permitted, third-party certification from Conformity Assessment Bodies (CABs) that are recognised (or approved) by the regulator are accepted. This is usually the case when the country has signed a Mutual Recognition Agreement (MRA) with other countries. In such cases, members of an MRA agree to recognise each other's test reports and certificates, which reduces the burden for companies so that they do not need to go through the entire certification procedure.

### Product screening and additional testing requirements

The indicator covers those instances in which countries impose product screening and additional testing requirements for ICT goods, products and online services that deviate from the international norm. These extra requirements are usually justified under the security rationale. On top of delaying the import process, these screenings can be extensive and costly for companies. In some cases, third-party testing results are accepted by local authorities, which reduces the costs of the compliance for companies.

### Restrictions on encryption standards

The indicator lists restrictions related to the standards on encryption, including the requirement to adopt national encryption standards that deviate from internationally recognized standards and requirements to disclose sensitive proprietary information in the encryption product certification processes.

## ***Pillar 12: Online sales and transactions***

Pillar 12 covers the legal framework for fostering online purchases, including issues related to online payments, consumer protection and domain names. The steady increase in online sales over the years in both developed and developing countries shows the relevance of this pillar for digital trade integration. This pillar includes 11 indicators.

### Maximum foreign equity share for investment in the e-commerce sector

The indicator looks at maximum foreign equity shares in the e-commerce sector. Foreign equity restrictions are defined as restrictions on the total equity share that foreign natural or juridical persons can hold in a firm incorporated in the country in question.

### Limits on e-commerce purchases

The indicator lists specific limits on the number or total value of goods that can be bought by customers through e-commerce platforms. In addition, the indicator lists restrictions that apply to the delivery of goods purchased online.

### Licensing scheme for e-commerce providers

This indicator lists licensing requirements for providers of e-commerce services, including both B2B and B2C platforms.

### Restrictions to online payments

The indicator covers restrictions on online payments. It includes instances in which there are requirements to use a local bank account, restrictions on currency use for international payments, cases in which the national standards for payment security deviate from international standards and other restrictions affecting the use of electronic payment and credit services, such as ceilings on the maximum amount that can be paid by electronic payment methods or requirements mandating the use of specific intermediary for online payments.

### Threshold for 'De Minimis' rule

The indicator looks into the de minimis threshold, which is defined as a valuation ceiling for goods below which no duty or tax is charged at the border. The guidelines of the International Chamber of Commerce (ICC), also referred to as the World Business Organisation, recommends establishing de minimis value of at least USD 200 to generate economic benefits by refocusing public revenue collection on more efficient revenue sources.<sup>11</sup>

### Restrictions on Domain name (DNS)

The indicator lists restrictions on domain names, including cases in which a company is required to have a local domain name to engage in electronic retail in a certain market and when a company is required to establish a commercial or local presence to use a local domain name, or to have a local administrative contact to obtain a local domain name.

### Local presence requirement for digital services providers

The indicator lists requirements for companies to have a local presence in the country to which they provide their services. Depending on the regime, the local presence can take the form of a representative office, a local agent, a legal representative, or a postbox.

### Framework for consumer protection applicable to online commerce

The indicator looks into the legal framework that applies consumer protection to online transactions. While in some cases the consumer protection law extends equally to both online and offline transactions, in other cases there are different regulations in place, which can also impose a different level of consumer protection to online versus offline transactions. In addition, some countries are lacking consumer protection regulation altogether.

### Ratification of the UN Convention of Electronic Communications

The indicator looks at whether the country has signed and ratified the UN Convention on the Use of Electronic Communications in International Contracts (2005), which is considered important to enable and facilitate online transactions. The UN Convention builds on the UNCITRAL Model Law on Electronic Commerce (1996) and the UNCITRAL Model Law on Electronic Signatures (2001), which are also part of the database.

### Adoption of UNCITRAL Model Law on Electronic Commerce

The indicator looks at whether the country has adopted national legislation based on or influenced by the UNCITRAL Model Law on Electronic Commerce (1996). The Model Law purports to enable and facilitate commerce conducted using electronic means by providing national legislators with a set of internationally acceptable rules aimed at removing legal obstacles and increasing legal predictability for electronic commerce. In particular, it is intended to overcome obstacles arising from statutory provisions that may not be varied contractually by providing equal treatment to paper-based and electronic information. Such equal treatment enables the use of paperless communication, thus fostering efficiency in international trade.

### Adoption of UNCITRAL Model Law on Electronic Signatures

The indicator looks at whether the country has adopted national legislation based on or influenced by the UNCITRAL Model Law on Electronic Signatures (2001). The Model Law aims to enable

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<sup>11</sup> For more information, see: <https://iccwbo.org/publication/icc-policy-statement-on-global-base-line-de-minimis-value-thresholds-2015/>

and facilitate the use of electronic signatures by establishing criteria of technical reliability for the equivalence between electronic and hand-written signatures.

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**Annex I: Country Coverage**

<b>Country</b>	<b>Income level</b>	<b>Region</b>
Argentina	Upper-middle income	Latin America and the Caribbean
Australia	High income	East Asia and the Pacific
Austria	High income	Europe and Central Asia
Belgium	High income	Europe and Central Asia
Bolivia	Lower-middle income	Latin America and the Caribbean
Botswana	Upper-middle income	Sub-Saharan Africa
Brazil	Upper-middle income	Latin America and the Caribbean
Brunei	High income	East Asia and the Pacific
Bulgaria	Upper-middle income	Europe and Central Asia
Burundi	Low-income	Sub-Saharan Africa
Cambodia	Lower-middle income	East Asia and the Pacific
Cameroon	Lower-middle income	Sub-Saharan Africa
Canada	High income	North America
Chad	Low-income	Sub-Saharan Africa
Chile	High income	Latin America and the Caribbean
China	Upper-middle income	East Asia and the Pacific
Colombia	Upper-middle income	Latin America and the Caribbean
Congo	Lower-middle income	Sub-Saharan Africa
Costa Rica	Upper-middle income	Latin America and the Caribbean
Croatia	High income	Europe and Central Asia
Cuba	Upper-middle income	Latin America and the Caribbean
Cyprus	High income	Europe and Central Asia
Czech Republic	High income	Europe and Central Asia
Democratic Republic of Congo (DRC)	Low-income	Sub-Saharan Africa
Denmark	High income	Europe and Central Asia
Dominican Republic	Upper-middle income	Latin America and the Caribbean
Ecuador	Upper-middle income	Latin America and the Caribbean
Egypt	Lower-middle income	Middle East and North Africa
El Salvador	Lower-middle income	Latin America and the Caribbean
Estonia	High income	Europe and Central Asia
Eswatini	Lower-middle income	Sub-Saharan Africa
Ethiopia	Low-income	Sub-Saharan Africa
European Union	-	-
Finland	High income	Europe and Central Asia
France	High income	Europe and Central Asia
Gabon	Upper-middle income	Sub-Saharan Africa
Gambia	Low-income	Sub-Saharan Africa
Germany	High income	Europe and Central Asia
Ghana	Lower-middle income	Sub-Saharan Africa
Greece	High income	Europe and Central Asia
Guatemala	Upper-middle income	Latin America and the Caribbean
Hong Kong	High income	East Asia and the Pacific
Hungary	High income	Europe and Central Asia
India	Lower-middle income	South Asia
Indonesia	Lower-middle income	East Asia and the Pacific
Ireland	High income	Europe and Central Asia
Italy	High income	Europe and Central Asia
Japan	High income	East Asia and the Pacific

Kazakhstan	Upper-middle income	Europe and Central Asia
Kenya	Lower-middle income	Sub-Saharan Africa
Korea	High income	East Asia and the Pacific
Kuwait	High income	Middle East and North Africa
Laos	Lower-middle income	East Asia and the Pacific
Latvia	High income	Europe and Central Asia
Lesotho	Lower-middle income	Sub-Saharan Africa
Liberia	Low-income	Sub-Saharan Africa
Lithuania	High income	Europe and Central Asia
Luxembourg	High income	Europe and Central Asia
Madagascar	Low-income	Sub-Saharan Africa
Malawi	Low-income	Sub-Saharan Africa
Malaysia	Upper-middle income	East Asia and the Pacific
Malta	High income	Europe and Central Asia
Mexico	Upper-middle income	Latin America and the Caribbean
Mozambique	Low-income	Sub-Saharan Africa
Myanmar	Lower-middle income	East Asia and the Pacific
Namibia	Upper-middle income	Sub-Saharan Africa
Nepal	Lower-middle income	South Asia
Netherlands	High income	Europe and Central Asia
New Zealand	High income	East Asia and the Pacific
Nigeria	Lower-middle income	Sub-Saharan Africa
Norway	High income	Europe and Central Asia
Pakistan	Lower-middle income	South Asia
Peru	Upper-middle income	Latin America and the Caribbean
Philippines	Lower-middle income	East Asia and the Pacific
Poland	High income	Europe and Central Asia
Portugal	High income	Europe and Central Asia
Romania	Upper-middle income	Europe and Central Asia
Russia	Upper-middle income	Europe and Central Asia
Rwanda	Low-income	Sub-Saharan Africa
Saudi Arabia	High income	Middle East and North Africa
Senegal	Lower-middle income	Sub-Saharan Africa
Sierra Leone	Low-income	Sub-Saharan Africa
Singapore	High income	East Asia and the Pacific
Slovakia	High income	Europe and Central Asia
Slovenia	High income	Europe and Central Asia
Spain	High income	Europe and Central Asia
Sweden	High income	Europe and Central Asia
Taiwan	High income	East Asia and the Pacific
Tanzania	Lower-middle income	Sub-Saharan Africa
Thailand	Upper-middle income	East Asia and the Pacific
Togo	Low-income	Sub-Saharan Africa
Turkey	Upper-middle income	Europe and Central Asia
Uganda	Low-income	Sub-Saharan Africa
United Kingdom	High income	Europe and Central Asia
United States	High income	North America
Vanuatu	Lower-middle income	East Asia and the Pacific
VietNam	Lower-middle income	East Asia and the Pacific
Zambia	Lower-middle income	Sub-Saharan Africa
Zimbabwe	Lower-middle income	Sub-Saharan Africa

## **Annex II: Data collection methodology**

For the collection of the entries of the database, we have relied on practitioners hired by the partners of the project and on Master's, PhD and Post-Doctoral researchers from different universities. In most of the cases, the researchers were either nationals of the country they were analysing or had strong connections with the country. To ensure coherence and consistency across countries, each of the researchers went through a training process and was provided with detailed guidelines.

After data are collected by the local researcher, they are reviewed and verified by the principal investigators of the project. When possible, the datasets have been sent to national authorities for comments and review.

The main sources of the analysis are official gazettes of laws and regulations. Secondary sources such as official guidelines, official government resources, publications, legal reviews, news articles, corporate blogs, and regulatory databases have been used as a guidance to identify measures, which are subsequently validated through a review of the primary sources.

The main online databases and other relevant resources used for data collection include:

Digital Trade Estimates (DTE) database: <https://ecipe.org/dte/database/>

DLA Piper Data Protection Laws of the World: <https://www.dlapiperdataprotection.com/>

Freedom on the Net initiative, Freedom House: <https://freedomhouse.org/report/freedom-net>

Getting the Deal Through, Lexology: <https://www.lexology.com/gtdt>

Global Network Initiative: <https://globalnetworkinitiative.org/policy-issues/>

Global Express Association database: <https://global-express.org/index.php?id=42>

ICLG data protection database: <https://iclg.com/practice-areas/data-protection-laws-and-regulations>

ICLG telecom and media database: <https://iclg.com/practice-areas/telecoms-media-and-internet-laws-and-regulations>

ITA signatories: [https://www.wto.org/english/docs\\_e/legal\\_e/itadec\\_e.htm](https://www.wto.org/english/docs_e/legal_e/itadec_e.htm); [https://www.wto.org/english/tratop\\_e/inftec\\_e/inftec\\_e.htm](https://www.wto.org/english/tratop_e/inftec_e/inftec_e.htm)

Integrated Trade Intelligence Portal (I-TIP): [https://www.wto.org/english/res\\_e/statis\\_e/itip\\_e.htm](https://www.wto.org/english/res_e/statis_e/itip_e.htm)

Linklaters database on data protection laws: <https://www.linklaters.com/en/insights/data-protected/home>

OECD Services Trade Restrictiveness Index (STRI) Regulatory Database: <https://qdd.oecd.org/subject.aspx?Subject=063bee63-475f-427c-8b50-c19bffa7392d>

OECD Digital Services Trade Restrictiveness Index (Digital STRI) Regulatory Database: [https://qdd.oecd.org/subject.aspx?Subject=STRI\\_DIGITAL](https://qdd.oecd.org/subject.aspx?Subject=STRI_DIGITAL)

OECD Inventory on export restrictions on Industrial Raw Materials: [https://qdd.oecd.org/subject.aspx?Subject=ExportRestrictions\\_IndustrialRawMaterials](https://qdd.oecd.org/subject.aspx?Subject=ExportRestrictions_IndustrialRawMaterials)

OneTrust Data Guidance database: <https://www.dataguidance.com/>

UNCTAD CyberLaw Tracker: [https://unctad.org/en/Pages/DTL/STI\\_and\\_ICTs/ICT4D-Legislation/eCom-Global-Legislation.aspx](https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Legislation/eCom-Global-Legislation.aspx)

UNCTAD Investment Laws Navigator: <https://investmentpolicy.unctad.org/investment-laws>



UNCITRAL Model Law of Electronic Communications: [https://uncitral.un.org/en/texts/ecommerce/conventions/electronic\\_communications/status](https://uncitral.un.org/en/texts/ecommerce/conventions/electronic_communications/status)

UNCITRAL Model Law of Electronic Signatures: [https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic\\_signatures/status](https://uncitral.un.org/en/texts/ecommerce/modellaw/electronic_signatures/status)

United States Trade Representative (USTR) National Trade Estimates (NTE) Reports: <https://ustr.gov/about-us/policy-offices/press-office/reports-and-publications/2021>

United States Trade Representative (USTR) Special 301 Reports on Intellectual Property Protection: <https://ustr.gov/about-us/policy-offices/press-office/reports-and-publications/2021>

WITS database, tariff data from TRAINS: <https://wits.worldbank.org/WITS/>

World Map of Encryption Laws and Policies: <https://www.gp-digital.org/world-map-of-encryption>

World Intermediary Liability Map: <https://wilmap.stanford.edu/>

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