E-services to facilitate declared work

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1.0   Executive summary

In the EU in 2020, a [digital strategy](#) was adopted and, in 2021, a ten-year [2030 Digital Compass](#) roadmap to implement it. This calls for the development of **accessible and human-centric digital public services and administration** and by 2030, 100 % online provision of key public services for European citizens and businesses.

This report includes the assessment of progress carried out by the European Commission towards these 2030 Digital Compass goals, especially for services in two areas directly relevant for enforcement authorities and preventing undeclared work: 1) conducting regular business operations, and 2) starting a business. It then evaluates good practices in enforcement and other authorities on delivering these accessible and human-centric e-services, that **make declared work easier, more beneficial, and acceptable**, and therefore help transform undeclared work into declared work.

Progress in implementing accessible and human-centric digital public services across the EU

To evaluate progress on the 2030 Digital Compass call for the development of **accessible and human-centric** digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses, the **Digital Society and Economy Index (DESI)** is the tool developed by the European Commission. The DESI assesses the public services sector of each Member State, not specific types of enforcement authority (e.g., labour inspectorates, tax authorities).

An analysis of the 2022 DESI reveals the variable progress across Member States in implementing accessible and human-centric digital public services, not least due to their different starting points. The Member States in 2022 closest to achieving the goal of 100 % online provision of key public services for European citizens and businesses are Estonia, Finland, Malta, and the Netherlands, whilst those where the greatest progress is required are Romania, Greece, Bulgaria, and Slovakia.

DESI does not evaluate the progress of individual enforcement authorities in the EU in their provision of accessible and human-centric public services or evaluate their progress towards achieving 100 % online provision of their services to European citizens and businesses. However, and in terms of facilitating declared work by developing processes to make declared work easier, beneficial and/or acceptable, it does evaluate the extent to which there is joined-up comprehensive online provision of public services in each Member State in relation to (i) starting a business or registering as self-employed and (ii) conducting regular business operations.

This reveals that in relation to **starting a business**, some Member States have made greater progress than others on the provision of accessible and human-centric digital public services. For each Member State, the gaps are identified that need to be filled to achieve joined-up comprehensive online provision of public services in relation to starting a business.

It also reveals in relation to **regular business operations**, some Member States have again made greater progress than others. For each Member State, the gaps are again highlighted that need to be filled to provide the joined-up comprehensive online provision of public services related to regular business operations.

Good practices in authorities e-services provision

This report does not address how all public services are pursuing e-services provision that facilitates declared work. Rather, and given that members of the European Platform tackling undeclared work (henceforth "the Platform") are largely in enforcement authorities (i.e., labour inspectorates, tax authorities and social security institutions), the focus here is upon the e-services provision being pursued by enforcement authorities to facilitate declared work. Relevant examples of services provided by some other public authorities are also included. The intention is to encourage mutual learning and facilitate the dissemination of good practices for potential transfer to other enforcement authorities.

The finding of this study is that enforcement authorities delivering accessible and human-centric digital public services and administration that **make declared work easier, more beneficial, and acceptable**, and therefore help transform undeclared work into declared work, have the following e-services at their disposal:

▶ **E-services that enable businesses and workers to operate in the declared economy more easily and beneficially**. These include making declared work easier using e-registration of businesses and e-registration of employment; developing e-portals to simplify and make easier tax and social security contribution payments (e.g., pre-filled and/or automatic tax and social security contribution returns; online tax and social security contribution calculators, online tax behaviour rating tools); online help with record keeping (including the recording of working time), and online compliance lists.

▶ **E-services that encourage purchasing from the declared economy**. These include: those incentivising electronic payments (e.g., by introducing point-of-sale terminals, encouraging businesses to issue e-receipts; state authorities fully adopting e-payments and ceasing cash payments; providing incentives for consumers and businesses using e-payments) and deterring and limiting cash payments (e.g., by establishing a mandatory ceiling on cash transactions, paying wages electronically, reducing free access to cash, imposing penalties for the use of cash, and making e-payments mandatory and banning the use of cash); incentivising purchasers to request receipts (e.g., receipt lotteries), and introducing social label e-initiatives to encourage the purchase of declared goods and services.

▶ **Educational and awareness raising e-services.** Educational and awareness raising e-services that seek to change social norms about the benefits of declared work and costs of undeclared work include: smart cards and apps to inform workers of their rights and businesses and employers of their responsibilities; the provision of easily accessible online advice and support, including artificial intelligence (AI) solutions; apps to allow citizens to evaluate the impacts of their participation in undeclared work, and an array of online videos, virtual reality films, interactive games, and quizzes to inform either suppliers or purchasers of the benefits of declared work or costs of undeclared work.

▶ **E-services that modernise enforcement authorities** by making them more 'customer friendly' and that enhance customers' perceptions that these authorities pursue procedural justice (i.e., treat citizens, workers, employers, and businesses in an impartial, respectful, and responsible way), procedural fairness (i.e., citizens, workers, employers, and businesses believe that they pay a fair share relative to others) and redistributive justice (i.e., citizens, workers, employers, and businesses believe that they receive the public goods and services that they deserve given the tax and social contributions that they make).

Many e-services currently provided by individual enforcement and some other public authorities are potentially transferable to other Member States. However, until now, evaluations of their effectiveness in making declared work easier, more beneficial, and acceptable are lacking, making it difficult to learn lessons about the extent to which many of these e-services prevent undeclared work.

Suggestions for future action

The following suggestions are made for future action:

▶ This report has highlighted for each Member State in relation to (i) starting a business, and (ii) regular business operations, the gaps that need to be filled to achieve joined-up comprehensive online provision of public services.

▶ Given the lack of evaluations of the effectiveness of many e-services in making declared work easier, more beneficial, and acceptable, resources to evaluate their effectiveness could be included at the initial design stage of such e-service policy initiatives. This would facilitate the identification of good practices for potential transferability to other Member States.

2.0 Introduction

Until now when considering how digital technologies can be applied in public sector initiatives, programmes, and policies to tackle undeclared work, the focus of the European Platform tackling undeclared work (hereafter 'the Platform') has been on the use of information and communication technologies (ICT) to **deter** undeclared work (e.g., using ICT to collect, share and analyse data to improve the risk of detection). This report does not cover this type of ICT usage by enforcement authorities.

Instead, the intention here is to focus upon evaluating how digital technologies applied in public sector initiatives, programmes and policies (i.e., here termed 'e-services') can **make declared work easier, more beneficial, and more acceptable**. This use of ICTs to prevent undeclared work by making declared work easier, more beneficial, and more acceptable, is part of a wider shift in the public sector towards 'e-government' (i.e., the adoption of ICTs to improve the activities of public sector organisations).

In Europe, the eGovernment Action Plan 2016-2020 called for the acceleration of the digital transformation of governments and to achieve this, in February 2020, a new digital strategy was agreed. To implement this digital strategy, in 2021, a ten-year **2030 Digital Compass** roadmap was adopted. This seeks the development of **accessible and human-centric** digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses. This roadmap provides the policy context to this study.

The **aim of this study** is to evaluate the e-services available to enforcement authorities (labour, tax and social security authorities) to achieve the 2030 Digital Compass objective of developing accessible and human-centric digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses**.**

To achieve this, this study has the following objectives:

1. To provide a comparative analysis of the progress of public authorities towards these Digital Compass 2030 goals, using the Digital Economy and Society Index (DESI), which is the tool developed by the European Commission to measure progress over time in implementing accessible and human-centric digital public services. In the context of this report, in terms of facilitating declared work by developing processes to make declared work easier, beneficial and/or acceptable, the focus is upon evaluating the extent to which there is joined-up comprehensive online provision of public services in each Member State in relation to (i) starting a business or registering as self-employed and (ii) conducting regular business operations. The desk-research reports DESI data available at the time of writing in March 2023.

2. To highlight good practice examples of e-services developed by enforcement and some other public authorities to provide accessible and human-centric digital public services and administration that are potentially transferable to other EU Member States, so long as the Member State legal framework permits this, and learn lessons about how such e-services could prevent undeclared work.

To do this, the next section provides a brief analysis of the progress across the EU in implementing accessible and human-centric digital public services. With this assessment in hand, Section 4 then turns towards an evaluation of the e-services available to enforcement authorities (labour, tax and social security authorities) to achieve the 2030 Digital Compass objective of accessible and human-centric digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses**.** Having identified a range of good practices that are potentially transferable to other Member States, section 5 then draws some conclusions and suggests some next steps that could be pursued.

3.0 Progress in implementing accessible and human-centric digital public services, focusing upon starting a business and regular business operations

This section, and the accompanying Annexes 1 and 2, provides an overview of the progress being made across the EU in achieving the Digital Compass 2030 objective of accessible and human-centric digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses.

Key conclusions

▶ The 2030 Digital Compass calls for accessible and human-centric digital public services and by 2030, 100 % online provision of key public services for European citizens and businesses. The Digital Society and Economy Index (DESI) is the tool developed by the European Commission to measure progress towards achieving these goals.

▶ An analysis of the 2022 DESI reveals the variable progress across Member States in implementing accessible and human-centric digital public services, not least due to their different starting points. The Member States closest to achieving the goal of 100 % online provision of key public services for European citizens and businesses are Estonia, Finland, Malta, and the Netherlands, whilst those where the greatest progress is required are Romania, Greece, Bulgaria, and Slovakia.

▶ DESI does not evaluate the progress of individual enforcement authorities in the EU in their provision of accessible and human-centric public services or achieving 100 % online provision of their services to European citizens and businesses. However, it does evaluate the extent to which there is joined-up comprehensive online provision of public services in each Member State in relation to (i) starting a business and (ii) conducting regular business operations, both of which make declared work easier, more beneficial and/or acceptable. To do this, DESI researchers put themselves in the shoes of a real-life persona seeking to start a business or conduct regular business operations.

▶ This reveals that in relation to starting a business, some Member States have made greater progress than others on the provision of accessible and human-centric digital public services. For each Member State, the gaps are identified that need to be filled by enforcement and other public authorities to achieve joined-up comprehensive online provision of public services in relation to starting a business.

▶ It also reveals in relation to regular business operations, some Member States have again made greater progress than others. For each Member State, the gaps are again highlighted that need to be filled by enforcement and other public authorities to provide the joined-up comprehensive online provision of public services related to regular business operations.

3.1　2030 Digital Compass

The use of information and communications technologies (ICTs) in public sector initiatives, programmes, and policies to make declared work easier, more beneficial, and more acceptable, is part of a wider shift of the public sector towards '**e-government**' (i.e., the adoption of ICTs to improve the activities of public sector organisations). As UNDESA (2016:1) state: 'E-government aims at improving the relationship between people and their government … making public services delivery more effective, accessible and responsive to people's needs... increasing participation in decision making and making public institutions more transparent and accountable.'

In the EU, this pursuit of e-government received its first clear expression on 17 June 2010 when the European Council adopted the 'Europe 2020 - A strategy for smart, sustainable and inclusive growth' economic strategy. Europe 2020 set out a vision for Europe's social market economy based on three interlocking and mutually reinforcing priority areas: (i) Smart Growth: developing an economy based on knowledge and innovation;(ii) Sustainable Growth: promoting a low-carbon, resource-efficient and competitive economy; and (iii) Inclusive Growth: fostering a high-employment economy delivering social and territorial cohesion.

Within the Smart Growth priority area, the Digital Agenda for Europe has been a flagship initiative to lift the EU economy by making the best use of ICTs. The main initiatives have been the Digital Single Market and the eGovernment Action Plan 2016-2020. The eGovernment Action Plan called for the acceleration of the digital transformation of governments, and to achieve this, in February 2020, a new digital strategy was agreed.

To implement this digital strategy, in 2021, a ten-year 2030 Digital Compass roadmap was adopted. This seeks the development of **accessible and human-centric digital public services and administration** and **by 2030, 100 % online provision of key public services for European citizens and businesses**. It is this **2030 Digital Compass** roadmap that provides the policy context to this study.

The Digital Society and Economy Index (DESI) is the tool developed by the European Commission to monitor Member States' digital progress. Indeed, the DESI has been monitoring Member States' digital progress since 2014.

The DESI is calculated as the weighted average of five main dimensions:

▶ Connectivity (25 %).

▶ Human capital (25 %).

▶ Use of internet (15 %).

▶ Integration of digital technology (20 %).

▶ Digital public services (15 %).

A score from 0 minimum to 100 maximum is allocated. In doing so, the DESI provides a dashboard which assesses the EU's digital performance and tracks the progress of EU countries. Annex 1 provides further detail on the key dimensions measured, the indicators used and how they are scored.

In this current report on the use of e-services in public sector initiatives, programmes, and policies to make declared work easier, more beneficial, and more acceptable, it is the progress on the **digital public services** dimension that is of interest.

To assess the progress being made towards the 2030 Digital Compass objective of providing accessible and human-centric digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses, the DESI assesses five broad indicators:

▶ **e-Government users** – people who sent filled forms to public authorities, over the internet, previous 12 months.

▶ **Pre-filled forms** - amount of data that is pre-filled in public services' online forms.

▶ **Digital public services for citizens** - the share of administrative steps related to major life events that can be done online.

▶ **Digital public services for businesses** - share of public services needed for starting a business and for conducting regular business operations available online for domestic and foreign users. Services provided through a portal receive a higher score, services which provide only information (but have to be completed offline) receive a more limited score.

▶ **Open data** - this composite indicator measures to what extent countries have an open data policy in place, the estimated political, social and economic impact of open data and the characteristics (functionalities, data availability and usage) of the national data portals.

The DESI does not evaluate the progress of **individual enforcement authorities** in the EU in their provision of accessible and human-centric public services, or their progress towards achieving 100 % online provision of their services to European citizens and businesses.

However, the DESI does enable progress to be assessed on the development of **e-services related to making declared work easier and more beneficial**, and thus the adoption of **e-services to prevent undeclared work**, in each Member State. This is because the DESI evaluates progress on the digital delivery of specific packages of government services associated with '**life events**' that make declared work easier and more beneficial, and not too complex to fulfil. To ensure consistency and real-life services, the life event journeys are measured by DESI researchers that put themselves in the shoes of a **persona**.

3.1.1 Life Events

Life events are packages of government services, which are usually provided by multiple government agencies. For each life event, the chains of services are considered from the perspective of the citizen or entrepreneur in terms of whether they are easy to undertake digitally.

To evaluate these life events, the DESI uses a **biennial cycle** methodology of four life events in year 1, another subset of five life events in year 2 and repeats the subsets every two years, in years 3 and 4 respectively. This survey approach builds the basis for comparison gradually, over time, as requested by Member States. It prevents a 'big bang' approach which would concentrate effort and workload over a much shorter period. It also better allows countries to implement improvements in time before the next DESI survey measurement takes place.

For each domain, life events modelling a potential **user journey** are defined. This helps to assess eGovernment service delivery from the user perspective, measuring public service processes alongside a user path, **regardless of the administrative structure and service delivery responsibilities within a country**. The life event approach enables the DESI study team to integrate different aspects of public service delivery (such as online availability of services, cross-border mobility, and key enablers) into a single, comprehensive measurement journey.

The eGovernment Benchmark consists of **nine** life events, of which **two** are relevant to enforcement authorities and making declared work easier, more beneficial, and more acceptable. These are:

1. **Business start-up**: a business life event related to the economic affairs domain, covering services around: orientation, administrative requirements, basic registration, tax-related matters, insurance-related matters, hiring a first employee and request an environmental permit. This was last evaluated by DESI in 2020.

2. **Regular business operations**: a business life event related to the economic affairs domain, covering services around: tax and corporate finance, VAT, and business changes. This was last evaluated by DESI in 2021.

To evaluate these two life event services in the DESI, three broad types of services are evaluated in each country:

1. Informational services

2. Transactional services

3. Portal websites

Each is here considered in turn.

3.1.1.1 Informational services

Informational services are services and procedures that provide users with adequate and personalised insight into their situation. This ensures convenience: it facilitates and eases the user on their journey. The following informational services are distinguished:

a. Check: information to understand service criteria, steps and/or requirements and know whether users are qualified or eligible for a service. This information helps users to know their rights and obligations.

b. Calculate: compute and get insight into the amount of eligible financial benefits, based on current or future circumstances.

c. Get guidance: information to help, guide and enable users how to carry out an activity or prepare for it up front (e.g. suggestions, practical tips, templates, etc.).

d. Monitor: browse to compare information or stay informed via a registry.

e. Register: administer a person, business entity, or object online when a change in status occurs and the competent authority needs to be notified. The service starts when entering the online form and is completed when the status change is being processed.

3.1.1.2 Transactional services

Transactional services are services and procedures needed to fulfil the essential requirements of a life event through online interaction. The following transactional services are evaluated:

a. Register: administer a person, business entity, object online when a change in status occurs and the competent authority needs to be notified. The service starts when entering the online form and is completed when the status change is being processed.

b. Apply: make an online request to receive (financial) benefits or services. The service starts when entering the online form and is completed when the benefits are being provided.

c. Obtain: make an online request to receive a document, certificate, or permit. The service starts when entering the online form and is completed when the request is sent, and the document is obtained.

d. Submit: provide the competent authority with the documents, forms, evidence, or data online in order to carry out a service. The service starts when entering the online form and is completed when the document is submitted.

e. Declare: fulfil financial or government payment duties. The service starts when entering the online form and is completed when the financial information is declared.

f. Appeal: issue an official complaint against (a decision made by) a competent authority online. The service starts when entering the online form and is completed when the appeal is issued.

3.1.1.3   Portal websites

The third and final step in DESI is to evaluate portal websites in each country. A portal website is an eGovernment website that gathers and provides information and services from multiple public administrations. A portal can focus on one specific life event or target group (e.g. students, businesses, unemployed) or on multiple life events or target groups. These overarching government websites are often referred to as **one-stop-shop** websites. In some cases, users can complete services on the portal website itself, whereas in other cases the portal website operates as a navigation website that directs users to the websites of those government entities responsible for providing the service.

For portal websites, the DESI measures in each country whether Single **Digital Gateway Procedures** exist across *21* procedures. Of relevance to enforcement authorities and preventing undeclared work, the single digital gateways evaluated in DESI include: registration of employees with compulsory pension and insurance schemes; notifying changes in the personal or professional circumstances of the person receiving social security benefits, relevant for such benefits; submitting an income tax declaration; payment of social contributions for employees, and notification of business activity, permission for exercising a business activity, changes of business activity and the termination of a business activity not involving insolvency or liquidation procedures, excluding the initial registration of a business activity with the business register and excluding procedures concerning the constitution of or any subsequent filing by companies or firms within the meaning of the second paragraph of Article 54 TFEU.

3.1.2   Personas

To ensure consistency and that real-life services are evaluated, the life event journeys are measured by DESI researchers that put themselves in the shoes of a persona. A **persona** is a fictional character that represents a set of demographic information, typical attitudes, behaviours, values and needs, useful in considering the goals, desires and limitations relevant to a life event. Each life event has its own specific persona.

Below, the personas used by DESI to evaluate the progress on developing the two life event services related to preventing undeclared work are provided.

The first persona evaluated in DESI relevant to providing e-services to prevent undeclared work relates to starting a business (see Box 1).

Box 1. Starting a business (measured in 2020, 2022 – only 2020 data currently available)

Carl, 45 years, has made plans to start his own restaurant right at the centre of his lively city. He has found sufficient information online to help him prepare for the actual setting up of his business and made sure to obtain necessary administrative requirements online.

When starting a business in the catering industry, one needs a solid business plan. Furthermore, Carl has found out that his catering businesses must comply with environmental regulation concerning possible noise pollution and handling of waste. Applying for this permit is easily possible through the website of the local community.

Carl starts his business as a sole proprietor. Due to very successful opening event, which was part of the strategy he laid down in his business plan, he attracts a steady crowd in the weeks and months after. Soon he realises he needs some more help to ensure smooth service for his guests and he hires a chef and waiter. Information and the necessary actions needed as regards taxes and employment services are available online, which saves our busy restaurant owner some of his valuable time.

After a very successful first year, Carl wants to explore his horizons and considers opening a new restaurant in his favourite holiday destination. The online availability of information and services concerning the registration of his restaurant there, simply overcomes any barriers such as authentication, travelling or language.

Source: DESI

DESI then evaluates for this persona, the provision of e-services in each country using the following methodology. This in effect measures the progress of each Member State in developing e-services to make declared work easier by providing it in a joined-up comprehensive manner online.

Table 1. Criteria used by DESI to assess the provision of e-services on starting a business

	Process stage	Definition of Service	Service type	Target user
1	**Orientation**			
1.1	Check requirements for starting a business	Minimal requirements for the service to be considered online: information on the required steps and other requirements needed to start a new business (e.g. a checklist)	Informational	National
1.2	Get guidance with how to write a business plan	Minimal requirements for the service to be considered online: information on how to write a business plan (templates, examples, things to consider, etc.).	Informational	National
1.3	Get guidance with how to explore financial possibilities	Minimal requirements for the service to be considered online: information on how to explore financial possibilities (e.g. references to government subsidies, templates for a financial plan, suggestions on where to look for crowd funding)	Informational	National
2	**Administrative requirements**			
2.1	Obtain certificate of no outstanding charges	Minimal requirements for the service to be considered online: information on and the online form needed to obtain a certificate which proves that the entrepreneur has paid all his/her taxes and has no other outstanding social security and/or healthcare charges.	Transactional	National & Cross-Border
3	**Basic registration**			

3.1	Register company for the first time	Minimal requirements for the service to be considered online: information on and the online form needed to register a company for the first time, e.g. providing details about you as an owner, define the company name, indicate the type of legal entity and register a business address	Transactional	National & Cross-Border
4	**Tax-related matters**			
4.1	Obtain tax identification card/number	Minimal requirements for the service to be considered online: information on and the online form needed to obtain a taxpayer registration and identification card/number.	Transactional	National & Cross-Border
4.2	Obtain VAT collector number	Minimal requirements for the service to be considered online: information on and the online form needed to obtain a VAT number so that the company can declare its VAT taxes	Transactional	National & Cross-Border
5	**Insurance-related matters**			
5.1	Register with Social Security Office	Minimal requirements for the service to be considered online: information on and the online form needed to register with Social Security to fulfil related duties	Transactional	National & Cross-Border
5.2	Get guidance with how to arrange (mandatory) pension insurance	Minimal requirements for the service to be considered online: information on how to go about (mandatory) pension insurance as an entrepreneur	Informational	National
5.3	Get guidance with how to arrange (compulsory) healthcare insurance	Minimal requirements for the service to be considered online: information on how to go about (compulsory) healthcare insurance as an entrepreneur	Informational	National
6	**Hiring a first employee**			
6.1	Register your company as an employer	Minimal requirements for the service to be considered online: information on and the online form needed to register as an employer, e.g. to create a PAYE (Pay As You Earn) scheme for tax, national insurance, before hiring an employee	Transactional	National & Cross-Border
6.2	Register employee before first workday	Minimal requirements for the service to be considered online: information on and the online form needed to announce the start of a first employee before the first day of working (to prevent fraud and illegal work)	Transactional	National & Cross-Border
6.3	Check contractual obligations for hiring employees	Minimal requirements for the service to be considered online: information on government regulations and obligations regarding contracts (information about minimum wages, maximum working day time, collective labour agreements, number of temporary contracts allowed); for cross border this means information about government regulations and obligations to hire an employee from abroad (e.g. information on the possibilities, guidelines on what should be arranged and what limitations apply as compared to hiring a national employee)	Informational	National
6.4	Check working conditions for employing employees	Minimal requirements for the service to be considered online: information on government regulations and obligations regarding working conditions for employees (e.g. minimum working requirements for employees, safety measures required around working environment, requirements for fire exits, health and climate conditions at working space)	Informational	National
7	**Request an environmental permit**			

7.1	Check conditions for environmental permits	Minimal requirements for the service to be considered online: information on the criteria when the company can register an exemption or needs a full permit for pollution (e.g. companies dealing with IPPC-regulation always need a full environmental permit)	Informational	National & Cross-Border
7.2	Obtain pollution/environmental permit	Minimal requirements for the service to be considered online: information on and the online form needed to apply for the environmental permit, generally including the submission of supporting documents (e.g. engineering reports, geological evaluations, and financial assurance instruments)	Transactional	National & Cross-Border

The second persona evaluated in DESI relevant to providing e-services to prevent undeclared work relates to regular business operations (see Box 2).

Box 2. Regular Business Operations (measured in 2021, 2023 – only 2021 data currently available)

Margo, female, 51 years old, has her own company in transportation of household goods. She is the Sole Proprietor and has 4 employees. Running her own business, she is required to keep a clear business administration. She has to declare corporate tax, submit VAT declarations and submit financial reports to the business registration office. Once in a while she also needs to submit company data to the national statistical offices. Because she has employees, she is also obliged to pay social contributions. After 2 months one of her employees falls ill. She reports it to the relevant authority and she might request compensation (e.g. financial compensation, tax benefit) for the ill employee at the government.

After having successfully run the transportation company for more than 10 years, Margo wants to set up an office in another EU country, so logistics can be arranged better and cross border movement of household goods become a possibility for client. She thus starts to gather information about how to set up an office abroad, what the requirements are in the other EU country, what the business environment is like and what business possibilities foreign companies have. After having obtained sufficient information Margo decides to take her chances and to set up an office abroad. She thus registers the new office at the relevant authorities.

Source: DESI

DESI then evaluates for this persona, the provision of e-services in each country using the following methodology.

Table 2. Criteria used by DESI to assess the provision of e-services for regular business operations

	Process stage	Definition of Service	Service type	Target user
1	**Tax and corporate finance**			
1.1	Declare corporate tax	Minimal requirements for the service to be considered online: information on and the online form needed to fulfil the yearly corporate tax submission by businesses (e.g. how to submit corporate taxes, deadlines, corporate tax form); for cross-border	Transactional	National & Cross-Border

		the entrepreneur declaring taxes comes from another country than the country under evaluation		
1.2	Declare social contributions	Minimal requirements for the service to be considered online: information on and online form needed to declaring the social contributions businesses are obliged to pay (e.g. information about which social contributions should be paid, such as unemployment, invalidity insurance, pension, as well as a description which steps should be taken to fulfil social contributions and the declaration form itself); for cross-border the entrepreneur declaring social contributions comes from another country than the country under evaluation	Transactional	National & Cross-Border
1.3	Submit financial reports to business registration office	Minimal requirements for the service to be considered online: information on and the online form needed to submit financial information (annual reports) to a competent authority (e.g. information on the requirements and how to provide the financial data, contact details of the competent authority and the submission form); for cross-border the entrepreneur submitting financial reports comes from another country than the country under evaluation	Transactional	National & Cross-Border
1.4	Submit company data to statistical offices	Minimal requirements for the service to be considered online: information on and the form needed to submit data to national statistical office (NSO) used for macro-economic analysis by NSO's (e.g. process description how statistical data is gathered, when and what data is required, as well as the form or questionnaire to submit the statistical data)	Transactional	National
2	**VAT**			
2.1	Declare VAT	Minimal requirements for the service to be considered online: information on and the online form needed to declare VAT (Value Added Tax) by businesses (e.g. information about how to submit VAT tax, when, to which governmental agency and the VAT tax form); for cross-border the entrepreneur declaring VAT comes from another country than the country under evaluation	Transactional	National & Cross-Border
2.2	Apply for a refund of VAT	Minimal requirements for the service to be considered online: information on and the online form needed to claim a VAT (Value Added Tax) refund (e.g. information about the possibilities and conditions for claiming refund of VAT, administrative obligations and documentation needed); for cross-border the entrepreneur seeking for a VAT refund comes from another country than the country under evaluation	Transactional	National & Cross-Border
2.3	Appeal against VAT decision	Minimal requirements for the service to be considered online: information on and the online form needed to appeal against a refund of VAT decision by a competent authority (e.g. information on which steps should be taken to make appeal, what documents are required, the appeal form); for cross-border the entrepreneur appealing comes from another country than the country under evaluation	Transactional	National & Cross-Border
3	**Business changes**			

3.1	Register illness of employee with competent administration	Minimal requirements for the service to be considered online: information on and the online form needed to reporting sickness of an employee at a competent authority in order for the employee to be able to obtain social benefits for illness (e.g. information where and when illness of employee should be reported and the form to report the illness of employee); for cross-border the entrepreneur registering illness comes from another country than the country under evaluation	Transactional	National & Cross-Border
3.2	Register the end of a contract of an employee with competent authority	Minimal requirements for the service to be considered online: information on and the online form needed to notify the social security schemes of the ending contract with an employee, excluding procedures for the collective termination of employee contracts; for cross-border the entrepreneur registering a contract end comes from another country than the country under evaluation	Transactional	National & Cross-Border
3.3	Register new address with competent authority	Minimal requirements for the service to be considered online: information on and the online form needed to notify the competent authority when the business addresses changes; for cross-border the entrepreneur changing the address comes from another country than the country under evaluation	Transactional	National & Cross-Border

Using this methodology, the progress of Member States in providing accessible and human-centric digital public services can be evaluated, and the gaps highlighted in online provision that need to be filled to achieve 100 % online provision of public services related to starting a business and regular business operations.

3.2   Evaluation of Member States in 2022

This section first reports the results of the DESI 2022, which is based mainly on 2021 data, evaluating the progress made in Member States. To commence, it reports their overall progress followed by their progress on digital public services provision, along with their progress on the five sub-components of digital public services provision. Second, it assesses the progress made by Member States in delivering joined-up comprehensive digital public service delivery on the two life events closely related to facilitating declared work and thereby preventing undeclared work, namely starting a business (using the currently available 2020 DESI data) and engaging in regular business operations (using the currently available 2021 DESI data). This is because such e-services can make declared work easier (e.g., by providing one-stop single portal e-registration for businesses, employment and tax and social security contributions), more beneficial (e.g., by reducing the administrative burden on businesses) and acceptable (e.g., by making services more customer-friendly).

3.2.1   Overall Progress towards the 2030 Digital Compass goals

The DESI, to repeat, is calculated as the weighted average of five main dimensions: connectivity (25 %); human capital (25 %); use of internet (15 %); integration of digital technology (20 %), and digital public services (15 %). A score from 0 minimum to 100 maximum is allocated. Based on this, Figure 1 displays the 2022 DESI overall ranking of Member States. It reveals that Finland, Denmark, the Netherlands, Sweden, Ireland, Malta, and Spain have the most advanced digital economies in the EU. The countries with the lowest overall DESI scores are Romania, Bulgaria, and Greece.

Figure 1. Digital Economy and Society index, 2021
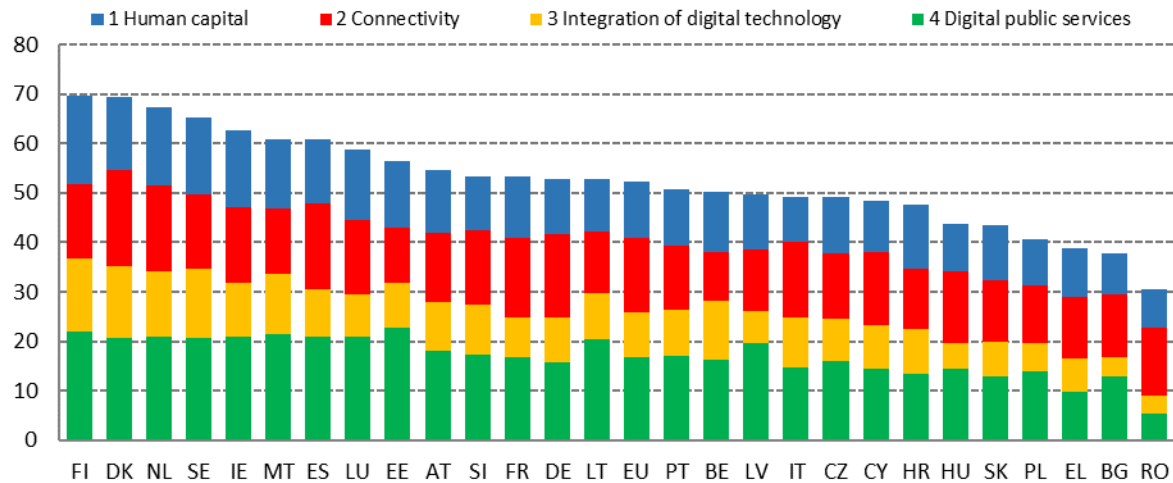
Source: DESI 2022, European Commission

Given that this report is more interested in the provision of digital public services (e-services), it is to this that attention now turns.

3.2.2   Progress on Digital Public Services

Figure 2 displays the progress of Member States on the provision of digital public services. This reveals that the Member States with the most advanced digital public services provision (as measured by DESI), are Estonia, Finland, Malta, and the Netherlands. The countries with the least advanced digital public services are currently Romania, Greece, Bulgaria, and Slovakia.

Figure 2. Digital Economy and Society index (DESI), Digital public services score, 2021
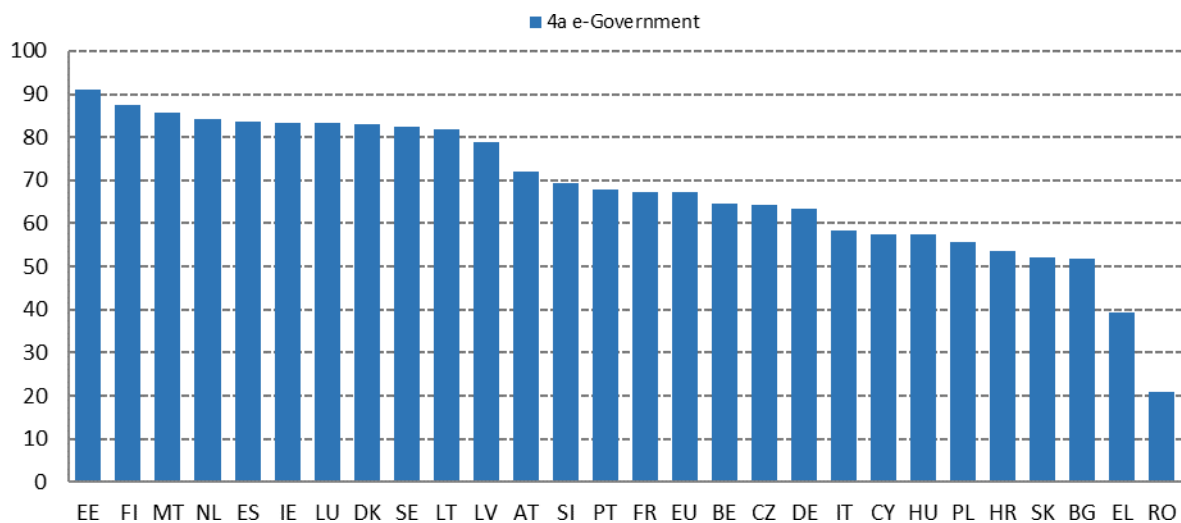
Source: DESI 2022, European Commission.

To assess in greater depth the progress being made towards the 2030 Digital Compass objective of providing accessible and human-centric digital public services and administration and by 2030, 100 % online provision of key public services for European citizens and businesses, the DESI assesses five broad indicators, which it states are:

▶ e-Government users (i.e., people who sent filled forms to public authorities, over the internet, previous 12 months);

▶ pre-filled forms (i.e., amount of data that is pre-filled in public services' online forms);

▶ digital public services for citizens (i.e., the share of administrative steps related to major life events that can be done online);

▶ digital public services for businesses (i.e., the share of public services needed for starting a business and for conducting regular business operations available online for domestic and foreign users. Services provided through a portal receive a higher score, services which provide only information, but have to be completed offline, receive a more limited score), and

▶ open data (i.e., this composite indicator measures to what extent countries have an open data policy in place, the estimated political, social and economic impact of open data and the characteristics (functionalities, data availability and usage) of the national data portals).

Reporting the results, Table 3 reveals that the greatest progress regarding digital public services is on providing digital public services for businesses. There is less progress on providing digital public services for citizens and pre-filling forms.

Table 3. Digital public services indicators in DESI

	EU	
	DESI 2020	DESI 2022
4a1 e-Government users	61 %	65 %
% internet users	2019	2021
4a2 Pre-filled forms	NA	64
Score (0 to 100)		2021
4a3 Digital public services for citizens	NA	75
Score (0 to 100)		2021
4a4 Digital public services for businesses	NA	82
Score (0 to 100)		2021
4a5 Open data	NA	81 %
% maximum score		2021

Source: DESI 2022, European Commission.

Here, each of these five components of the digital public services sub-index is taken in turn to examine the progress of countries.

3.2.2.1 E-Government users

e-Government users are measured by considering out of all internet users, the percentage that used the internet in the last 12 months to interact with public authorities. Figure 3 reveals that the countries performing best on this indicator are Sweden, Denmark, Finland, Ireland and the Netherlands. Over 90 % of internet users (aged 16-74) interacted with the public authorities. Those performing least well on this indicator are Romania, Bulgaria and Italy. In these countries, less than 50 % of citizens interacted with public authorities via the internet.

Figure 3. e-Government users interacting online with public authorities over the internet in the past 12 months (% of internet users), 2021
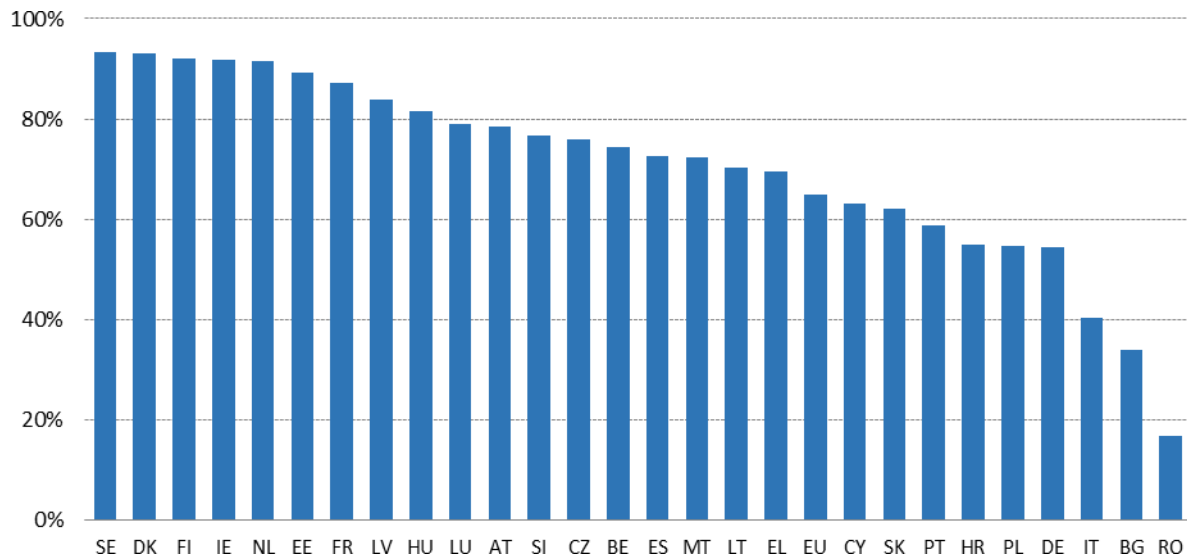
Source: DESI, 2002, using data from Eurostat Community survey on ICT usage in Households and by Individuals.

3.2.2.2 Pre-filled forms

This digital public services provision indicator measures the extent to which data that is already known to public administrations is pre-filled in forms presented to the user. The maximum overall score is 100.

Figure 4 reveals that the highest scores of pre-filled forms were achieved in 2021 by the Netherlands, Lithuania, Finland, Estonia, Malta, Denmark, and Sweden, all achieving scores above 85 points. However, there is a marked gap between these countries and those achieving the lowest scores. Romania scored below 20 points, and Cyprus and Croatia below 40 points.

Figure 4. Pre-filled forms (score 0 to 100), 2021
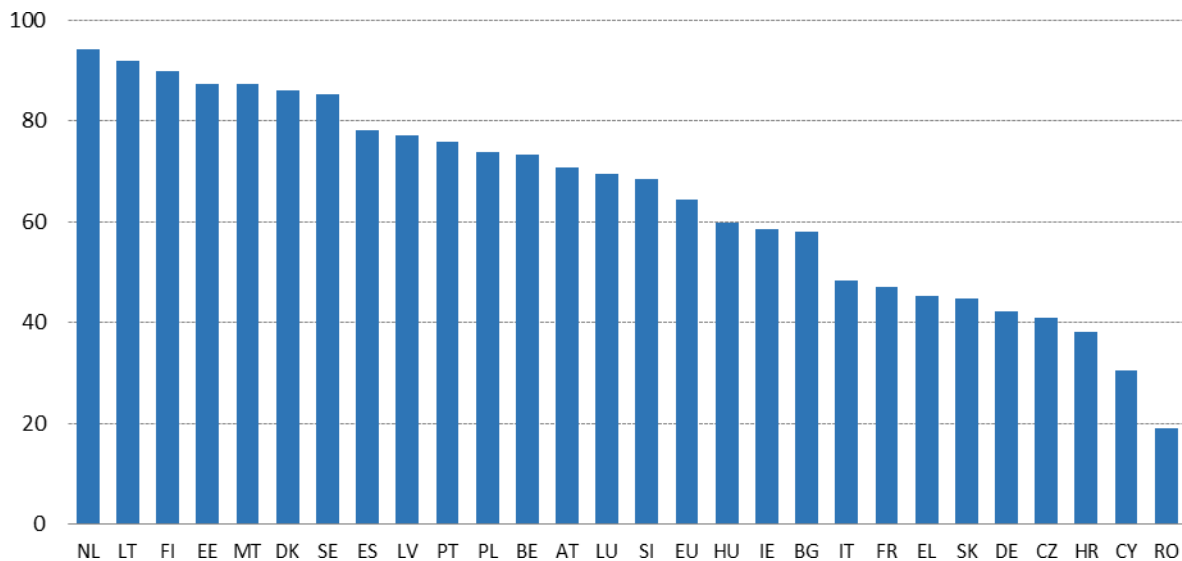
Source: DESI, 2002, using eGovernment Benchmark, Capgemini.

3.2.2.3   Digital public services for citizens

This digital public services provision indicator of digital public services for citizens measures the extent to which a service, or information on a service, for citizens is provided online, and via a government portal. Services may be offered fully, or partially, online, or offline only. The indicator represents the share of steps that can be undertaken online for major life events for citizens (e.g. to register and reschedule an appointment at a hospital, appeal against a court decision). It is calculated as the average of the national and cross-border online availability for informational services (i.e., services and procedures that provide users with adequate and personalised insight into their situation) and transactional services (i.e., services and procedures needed to fulfil the essential requirements of a life event through online interaction). The indicator is in line with policy advancements and goals related to alignment with the Single Digital Gateway Regulation, and balances the importance of the cross- border dimension with the services provided at a national level. The input for this indicator is the online availability indicator and the cross-border online availability indicator of the citizen-related life events from the e-Government Benchmark. The number of services assessed in 2020 and 2021 was 69. Out of these 69 services, 66 were measured at national level and 35 at cross-border level. Of course, some services were measured for both the national and the cross-border dimensions.

Figure 5 displays that Malta, Luxembourg and Estonia performed best on providing digital public services for citizens, scoring more than 90 points. Indeed, 11 countries (Malta, Luxembourg, Estonia, Finland, Latvia, Spain, Sweden, the Netherlands, Denmark, Lithuania, and Ireland) scored 80 points or above. Those countries scoring worst were Romania, Greece, Cyprus, Poland, and Bulgaria, all scoring less than 60.

Figure 5. Digital public services for citizens (score 0 to 100), 2021
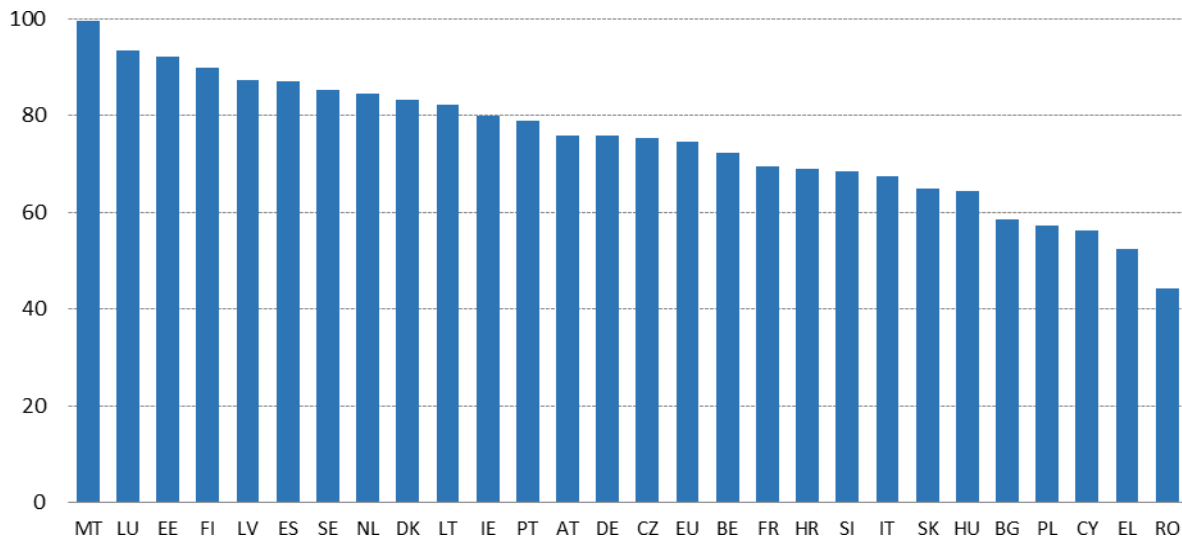
Source: DESI, 2002, using eGovernment Benchmark, Capgemini.

3.2.2.4 Digital public services for businesses

This digital public services provision indicator of digital public services for businesses indicator measures the degree to which public services for businesses are interoperable and work cross-border. The input for this indicator is the online availability indicator and the cross-border online availability indicator of the business-related life events from the e-Government Benchmark.

The indicator assesses to what extent informational and transactional public services for businesses, when starting a business and conducting regular business operations, are available online and across borders in Member States. Services provided through a portal receive a higher score, while services that only provide information online, but which require operations to be carried out offline, receive a lower score. In 2020, the indicator was updated to align with policy advancements and goals in the field (e.g. alignment with the Single Digital Gateway Regulation).

As Figure 6 reveals, seven countries score over 90 points (out of 100) in 2021, namely Ireland, Estonia, Malta, Luxembourg, Spain, Lithuania, and Finland. Meanwhile, Romania, Greece, Croatia, and Poland score below 70.

Figure 6. Digital public services for businesses (score 0 to 100), 2021
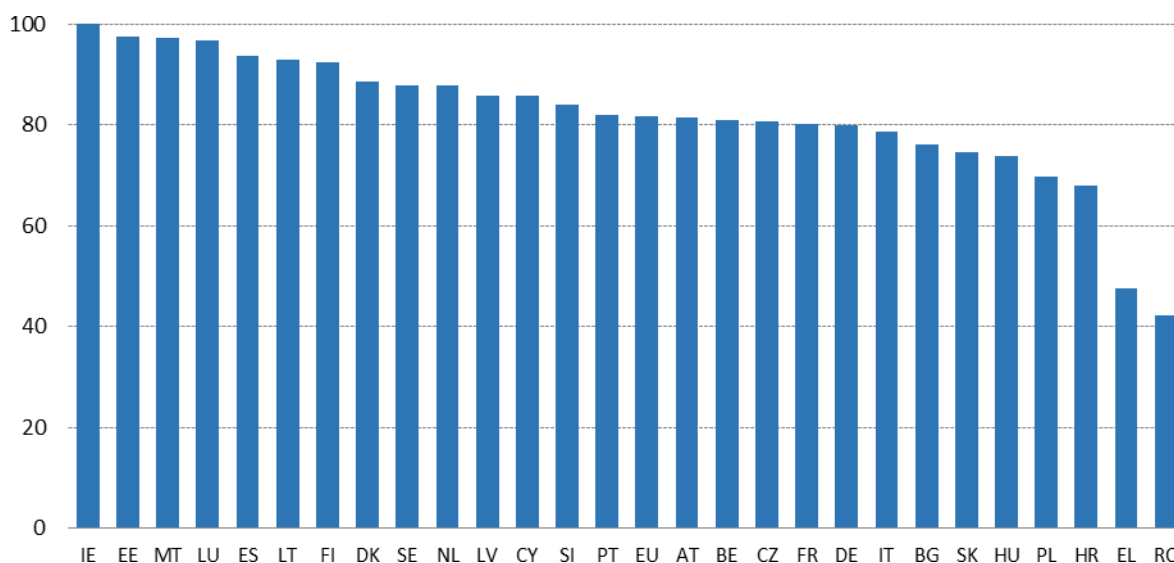
Source: DESI, 2002, eGovernment Benchmark, Capgemini.

3.2.2.5 Open data

This indicator measures the government's commitment to open data. The level of maturity of open data has been based on the four following indicators:

▶ Open data policy:

    ▷ the presence at national level of specific policies on open data and licensing norms; and

    ▷ the extent of coordination at national level to: (a) provide guidelines to national, local, and regional administrations; and (b) set up coordinated approaches towards data publication.

▶ Open data impact:

    ▷ the extent to which activities are in place to estimate the impact of open data at country level; and

    ▷ the estimated impact of open data at country level in four areas: political, social, environmental and economic.

▶ Open data portal: the development of national portals and their level of sophistication in featuring available open data.

▶ Open data quality:

    ▷ the extent to which national portals have a systematic and automated approach to harvesting metadata from sources across the country; and

    ▷ the extent to which national portals comply with the metadata standard DCAT-AP (specification for metadata records).

As Figure 7 reveals, 11 countries scored above 90 %, namely France, Ireland, Spain, Poland, Estonia, Austria, Italy, Slovenia, the Netherlands, Cyprus and Denmark. However, Slovakia, Malta, Belgium and Hungary underperformed with scores below 60 %.

Figure 7. Open data (% of maximum open data score), 2021
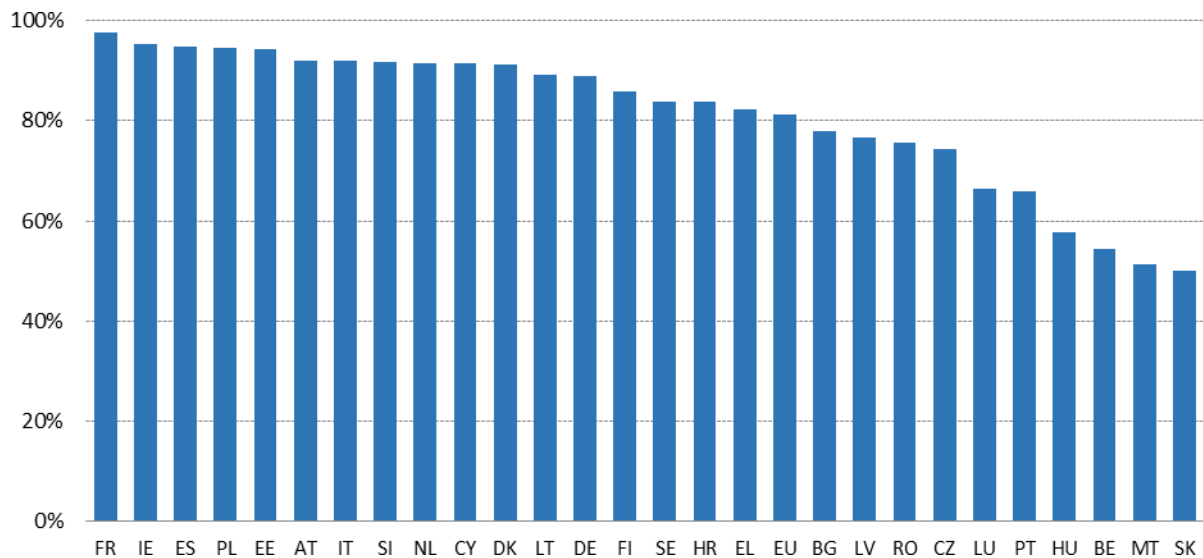
Source: DESI 2022, using data from the European Data Portal.

These five sub-dimensions of the digital public services component of DESI all measure digital public services provision across the whole government from a user perspective. DESI does not provide a specific evaluation of the progress of **individual enforcement authorities** in the EU in their provision of accessible and human-centric public services, or their progress towards achieving 100 % online provision of their services to European citizens and businesses. However, it does evaluate the extent to which there is 100 % online provision of public services in each Member State regarding (i) starting a business and (ii) conducting regular business operations, both of which make declared work easier, more beneficial and/or acceptable. Each is now considered in turn.

3.2.3   Delivering joined-up comprehensive digital service delivery when starting a business

To evaluate the extent to which there is joined-up comprehensive digital service delivery when starting a business, as highlighted in section 3.1.2, a **persona** (i.e., fictional character) is constructed and then it is evaluated whether this persona has access to a joined-up comprehensive online set of processes and procedures when starting up their business.

Figure 8 reports the progress made up until 2022 across the EU on the extent to which there is joined-up comprehensive digital service delivery when starting a business. Annex 1 to the report provides similar figures on the progress made up until 2022 in each Member State separately, detailing where further progress is required in each Member State.

Figure 8. Dashboard of extent to which there is joined-up comprehensive digital service delivery when starting a business in EU, 2020

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	93	100	.	.	.	.	.	.	.
	Get guidance with how to write a business plan	90	96	.	.	.	.	.	.	.
	Get guidance with how to explore financial possibilities	94	100	.	.	.	.	.	.	.
Administrative requirements	Obtain certificate of no outstanding charges	93	95	68	67	75	65	58	31	58
Basic registration	Register company for the first time	96	85	69	79	85	71	65	26	44
Tax-related matters	Obtain tax identification card/number	98	94	88	91	100	100	86	88	92
	Obtain VAT collector number	96	90	74	78	91	83	80	73	86
Insurance-related matters	Register with Social Security Office	98	88	74	88	86	84	83	61	85
	Get guidance with how to arrange (mandatory) pension insurance	94	94	.	.	.	.	.	.	.
	Get guidance with how to arrange (compulsory) healthcare insurance	96	91	.	.	.	.	.	.	.
Hiring a first employee	Register your company as an employer	97	93	68	83	89	81	68	38	63
	Register employee before first workday	99	96	71	90	94	63	52	8	63
	Check contractual obligations for hiring employees	94	89	.	.	.	.	.	.	.
	Check working conditions for employing employees	97	93	.	.	.	.	.	.	.
Request an environmental permit	Check conditions for environmental permits	98	84	.	.	.	.	47	.	.
	Obtain pollution/environmental permit	84	79	48	64	71	65	38	8	56
TOTAL Business Start-up (Average of all services)		95	92	70	80	86	76	64	42	68

Source: DESI 2021 (2020 data)

The 27 figures in Annex 1 on the progress made in each Member State reveal that in relation to starting a business, some Member States have made greater progress than others on the provision of accessible and human-centric digital public services. Put another way, in some Member States, there are more gaps in digital public service delivery in relation to starting a business than in other Member States. The value of these figures in Annex 1 is that they enable each Member State to identify its current gaps in online provision that need to be filled to achieve 100 % online provision of public services related to starting a business. It also enables them to identify Member States which do not have the same gaps and who score highly, so that they know in which Member States to look for inspiration when seeking to develop e-services to fill their gaps.

3.2.4 Delivering joined-up comprehensive digital service delivery for regular business operations

To evaluate the extent to which there is joined-up comprehensive digital service delivery in relation to regular business operations, and as highlighted in section 3.1.2, it is again the case that a persona (i.e., fictional character) is constructed and then it is evaluated whether this persona has access to a joined-up comprehensive online set of processes and procedures for their regular business operations.

Figure 9 reports the progress made up until 2022 in the EU on the extent to which there is joined-up comprehensive digital service delivery in relation to regular business operations. Annex 2 to the report provides similar figures on the progress made up until 2022 in each Member State separately, detailing where further progress is required in each Member State on digital service delivery on regular business operations to achieve the 2030 Digital Compass goal of 100 % online service delivery.

Figure 9. Dashboard of extent to which there is joined-up comprehensive digital service delivery for regular business operations in EU, 2021

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	82	85	100	92	72	35	38
	Declare social contributions	100	96	78	85	92	100	67	37	40
	Submit financial reports to business registration office	100	96	70	77	100	92	59	25	53
	Submit company data to statistical offices	98	93	74	72	96	91	.	.	.
VAT	Declare VAT	100	96	84	84	100	88	67	26	40
	Apply for a refund of VAT	100	96	82	84	100	92	91	54	52
	Appeal against VAT decision	87	96	55	61	68	67	70	28	31
Business changes	Register illness of employee with competent administration	91	100	61	75	85	84	59	43	67
	Register the end of a contract of an employee with competent authority	93	85	45	72	93	93	75	29	38
	Register new address with competent authority	99	88	53	84	94	95	76	50	88
TOTAL Regular Business Operations (Average of all services)		97	95	68	78	93	89	71	36	50

Source: DESI 2022 (2021 data)

The 27 figures in Annex 2 reveal that in relation to regular business operations, some Member States have again made greater progress than others on the provision of accessible and human-centric digital public services. In other words, in some Member States, there are more gaps in digital public service delivery in relation to regular business operations than in other Member States. The value of this dashboard is that it enables each Member State to identify its current gaps in online provision that need to be filled to achieve 100 % online provision of public services related to regular business operations. It also enables Member States to identify those which do not have the same gaps and who score highly, so that they know in which Member States to look for inspiration when seeking to develop e-services to fill their gaps.

4.0 Good practices in authorities e-services provision

This section evaluates the e-services that enforcement authorities can use to make declared work easier, more beneficial, and more acceptable. Relevant examples of services provided by some other public authorities are also included.

Key conclusions

▶ Enforcement and other public authorities by delivering accessible and human-centric digital public services and administration can **make declared work easier, more beneficial, and acceptable.** By providing such e-services, they facilitate declared work and therefore help transform undeclared work into declared work. To achieve this, enforcement authorities have the following e-services at their disposal:

▷ **E-services that enable businesses and workers to operate in the declared economy more easily and beneficially.** These include using e-registration of businesses and e-registration of employment to make declared work easier; developing e-portals to simplify and make easier tax and social contribution payments (e.g., pre-filled and/or automatic tax and social contribution returns; online tax and social contribution calculators, online tax behaviour rating tools); online help with record keeping, and online compliance lists. Interesting practices in different Member State enforcement and other public authorities are here highlighted.

▷ **E-services that encourage purchasing from the declared economy.** These include those incentivising electronic payments (e.g., by introducing point-of-sale terminals, encouraging businesses to issue e-receipts; state authorities fully adopting e-payments and ceasing cash payments; providing incentives for consumers and businesses using e-payments) and deterring and limiting cash payments (e.g., by establishing a mandatory ceiling on cash transactions, by employers paying wages electronically, reducing free access to cash, imposing penalties for the use of cash, and making e-payments mandatory and banning the use of cash); incentivising purchasers to request receipts (e.g., receipt lotteries), and introducing social label e-initiatives to encourage the purchase of declared goods and services. Interesting practices in different Member State enforcement and other public authorities are here highlighted.

▷ **Educational and awareness raising e-services** that change social norms about the benefits of declared work and costs of undeclared work. These include: smart cards and apps to inform workers of their rights and businesses and employers of their responsibilities; self-assessment online tools for

employers; the provision of easily accessible online advice and support, including artificial intelligence (AI) solutions; apps to allow citizens to evaluate the impacts of their participation in undeclared work, and an array of online videos, virtual reality films, interactive games, and quizzes to inform either suppliers or purchasers of the benefits of declared work or costs of undeclared work. Interesting practices in different Member State enforcement authorities are here highlighted.

▷ **E-services that modernise enforcement authorities** by making them more 'customer friendly' and that enhance customers' perceptions that these authorities pursue procedural justice (i.e., treat citizens, workers, employers, and businesses in an impartial, respectful, and responsible way), procedural fairness (i.e., citizens, workers, employers, and businesses believe that they pay a fair share relative to others) and redistributive justice (i.e., citizens, workers, employers, and businesses believe that they receive the public goods and services that they deserve given the tax and social contributions that they make). Interesting practices in different Member State enforcement authorities are here highlighted. Many of the e-services currently provided by enforcement authorities in the EU are potentially transferable to other Member States. However, until now, evaluations of their effectiveness in making declared work easier, more beneficial, and acceptable are lacking, making it difficult to learn lessons about the extent to which many of these e-services prevent undeclared work.

4.1   Introduction

This section provides a review and evaluation of the range of e-services available to enforcement authorities for making declared work easier, more beneficial, and more acceptable. Here, e-tools to deter undeclared work by improving the risk of detection are not considered. Digital Compass 2030 seeks the development of accessible and human-centric digital public services for citizens and businesses. As such, and as Figure 10 displays, this involves developing 'preventative' e-services that:

▶ make declared work easier and more beneficial (i.e., 'incentives' to engage in declared work);

▶ educate and raise awareness to make declared work more acceptable, and

▶ modernise enforcement authorities by developing 'customer friendly' public authorities and enhance procedural and redistributive justice and fairness.

Figure 10. Policy approaches and measures for tackling undeclared work
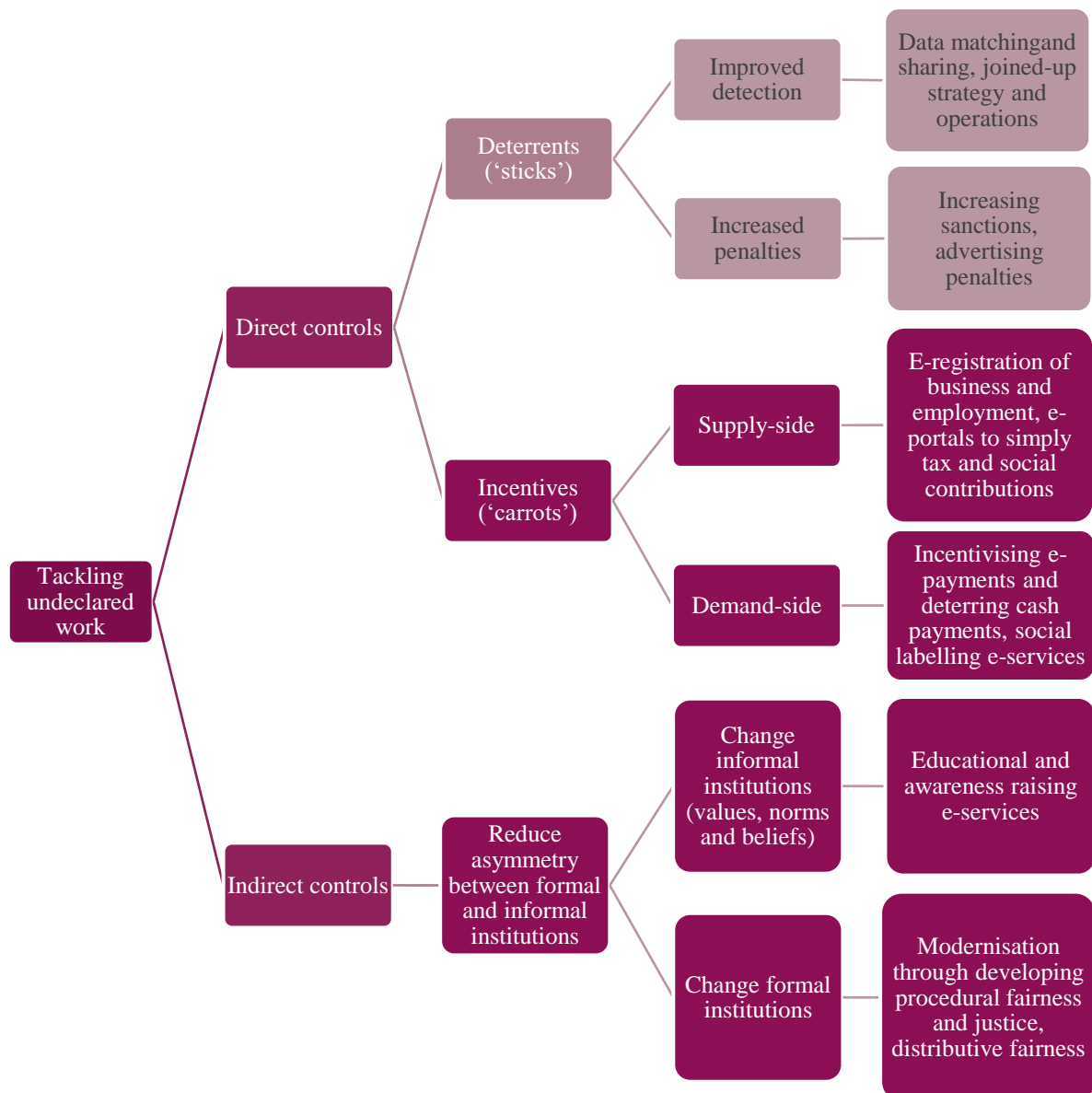
Source: derived from Williams (2017, Figure 1)

4.2 Beyond e-tools to improve the deterrence of undeclared work

Given that Digital Compass 2030 relates to the development of accessible and human-centric digital public services for citizens and businesses, this report does not consider the array of **deterrence e-tools** that tax, social security, and labour authorities are developing to increase the actual and/or perceived costs of engaging in undeclared work. These deterrence e-tools either:

▶ Improve the risks of detection – using e-initiatives such as advanced data mining tools; smart identity cards; electronic complaint reporting tools, and certified cash registers, or

▶ Improve sanction systems – using e-initiatives including new sanction systems made possible due to the existence of e-registers, and online non-compliance/'naming and shaming' lists.

Readers interested in these deterrence e-tools are referred to previous Platform reports and good practice fiches that review and evaluate these e-tools to deter undeclared work (e.g., European Platform tackling undeclared work, 2017a,b, 2018, 2019a,b,c,d,e,f,g,h, 2022a) and an ILO report covering the e-tools used to deter undeclared work in European countries (Williams, 2021).

Here, and in line with Digital Compass 2030, the focus is upon accessible and human-centric e-services for businesses and citizens that prevent undeclared work by making declared work easier, more beneficial, and acceptable.

As Figure 10 displays, e-services that make **declared work easier and more beneficial** (i.e., 'incentives') are of two broad types:

▶ E-services that enable businesses and workers to operate in the declared economy more easily and beneficially.

▶ E-services that encourage purchasing from the declared economy.

Meanwhile, e-services that make undeclared work more unacceptable and **declared work more acceptable** are again of two broad types:

▶ E-services that seek to change social norms by educating and raising awareness about the benefits of declared work and costs of undeclared work.

▶ E-services that modernise enforcement authorities by making them more 'customer friendly' and enhance customers' perceptions of procedural and redistributive justice and fairness.

Here, each of these four types of e-service is considered in turn.

4.3   E-services enabling businesses and workers to operate in the declared economy more easily and beneficially

A key finding in studies of undeclared work is that the high costs of operating in the declared economy and insufficient benefits in terms of improved business performance result in some businesses operating in the undeclared economy (for a review, see Williams, 2023). Consequently, it needs to be made **easy** and **beneficial** to operate in the declared economy. To achieve this, the finding is that comprehensive packages containing an array of policy measures are more effective than single policy initiatives (Floridi et al., 2021; Jessen and Kluve, 2021; Ohnsorge and Yu, 2021). Here, therefore, a range of e-services making it easier and beneficial to do so are reviewed and evaluated but recognising that comprehensive policy programmes introducing a package of these e-services concurrently will be more effective.

E-services that make declared work easier and beneficial for businesses and workers include:

▶ E-registration of businesses.

▶ E-registration of employment.

▶ E-portals making tax and social contribution payments easier.

▶ Online help with record keeping.

▶ Online compliance lists.

4.3.1 E-registration of businesses

An e-portal brings together information from multiple sources in a user-centric personalised space accessible via a single digital gateway that displays content specific to the individual user (OECD, 2022). E-portals therefore join-up government services to simplify the number of separate procedures required (see Box 3).

June 2021, a steering project, 'Register Modernisation', initiated by Germany's IT Planning Council (*IT-Planungsrat*) (European Commission, 2022k).

In this sub-section, consideration is given to the use of e-portals that make operating in the declared economy easier and beneficial for businesses, employers and sole traders by simplifying business registration, and reducing the time and costs involved for businesses, employers and sole traders (and governments). These single digital portals to enable e-registration for business start-ups join-up across government previously time-consuming and complex procedures in the form of a virtual one-stop shop (see Box 4).

Box 4. Single digital portals for business registration

Examples include:

▶ In Greece, those starting a business in the past needed to physically visit an array of government offices, undertake 15 procedures, wait more than a month, and pay fees equating to over 20 % of income per capita. Over time, there has been ever greater simplification. An e-registration portal has existed since 2018, and starting a business now takes 3-4 days and the registration fee is EUR 250 (or 30 % less if done online). The minimum cash to be deposited as paid-in capital before incorporation is now a nominal EUR 1 (World Bank, 2019).

▶ A similar simplification process over time has taken place in Estonia where since 2011, e-registration of businesses has been possible through a single digital portal, with the time required to register a business reducing from five days to two hours (Divald, 2021).

▶ In Austria, within the government's Business Service Portal (*Unternehmensserviceportal*) that supports businesses, there is an e-service, *eGründung*, to help people start a business online (European Commission, 2022a).

▶ Spain has a one-stop shop for business registration, the Information Centre and Business Creation Network (*Centro de Información y la Red de Creación de Empresas,* CIRCE). The CIRCE is available to limited liability companies, communities of assets, civil societies, and individual entrepreneurs. This e-service assists new companies with procedures required by all levels of administration and facilitates communication with all agencies involved in the registration process. The CIRCE uses a single electronic document (DUE), rather than the numerous forms that previously were separately requested by numerous public authorities. This is then processed using a telematic processing system (STT), which sends the information submitted on DUE to the appropriate authorities (e.g., tax authority, social security, commercial register, notary's office). For example, when the tax authority receives from DUE the information required for tax registration, it electronically issues a provisional tax identification number. Once the registration of the company is certified by the CIRCE, it then issues a definitive tax identification number (OECD, 2022).

▶ In Bulgaria, a similar single digital gateway exists for opening and closing a business online (European Commission, 2022c).

▶ In Croatia, there is the START platform to enable businesses to be started remotely and without intermediaries via a single electronic procedure at a single digital location (European Commission, 2022d).

These single digital portals can allow a business to register entirely online, pay any fees required and upload all necessary documentation, eliminating the need for a physical visit to any authorities.

Annex 1 presents dashboards for each country of the extent to which there is joined-up comprehensive digital service delivery when starting a business, displaying any additional actions required in each country for this to be achieved. It also displays the countries where these aspects have been already achieved and the DESI scores awarded, enabling countries to identify other countries where they can look for inspiration on the way forward to deliver comprehensive digital service delivery when starting a business.

When delivering comprehensive digital service delivery in relation to starting a business, it is important to consider whether online registration should be mandatory or not. In many countries, internet penetration is still not universal and the levels of digital literacy not always high among everybody seeking to register a business. Therefore, it is sometimes useful to offer the option of offline registration as well as online registration (e.g., as occurs in Greece), although doing so online can be made the cheaper option to incentivise e-registration, as is the case again in Greece for example.

Evaluating whether simplifying business registration, such as by implementing e-registration, is effective at encouraging business registration, the findings are mixed. Where successful, e-registration as stated above is usually part of a more comprehensive policy package which often includes incentives to register (Williams, 2023). Therefore, to make registration beneficial, e-registration of business needs to be coupled with a fuller policy package of policy measures.

This more comprehensive policy package, moreover, needs to recognise that full business registration (e.g., direct tax registration, VAT registration, business name registration, location permit, environmental permit, building permit, sole proprietorship registration, company registration, small and medium enterprise (SME) categorisation, logo registration, seal registration, sector-specific licence registration) is often a journey rather than a one-off event. Imposing full registration on businesses from the outset can make the costs of registration outweigh the benefits. In national policy, this is usually recognised; certain registration requirements are only made applicable when specific firm size thresholds (e.g., on turnover, employment) are reached, thus simplifying the registration process, and reducing the costs of registration, for smaller businesses.

Given this, the development of e-portals for business registration provides a useful opportunity to revisit threshold policies on registration requirements. These have often developed incrementally over many decades. The creation of single digital portals is an opportunity to revisit them from a joined-up whole government perspective to evaluate whether they are 'fit for purpose'. This needs to recognise that the goal of thresholds for different registrations is to enable businesses to see the benefits of registration without excessive accompanying costs being imposed all at once but rather, at different stages in the business development process.

The development of e-portals for business registration is also an opportunity to revisit the package of incentives for registration (i.e., to improve the benefits of registration), such as the eligibility requirements for targeted aid and support (e.g., access to public procurement contracts, bank credit, access to training and business support) that make registration beneficial. The intention in doing so is to ensure that businesses are appropriately incentivised to grow and progress on the journey towards full registration. As such, introducing single digital portals for business registration could act as the catalyst for a comprehensive review of the package of policies in place to support business development and growth.

Finally in relation to thresholds, e-portals for business registration need to be carefully designed firstly, to recognise that not all licences and registrations might be required at the outset to validate the registration of a business in a particular country. If this is not achieved, virtual one-stop shops will deter registration rather than make registration easier and beneficial. Secondly, e-registration portals need to embed information 'just a click away' on the eventual incentives accompanying various registrations (e.g., hyperlinks on the business support and advice available, access to employee training, access of bank credit, opportunities to be represented at trade fairs, access to public

procurement contracts). This enables the eventual benefits of registration to be seen as they pursue their journey to full registration.

4.3.2   E-registration of employment

Another e-service to make it easier for businesses and workers to operate in the declared economy is the use of electronic registration of workers. Such e-registers have the objective of simplifying the process of employment registration and reducing the costs to businesses.

Boxes 5-7 provide examples of e-registers of employment and their outcomes. Box 5 reports the e-register of employment developed in Estonia, Box 6 the Revisal e-register of employment in Romania, and Box 7 the Incomes Register in Finland. The tentative evidence is that they are effective in making declared work easier.

Box 5. E-register of employment, Estonia

Aims: the objectives of the introduction of the e-register of employment in Estonia have been:

▶ To increase the availability of digital data on employment into a single electronic register.

▶ To reduce the administrative burden on employers and public authorities, and to simplify the operating principles of the social guarantee system.

▶ To prevent undeclared work.

▶ To improve social protection.

Description: Since 1 July 2014, employers have been required to register their employees in the e-register before the employee starts work. This means that up-to-date data on employment is in one place. Registration is required for all employees. Registration can occur either via either e-channel (E-Tax/E-Customs), at the Estonian Tax and Customs Board (ETCB), or by phone or SMS. Paper submissions are no longer accepted. Employers can access 'live' employee data and change it whenever necessary. Employees, meanwhile, receive automatic notification when their employment is registered and can check the e-register to ensure the details are correct. Data from the e-register is used to provide customer services such as to calculate health insurance, unemployment benefits (on termination of employment), but also to monitor the work of migrant workers, monitor and investigate accidents at work, and verify tax compliance (labour taxes).

The initial cost to set up the e-register of employment was EUR 403 200. The annual maintenance cost is circa EUR 33 000. The ETCB are responsible for its maintenance.

Evaluation: A media campaign and press releases advertised the e-register at launch and its importance. This marketing campaign informed customers of the requirement to use the database. In doing so, it prevented undeclared work. Following the new requirements to register workers in the e-register from 1 July 2014, an additional 21 000 workers were registered, resulting in an additional EUR 11.8 million tax revenue collected in 2014. Analysing data from the e-register of employment, and inspection data on the proportion of unregistered workers identified as a percentage of the workforce in inspected businesses, the share of unregistered employment decreased from 10 % in 2014 to 6.3 % in the first quarter of 2016.

Source: European Platform tackling undeclared work (2019)

Box 6. REVISAL e-register of employment, Romania

Aim: The aim of the REVISAL e-register of employment has been to:

▶ reduce the administrative burden of registering labour contracts.

▶ improve the ability of the labour inspectorate to detect undeclared work by (i) increasing the transparency of employers' obligations and (ii) providing labour inspectors with substantial information before going into the field*.*

Description: Since 1 January 2011, the registration of employment contracts has been exclusively through the REVISAL e-register of employment. All employers are legally obliged to complete the database, using a desktop app provided free by the Labour Inspectorate. Employers must send a complete record of employment for each new employee to the territorial Labour Inspectorate not later than the last working day before the employee's start date. Data must be provided on:

▶ The employee's details (e.g., name, citizenship, personal identification code).

▶ The starting date of their employment contract.

▶ Their job title, type of contract, working hours, salary, and bonuses.

▶ The period and reasons for any suspension of their employment contract, as well as the termination date.

Termination of employment contracts must be submitted to the REVISAL e-register within 20 working days (maximum) after termination of the contract. Moreover, if an employer does not register an employee before their start date, then this is treated as undeclared work and a fine can be imposed.

Evaluation: The REVISAL e-register has significantly reduced the administrative burden on employers.

Success factors have been identified as: making available to all employers a desktop app; the provision of comprehensive information guidelines on how to install the app and use the REVISAL e-register; and the integration of the REVISAL system into payroll software used by businesses.

Source: European Platform tackling undeclared work (2019).

Box 7. Incomes Register, Finland

Aims: The Incomes Register is an e-service that enables workers' earnings to be reported to the authorities in real time, whenever a payment is made. The objectives include:

▶ Reducing the administrative burden for employers by enabling direct communication between private payroll systems and the Incomes Register.

▶ Providing a real-time user interface for workers in relation to their earnings, pensions, and benefits.

▶ Enabling the more efficient detection of undeclared work by increasing real-time transparency that employers have fulfilled their obligations.

Description: The Finnish Incomes Register provides a real-time comprehensive repository of citizens' earnings, social insurance contributions, benefits, and pensions data that various public authorities with a mandate to do so can access.

Starting in 2014, the Incomes Register development project (KATRE) was a component of a broader digital infrastructure development programme. The law on the Income Information System (53/2018) obliged the relevant authorities and employers to use the new electronic system as a tool for reporting all payments by employers, benefits, and pension providers. The first phase came into operation on 1 January 2019 starting with the reporting of salaries and earnings. Phase two came into operation on 1 January 2021 introducing the reporting of benefits and pensions.

The main characteristics are:

▶ The Register interface provides two user roles: those reporting payments (e.g., employers) and those viewing payments made (e.g., citizens, government authorities).

▶ Employers as well as pension and benefit providers report all payments through the same e-system, which conveys the information to each data user according to their legal entitlement.

▶ The reports include details of social, health, pension, accident and occupational disease contributions, and unemployment insurance contributions of varying types.

▶ The deadline for reports is five calendar days after a payment is made. Failure to report results in a fine of EUR 135 for a delay up to 45 days, and after that, a maximum fine of EUR 15,000 per month is imposed.

▶ This e-service enables citizens to access their own up-to-date payments and to produce different reports from the data for various uses.

Evaluation:

▶ 87 % of employers report digitally and automatically. Only 0.04 % submit paper reports.

▶ There has been effective and successful cooperation with private system providers to build operational technical interfaces between private payroll systems and the Incomes Register.

▶ There is real-time data and transparency for data users, employers, and citizens.

Success factors have included: the provision of ready-to-use materials for communications and training; and adequate provision of resources for customer service provision in the few months to help employers, citizens, and data users, whilst they were becoming familiar with the new e-service.

Sources: European Platform tackling undeclared work (2019c)
Incomes Register web page: https://www.vero.fi/en/incomes-register/
Incomes Information System (53/2018): https://www.finlex.fi/fi/laki/alkup/2018/20180053
English education material on Register: https://www.youtube.com/watch?v=dGdmL3n34JE

The main current challenge in most Member States is ensuring that all employment relationships are covered by such e-registers. Examples of employment relationships sometimes excluded from the requirements for e-registration include temporary and smaller jobs, and service providers on digital labour platforms.

Take the case of smaller jobs. Some countries have decided to avoid the challenging issue of requiring e-registration of smaller jobs using regulatory simplification. They explicitly exclude those engaged in smaller amounts of paid work from the requirement for e-registration by introducing an income threshold under which there is no requirement for e-registration (e.g., Belgium). This has automatically moved out of the realm of undeclared work a vast amount of economic activity that might be otherwise classified as undeclared work. Examining the 2019 Eurobarometer survey on undeclared work, 47 % of those reporting engagement in undeclared work in the year prior to the interview had undertaken undeclared work for friends, colleagues, or acquaintances, 20 % for relatives, and 18 % for neighbours, presumably much of which was small-scale odd jobs (Williams and Horodnic,

2021). Therefore, introducing such income thresholds simplifies compliance. It automatically transforms much of this undeclared work into declared work, making it easier and simpler to engage in declared work for many whose reason for doing it is to help others out. Much of this work for close social relations is primarily active citizenship, but money is given and received for the favours (e.g., tidying a garden, doing home decorating) to avoid any connotation that charity is involved on the part of those giving money, which would likely result in the offer of help being rejected (Williams and Horodnic, 2018).

An alternative to introducing thresholds for registering small jobs has been to simplify the registration process to make it easier. This approach has been adopted in Germany since 2002 when a 'mini jobs' scheme was introduced. Three types of mini job are covered: (i) jobs with earnings up to EUR 400; (ii) mini jobs in the household sector; and (iii) 'midi jobs' with earnings between EUR 400 and EUR 800. By 2004, 7 million mini jobs had been registered, which Schneider (2008) argues reduced the undeclared economy by EUR 9 billion. In 2012, the earnings thresholds increasing to EUR 450, effective from 2013. Since 2014, a state-run online platform, *Minijob-Zentrale*, has operated which functions like other shared economy platforms, but is free of charge, bringing together suppliers of mini-jobs and customers requiring work (European Platform tackling undeclared work, 2019l). This reveals that digital labour platforms can be also state operated and facilitate the declaration of work. They are not by definition a cause of greater undeclared work.

Sometimes, moreover, temporary jobs have not been covered by (e-)registration requirements, or employers and workers have seen the requirements as too complex or time-consuming for them to comply. For example, this was the case in Hungary. Employers had to complete a temporary work booklet for every worker with 18 pieces of information required. However, the 2010 Simplified Employment Act made registration of seasonal and temporary employment easier, and since 2017, e-registration of temporary and seasonal workers has been possible using a mobile app and simple text message (SMS) (European Platform tackling undeclared work, 2019i). Since 2015, Bulgaria has adopted a similar e-registration process for short-term seasonal contracts in agriculture. In 2016, 199 173 such employment contracts were registered and 210 000 by 2018 (European Platform tackling undeclared work, 2019j).

A further category of workers sometimes excluded from the need to register their activities on e-registers of employment have been service providers on digital labour platforms. Again, initiatives are being pursued to include service providers in the collaborative economy in (e-)registration requirements by making mandatory their registration. A 2019 Platform survey of 30 European countries (Williams et al., 2020) reveals that 25 % of countries responding require platforms to ensure that service providers are licensed/authorised (29 % of West European, no Northern European, 33 % of Southern European and 30 % of East-Central European countries). In Greece, for example, e-registration of service providers on collaborative platforms with the tax authority is mandatory and completed through an online application, from whom they receive a unique registration number. However, even in countries with e-registration of platform service providers, this has been previously sometimes not universal but only required for specific platform services, such as taxi services (e.g., in Austria, Czechia and Latvia) or home rental activities (e.g., Denmark).

4.3.3   E-portals to simplify and make easier tax and social contributions

Besides e-portals for business and employment registration, there are also e-portals **to simplify and make easier tax and social contributions.** These e-portals for customers to interact with enforcement authorities in relation to tax and social contributions, currently vary in terms of what it is possible for businesses and citizens to do on them. Three functions are here considered:

▶ Making registration for taxes and social contributions easier.

▶ Enabling e-filing of tax and social contribution returns, and

▶ Paying tax and social contributions owed online, e-notifications and e-guidance on tax and social contributions.

Each is considered in turn.

4.3.3.1 Making registration for taxes and social contributions easier

The most common function of e-portals for taxes and social contributions is to **make the registration for taxes and social contributions easier**.

To increase the use of such e-portals, it is important to illustrate to those paying taxes and social contributions **why** they should use them (e.g., reducing the burden on them and providing quicker access to information) and **how** to use them. Various initiatives have been pursued in this regard (see Box 8).

Box 8. Encouraging e-portal usage for tax and social contribution registration

Enforcement authorities have used various channels to explain to customers *why* they should use tax and social contribution e-portals and *how* to use them:

▶ The Belgian tax administration has produced tutorial videos on YouTube explaining how to use the e-payment application and has promoted these videos via social media. The tutorial videos targeted about 2 million taxpayers and resulted in a 332 % increase in electronic payments within the first two months after launch (compared with the same period in the previous year) (OECD, 2021).

▶ In Finland, to launch the MyTax e-portal, the Finnish tax administration similarly produced YouTube videos and instruction manuals explaining how to use the e-portal, as well as several online webinars, including an open chat for questions about the reform changes and MyTax. In addition, the tax authority created an imaginary Family (Family Korhonen) with different tax profiles and issues. The family had its own website and Facebook page, where it shared questions and thoughts about MyTax and the tax reform. The advantage of using videos has been that they are available 24/7, can be easily shared with the target audience and, if short, can be watched quickly and provide tailored information. However, a disadvantage of videos is that they do not reach those without online access. To overcome this, these videos (e.g., on filing deadlines or new tax requirements) can be shown on television to reach this segment of the population, and other channels used. Therefore, the Finnish tax administration also used alternative channels to briefly describe the changes and introduce the new portal. 3.2 million copies of a leaflet in three languages were produced and a short radio campaign. According to follow-up surveys, the ads reached about 70 % of the adult population (OECD, 2021).

Several challenges confront public authorities when developing such e-portals. A first challenge is data protection. A common way forward has been the development of biometric identification (e.g., face, voice, retina, or fingerprint recognition) to reduce fraud and save time. In Denmark, for example, all citizens and enterprises have an electronic identity (eID) used by 95 % of the population, which provides access to all digital public services and is also used by more than 700 private digital services such as banks, insurance companies and other businesses, for the validation of payment transactions (European Commission, 2022g).

A second key challenge confronted by public authorities when developing such e-portals and merging registers into an interconnected data pool, is the limited interoperability of datasets, such as due to vendor lock-in, as is found in Czechia (European Commission, 2022f). This hinders joined-up e-portals. Indeed, this and other barriers to cross-government interoperability of data require concerted coordinated effort to address.

An example of such efforts at cooperation is found in Finland where the Ministry of Transport and Communications, the Ministry of Finance, and the Ministry of Employment and the Economy, have established a group, the DigiOffice, to coordinate inter-ministerial cooperation on digitalisation and the data economy (European Commission, 2022i). Greece has adopted a similar initiative so that public authorities can connect their existing information systems to provide services online in accordance with the 'digital by default' and 'once-only' principles. The Interoperability Centre (KED) governs the interoperability framework (i.e. the functional interconnection, identification, and synchronisation of information between key registers) and facilitates interoperability (European Commission, 2022l).

At an earlier stage in the development of e-portals and merging registers into an interconnected data pool data is Romania where the Ministry of Labour and Social Protection, together with two other institutions, is implementing the MMPS-SII MMPS Service HUB project, due to be completed at the end of 2023, with a budget of RON 133 million (EUR 27 million). This is seeking to establish a single point of the contact, the Ministry's portal, for the public's online interactions and to enable the submission of online applications for social assistance and social service benefits and to give the public and enterprises the possibility to consult and create their own electronic files (European Commission, 2022w).

4.3.3.2 Enabling e-filing of tax and social contributions returns

The second most common function fulfilled by these e-portals is to **enable tax and social contribution returns to be filed digitally**. The major advantage of e-filing tax and social contribution returns is lower costs both for the public authorities and the payers. To encourage e-filing, incentives can be offered, such as later submission dates for e-filing than for paper-filing of tax returns, and lower penalties for late electronic than for late non-electronic submission. Box 9 provides an example of this in Estonia.

Box 9. E-tax filing in Estonia

The ETCB first introduced online declaration of taxes owed in 2000. Any taxpayer can file their tax return online and much of it is pre-filled. On average, taxpayers now spend an average of three minutes completing their tax return. E-filing of tax returns includes not only individual income tax returns but also companies can declare income tax, social tax, unemployment insurance and pension fund contributions through e-Tax. An incentive for taxpayers to file online their taxes is the quick refund of money if they have overpaid. This would take weeks to process and distribute the refund based on paper applications. However, e-filing of tax declarations means that the refund period is some five days. The percentage of taxpayers filing online has increased consistently from 59 % in 2004, through 92.4 % in 2010, and 95 % in 2015 (Ströbele et al., 2017) to some 98 % in 2019.

Source: Divald (2021)

There has also been the development of e-services to simplify the e-filing of tax returns for groups of the population that have conventionally been non-compliant (see Box 10).

Box 10. Public-private partnerships to simplify e-filing of tax returns: the ETCB/LHV collaboration in Estonia

Aim: To make tax filing easier and compliance simpler, specifically for micro-enterprises who have higher rates of non-compliance, through a public-private partnership between the ETCB and LHV bank.

Description: In Estonia, the ETCB has worked in collaboration with an Estonian bank, LHV, to provide an entrepreneurial account. Those delivering private person-to-person services (e.g., personal cleaners, gardeners, nannies) can register this entrepreneurial bank account and the bank automatically deducts 20 % from payments into their account (or 40 % if they earn over EUR 25,000), and then automatically sends this tax liability to the ETCB (ETCB, 2021).

Evaluation: In October 2020, 3 000 entrepreneurial accounts had been created with more than EUR 1 million of payments into the accounts. This public-private partnership e-service has therefore simplified tax filing for a group of businesses which traditionally has high rates of non-compliance.

Sources: Divald (2021); ETCB (2021); LHV Bank (2020); Siiri (2020)

To increase the level of e-filing, it is again important to illustrate to those using paper-based returns **why** they should use e-filing (e.g., reducing the burden on them and providing quicker access to information) and **how** to use e-filing. Box 11 provides an example of how this is being achieved.

Box 11. Encouraging e-filing of tax returns: the 'pay and file' campaign in Ireland

Aim: To encourage e-filing of tax returns by explaining why customers should use e-filing and how to do so, Revenue Ireland launched a 'pay and file' campaign.

Description: The Irish tax authority produced a range of short instructional videos on the Revenue Ireland YouTube channel to show how to register for the Revenue Online Service (ROS) and how to file income tax returns online. Additionally, they identified and contacted cohorts of taxpayers (e.g., those newly registered, those with agents and those who filed paper returns) to remind them about their obligations, promote online filing (including access to pre-filled tax returns) and advise them of the website guidance and videos available. The information was also summarised for representative and sectoral bodies, such as farmers' organisations, property owner bodies, and bodies supporting new businesses.

Evaluation: Since the inception in 2016 of the 'pay and file' campaign, various criteria have been used to assess their success. The videos have received 28 000 views. The volume of phone calls in the run-up to annual filing deadlines has reduced year after year, an increasing number of taxpayers have downloaded prefilled tax returns, and in 2018, for the first time, more than 500 000 online income tax returns were filed. Furthermore, a survey of self-employed individuals highlighted that 63 % were aware of the videos. They also reported high satisfaction levels regarding the information on the website, saying that the videos, guidelines, and phone contacts had proved to be invaluable.

Source: OECD (2021)

A very common way in which e-filing of tax and social contributions has been made easier is by **pre-filling returns**. For tax authorities, fields on tax returns are populated by the authority, which taxpayers then view and validate. This significantly reduces taxpayers' compliance costs in terms of the required time and resources to complete tax returns (Kosugi, 2023).

One of the first countries to pre-populate tax returns was Denmark in 1998. Since then, pre-filling has become a common e-service in many tax authorities (Jensen and Wöhlbier, 2012). In Estonia, it now takes an average of three minutes to complete a tax return and there have been one-click tax returns since 2015 (Divald, 2021; Williams, 2021). In Hungary, pre-filling of tax returns is part of a wider national strategy whereby pre-filling is used across 439 public services at the end of 2021 via the built-in online intelligent forms (iFORM) with automatic pre-filling of personal data (European Commission, 2022m). In Nordic countries, most taxpayers receive fully completed personal income tax returns (see OECD, 2011). This is mostly because, as Kleven et al. (2011) points out in relation to Denmark, more than 90 % of all employees' incomes can be pre-filled, although this is the case for less than 10 % of the self-employed. As a result, just 2 % of employees report too low incomes, but 40 % of the self-employed.

Nevertheless, evaluations reveal that it is important for future compliance that tax authorities correctly pre-fill tax returns and do not under-calculate income. As Fochmann et al. (2021) find, future compliance is the same level as when there is no pre-filling if prefilled income is less than real income. If prefilled income is more than real income, compliance is higher and the same level as correctly prefilled forms. This displays that it is appropriate for tax authorities to err on the side of over- rather than under-estimating income.

The most recent shift in e-filing is away from the one-stop shop to the '**no-stop shop**'. Here, e-filing systems identify and deliver services with payers simply confirming the information provided to them. Again, it has proven important to explain to customers how pre-filling operates using educational and awareness raising e-tools (see Box 12).

Box 12. Explaining to customers the process of e-filing and pre-filling of tax returns: a campaign in Italy

Aim: To explain to customers how e-filing and pre-filling of tax returns operates to encourage usage in Italy.

Description: in Italy since 2015, citizens can access their pre-filled tax returns and submit them online in a few steps. To promote the new service and assist taxpayers in its usage, the Italian Revenue Agency launched an information and awareness raising campaign. This not only used e-channels such as a dedicated website, including a frequently asked questions (FAQ) section, and prepared YouTube videos to tutor taxpayers in the use of the service, but also alternative channels such as TV and radio commercials and publishing advertisements in newspapers and magazines, guiding taxpayers through the new service.

Evaluation: The number of pre-filled tax returns increased from 1.4 million in 2016 to 3.9 million in 2020.

Source: OECD (2021)

4.3.3.3   Paying tax and social contributions owed online, e-notifications and e-guidance on tax and social contributions

Beyond e-registration and e-filing of taxes and social contributions, the third most common functions of e-portals for taxes and social contributions is to allow the **electronic payment of money owed,** provide multifarious **e-notifications** (including their filing status and filing history, account summary, review of their payment plan, their obligations, tax assessment notices, and notifications of progress), and provide **e-guidance**.

Starting with e-portals enabling e-payment of tax and social contributions, it is again important that customers are informed about why they should use e-payment and how to use it. To achieve this, in Belgium for example, a YouTube video has been used to explain to taxpayers how to use the online tax payment app. It is also important

to incentivise e-payment, especially in the early stages, to encourage its usage. This might involve later payment dates for e-payments or the ability to pay in stages.

On e-notifications about tax and social contributions (e.g., filing status, filing history, review of payment plans, obligations, tax assessment notices, notifications of progress) and e-guidance on tax and social contribution liabilities, it is important to recognise that as customers become more sophisticated digital users, expectations are continuously rising. This means that the e-notification and e-guidance systems of enforcement authorities need to match customers' expectations (Granger and Sawyer, 2023) and match their experiences when using equivalent commercial websites, such as banking or insurance platforms.

One recent trend, therefore, is to make available e-guidance in context ('just a click away') and to embed support tools (e.g., spreadsheets, calculators) where they are required by customers. Enhancing the quality of provision of e-notifications and e-guidance to businesses, employers, and workers on their expected tax and social contribution liabilities is not simply done to provide a service. A key finding of much compliance research is that uncertainty over tax and social contribution liabilities significantly reduces compliance (Alm et al., 2010; McKee et al., 2018). Therefore, developing high quality e-notification and e-guidance systems reduces uncertainty and in doing so, significantly improves compliance rates.

A common e-service used in this regard are applications ('apps'). An application (app) is a software package designed to allow end users to engage in a process or complete a task. Applications for desktop and laptop computers are termed 'desktop applications,' while applications for mobile devices (e.g., smartphones, tablets) are termed 'mobile applications'. Both desktop and mobile apps can be used by enforcement authorities to provide e-notifications and e-guidance on tax and social contributions liabilities.

For example, in Finland, online calculators have been developed to enable both workers and employers to calculate their tax and social contribution liabilities, namely the Gross Income Calculator and Tax Percentage Calculator. The Gross Income Calculator, launched in June 2013, is used in situations where the employer and the employee have agreed on the net amount of wages, but they need an estimate of the correct gross income for the employee to obtain a tax card, and for the employer to prepare their annual payroll report. The Tax Percentage Calculator, launched in December 2002, can be used to estimate whether a person needs a change in the withheld tax percentage rate in case there have been changes in the labour status or circumstances (e.g., if the person is no longer employed or has recently started working) (European Platform tackling undeclared work, 2019k). In Spain, meanwhile, for smaller and medium-sized enterprises and the self-employed, there is support provided to pay their social security contributions. The Direct Settlement System (*Sistema de Liquidacion Directa*) is accompanied by videos explaining the data to be provided, the timing, etc, and for the self-employed, there is a simulator to calculate the payment owed.

A further e-service being offered to customers by some enforcement authorities is online access to their risk rating so that they can for example correct unintentional mistakes that they have made. This reduces the need for costly audits and inspections by the enforcement authorities by encouraging corrections to be made and greater levels of voluntary compliance without these need for audits and inspections. Box 13 provides an example from Italy of making available to customers their risk rating.

Box 13. Redditest and Redditometro online risk assessment e-service, Italy

Redditometro is the risk assessment tool of the Italian tax administration (*Agenzia delle Entrate*). Based on data on the spending patterns of households, it allocates households to consumption groups, and examines whether household declared income matches. Redditest, meanwhile, is an online tool for Italian households to calculate

if they have declared their income correctly, and if they are at risk of inspection from the Italian tax authorities. It uses the same methodology for risk assessment as Redditometro.

Redditest, launched in 2009, allows taxpayers to self-diagnose if they are at risk of audit by the tax authorities. The software, available online and for download on personal computers, enables an anonymous check to be undertaken of whether their declared income is consistent with his/her standard of living. Households' standard of living is calculated, based on 80 indicators of hypothetical types of income groups, across seven expenditure categories: homes/real estate; means of transport; insurance and social security contributions; education; sports and recreation; real estate and securities investments; other significant expenses. Based on administrative and statistical data, households are allocated to different standard of living groups, which correspond to the possession of certain assets, the location of their residence, etc. The implicit assumption is that if a household possesses certain luxury items and inhabits a certain locality, then a certain level of income is required to sustain that standard of living. A large discrepancy between such imputed standard of living and their declared income signals that they are at risk of audit. It is intended to prompt households to double-check their tax returns and contact the authority to clarify its situation if necessary.

After the data is entered, the Redditest produces a green- or a red-light result. A red light indicates an inconsistent standard of living with the stated income/expenses. The user is asked to revise the input data and/or the amount of paid tax to avoid further consequences. If the difference between the declared income and the imputed by Redditest income is greater than 20 %, an audit is deemed imminent. To avoid citizens' fears of intrusion on their privacy and to show that Redditest is a prevention (not detection) tool, the Italian Revenue Agency has ensured that the software can be downloaded to a personal computer and data entered offline, which prevents its registration in any way on the web.

The **Redditometro** is the same tool used by the Italian tax administration to assess the probability of tax non-compliance. It examines household declared income and whether this matches their expenditure patterns using pre-defined standard of living household groups to assess whether non-compliance in income declaration is likely to have occurred. The household expenditures are controlled through data available in the tax register on purchases of large-scale items and the average expenditure for this type of family unit according to the Italian statistical office (ISTAT). If the identified discrepancy is too high, this triggers a tax inspection. The controlled items of expenditure include houses, cars, entertainment, education, insurance, investments, and major expenses of various kinds such as art, gifts, jewellery, and other valuables. The items can be part of the income of both firms and individuals. In 2016 for example, 35 000 control operations were conducted in cases where the deviation exceeded 20 %.

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http://www.agenziaentrate.gov.it/wps/file/nsilib/nsi/documentazione/archivio/normativa+prassi+archivio+documentazione/arch ivio+comunicati+stampa/cs+2012/cs+novembre+2012/cs20112012+redditest/Binder1.pdf
https://www.youtube.com/watch?v=G4tpEOHKUjk
https://it.wikipedia.org/wiki/Redditometro
http://www.nytimes.com/2013/01/28/world/europe/italys-new-tool-for-tax-cheats-the-redditometro.html
http://www.bbc.com/news/business-21064030
http://www.thisisitaly-panorama.com/top-stories/redditometro-and-redditest-new-weapons-to-fight-tax-evasion-in-italy/

Similarly, since June 2020 in Estonia, businesses can view online how the ETCB rates their businesses in terms of risky tax behaviour (ETCB, 2020; European Platform tackling undeclared work, 2022b). The intention is again to enable businesses to correct simple and honest mistakes. Making available to the public such an e-service on the risk assessment used is a means of enabling voluntary compliance and reducing the need for costly audits. A similar e-service could be provided by labour authorities to make available online either their risk assessment tool

or their results in terms of identifying risky businesses. This would similarly act as a preventative e-service encouraging voluntary compliance.

There are of course many additional e-services that can be offered with the advent of e-portals for tax and social contributions. An example of an additional e-service that can be offered, this time by social security authorities, is the **automatic granting of benefits**. This is another example of the recent trend away from the one-stop shop to the no-stop shop. Box 14 provides an example from the Crossroads Bank for Social Security (CBSS) in Belgium of how the payment of social benefits have been made simpler and easier for recipients by making them automatic.

Box 14. Automatic e-granting of benefits: the Crossroads Bank for Social Security (CBSS), Belgium

Aim: The Crossroads Bank for Social Security (CBSS) provides a gateway to improve service delivery to workers paying social insurance and their employers. Social benefits are automatically granted without the citizens or their employers having to make declarations. This automatic granting of social benefits therefore makes it simple and easy for citizens and their employers, significantly reducing the administrative burden.

Description: Social security in Belgium is composed of three insurance systems (workers, self-employed workers, and civil servants), seven branches of social security (i.e., incapacity for work, industrial accident, occupational disease, unemployment, old age, childcare, and holiday pay), and four assistance systems (i.e., subsidies for the handicapped, guaranteed family allowance, minimum income and income guarantee for the elderly), granting citizens specific minimum services. Some 3 000 institutions are responsible for implementing the Belgian social security system.

The Crossroads Bank for Social Security (CBSS), which started in the 1990s, is a gateway collating data from 14 social security institutions and providing an electronic service for citizens. The CBSS is not a databank (despite its name) but rather, a network allowing data flows between these different institutions. Each institution maintains its own data.

Evaluation: In 2016, there were some 1.1 billion electronic data exchanges with a response time to online messages of less than 4 seconds in 99.27 % of cases. Analysing the resultant efficiency gains, the Belgian Planning Bureau has calculated that the information exchange processes have led to an annual saving of EUR 1.7 billion per year. A significant benefit for citizens and employers is better quality service provision and new types of e-service, including the automated granting of subsidies.

Examining the lessons for other countries, the critical success factors are the requirement for a common vision on e-service delivery, support from high-level policy makers, stakeholder trust in the system, and respecting the legal allocation of competences. In Belgium, top-level political support, the gradual involvement of general managers in all public social security institutions, social partners, and general managers of the private social security institutions, were significant in enabling its success. Its success was also premised on e-service delivery based on a multi-disciplinary approach covering legal, ICT, communication, coaching, training, and change management.

Source: www.ksz-bcss.fgov.be/nl/information-english

There are many additional e-services that could simplify tax and social contribution payments beyond what has so far been discussed. For example, many taxpayers spend considerable amounts of time preparing their tax returns, providing detailed documentation of all their expenses, so that the net profit and taxes owed can be calculated. This results in a significant administrative burden for taxpayers. One option to simplify this and ease the burden,

used for many decades in for instance the US federal tax system, is a standard deduction for expenses (Slemrod and Yitzhaki, 1994). This informs employers and sole traders that a certain percentage of their turnover can be deducted as expenses. The advent of e-tax registers and data analytics makes easier and simpler the development of a much more nuanced approach to calculating these percentages. Given that in most countries businesses are offered the choice between accepting a standard deduction or submitting their expenses, the calculation is made much easier and simpler of what these standard deductions should be (across different industries, occupations, etc) so that the standard deductions offered are revenue neutral for tax authorities. The net outcome of such an e-service, if implemented in Member States, would be a significant reduction in the costs and time spent by employers and sole traders completing their tax returns. There are doubtless many more ways in which tax and social contributions could be simplified for customers with the advent of e-tax registers and advanced data analytics.

4.3.4　Online help with record keeping

To make declared work easier, authorities can also offer online help and support to businesses, employers and sole traders with record keeping. This prevents unintended non-compliance, and reduces uncertainty among businesses, employers, and sole traders regarding future liabilities.

Authorities can provide online information (e.g., fact sheets or flow charts) on record-keeping requirements, and free online advice and training on keeping records (e.g., using online educational videos, and courses) and/or free record-keeping software. Of 30 European countries surveyed in 2022 (Williams and Horodnic, 2022), 50 % responding provide fact sheets on record-keeping requirements (75 % of Western, 67 % of Northern, 44 % of East-Central and 20 % of Southern European countries), 38 % free advice/training on keeping records (50 % of Western, 40 % of Southern and 33 % of Northern and East-Central European countries), but only 8 % free record-keeping software to businesses (33 % of Northern and no Western, East-Central or Southern European countries). It was not asked with this was online or not. Box 15 provides an example from Poland of this provision of help with record keeping.

Box 15. Free software for VAT record-keeping, Poland

In Poland, it is mandatory for VAT taxpayers to maintain electronic records of purchases and sales, and report this via the Standard Audit File for Tax (SAF-T).

Various free tools are offered by the authorities to fulfil this obligation. These include:

▶ 'E-mikrofirma', a web tool designed for sole proprietorships, especially those without professional accounting assistance, to create records relevant to VAT and submit to the authorities, and

▶ *'Klient JPK 2.0',* used to send records of purchases and sales to XML files and to send these to the Ministry of Finance. It also enables users to sign a file and to check the status of the uploaded file with the reference number received. The application can be used by all groups of taxpayers.

There is also a national e-invoice system (*Krajowy System e-Faktur, KSeF)*, although e-invoicing remains a challenge in Poland. It was introduced on January 1 2022 as a voluntary model. Few taxpayers switched to standardised e-invoices, although there are incentives to do so. The main benefit is the shorter period of VAT refund (40 days instead of 60 days). Therefore, a first draft regulation on mandatory e-invoicing was published by the Ministry of Finance in December 2022 and submitted for public consultation. Many challenges were identified during public consultation.

A European Council derogation decision allowed Poland to introduce a mandatory e-invoicing system starting from January 1 2024. However, according to recent Ministry of Finance announcements, it will be postponed to July 1 2024. Apart from the postponement of the starting date for obligatory e-invoicing, other changes included:

▶ An exclusion of B2C transactions from obligatory e-invoicing – this was problematic for the retail sector, especially for in-store sales.

▶ Small taxpayers exempted from VAT (below the threshold of PLN 200 000) will fall under the KSeF obligation half a year later – starting from January 1 2025.

▶ An additional half-year postponement (until December 31 2024) for invoices issued from cash registers and for cash receipts as a simplified invoice (with the purchaser's VAT ID and the value of up to PLN 450).

▶ Specific railway tickets and toll receipts treated as invoices will not be covered by the obligatory KSeF.

▶ The procedure for system failure – invoices issued offline, but afterwards submitted to the KSeF.

▶ Sanctions for non-compliance with the KSeF will be softened and postponed till January 1 2025.

A practical problem is the lack of an option to add attachments to invoices issued in the KSeF system. Moreover, for large companies issuing large numbers of invoices and sent to the central system in batches, the verification will not proceed in 'real time' and may take longer (even a few days). If one invoice fails verification, the whole batch of invoices will be rejected. Moreover, the system will not give any indication of which invoice was incorrect. For all taxpayers, a further problematic issue is the date of e-invoice issuance, which is defined in the law as the date of submitting an e-invoice to the KSeF when positively validated. This date should be entered into the relevant financial systems for reporting purposes, but it may differ from the date of invoice issuance stated on the invoice itself.

Source: OECD (2022) and Fornalik (2023)

A further sub-set of initiatives in relation to online help with record keeping relate to making the recording of working time easier for employers and workers. An example is the development of workplace identity cards in general, and social/labour ID cards more specifically (for reviews, see Briganti et al., 2015, Williams, 2022), especially when these cards are digitalised and used to record workplace "entry and exit" times. Social/labour ID cards are currently the subject of a Platform subgroup, for which an output report is planned in 2023, so are not further considered here. Another example of using digital means to record working time to facilitate declared work is the use of identity cards by employees to sign in and out when using certified cash registers in Belgium (European Platform tackling undeclared work, 2022c).

The value of such support is that compliance is improved by reducing uncertainty regarding tax and social insurance liabilities. To target the provision of such support to make it effective in tackling undeclared work, a data-driven approach can be used. Such a service can be marketed at those sectors and occupations, or even individual businesses, identified as more at risk of non-compliance using data analytics.

4.3.5 Online compliance lists

A further potential means of making declared work beneficial for employers and sole traders is to develop compliance lists (traditionally and less inclusively called 'whitelists'), if combined with incentives to be on these lists. These name compliant businesses not violating tax, labour, and/or social security laws in the recent past. Of 30 European countries surveyed in 2022 (Williams and Horodnic, 2022), 55 % responding use compliance lists (83 % of Northern, 56 % of East-Central, 50 % of Western, and 20 % of Southern European countries).

Benefits can be then offered by authorities to those listed such as few or no inspections, access to public procurement contracts, subsidies, and government issued licences only for those named on the list.

A first option, therefore, is to make only those named able to bid for public procurement contracts. Such contracts are a major income source for businesses, employers, and sole traders in many countries. According to the World Economic Forum (WEF), governments globally spend about USD 9.5 trillion each year on public procurement (Wahba, 2020). If used for this purpose, it is essential that online compliance lists are up to date. If those not listed are excluded from bidding for and receiving public procurement contracts, decisions also need to be carefully considered on what violations result in their exclusion and the time they are excluded needs to be proportionate to their violations due to their consequent exclusion from public procurement contracts. A second option is that only those on compliance lists can access state subsidies and support, which can be either the full range or a selection of the subsidies available. A third option is that only those on such a list can receive the licences required to operate in their trade (Blank, 2014).

Traditionally, businesses, employers and sole traders are either named on an online compliance list or they are on a non-compliance list. However, the advent of increased digital data enables a much more nuanced development of compliance lists. This is exemplified in Estonia. The tax behaviour ratings list of businesses produced by the ETCB reports the **level of compliance** of businesses. The tax behaviour rating of a business is calculated using five indicators (i.e., tax arrears, timely tax filing, penalties received for tax violations, tax proceedings against them and any management board member). The legal representative of the company can view their rating based on a traffic-light system. Green represents 'everything is okay', yellow indicates 'some deficiencies' and red means 'serious deficiencies', with guidance provided on how to rectify the rating. Issues are often about incomplete data, but the largest number of cases relate to 'envelope wages' (i.e., declared wages of a company which are much lower than the average wages for similar positions). Seeing the company rating in advance allows the company to address the issue before they are approached for audit by the tax authority (ETCB, 2020). The incentives for a high rating are that it reduces the likelihood of audit and **when made public**, it influences business-to-business and business-to-consumer decisions on whether to source from them. As such, this e-service provides an incentive for businesses to address their ratings voluntarily and before being approached. As audits are expensive and time-consuming processes, it is in the interest of the businesses as well as the government for businesses to do so if they are making simple and honest mistakes. Importantly, this type of online compliance list reporting the different levels of compliance of businesses rather than simply whether they are compliant or not enables the use of **thresholds** or cut-offs (e.g., for bidding for public procurement, for obtaining a subsidy or licence) to be set at different points on this scale, so that businesses who submitted their tax return two days late for example would not find themselves excluded from public procurement contracts (i.e., so that the punishments are proportional). This would facilitate a more nuanced use of compliance (and non-compliance) lists.

4.4 E-services to encourage purchasing from the declared economy

Until now, e-services that make declared work easier and beneficial for businesses and workers have been reported. Given that the supply of undeclared work would not exist without a demand for such work, undeclared work can be also tackled using e-services that make it easier and beneficial for buyers to purchase their products and services from the declared economy. Here, therefore, the following demand-side e-services targeting buyers to incentivise declared economy purchasing are evaluated:

► E-services to incentivise electronic payments and deter cash payments.

▶ E-services to incentivise purchasers to request receipts.

▶ Social labelling e-services.

4.4.1 Incentivising e-payments and deterring cash payments

Transactions in the undeclared economy often (but not exclusively) use cash as the medium of exchange, not least because it leaves fewer digital traces and reduces the risk of detection. For this reason, e-services can be developed to disincentivise cash payments and incentivise electronic payments. This shift towards e-payments reduces the cash available to businesses to pay workers on an undeclared basis.

Evaluating the potential effectiveness of such a demonetisation approach, the Foundation for Economic and Industrial Research (2015) find in Greece that each percentage point increase in electronic rather than cash payment produces an increase in tax revenue of 0.24 percentage points. Schneider and Kearney (2013) more widely in Europe find that a 10 % annual increase in electronic payments for four consecutive years would decrease the size of the undeclared economy by some 5 %. Here, the specific initiatives that can be used first, to discourage cash payments and second, to incentivise electronic payments, are reviewed.

4.4.1.1 Discouraging cash payments

To discourage cash payments, the following initiatives can be used:

▶ **Establish a mandatory ceiling on cash transactions**. In EU countries, this is sometimes set at EUR 500, although the ceiling level is continuously decreasing over time. For example, in Greece, the ceiling level has fallen from EUR 1 500 in 2016 to EUR 500 in 2017. Such an initiative is a useful starting point for countries seeking to shift from cash to e-payments. In Belgium, it is EUR 3 000, circa EUR 5 100 in Bulgaria, 15 000 in Croatia, EUR 10 500 in Czechia, circa EUR 2 700 in Denmark, EUR 1 000 in France (with exceptions), EUR 500 in Greece, EUR 1 000 in Italy, EUR 7 200 in Latvia, EUR 3 000 in Lithuania, EUR 10 000 in Malta, circa EUR 3 267 (between traders) in Poland, EUR 3 000 in Portugal, circa EUR 1 000 per day for payments to entrepreneurs and EUR 2 000 per day for the delivery of goods and service in Romania, EUR 5 000 in Slovakia and Slovenia, and EUR 1 000 in Spain. In several countries, there is currently no limit (e.g., Austria, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Luxembourg, Netherlands, Norway).[1] A proposal was made in 2021 for an EU-wide cash limit of EUR 10 000.[2]

▶ **Employers could pay wages electronically**.

▶ **Reduce free access to cash**, such as by moving away from no-fee automated teller machines (ATMs). Instead, mandatory charges for extracting cash from ATMs could be introduced. Article 3(1) of Regulation (EU) 2021/12301 on cross-border payments (CBPR2) requires that charges levied by a payment service provider on cross-border payments in euros, including automated teller machine (ATM) withdrawals, be the same as those they levy for corresponding national payments of the same value in the Member State where the consumer has their account. This means that charges applied in cross-border situations shall not exceed charges applied in the country where the consumer has the account. However, surcharges applied on ATM withdrawals are not necessarily a breach of this Regulation as it only requires that ATM charges be equalised

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[1] https://www.europe-consommateurs.eu/en/shopping-internet/cash-payment-limitations.html
[2] https://www.tagesspiegel.de/wirtschaft/organisierte-kriminalitaet-korruption-schwarzarbeit-eu-kommission-will-bargeld-limit-von-10-000-euro-einfuehren/27436680.html

between domestic and cross-border payments. There is no regulation to prevent consumers being charged additional costs for ATM withdrawals outside their own ATM network. The Commission considers that, if the principle of equality of charges is respected, the level charged may be left to the market and to the free competition between payment service providers.[3] Nevertheless, according to data from 2018, ATM withdrawal fees vary considerably across Member States. In Belgium, banks do not charge fees, in Italy and Bulgaria there are fixed fees, while in Croatia and Malta banks charge fees as a percentage of the transaction amount. Swedish banks charge annual fixed fees for withdrawing cash at other banks' ATMs.[4]

▶ **Impose penalties for the use of cash**. For example, in Greece since 2017, taxpayers not spending a certain proportion of their annual income via e-payments are penalised, with the penalty being 22 % of the difference between the minimum required spend and actual spend. For taxable incomes up to EUR 10 000, at least 10 % of income must be spent via e-transactions. For taxable incomes between EUR 10 001 and EUR 30 000, and over EUR 30 000, the minimum required spend increases to 15 % and 20 % of income respectively. Moreover, tax allowances and deductions are only available for e-payments, not cash payments (Chacaltana et al., 2018).

▶ **Make e-payments mandatory and ban the use of cash**. In Sweden, the goal is for a cashless society (Fourtané, 2020), but contrary to widely circulating myths at the time of writing, it is not banning the use of cash. According to figures from Riksbank, Sweden's central bank, the proportion of citizens using cash has fallen from 40 % to just 9 % over the past 10 years, with cash predominantly being used by older demographics for smaller payment amounts.

4.4.1.2 Incentivising e-payments

To incentivise e-payments, the following initiatives can be implemented:

▶ **Introduce point-of-sale (POS) terminals across all sectors of the economy**. Traditionally, POS terminals have been introduced on a sector-by-sector basis. This requires priority to be given to sectors where undeclared work is rife, which will vary country-by-country. An alternative is to prioritise business types where undeclared work is more prevalent, such as micro-enterprises, by providing them with free POS apps enabling them to use their mobiles as a POS device which records payments, sends and tracks invoices, as well as receipts, and can issue refunds and pro forma quotations.

▶ **Encourage businesses to issue e-receipts**, such as by allowing invoices and receipts to be issued electronically rather than always by paper, or by issuing software to issue e-receipts. Indeed, in Estonia, the 2020-2027 Real-Time Economy Vision is introducing B2B e-invoicing, e-receipts and e-waybills and transitioning to automated reporting by enabling businesses to automatically transmit data from their financial software to the state (European Commission, 2022h).

▶ **State authorities fully adopt e-payments and cease cash payments**. For example, the European Parliament and Council voted the Directive 2014/55/EU on electronic invoicing in public procurement on 16 April 2014, and from 18th April, 2019, the public administrations of all EU Member States have had to electronically receive and process their invoices. This concerns any B2G (business-to-government) and G2G (government-to-government) trades and transactions within the EU.

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[3] https://portal.ieu-monitoring.com/editorial/business/cost-of-withdrawing-cash-in-the-eu-eu-commission-answer/379394?utm_source=ieu-portal
[4] https://www.europarl.europa.eu/doceo/document/E-9-2020-002290_EN.html

- **Provide incentives for consumers using e-payments**. In contrast to Greece discussed above where consumers are penalised for not spending a certain proportion of their annual income electronically, the Republic of Korea has since 1999 has provided an **incentive**, namely a tax deduction, if they reach a certain level of electronic transactions. Taxpayers receive a deduction on their year-end tax settlement of up to KRW 3 million (EUR 2 160). If the aggregate electronic expenditure of a taxpayer or their dependents exceeds 25 % of their gross income, 5 % of this amount is deducted from income tax. The deduction limit is the lesser amount between the 20 % of gross wage and salary income and KRW 3 million (Chacaltana et al., 2018). Between 1999 and 2012, credit card usage as a proportion of total private consumption expenditure increased from 10 % to 52.8 % (Sung et al., 2017). According to Kim (2017), this has broadened the tax base increasing the number of taxpayers and tax revenue. A further tool to achieve this is to increase the maximum amount of a transaction for which contactless cards can be used at the point-of-sale, thus encouraging their further usage.

- **Provide incentives for businesses using e-payments**, such as by governments reimbursing charges made by banks to merchants for digital transactions where such charges exist.

In conclusion, numerous tools exist to discourage cash usage and incentivise e-payments. However, with most global electronic transactions using means of exchange owned by an oligopoly of multinational corporations, there is perhaps a need for caution by national governments when shifting towards e-payments and demonetisation. Such corporations have a financial interest, and consideration needs to be given to countries becoming dependent on them. One way forward being discussed is to introduce **central bank issued digital currency**, currently being explored in China, the USA, the Eurozone,[5] and the UK.

4.4.2 E-services to incentivise purchasers to request receipts

Another demand-side e-service is to encourage purchasers to request receipts so that transactions are recorded. Of 30 European countries surveyed in 2022 (Williams and Horodnic, 2022), 33 % responding used initiatives for customers to request receipts (56 % of East-Central, 40 % of Southern, 25 % of Western and no Northern European countries).

To encourage consumers to request receipts, they must have a reason. A common way, but not the only way, of doing this is to offer customers the chance 'to win the lottery' if they collect receipts. A **receipt lottery** encourages consumers to ask for a receipt in a business-to-consumer transaction because it is their free-of-charge ticket to enter a lottery. Lotteries therefore seek to change behaviour by making it a habit to request a receipt. Once this habit is established and asking for receipts becomes socially acceptable and desirable, receipt lotteries can be withdrawn. Box 16 provides examples of receipt lotteries in Portugal (Wilks et al, 2019), Romania (European Platform tackling undeclared work, 2019m) and Slovenia (European Platform tackling undeclared work, 2017c).

Box 16. E-tools to incentivise purchasers to request receipts: the example of receipt lotteries

Examples of receipt lotteries include the following:

- In Portugal, the Tax and Customs Authority (TCA) organised a Lucky Invoice Draw to promote tax compliance, and tackle tax evasion. This lottery awards prizes at random to customers buying goods or services who request invoices with their taxpayer identification number (TIN).

▶ In Romania, a receipts lottery was launched in 2015. Evaluating its impact, a press release by the tax authority reveals that VAT payments increased by 5.9 % in the cumulative seven months in 2015 compared with the same period in 2014 prior to the lottery, and the purchase of paper rolls for cash registers rose by 80 % after the receipt lottery commenced (European Platform tackling undeclared work, 2019m).

▶ In Slovenia, the introduction of certified cash registers was accompanied by a receipt lottery. In 2018, 54 213 merchants were using certified cash registers, issuing 2.8 million receipts on average each day. A 'check the invoice' (*Preveri račun*) app was developed by the tax authority to enable consumers to check that the receipt had been submitted to the tax authority via the certified cash register, and a video was made to encourage this. In 2016, 112 887 consumers (5.6 % of Slovenia's population) downloaded the app on their mobile phones to check invoices and participate in the competition. Evaluating the outcome, the number of offences detected rose from 1 978 in 2016 to 3 135 in 2018, resulting in fines totalling EUR 2.9 million in 2016 and EUR 5.9 million in 2018. The costs of the campaign were EUR 200 000 for advertising, prizes, and production. This lottery scheme has now ceased because the tax authority adopts the view that requesting receipts is now ingrained in Slovenian culture (European Platform tackling undeclared work, 2017c; OECD, 2021).

An alternative way of encouraging consumers to request receipts is to offer them the financial incentive of a direct tax deduction. For example, in the Republic of Korea in 2005, an electronically traceable cash receipt (ETCR) system was launched, with customers encouraged to ask for receipts and a digital 'tax save card' developed to enable this to happen. The data from this smart card is automatically sent to the tax authority, and the consumer then receives an **income tax deduction** when they file their tax returns. The deductions amount to 20 % of total electronic purchases that is greater than 20 % of reported yearly income (Chacaltana et al., 2018). According to Sung et al. (2017), electronically traceable payments as a percentage of total final consumption expenditure rose from 45.2 % in 2005 to 88.9 % in 2015.

4.4.3   Social labelling e-services

A final demand-side e-service to encourage consumers to purchase products and services from the declared economy are social labelling e-services. These provide an e-service that informs consumers about whether workers' rights are being respected by sellers. Box 157 provides an example.

Box 17. Social labelling in the hospitality sector: the 'Just Tourism' e-service

To publicise and promote hotels that respect workers' rights so that those making a hotel booking can be informed, the European Federation of Trade Unions in the Food, Agriculture and Tourism (EFATT) and International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco, and Allied Workers' Associations (IUF) launched a website, 'Just Tourism'.

This help consumers to select hotels by listing those hotels that have been found to respect workers' rights. Using a list of criteria for whether decent work exists for the hotel workers, those hotels meeting these criteria are listed.

This platform currently lists hotels in Canada, Croatia, Denmark, Ireland, Norway, Slovenia, Sweden, and the USA (EFFAT, 2021). It could be replicated in many additional countries.

> For hotel chains, such an e-service fits well with their corporate social responsibility (CSR) agendas, as does the good publicity that results from being listed.

There is perhaps little reason why this e-initiative could not be organised by labour authorities, or why labour authorities could not collaborate with the social partners to develop this social labelling e-service. For example, data could be provided using their compliance lists for qualifying hotels. If compliance lists denote the level of compliance of businesses (see above), this might prove even more valuable because different stars (i.e., grades) could be awarded to businesses by such an e-service. To implement this, collaboration is required between the social partners and those labour authorities on the common criteria to be used on an EU-level for grading hotels. ELA could facilitate this through Platform activities such as by dedicating a staff exchange, subgroup, or peer-learning dialogue to how this e-service could be further expanded.

There is also no reason why a similar social labelling e-service could not be implemented in other sectors where undeclared work is prevalent. One prominent example is food and beverage serving businesses. In this sector, there are already labelling initiatives on food quality standards, such as the Michelin star scheme, and quality assurance labelling initiatives on food hygiene standards, so the sector is used to such labelling schemes. In the food and beverage serving industries, given that bookings are increasingly made online, this rating system for labour standards could be included on booking platforms, in addition to the conventional physical 'stars on their doors' labelling system, to denote the degree to which decent working conditions prevail in establishments. Another very specific example is the mushroom growing sector, building on the Fair Produce initiative in the Netherlands that certifies companies adopting fair working conditions that meet a set of legal and additional requirements established by social partners. If on the list, they can use the Fair Produce label for their products (Williams, 2019). More widely, a similar social labelling scheme could be introduced of whether workers' rights are being respected by food processing businesses using due diligence assessments of their supply chains (Ethical Trading Initiative Norway (IEH), Ethical Trading Initiative (ETI) and Danish Ethical Trading Initiative (DIEH), 2015). Social labelling e-services are also common in the fashion industry (Strydom et al., 2022; Thorisdottir and Johannsdottir, 2020), from which there might be lessons to be learned.

There are also lessons in this regard to be learned from outside the EU. For example, in the USA, the U.S. Department of Labor launched in 2012 the Eat Shop Sleep app, enabling consumers to see the records of businesses on worker safety and wage violations, to enable informed purchasing decisions (Chacaltana et al., 2018). The U.S. Department of Labor also developed an e-service, Comply chain, to help businesses improve labour compliance in their global supply chains, which comprises a website and free mobile application to help businesses address the issues of child and forced labour in their global supply chains and contains best practice e-guidance to help businesses.

Such demand-side social labelling e-services, such as for hotels, food and beverage serving businesses, and food processing industries, respond well to on the one hand, the desire among a growing segment of the population, especially Millennials and Gen-Z, to make socially responsible purchases and on the other hand, to the corporate social responsibility (CSR) agendas of most businesses.

Until now, in sections 4.3 and 4.4, e-services have been evaluated that raise the costs and decrease the benefits of participation in undeclared work as well as decrease the costs and improve the ease and benefits of participation in declared work. However, participants are not always rational economic actors. They are also often social actors whose social norms do not adhere to the formal rules and regulations (Horodnic and Williams, 2022; Kogler et al., 2022; Koumpias et al., 2020). Formal institutional failings, and a lack of trust in their peers to comply, lead to their norms, values and beliefs not aligning with the formal regulations. Therefore, the role of e-services in promoting greater voluntary compliance with the formal rules is now evaluated. This involves on the one hand, using e-

services to change the norms, values and beliefs of businesses, employers, workers, and citizens using digital education and awareness raising campaigns and on the other hand, pursuing e-services to modernise the formal institutions to encourage greater voluntary compliance. Each is here considered in turn.

4.5 Educational and awareness raising e-services

It is now well established that participation in undeclared work is significantly correlated with on the one hand, low trust in the state and not accepting or understanding what the state is trying to achieve, namely a lack 'vertical' trust, and on the other hand, a belief that one's peers engage in undeclared work, namely a lack 'horizontal' or interpersonal trust (for a review, see Williams and Horodnic, 2021). For example, analysing the results of a survey commissioned by the ETCB of 3 700 Estonian residents collected in three rounds from 2018 to 2020, Levenko and Staehr (2021) find that social norms and customs are important predictors of compliance; what your friends do matters. Whether you engage in undeclared work is heavily influenced by perceptions of your peers' behaviour. Therefore, the objective of educational and awareness raising e-services is to change social norms regarding on the one hand, the acceptability of participation in undeclared work to align this with the formal rules to encourage greater voluntary compliance (Nguyen, 2022; Williams, 2023) and on the other hand, views on whether peers engage in undeclared work by showing that compliance is high rather than low, since highlighting low compliance is now recognised to worsen horizontal trust and result in greater engagement in undeclared work.

Various tools can be used to deliver education and awareness raising e-services:

▶ Social media can be used to communicate general information.

▶ Direct messaging can be used to answer questions and direct customers to information relevant to their enquiry.

▶ Websites can be used to explain procedures and obligations and to direct customers to other relevant channels and tools.

▶ Online tools and calculators can enable clients to assess their situation and understand how best to comply (e.g., virtual assistants and chatbots, videos, virtual reality films, interactive quizzes, interactive computer games).

▶ Web chat functions can allow customers to interact with live agents via the web.

▶ Web portals can bring together multiple sources and forms of assistance for customers including tools, calculators, e-learning programmes, data and statistics, and communication channels.

▶ E-learning platforms can be used to educate customers about various topics relevant to their specific situation using e-learning programmes, supported by digital newsletters to update customers on upcoming deadlines and changes to regulations.

▶ Webinars can be used to supplement to e-guidance, and face-to-face workshops due to their greater reach, although the scope for direct engagement by customers and interaction can be limited. As such, they are more suited to providing simple easily accessible introductions and for acting as a gateway to, and signposting access to, more detailed technical e-services for those needing them (OECD, 2022).

An example of an educational e-service is provided by the European Federation of Building and Woodworkers' (EFBWW) trade union. It has distributed to workers on construction sites throughout the EU a smart card with details of a website (https://www.constructionworkers.eu/en/). This website provides for all EU member states in all European languages easily understood information on wages (e.g., the minimum salary for different types of work), working conditions (e.g., the maximum working time), and the rights of construction workers. There are also links to trade union representatives who can provide direct help and support both in their country of origin and their

host country. A similar e-service, this time providing advice and support to temporary agency workers, is found in Belgium where in 2016, the Belgian trade union confederation (FGTB/ABVV) developed a website to raise agency workers' awareness of their rights and how these can be enforced in practice.

Examining educational e-services created by public authorities, in Estonia, the *Bürokratt* is an interoperable network of artificial intelligence (AI) applications, working towards giving people access to public services through virtual assistants and voice interaction (European Commission, 2022h) and the Swedish Agency for Digital Government (DIGG), in June 2021, was tasked to coordinate a project (with a EUR 0.5 million budget) to increase the use of artificial intelligence in public authorities, including the Swedish Public Employment Service, the Swedish Companies Registration Office and the Swedish Tax Agency (European Commission, 2022aa). Box 18 provides a further AI example from Latvia and Box 19 from Spain.

Box 18. The 'Remote Officer' e-service, Latvia

The 'Remote Official' pilot service was launched at the end of 2021 to provide customer support and personalised consultations with specialists from the State Social Security Fund and the State Tax Service and, if necessary, to allow the remote processing of service requests.

From 2022, the 'Remote Officer' service allows citizens, employers, and sole traders to have fully remote access to more public administration services to reduce the administrative burden and accelerate the provision of competent advice from authorities, including regional authorities.

Source: European Commission (2022p)

Box 19. The Virtual Assistant tool for VAT, Spain

A Virtual Assistant tool, based on artificial intelligence, has been developed for customers making enquiries about VAT, and for tax inspectors seeking better understanding. The intention is to provide high quality information that enables understanding of the complex VAT regulations.

Using a chatbot where both taxpayers and tax officers can ask questions using normal language, information is provided about VAT registration and rectification of invoices, obligations related to foreign transactions, chargeability, the taxable amount, the tax rate, exemptions, and deductions on real estate transactions.

Besides responses to questions, the Virtual Assistant also provides links to other webpages with relevant related information. A copy of the conversation with the chatbot can be saved.

This virtual assistant tool provides advantages such as 24/7 instant information and an immediate response, less administrative burden, interactive information, and greater legal certainty, thus reducing the likelihood of unintentional non-compliance.

Source: https://trustandcompliance.com/country-examples/Virtual-assistant-tool.html; https://www2.agenciatributaria.gob.es/wlpl/AVAC-CALC/AsistenteIVA

Many other e-services are being used for similar educational purposes. In Lithuania, advice and support to businesses and workers has been provided by the labour inspectorate using Facebook messenger. In 2017, 5 663 consultations took place using this e-service, representing 4.4 % of all consultations (European Platform tackling undeclared work, 2019n).

In Spain, there is a civic tax education programme portal to complement other educational tax initiatives with a pedagogical gaming platform for students of 5th and 6th grade, organised by the Tax Studies Institute, government

ministries and EU Commission TAXEDU. A critical success factor identified is that it has been found necessary to constantly update the pedagogical gaming tool in terms of content, design, and level of interactivity, so that it remains attractive to pupils.

Another similar pedagogical gaming example, this time from Norway, is a computer game developed to educate and raise awareness among young people about tax compliance (see Box 20).

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Box 20. The Spleiselaget website and computer game to tackle undeclared work, Norway

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Aim: To disseminate information and guidance with the intention of promoting a culture of compliance among younger people.

Description: The Norwegian Tax Administration (Skatteetaten) has developed a computer game for pupils in secondary schools to educate them about how taxes benefit both themselves as individuals and society. The game is not only a recreational activity but also part of a teaching plan and complements a set of exercises delivered by teachers in class to have a longer lasting effect. The game uses second-screen technology, meaning that participants log onto the presentation with their mobile phones and shape the content with the input given. For example, one of the questions is about undeclared work. The app used to run the presentation makes calculations based on the participants' answers to show them the effect of their answers – both among the specific group of participants and for Norway as a whole. For example, if students were to perform undeclared work for X Norwegian kroner, Norway would lose X % of tax income, which could have been used to fund X people in nursing homes or X pupils in upper secondary school. The game is the result of a collaboration, *Samarbeid mot svart økonomi* (working together against undeclared work), involving trade unions and employer's organisations, and the Norwegian Tax Administration.

Evaluation: The computer game for secondary schools, designed to respond to competence aims in several subjects (social studies, maths, geography, Norwegian), has been played some 50 000 times every year since its release in 2015. In addition, a 90-minute lecture for upper secondary school students, designed to respond to learning objectives in several subjects, given by around 600 'tax facts ambassadors' of the Norwegian Tax Administration each year; has reached over 40 000 pupils each year. A website was also created, which can be used alone, or in connection with the computer game or the lecture. It is estimated that the initiative has reached around 700 000 students since 2014.

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Source: OECD (2021)

Yet another pedagogical gaming example, is the computer game, *Taxlandia*, an educational simulation game that explains and promotes tax education. There are three levels based on age. The first is for children aged nine to 12, the second for teenagers aged 13 to 17, and the third for those aged 18 to 25.

Meanwhile, as part of the 2020 EU-wide Platform campaign, #EU4FairWork, on the benefits of declared work, there was both an interactive game, 'Out of the shadows: find your way to fair work' (European Platform tackling undeclared work, 2020a) and an interactive quiz, 'How well do you know undeclared work?' (European Platform tackling undeclared work, 2020b).

There are also numerous videos that have been produced to educate and raise awareness about the benefits of declared work and costs of undeclared work. These include:

▶ A video that uses a rap song 'Money Back on the Skætt', where fictional characters rap about tax, produced by the Norwegian tax administration as part of a broader social marketing campaign that has targeted younger taxpayers with the intention of getting them interested in checking and revising their tax returns online,

increasing their understanding and awareness of their tax situation, as well as their responsibility to submit correct information.

▶ A 90-second YouTube video produced by the Hellenic Labour Inspectorate in Greece in collaboration with social partners on the benefits of declared work, which has had 784 000 views.

▶ Virtual reality films on the benefits of declared work produced by the Swedish Work Environment Authority (European Platform tackling undeclared work, 2019p).

▶ A multimedia truck has been used to visit schools in Belgium to promote the benefits of declared work, using augmented reality games, presentations, and a quiz.[6] A further Belgian campaign targeting again students who work[7] on the benefits of declared work,[8] reached its audience using a mobile app[9] and YouTube video[10]

▶ A video, 'The truck driver's mother', produced in a Norwegian collaboration between employers, trade unions and public authorities, to reach drivers on the road and inform them about rights, entitlements and duties.[11] Translated into 14 languages, the video received 7 million views.

▶ As part of the 2020 EU-wide Platform campaign, #EU4FairWork, on the benefits of declared work, videos on 'declared work means peace of mind' (European Platform tackling undeclared work, 2020c), 'declared work provides security in uncertain times' (European Platform tackling undeclared work, 2020d) and 'declared work protects your business and your workers in uncertain times' (European Platform tackling undeclared work, 2020e) were produced. In addition, to encourage active participation and facilitate reflexive learning, two competitions were organised encouraging workers and employers to make social media videos about the benefits of declared work (European Platform tackling undeclared work, 2020f,g).

Enforcement authorities have also developed apps to enable workers and citizens to evaluate the impacts of their engagement in undeclared work. Examples transferable to other countries include:

▶ An online tool created in 2011 by the Latvian Employers' Confederation to allow citizens to measure their total 'shadow' (www.manaena.lv). This asked 11 questions on their behaviour in retail outlets shops (not requesting receipts), with service providers (asking how much without a receipt), in hospitals (informal payments to doctors), transport (informal payments to police officers), and their employment (their unregistered employment or accepting an additional envelope wage). Information was then given on how to reduce their shadow, such as requesting receipts in retail outlets, not demanding how much without a receipt to service providers, asking for taxi meters to be turned on, and so forth. In the first month after its launch, 12 657 individuals completed the test.

▶ In Bulgaria, an online app (http://www.zaplatavplik.bg/) has been used to enable employees to calculate the negative impacts of them accepting envelope wages. After inserting their envelope wage, the app shows them how much they are losing in sick pay, maternity pay, unemployment benefit and eventual pension entitlements, along with how much they would lose over the next thirty years.

To similarly raise awareness about the impacts of engagement in undeclared work, and the benefits of declared work, in Estonia, an ETCB website campaign 'Thank you for paying taxes' targeted primarily at employees, thanked them for paying their taxes and underlined how this tax income had paid for hospitals, schools, roads and pensions, thus joining-up for taxpayers the payment of taxes and their receipt of public goods and services. A

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[6] https://youtu.be/5sdWoAIZSGs
[7] http://www.mysocialsecurity.be/student/en
[8] https://ec.europa.eu/social/BlobServlet?docId=20298&langId=en
[9] https://play.google.com/store/apps/details?id=be.fgov.onssrszlss.studentatwork
[10] https://www.youtube.com/user/rszonsslss
[11] http://www.motherpresents.org/en/

hyperlink takes visitors to a web page on 'how the state uses the received tax funds'. Using personalised emotional messaging, the campaign video identifies the personal benefits that result from paying taxes (e.g., their mother receives her pension) and how this could be lost if there was non-compliance.

Examining these education and awareness raising e-services, and the many others produced that are not mentioned above, a common finding is that evaluations of their impacts are rare. Usually, only the level of interaction (e.g., likes, impressions) with these e-services are measured. Seldom is there any evaluation of whether these education and awareness raising e-tools have led to changes in attitudes and/or behaviour among the target groups. For example, there are seldom pre- and post-campaign evaluations of the changes in attitudes and behaviour, such as by analysing a control group and the group exposed to the e-tools, sampled in a manner that isolates exposure to the education and awareness raising e-tool as the main difference between them so that its impacts can be measured. One possible reason for this is that at the design stage of these education and awareness raising e-tools, resources are seldom requested for, and allocated to, evaluating their impacts.

One notable exception is the 'Know Your Rights' campaign of the Norwegian Labour Inspection Authority and their colleagues in Lithuania, Estonia, Romania, and Bulgaria. The target group was the 500 000 foreign nationals working in Norway and the campaign objective was to inform them about their duties and rights at work. To design the campaign, in-depth research was undertaken on the cultural understandings of workers from the four target countries so that the campaign materials were appropriately designed for the target group. For instance, this revealed that smiling people were considered stupid or seeking to deceive you in these countries. A report was also commissioned on the current working conditions of these workers in Norway (Ødegård and Nergaard, 2020). This found that the key issue for these workers was their pay, which resulted in the key slogan and campaign message being 'You may be entitled to double pay'. Evaluating the resultant campaign, the usual metrics were calculated, such as that 145 000 unique users saw the main video, 86 % on Facebook and 41 500 users then clicked on the campaign website. However, and what represents good practice about this campaign, is that attempts were also made to measure the changes in attitudes and behaviour of the target group. To do this, Samfunnsøkonomisk analyse AS (2021) surveyed 2 384 foreign workers and undertook 24 in-depth interviews to assess its impact. The finding was that it resulted in attitudinal and behavioural changes: one in three who had seen the campaign asserted that they realised that there were violations in their workplace. And on behavioural change, of these, two out of three reported that they would be raising these violations with their employer.

Another exception is the tax authority in Slovenia which conducts surveys on attitudes towards tax, comparing students who have participated in the tax authority's schools' initiative and those who have not. The results display a significantly stronger positive attitude towards and awareness of tax among those who participate than those who have not (OECD, 2021).

Even if developers of education and awareness raising e-tools do not measure changes in attitudes and behaviour pre- and post-campaign, and whether these are due to the e-tools, there are nevertheless other ways in which the impacts can be measured beyond simply interaction counts. One such approach is to measure satisfaction with the e-service materials. Again, this can often be simply achieved by including a 'one-click' question at the end of a game or interactive quiz, asking for example whether the information provided was helpful. For other e-tools such as webinars and e-learning programmes, a short questionnaire can be used at the end to assess the level of satisfaction with the product/service, whether learning had resulted, possible resultant behavioural changes that will result, and/or how the product/service could be improved.

Until now, therefore, detailed evaluations of the effectiveness of these social marketing e-tools to educate, raise awareness, and change behaviour, on undeclared work have been rare. A way forward is for enforcement authorities to include resource for evaluations in their proposed budgets for such social marketing e-initiatives. Unless this is done, what works and what does not will be unknown. However, there is a need to recognise,

especially when younger people are targeted, that it may be many years before greater compliance is realised, making it especially difficult to evaluate the impacts on behaviour.

Moreover, until now, most of the emphasis in social marketing e-initiatives has been placed on improving vertical trust. Much less emphasis has been put on using e-marketing to enhance horizontal trust by improving perceptions that peers are acting in a compliant manner, and little consideration given to how this can be achieved.

4.6   E-services to modernise enforcement authorities

Although there is increasing expenditure by enforcement authorities on e-marketing to educate, raise awareness and change behaviour, it is arguable that where there is a lack of trust in government or peers, social norms and behaviour are unlikely to change simply through e-marketing. To better align social norms and behaviour with the laws and regulations, therefore, there is a need to modernise enforcement authorities and other public institutions and improve trust in peers.

This requires the development of e-services in enforcement authorities that improve:

▶ **Procedural justice**, by which is meant public authorities and officials treating citizens, workers, employers, and businesses in an impartial, respectful, and responsible way.

▶ **Procedural fairness**, by which is here meant citizens, workers, employers, and businesses believing that they pay a fair share relative to others.

▶ **Redistributive justice**, by which is here meant citizens, workers, employers, and businesses believing that they receive the public goods and services that they deserve given the tax and social contributions that they make. services.

If enforcement authorities do so, then this will prevent undeclared work. How enforcement authorities can develop each is now addressed.

4.6.1   Procedural justice

Human-centric and accessible e-services are a key tool for enabling public authorities and their officials to treat citizens, workers, employers, and businesses in an impartial, respectful, and responsible way. In enforcement authorities, e-services are a key tool for achieving procedural justice because they enable the development of friendly customer-oriented services and shift the organisational culture away from a 'cops and robbers' mentality.

In Ireland, for example, this pursuit of procedural justice by public services is exemplified by the 2022 Connecting Government 2030: A Digital and ICT Strategy for Ireland's Public Service. This strategy has at its heart a 'user first' and 'business first' approach (European Commission, 2022n). Similarly, Italia Digitale 2026 displays the clear intent to adopt an accessible human-centric approach towards Italian digital public services (European Commission, 2022o), as does the I-Strategy for 2021-2025 in the Netherlands (European Commission, 2022t), the 2021 National Concept of Informatization of the Public Administration for years 2021-2026' in Slovakia (European Commission, 2022x), the Plan for the Digitalisation of Spain's Public Administration 2021-2025 in Spain (European Commission, 2022z), the Swedish digitalisation strategy (European Commission, 2022aa), and many other national plans for digitalising public services.

For national governments, implementing accessible and human-centric services in enforcement authorities is central and essential if undeclared work is to be prevented. Dividing public authorities into 'input' authorities (i.e.,

the legislative and executive branches of government that produce policies) and 'output' state authorities (i.e., delivering public goods and services), Koumpias et al., (2020) find across 92 countries that trust in output authorities (e.g., tax administrations, labour inspectorates) has a significantly larger impact on compliance than improving trust in input authorities. Therefore, enforcement authorities treating customers more as partners and being customer-friendly by providing human-centric and accessible e-services is important for building trust in government and promoting voluntary compliance (e.g., Granger and Sawyer, 2023; Kim, 2023; Kogler et al., 2016; Sarker and Ahmed, 2023).

Box 21 provides a practical example of how human-centric and accessible e-services can be developed in an enforcement authority to improve among customers the belief that there is procedural justice and thus prevent undeclared work.

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Box 21. E-services to improve procedural justice in a tax administration, Ireland

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In the Irish tax administration, there has been the development of the Revenue Online Service (ROS). This is a 24/7 service, designed with business customers in mind. Meanwhile, the 'myAccount' service is a single access point to multiple online services for individuals, principally employees and customers in receipt of pensions. Both services offer a secure facility. There is also 'MyEnquiries' to submit written enquiries.

Customer service standards (e.g., explicitly stated timeframes for responses, that they wish to make it easy for customers to conduct business with them quickly and without fuss), and a complaints procedure for when service does not match expectations, have been introduced.

Source: https://trustandcompliance.com/country-examples/Customer-service-commitments.html

Moreover, the use by enforcement authorities of **e-consultation portals** that enable citizens and businesses to directly comment on law proposals, regulations, or other strategic documents is important in improving perceptions of procedural justice. Examples of such e-consultation portals include:

▶ *e-Savjetovanja* in Croatia (European Commission, 2022d), and

▶ the e-citizen service in Lithuania which involves the public in decision-making by making it easier to contact government agencies electronically, and to monitor the progress of petitions, applications or public consultations, and the e-seimas service, which enables the public to participate in the legislative process by registering public legislative initiatives, and registering comments and proposals on legislative acts (European Commission, 2022q).

E-services can be also developed for **dispute resolution**. This encompasses e-service offerings related to appeal and objection processes and the associated actions taken by enforcement authorities. As assessment and verification steps become increasingly digitalised, it is logical that dispute resolution follows suit. E-services in this regard can include:

▶ web portals used as a way to lodge objections, request rulings, communicate with auditors/inspectors, and view the status of a case;

▶ online forms that simplify the dispute process for both the stakeholder and the authority, and are a convenient, time-efficient, and secure way to launch a dispute, and ensure information contained in the form is legible through the elimination of handwriting, and

▶ digital communication between the authority, courts, and other public agencies which is essential to effective dispute resolution. Information shared can include the initial submission of an objection; requests for files and

records; invitations to meetings and hearings; internal information related to decisions; communications with the stakeholder; and data on the activities of the agency for auditing and accountability purposes. Digital technologies accelerate the sharing of this information and ensure its completeness and integrity (OECD, 2022).

4.6.2   Procedural fairness

Procedural fairness, to repeat, refers to citizens, workers, employers, and businesses believing that they pay a fair share relative to others. This involves firstly, educating citizens, workers, employers, and businesses about what their taxes and social contributions are spent on and secondly, the relative contributions of others.

On the first issue of educating customers about what taxes and social contributions are spent on, e-services here might include e-marketing to show how their taxes and social contributions are spent (with examples of such e-services already given in section 4.5). For example, it is relatively simple to use information technology to automatically construct and deliver an email specifically tailored for each individual customer on the precise amounts of their individual taxes and social contributions that are spent on each specific public good and service (e.g., health services, education, defence, policing). This is used in the UK. Another initiative to educate customers about how their taxes are spent, already mentioned, is the 'Thank you for paying taxes' ETCB website in Estonia, and the accompanying webpage, 'how the state uses the received tax funds', targeted mainly at employees, where they are thanked for paying their taxes and informed how this tax income has paid for hospitals, schools, roads and pensions, thus joining-up for taxpayers the payment of taxes and their receipt of public goods and services..

On the second issue of educating and raising awareness of the relative contributions of others (not least to promote horizontal trust), there are fewer examples, perhaps due to it only being recently recognised that promoting horizontal trust in peers, and that one pays one's fair share, is an important determinant of participation in undeclared work. Examples of policy initiatives to achieve greater horizontal trust could include displaying the low level of non-compliance and that most workers, employers, and businesses are not evading the payment of taxes and social contributions. Contrariwise, publicising high levels of participation in undeclared work will reduce perceptions of procedural fairness, and thus voluntary compliance.

4.6.3   Redistributive justice

Redistributive justice refers to citizens, workers, employers, and businesses believing that they receive the public goods and services that they deserve given the tax and social contributions that they make. This involves providing public goods significantly correlated with lower participation in undeclared work. Such public goods include: increased healthcare expenditure (Krasniqi and Williams, 2017); greater social expenditure as a percentage of GDP (Krasniqi and Williams, 2017; Mara, 2021; Williams and Horodnic AV, 2019); expenditure on active labour market policy interventions targeting vulnerable groups (Williams and Horodnic, 2016, 2017) and generally increasing the expenditure of government (Luong et al., 2020; Williams and Horodnic AV, 2019).

It also requires e-marketing to join-up the dots for citizens between their tax and social contribution payments and the provision of these public goods and services, akin to procedural fairness (see above). A further example to those already discussed of an e-service that achieves this is found in the French Ministry for Economy and Finance, and its Public Action and Accounts unit, which has dedicated a section on their website (www.economie.gouv.fr) that explains the benefits and use made of taxpayer money: *À quoi servent mes impôts?* (What are my taxes for?).

Neither of these EU examples tailor messages to the individual. In Belgium, however, behavioural economics academics have worked in collaboration with the Belgian Federal Public Service Finance (FPSF) to test different messages among a target group of personal income taxpayers about the public goods received for their taxes paid. The target audience were taxpayers who had missed the filing or payment deadline and acted as a reminder to file their taxes. Some of the letters contained public-goods messages concerning the services provided in return for taxes. This collaboration included a series of five experiments, run between 2014 and 2016, whose main finding was that simplifying the reminder messages sent to taxpayers increases tax compliance (De Neve et al., 2021). Simplification implies, in this instance, shorter letters with less information provided and with the action-relevant information for the taxpayer highlighted. The returns from these simplified reminder letters were estimated at EUR 3.84 million, about 50 times more than the EUR 80 000 cost of producing and sending the letters (De Neve et al., 2021). Apart from increasing compliance and timely payment, FPSF's objective was to raise awareness regarding how tax money is spent and to close the perceived gap between tax payments and the resulting services. This is why the public-goods letters contained graphs showing the distribution of tax expenditures. Although no direct effect on tax compliance was noted in the short term, raising awareness through public-goods messages is good for tax morale and could have positive effects in the long run. There is no reason in the present-day why these letters sent nearly ten years ago could not today be replaced by individualised e-notifications sent via government e-portals to taxpayers, although the greater or lesser effectiveness compared with hard copy letters would need to be evaluated in a pilot study.

In sum, e-services have a central role to play in facilitating improvements in procedural and redistributive justice and fairness in national enforcement authorities and public authorities more widely. The outcome will be **to prevent undeclared work and to make declared work easier, more beneficial, and acceptable**.

5.0 Conclusions and suggestions for further action

This report has evaluated how digital technologies applied in public initiatives, programmes, and policies (i.e., e-services) can make declared work easier, more beneficial, and acceptable, and therefore enable the transformation of undeclared work into declared work. In Europe, a digital strategy was adopted and, in 2021 a ten-year 2030 Digital Compass roadmap to implement it. This calls for the development of **accessible and human-centric digital public services and administration** and by 2030, 100 % online provision of key public services for European citizens and businesses.

5.1 Conclusions

This report has provided a comparative analysis of the progress of EU national governments towards these Digital Compass 2030 goals, using the Digital Economy and Society Index (DESI), which is the tool developed by the European Commission to measure their progress. Following this, it has evaluated the range of e-services used in enforcement and other public authorities to provide accessible and human-centric digital public services and administration that are potentially transferable to other EU Member States and to learn lessons about how such e-services might prevent undeclared work.

Progress in implementing accessible and human-centric digital public services

The 2022 Digital Society and Economy Index (DESI) reveals the variable progress across Member States in implementing accessible and human-centric digital public services, not least due to their different starting points. The Member States in 2022 closest to achieving the goal of 100 % online provision of key public services for European citizens and businesses are Estonia, Finland, Malta, and the Netherlands, whilst those where the greatest progress is required are Romania, Greece, Bulgaria, and Slovakia.

DESI does not provide a specific assessment of the progress of individual enforcement authorities in the EU in their provision of accessible and human-centric public services, or an analysis of their progress towards achieving 100 % online provision of their services to European citizens and businesses. However, it does assess the extent to which there is 100 % online provision of public services in each Member State regarding starting a business and conducting regular business operations, which make declared work easier, more beneficial and/or acceptable. This reveals that on both issues, some Member States have made greater progress than others. For each Member State, the gaps in online provision are pinpointed that need to be filled to provide comprehensive joined-up e-delivery of public services, as well as the Member States identified that have already made good progress and scored highly.

Good practices in enforcement and other public authorities e-services provision

2030 Digital Compass is not about improving the ability of enforcement authorities to detect undeclared work using ICTs (i.e., deterrence policy initiatives). Rather, 2030 Digital Compass seeks the development of accessible and human-centric digital public services for citizens and businesses to make declared work easier, more beneficial, and more acceptable.

Given that comprehensive packages containing an array of e-services concurrently are more effective than single policy initiatives at facilitating declared work, a range of e-services have been reviewed and evaluated. The finding of this study is that the following e-services have been pursued by enforcement and other public authorities to make declared work, easier, more beneficial, and acceptable:

▶ **E-services that enable businesses and workers to operate in the declared economy more easily and beneficially.** These include making declared work easier using e-registration of businesses and e-registration of employment; developing e-portals to simplify and make easier tax and social security contribution payments (e.g., pre-filled and/or automatic tax and social security contribution returns; online tax and social security contribution calculators, online tax behaviour rating tools); online help with record keeping, and online compliance lists.

▶ **E-services that encourage purchasing from the declared economy.** These include: those incentivising electronic payments (e.g., by introducing point-of-sale terminals, encouraging businesses to issue e-receipts; state authorities fully adopting e-payments and ceasing cash payments; providing incentives for consumers and businesses using e-payments) and deterring and limiting cash payments (e.g., by establishing a mandatory ceiling on cash transactions, employers paying wages electronically, reducing free access to cash, imposing penalties for the use of cash, and making e-payments mandatory and banning the use of cash); incentivising purchasers to request receipts (e.g., receipt lotteries), and introducing social label e-initiatives to encourage the purchase of declared goods and services.

▶ **Educational and awareness raising e-services**. Educational and awareness raising e-services that seek to change social norms about the benefits of declared work and costs of undeclared work include: smart cards and apps to inform workers of their rights and businesses and employers of their responsibilities; the provision of easily accessible online advice and support, including artificial intelligence (AI) solutions; apps to allow citizens to evaluate the impacts of their participation in undeclared work, and an array of online videos, virtual reality films, interactive games, and quizzes to inform either suppliers or purchasers of the benefits of declared work or costs of undeclared work.

▶ **E-services that modernise enforcement authorities** by making them more 'customer friendly' and enhance customers' perceptions that these authorities pursue procedural justice (i.e., treat citizens, workers, employers, and businesses in an impartial, respectful, and responsible way), procedural fairness (i.e., citizens, workers, employers, and businesses believe that they pay a fair share relative to others) and redistributive justice (i.e., citizens, workers, employers, and businesses believe that they receive the public goods and services that they deserve given the tax and social contributions that they make).

Many of these e-services adopted by enforcement and other public authorities in the EU are potentially transferable to other Member States. However, until now, evaluations of the effectiveness of these e-services in making declared work easier, more beneficial, and acceptable are often lacking. This makes it difficult to learn lessons about the extent to which many of these e-services prevent undeclared work.

5.2 Suggestions for further action

The following suggestions are made for future action:

▶ Across most Member States, and enforcement authorities, progress is still required to achieve the Digital Compass 2030 goals. The Annex has highlighted for each Member State in relation to (i) starting a business, and (ii) regular business operations, the gaps that need to be filled to achieve joined-up comprehensive online provision of public services. Enforcement authorities could now identify those gaps for which they have some responsibility and ensure that an action plan is developed in cooperation with other relevant authorities. To achieve this, a sharing of good practices across countries is a starting point. Enforcement authorities can then draw upon the good practices of, and learning from, enforcement authorities in other Member States. These again can be identified in the Annex.

▶ Given the lack of evaluations of the effectiveness of these e-services in making declared work easier, more beneficial, and acceptable, a suggestion is that Member States could include resources to evaluate their effectiveness at the initial design stage of e-service policy initiatives. This would solve the current challenge faced that the lack evidence-based evaluations of many policy initiatives make it difficult for enforcement and other public authorities to persuade policymakers in their country to consider transferring potentially important good practices from other countries to their own.

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Annex 1.

Digital service delivery - Key dimensions and indicators

Key dimension / Indicator	Definition	Methods used to collect data*	Assessment (Question)	Scoring rules
User centricity				
Online availability	The extent to which informational and transactional services and information concerning these services is provided online, and can be reached via a portal website.	Mystery Shopping	▪ A1. Is information about the service available online? ▪ A2. Is the actual service available online? ▪ A3. Is the service/ information about the service available through (one of the) relevant portal(s)?	Composite indicator for Online Availability, based on questions A1-A3. Per service the following scoring rules apply: • If A1+A2+A3 = yes > 100 % • o If A1+A2 = yes > 75 % • o If A1+A3 = yes > 50 % • o If A1 = yes > 25 % • o If A1+A2+A3 = no > 0 %
Mobile friendliness	The extent to which services are provided through a mobile-friendly interface, an interface that is responsive to the mobile device.	Automated online assessment tool	Automated online assessment tool	Percentage of websites that are mobile friendly. • If a website passes the test, a score of 100 % is attributed. • If a website fails the test, a score of 0 % is attributed. • A central government service is deemed mobile friendly if any included URL for that service passes the test (100 %). • A local or regional service is deemed mobile friendly if all included URLs for that service pass the test. If some local or regional URLs pass the test and some fail the test, the average score is attributed.

Transparency				
Transparency of service delivery	The extent to which the service process and expectations are clarified.	Mystery Shopping	▪ C1. Does one receive a delivery notice of successful completion of the process step online? ▪ C2. During the course of the service, is progress tracked? (i.e., is it clear how much of the process step you have accomplished and how much of it still remains to be done?) ▪ C3. During the course of the service, can you save work done as a draft (i.e. could you return to your draft work at another moment in time)? ▪ C4. Does the site communicate expectations on how long the entire process is estimated to take (i.e., how long it takes to fill in the online form)? ▪ C5. Is it clear what the delivery timelines of the service are (i.e., when the service is expected to be provided, ideally this is sooner than the legal maximum time limit)? ▪ C6. Is there a maximum time limit set within which the administration has to deliver (i.e., the legal and formal deadline that cannot be exceeded by the service provider)? ▪ C7. Is information available about service performance (any type: service levels, performance assessment, user satisfaction, user duration and completion rates)?	Composite indicator of Transparency of Service Delivery, based on questions C1-C7. • Average score of C1-C7 (whereby all yes = 100 %).
Key Enablers				
eID	The extent to which electronic Identification (eID), any means accepted by eGovernment services (e.g., smartcards, username and password) for online identification, can be used during service processes.	Mystery Shopping	▪ F1. Is any kind of (online/offline) identification needed to access or obtain the service? (No score is attributed to this question; the question intends to landscape for how many/which process steps an eID is required) ▪ F2. If identification is needed, is it possible to identify oneself online? ▪ F3. If it is possible to identify oneself online, do you use an official electronic identifier (e.g., a national eID solution)? If the service requires a specific electronic identifier only suited for services from a single provider (e.g., a student	Composite indicator for eID, based on questions F1-F4. • If F1 = no > no score • If F1 = yes, but the others are no > 0 % • If F1 + F2 = yes > 33 % • If F1 + F2 + F3 = yes > 67 % • If F1 + F2 + F4 = yes > 67 % • If F1 + F2 + F3 + F4 = yes > 100 %

			account), or does not concern eID login (e.g., matricule number), the answer to this question is 'no'. ▪ F4. If it is possible to identify oneself online for a service, is it also possible to access another service in this life event (but provided by a different service provider) without re-authenticating? (If there is only 1 service provider in a life event, this question is redundant).	
eDocuments	The extent to which electronic documents (eDocuments), any document in digital form that the user needs to submit/upload in order to complete an eGovernment service, or that the user obtains as a proof or a result of the service (e.g., certificate, diploma, proof of registration) can be used during service processes.	Mystery Shopping	▪ F6. Is any kind of documentation needed to access or apply for the service? (No score is attributed to this question; the question intends to landscape for how many/which process steps an eDocument is relevant). ▪ F7. Is it possible for the user to submit the document that is required by the service provider to complete procedures and formalities necessary to establish or to carry out a process step online (certificate, diploma, proof of registration, etc.) in an electronic form? OR Is it possible to obtain the document that is to be provided by the service provider to the service recipient when completing procedures and formalities necessary to establish or to carry out a process step online (certificate, diploma, proof of registration etc.) in an electronic form?	Percentage of services where users could submit or download eDocuments when required. • if F6 = no > no score is attributed • If F6+F7.1 or F6+F7.2 = yes > 100 % (if F7 no > 0 %)
Authentic sources	The extent to which Authentic Sources, base registries used by governments to automatically validate or fetch data relating to citizens or businesses, can be used during the service process.	Mystery Shopping	▪ F8. Is any kind of eForm needed to access or apply for the service? (No score is attributed to this question; the question intends to landscape for how many/which process steps an eForm is required). ▪ F9. When applying for this service is personal data pre-filled by the service provider? (Based on data from authentic sources such as National register, Tax registers, Company registers etc.).	Percentage of services where users had (part of) their personal information prefilled. • If F8 = no > no score is attributed • If F8+F9 = yes > 100 % (if F9 no > 0 %)

Cross-border services				
Cross-border Online availability	The extent to which informational and transactional services and information concerning these services is provided online for users from other European countries.	Mystery Shopping	▪ G1. Is information about the service available online for a cross-border user? ▪ G2. Can the service be obtained online by a cross-border user? (e.g., If needed, is it possible to submit a foreign version of a required document or does one need to translate first or request official recognition? If needed, is it possible to log in with a foreign eID?)	Composite indicator for Online Availability for cross-border citizens, based on question G1 and G2. Per service the following scoring rules apply: • If automated > 100 % • If G1+G2 = yes > 100 % • If G1 = yes > 50 % • If G1+G2 = no > 0 %
Cross-border eID	The extent to which electronic Identification (eID) can be used during service processes by users from other European countries, a government-issued document for online identification, and authentication.	Mystery Shopping	▪ I1. Is any kind of (online/offline) identification needed to access or apply for the cross-border service? (No score is attributed to this question; the question intends to landscape for how many/which process steps an eID is required). ▪ I2. If identification is needed for a cross-border service, is it possible to identify oneself online using your national eID?	Percentage of services where cross-border users could submit or download eDocuments when such a functionality was required. • Cross-border eID – if I1 & I2 are answered positively, this leads to a score of 100 %. If I1 = yes, but I2 = no, this leads to a score of 0 %. If both are 'no', there is no score (as it is not relevant).
Cross-border eDocuments	The extent to which electronic documents (eDocuments) can be used during service processes by users from other European countries, documents that have been authenticated by its issuer using any means recognised under applicable national law, specifically through the use of	Mystery Shopping	▪ I3. Is any kind of documentation needed to access or apply for the cross-border service? (No score is attributed to this question; the question intends to landscape for how many/which process steps an eDocument is relevant). ▪ I4. Is it possible for the user to submit the document that is required by the foreign service provider to complete procedures and formalities necessary to establish or to carry out a process step online (certificate, diploma, proof of registration etc) in an electronic form?	Percentage of services where users could use their national eID for a cross-border service, when authentication was required. • Cross-border eDocuments – similar approach. If I3 & I4_1 or I4_2 = yes > 100 %. If only I3 = yes > 0 %. If I3 = no > not relevant, no score.

		OR Is it possible to obtain the document that is to be provided by the foreign service provider to the service recipient when completing procedures and formalities necessary to establish or to carry out a process step online (certificate, diploma, proof of registration etc) in an electronic form?	
electronic signatures, e.g., not a regular PDF or Word file.			

Notes:

* "A Mystery Shopper is trained and briefed to observe, experience, and measure a given public service process. Mystery Shoppers act as prospective users and follow a detailed, objective evaluation checklist. Mystery Shopping forms the majority of inputs for the four key dimensions. It is a matured method that generates reliable and comparable data since 2012.

The process of Mystery Shopping: the landscaping phase and the evaluation phase.

1. During the landscaping phase the applicability and characteristics of services is defined for each of the countries. This results in a contextualised picture, to make sure that only those services are measured in a country that a relevant. This results in a country-specific government 'landscape' with some services for instance applicable in one country and not applicable in another country.

2. During the evaluation phase, the mystery shoppers assess the identified websites using a predefined questionnaire. The quantitative data generated by the Mystery Shopping are put under the central experts' and Member State legates' scrutiny for sign-off to ensure their accuracy. Great care is given to the possibility for Member States to validate the results to the greatest possible extent. The validated data is used to calculate the eGovernment Benchmark indicators and key dimensions."

Annex 2.

Extent of joined-up comprehensive digital service delivery when starting a business in Member States: 2020 DESI evaluation

BELGIUM

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	100	100	100	100	100	100	100
Basic registration	Register company for the first time	100	100	25	67	100	0	50	0	
Tax-related matters	Obtain tax identification card/number	.	.	.	.	.	.		.	
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	86	100	100	100	50	0	
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	100	100
	Register employee before first workday	100	100	100	100	100	100	0	0	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	100	100	64	100	100	100	0	0	

Source: DESI 2021 (2020 data)

BULGARIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	50	100	.	.	.	.			
	Get guidance with how to write a business plan	50	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	50	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	43	67	100	100	0		0
Basic registration	Register company for the first time	100	100	71	100	100	0	50	0	
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	86	100	100	100	0		0
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	100	100
	Register employee before first workday	100	100	67	100	100	0	50	0	
	Check contractual obligations for hiring employees	25	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	0	.	.	.	.	50		
	Obtain pollution/environmental permit	100	100	57	100	100	0	50	0	

Source: DESI 2021 (2020 data)

CZECHIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	50	.	0	.	0	0	0
Basic registration	Register company for the first time	100	100	43	100	100	100	0	0	
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	20	100	100	40	30	0	
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	43	100	100	100	0	0	
	Register employee before first workday	100	100	29	100	100	100	0	0	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	100	0	71	67	100	100	0	0	

Source: DESI 2021 (2020 data)

DENMARK

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	71	100	100	100	100	100	100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	.	.	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	71	100	100	100	100	100	100
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	100	100	43	100	100	100	50		

Source: DESI 2021 (2020 data)

GERMANY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	70	100	11	0	25	0	50		
Basic registration	Register company for the first time	80	100	60	33	60	0	50	0	100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	14	33	.	0	50		
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	0	0
	Get guidance with how to arrange (mandatory) pension insurance	75	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	57	.	.	0	50		
	Register employee before first workday	100	100	100	100	100	0	50	0	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	60	100	17	7	20	0	50		

Source: DESI 2021 (2020 data)

ESTONIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	86	100	100	100	100	0	100
Basic registration	Register company for the first time	100	0	100	100	100	100	100	100	100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	0	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	86	67	100	.	100	0	100
	Register employee before first workday	100	100	100	100	100	100	100	0	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	100	100	100	100	0		

Source: DESI 2021 (2020 data)

IRELAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	71	67	100	100	100	0	100
Basic registration	Register company for the first time	100	100	100	33	100	100	100	0	100
Tax-related matters	Obtain tax identification card/number	100	100	57	67	100	100	100	0	100
	Obtain VAT collector number	100	100	57	67	100	100	100	0	100
Insurance-related matters	Register with Social Security Office	.	.	.	.	.	.	.		
	Get guidance with how to arrange (mandatory) pension insurance	.	.	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	57	67	.	100	100	0	100
	Register employee before first workday	100	100	57	67	.	100	100	0	100
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	33	33	.	0	100	0	100

Source: DESI 2021 (2020 data)

GREECE

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	0	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	43	67	0	100	0		
Basic registration	Register company for the first time	100	100	29	67	0	100	0		
Tax-related matters	Obtain tax identification card/number	100	100	29	67	.	100	0		
	Obtain VAT collector number	50	100	17	0	0	0	0		
Insurance-related matters	Register with Social Security Office	50	100	33	0	0	0	0		
	Get guidance with how to arrange (mandatory) pension insurance	50	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	50	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	29	67	0	100	0		
	Register employee before first workday	100	100	43	100	.	100	0		
	Check contractual obligations for hiring employees	25	0	.	.	.	.			
	Check working conditions for employing employees	25	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	75	100	43	0	.	0	0		

Source: DESI 2021 (2020 data)

SPAIN

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	71	67	100	0	100	0	100
Basic registration	Register company for the first time	50	100	50	0	0	.	100	0	0
Tax-related matters	Obtain tax identification card/number	100	100	57	67	100	100	50	0	0
	Obtain VAT collector number	100	100	86	67	100	100	50	0	0
Insurance-related matters	Register with Social Security Office	100	100	43	67	100	100	100	0	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	67	100	100	100	100	100
	Register employee before first workday	100	100	100	67	100	.	100	0	100
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	80	.	.	.	.	60		
	Obtain pollution/environmental permit	75	50	43	.	100	.	100	0	100

Source: DESI 2021 (2020 data)

FRANCE

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	43	100	100	100	50	0	0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	.	.	.	.	.	.		.	
	Register employee before first workday	100	100	86	67	.	100	0		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	.	.	.	.	.	.			
	Obtain pollution/environmental permit	.	.	.	.	.	.		.	

Source: DESI 2021 (2020 data)

CROATIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	57	67	100	100	50	0	0
Basic registration	Register company for the first time	100	100	57	100	100	100	100	0	0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	43	100	100	100	100	0	0
	Register employee before first workday	100	100	71	33	100	0	0		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	100	100	0	.	.	.	0		

Source: DESI 2021 (2020 data)

ITALY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	70	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	43	67	100	100	50	0	0
Basic registration	Register company for the first time	100	100	100	100	100	100	50	0	0
Tax-related matters	Obtain tax identification card/number	100	100	14	100	100	100	50	0	0
	Obtain VAT collector number	100	100	100	100	100	100	100	0	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	0	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	71	100	100	100	50	0	0
	Register employee before first workday	100	100	57	100	100	100	100	0	100
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	20	100	5	0	0	.	40	0	0

Source: DESI 2021 (2020 data)

CYPRUS

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	50	0	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	43	33	100	.	50	0	0
Tax-related matters	Obtain tax identification card/number	.	.	.	.	.	.		.	
	Obtain VAT collector number	100	100	0	0	.	.	50	0	
Insurance-related matters	Register with Social Security Office	100	100	0	0	.	.	100	0	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	0	0	.	.	50	0	
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	0	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	0	.	.	.	.	50		
	Obtain pollution/environmental permit	50	0	0	0	.	.	50		

Source: DESI 2021 (2020 data)

LATVIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	100	33	0	0	50		
Basic registration	Register company for the first time	100	100	100	100	100	0	50	0	0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	0	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	50	0	0
	Register employee before first workday	100	100	100	100	100	.	50		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	100	0	100	100	100	100	0		

Source: DESI 2021 (2020 data)

LITHUANIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	100	100	100	100	100	100	100
Basic registration	Register company for the first time	100	0	86	100	.	100	50	0	
Tax-related matters	Obtain tax identification card/number	100	0	100	100	100	100	50	100	100
	Obtain VAT collector number	100	0	100	67	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	0	43	100	.	.	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	50	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	0	57	100	100	100	100	100	100
	Register employee before first workday	100	100	100	100	100	0	100		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	0	86	100	100	100	50		

Source: DESI 2021 (2020 data)

LUXEMBOURG

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	71	33	.	0	0		
Basic registration	Register company for the first time	100	100	57	100	100	100	100	100	
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	43	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	29	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	.	.	.	.	.	.		.	
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	71	100	0	0	100	100	100

Source: DESI 2021 (2020 data)

HUNGARY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	71	100	100	0	50	0	
Basic registration	Register company for the first time	100	100	86	100	100	0	0		
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	100	100
	Register employee before first workday	100	100	86	100	100	100	0		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	0	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	0	.	.	.	.	0		
	Obtain pollution/environmental permit	100	0	43	100	100	100	0		

Source: DESI 2021 (2020 data)

MALTA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	100	100	100	100	100		100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	.	.	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	0	100
	Register employee before first workday	100	100	100	100	100	100	100	0	100
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	100	100	100	100	100		100

Source: DESI 2021 (2020 data)

NETHERLANDS

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	67	67	.	100	50		0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	50	100	50	.	.	0	50		0
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	100	67	100	100	50	0	

Source: DESI 2021 (2020 data)

AUSTRIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	71	100	100	100	50	0	
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	57	100	.	0	50	0	0
	Register employee before first workday	100	100	57	100	.	0	50		
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	50	100	25	.	0	.	50		

Source: DESI 2021 (2020 data)

POLAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	50	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	50	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	50	100	29	67	.	0	50	0	0
Basic registration	Register company for the first time	100	100	29	67	0	0	50	0	0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	14	67	.	0	50	0	0
Insurance-related matters	Register with Social Security Office	100	100	43	67	0	0	0	0	0
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	86	100	100	0	0	0	0
	Register employee before first workday	100	100	86	100	100	0	0	0	0
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	50	100	.	.	.	.	0		
	Obtain pollution/environmental permit	50	100	0	.	.	.	0	0	0

Source: DESI 2021 (2020 data)

PORTUGAL

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	71	67	100	0	100	100	100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	.	.	.	.	.	.		.	
Insurance-related matters	Register with Social Security Office	100	100	100	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	.	.	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	100	100
	Register employee before first workday	100	100	71	100	100	.	100	100	100
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	0	.	.	.	.	50		
	Obtain pollution/environmental permit	100	100	86	100	100	100	50		

Source: DESI 2021 (2020 data)

ROMANIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	50	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	50	0	75	0	.	.	0		
Basic registration	Register company for the first time	50	0	60	0	.	.	100		0
Tax-related matters	Obtain tax identification card/number	50	40	50	0	.	.	0		
	Obtain VAT collector number	50	40	17	0	0	.	0		
Insurance-related matters	Register with Social Security Office	.	.	.	.	.	.		.	
	Get guidance with how to arrange (mandatory) pension insurance	100	60	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	20	.	.	.	.			
Hiring a first employee	Register your company as an employer	70	20	0	0	0	.	0		
	Register employee before first workday	70	20	0	.	0	.	0		
	Check contractual obligations for hiring employees	100	0	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	100	100	0	0	0	.	0		

Source: DESI 2021 (2020 data)

SLOVENIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	100	100	100	100	100	100	100
Basic registration	Register company for the first time	100	0	86	100	100	100	100	0	100
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	0	86	100	100	100	100	100	100
Insurance-related matters	Register with Social Security Office	100	0	86	100	100	100	50	0	0
	Get guidance with how to arrange (mandatory) pension insurance	100	0	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	0	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	100	100	100	100	100
	Register employee before first workday	100	100	86	100	100	100	100	0	0
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	50	100	29	0	0	0	0	0	0

Source: DESI 2021 (2020 data)

SLOVAKIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	50	100	.	.	.	.			
	Get guidance with how to write a business plan	50	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	50	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	100	100	100	100	100	100	100
Basic registration	Register company for the first time	100	100	71	100	100	100	50	100	0
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	0	67	100	.			
Insurance-related matters	Register with Social Security Office	100	0	0	67	.	0	50	0	
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	75	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	0	67	100	.	50	0	0
	Register employee before first workday	100	100	0	67	100	.	100	0	0
	Check contractual obligations for hiring employees	100	0	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	0		
	Obtain pollution/environmental permit	50	100	0	.	.	.	0	0	0

Source: DESI 2021 (2020 data)

FINLAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	100	100	75	.	.	100	100		
Basic registration	Register company for the first time	100	100	100	100	.	100	50	100	
Tax-related matters	Obtain tax identification card/number	100	100	100	100	100	100	100	100	100
	Obtain VAT collector number	100	100	100	100	.	100	100	100	
Insurance-related matters	Register with Social Security Office	.	.	.	.	.	.		.	
	Get guidance with how to arrange (mandatory) pension insurance	100	100	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	100	100	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	100	100	.	100	50	0	
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	50		
	Obtain pollution/environmental permit	100	100	43	100	100	100	50		

Source: DESI 2021 (2020 data)

SWEDEN

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Orientation	Check requirements for starting a business	100	100	.	.	.	.			
	Get guidance with how to write a business plan	100	100	.	.	.	.			
	Get guidance with how to explore financial possibilities	100	100	.	.	.	.			
Administrative requirements	Obtain certificate of no outstanding charges	.	.	.	.	.	.		.	
Basic registration	Register company for the first time	100	100	100	100	100	100	100	0	100
Tax-related matters	Obtain tax identification card/number	100	100	100	67	100	100	100	100	100
	Obtain VAT collector number	100	100	100	67	100	100	100	0	100
Insurance-related matters	Register with Social Security Office	100	100	86	100	100	100	100	100	100
	Get guidance with how to arrange (mandatory) pension insurance	.	.	.	.	.	.			
	Get guidance with how to arrange (compulsory) healthcare insurance	.	.	.	.	.	.			
Hiring a first employee	Register your company as an employer	100	100	86	67	.	100	100	0	100
	Register employee before first workday	.	.	.	.	.	.		.	
	Check contractual obligations for hiring employees	100	100	.	.	.	.			
	Check working conditions for employing employees	100	100	.	.	.	.			
Request an environmental permit	Check conditions for environmental permits	100	100	.	.	.	.	100		
	Obtain pollution/environmental permit	100	100	100	67	100	.	100	0	100

Source: DESI 2021 (2020 data)

Annex 3.

Extent of joined-up comprehensive digital service delivery for regular business operations in Member States: 2021 DESI evaluation

BELGIUM

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	100	100		
	Declare social contributions	100	100	100	100	100	100	100		
	Submit financial reports to business registration office	100	100	57	67	100	100	50	0	
	Submit company data to statistical offices	100	100	43	67	100	100			
VAT	Declare VAT	100	100	100	100	100	100	100	0	
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	100
	Appeal against VAT decision	100	100	0	.	.	.	100	0	
Business changes	Register illness of employee with competent administration	50	100	0	.	.	.	50		
	Register the end of a contract of an employee with competent authority	100	100	14	0	.	.	100	0	
	Register new address with competent authority	100	100	14	100	.	.	50	0	

Source: DESI 2022 (2021 data)

BULGARIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	71	100	100	100	0		
	Declare social contributions	100	100	71	100	100	100	0		
	Submit financial reports to business registration office	100	100	71	67	100	100	100	100	
	Submit company data to statistical offices	100	100	71	67	100	100			
VAT	Declare VAT	100	100	71	100	100	100	0		
	Apply for a refund of VAT	100	100	71	100	100	100	100	0	
	Appeal against VAT decision	100	100	71	67	100	100	100	0	
Business changes	Register illness of employee with competent administration	100	100	100	100	100	100	100	100	100
	Register the end of a contract of an employee with competent authority	100	100	71	100	100	100	0		
	Register new address with competent authority	100	100	71	100	100	100	100	0	

Source: DESI 2022 (2021 data)

CZECHIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	67	100	100	100	0	0
	Declare social contributions	100	100	71	67	100	100	100	0	0
	Submit financial reports to business registration office	100	100	43	33	100	100	100	0	0
	Submit company data to statistical offices	100	100	43	33	0	100			
VAT	Declare VAT	100	0	86	67	100	100	100	0	0
	Apply for a refund of VAT	100	100	86	67	100	100	100	100	
	Appeal against VAT decision	100	100	43	0	0	0	100	0	
Business changes	Register illness of employee with competent administration	100	100	71	67	100	100	100	0	
	Register the end of a contract of an employee with competent authority	100	100	14	33	.	.	100		
	Register new address with competent authority	100	100	43	67	100	.	100	100	

Source: DESI 2022 (2021 data)

DENMARK

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	80	100	100	100	100		100
	Declare social contributions	.	.	.	.	.	.		.	
	Submit financial reports to business registration office	100	100	71	100	100	100	0		
	Submit company data to statistical offices	100	100	71	100	100	100			
VAT	Declare VAT	100	100	71	100	.	100	100		100
	Apply for a refund of VAT	100	100	57	100	100	100	100	0	100
	Appeal against VAT decision	100	100	86	100	100	100	50	0	0
Business changes	Register illness of employee with competent administration	100	100	43	100	100	100	50		
	Register the end of a contract of an employee with competent authority	.	.	.	.	.	.		.	
	Register new address with competent authority	100	100	71	100	.	100	100	100	100

Source: DESI 2022 (2021 data)

GERMANY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	67	100	100	100	100	
	Declare social contributions	100	100	29	33	0	100	50	0	
	Submit financial reports to business registration office	100	100	86	67	100	100	100	0	
	Submit company data to statistical offices	100	100	100	100	100	100			
VAT	Declare VAT	100	100	100	100	100	100	50	0	
	Apply for a refund of VAT	100	100	100	100	100	100	50	0	0
	Appeal against VAT decision	.	.	.	.	.	.		.	
Business changes	Register illness of employee with competent administration	.	.	.	.	.	.		.	
	Register the end of a contract of an employee with competent authority	100	100	0	67	0	100	50		
	Register new address with competent authority	100	100	43	.	.	.	83	0	

Source: DESI 2022 (2021 data)

ESTONIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	100	100	100	
	Declare social contributions	100	100	86	100	100	100	100	100	
	Submit financial reports to business registration office	100	100	100	100	100	100	100	100	100
	Submit company data to statistical offices	100	100	100	67	100	100			
VAT	Declare VAT	100	100	100	100	100	100	100	100	
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	100
	Appeal against VAT decision	100	100	100	100	100	100	100	100	
Business changes	Register illness of employee with competent administration	100	100	100	100	100	100	100	100	100
	Register the end of a contract of an employee with competent authority	100	100	83	100	100	100	100	100	
	Register new address with competent authority	100	100	83	100	.	100	100	100	

Source: DESI 2022 (2021 data)

IRELAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	67	100	100	100	0	100
	Declare social contributions	100	100	100	67	100	100	100	0	100
	Submit financial reports to business registration office	100	100	100	33	100	100	100	0	100
	Submit company data to statistical offices	100	100	71	33	100	0			
VAT	Declare VAT	100	100	100	67	.	100	100	0	0
	Apply for a refund of VAT	100	100	100	67	100	100	100	0	0
	Appeal against VAT decision	100	100	86	0	100	0	100	0	0
Business changes	Register illness of employee with competent administration	.	.	.	.	.	.		.	
	Register the end of a contract of an employee with competent authority	100	100	86	0	100	0	100	0	0
	Register new address with competent authority	100	100	57	67	100	100	100	0	100

Source: DESI 2022 (2021 data)

GREECE

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	43	100	100	0	0		0
	Declare social contributions	100	100	57	33	100	100	0		0
	Submit financial reports to business registration office	100	100	57	67	100	100	0		0
	Submit company data to statistical offices	100	100	43	67	100	100			
VAT	Declare VAT	100	100	57	67	100	0	0		0
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	100
	Appeal against VAT decision	50	100	0	33	100	100	0	0	
Business changes	Register illness of employee with competent administration	100	100	0	67	100	0	0		
	Register the end of a contract of an employee with competent authority	100	100	0	0	100	100	50		
	Register new address with competent authority	100	100	0	33	100	100	0		

Source: DESI 2022 (2021 data)

SPAIN

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	67	100	100	100	0	100
	Declare social contributions	100	100	100	67	100	.	100	0	100
	Submit financial reports to business registration office	100	100	100	67	100	100	100	0	100
	Submit company data to statistical offices	100	100	100	67	100	100			
VAT	Declare VAT	100	100	100	67	100	100	100	0	100
	Apply for a refund of VAT	100	100	100	67	100	100	100	0	100
	Appeal against VAT decision	100	100	100	67	100	100	100	0	100
Business changes	Register illness of employee with competent administration	100	100	100	67	100	100	100	0	0
	Register the end of a contract of an employee with competent authority	100	100	100	67	100	100	100	0	100
	Register new address with competent authority	100	100	100	67	100	100	100	100	100

Source: DESI 2022 (2021 data)

FRANCE

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	100	100	100	50		0
	Declare social contributions	100	100	100	100	100	100	50		0
	Submit financial reports to business registration office	100	100	40	33	100	0	0		0
	Submit company data to statistical offices	100	100	57	67	100	100			
VAT	Declare VAT	100	100	100	100	100	100	50		0
	Apply for a refund of VAT	100	100	100	100	100	100	100	0	0
	Appeal against VAT decision	50	100	29	0	0	0	100	0	
Business changes	Register illness of employee with competent administration	100	100	100	0	100	100	0		
	Register the end of a contract of an employee with competent authority	100	100	100	100	100	100	50		
	Register new address with competent authority	100	100	50	100	100	100	100		

Source: DESI 2022 (2021 data)

CROATIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	71	100	100	100	0	0	0
	Declare social contributions	100	100	100	100	100	100	0	0	0
	Submit financial reports to business registration office	100	100	100	67	100	100	0	0	0
	Submit company data to statistical offices	100	0	71	67	100	0			
VAT	Declare VAT	100	100	71	67	100	100	0	0	0
	Apply for a refund of VAT	100	100	57	67	100	100	100	100	0
	Appeal against VAT decision	100	100	43	33	100	0	0	100	0
Business changes	Register illness of employee with competent administration	100	100	57	67	100	0	100	0	100
	Register the end of a contract of an employee with competent authority	50	100	0	.	.	.	0		0
	Register new address with competent authority	100	100	29	100	100	100	0		

Source: DESI 2022 (2021 data)

ITALY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	33	100	0	100	0	0
	Declare social contributions	100	100	86	100	100	.	100	0	0
	Submit financial reports to business registration office	100	100	43	100	100	100	0	0	100
	Submit company data to statistical offices	100	100	71	67	100	100			
VAT	Declare VAT	100	100	86	33	100	0	0		100
	Apply for a refund of VAT	100	100	100	67	100	0	100	100	0
	Appeal against VAT decision	100	100	43	100	100	100	100	100	0
Business changes	Register illness of employee with competent administration	.	.	.	.	.	.		.	
	Register the end of a contract of an employee with competent authority	100	0	43	100	.	.	100	100	
	Register new address with competent authority	75	100	29	100	0	0	0	100	

Source: DESI 2022 (2021 data)

CYPRUS

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	43	33	.	100	100	100	100
	Declare social contributions	100	100	43	33	0	100	100	0	0
	Submit financial reports to business registration office	100	0	14	33	.	100	100	0	0
	Submit company data to statistical offices	100	100	100	33	.	.			
VAT	Declare VAT	100	100	43	33	.	100	100	0	0
	Apply for a refund of VAT	100	100	57	0	.	.	100	100	100
	Appeal against VAT decision	50	100	0	0	0	0	100	0	100
Business changes	Register illness of employee with competent administration	.	.	.	.	.	.		.	
	Register the end of a contract of an employee with competent authority	100	100	0	.	.	.	100	0	100
	Register new address with competent authority	100	100	100	100	100	100	100	100	100

Source: DESI 2022 (2021 data)

LATVIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	100	100	100	100	100	0
	Declare social contributions	100	100	100	100	100	100	50	100	100
	Submit financial reports to business registration office	100	100	100	100	100	100	0		
	Submit company data to statistical offices	100	100	100	100	100	100			
VAT	Declare VAT	100	100	100	100	100	100	100	100	100
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	100
	Appeal against VAT decision	100	100	100	100	100	100	100	100	100
Business changes	Register illness of employee with competent administration	100	100	100	100	100	100	100	100	100
	Register the end of a contract of an employee with competent authority	100	100	100	100	100	100	100		
	Register new address with competent authority	100	100	100	100	100	100	100	100	100

Source: DESI 2022 (2021 data)

LITHUANIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	100	50	0	100
	Declare social contributions	100	100	100	100	100	100	100	100	100
	Submit financial reports to business registration office	100	100	100	100	100	100	100	100	100
	Submit company data to statistical offices	100	100	100	100	.	100			
VAT	Declare VAT	100	100	100	100	100	100	100	100	0
	Apply for a refund of VAT	100	100	100	100	100	100	50	0	0
	Appeal against VAT decision	.	.	.	.	.	.		.	
Business changes	Register illness of employee with competent administration	100	100	100	100	100	100	100	100	100
	Register the end of a contract of an employee with competent authority	100	100	86	100	100	100	100	0	100
	Register new address with competent authority	100	100	86	100	100	100	100	100	100

Source: DESI 2022 (2021 data)

LUXEMBOURG

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	57	100	100	100	100		
	Declare social contributions	100	100	100	100	100	100	100	100	100
	Submit financial reports to business registration office	100	100	100	67	100	100	100		
	Submit company data to statistical offices	100	100	43	67	100	100			
VAT	Declare VAT	100	100	43	100	100	100	100		
	Apply for a refund of VAT	100	100	86	100	100	100	100	100	
	Appeal against VAT decision	100	100	43	0	0	.	100	100	
Business changes	Register illness of employee with competent administration	100	100	57	67	100	100	100	100	
	Register the end of a contract of an employee with competent authority	100	100	86	100	100	100	100	100	
	Register new address with competent authority	.	.	.	.	.	.	.		

Source: DESI 2022 (2021 data)

HUNGARY

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	.	50	0	
	Declare social contributions	100	100	71	100	100	.	100	0	0
	Submit financial reports to business registration office	100	100	86	100	100	.	50	0	
	Submit company data to statistical offices	100	100	43	100	100	.			
VAT	Declare VAT	100	100	71	100	100	.	50	0	
	Apply for a refund of VAT	100	100	57	100	100	.	100	0	
	Appeal against VAT decision	100	100	57	100	100	100	50	0	
Business changes	Register illness of employee with competent administration	100	100	100	100	100	.	0		
	Register the end of a contract of an employee with competent authority	100	0	71	.	100	.	0		
	Register new address with competent authority	100	0	71	33	100	.	50	0	

Source: DESI 2022 (2021 data)

MALTA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	100	50	0	
	Declare social contributions	100	100	86	100	100	100	100	0	
	Submit financial reports to business registration office	100	100	100	100	100	100	100	0	100
	Submit company data to statistical offices	100	100	100	100	100	100			
VAT	Declare VAT	100	100	86	100	100	100	100		
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	100
	Appeal against VAT decision	100	100	86	100	100	100	50	0	
Business changes	Register illness of employee with competent administration	100	100	100	100	100	100	100		100
	Register the end of a contract of an employee with competent authority	100	100	71	100	100	100	100	0	
	Register new address with competent authority	100	100	100	100	100	100	100		100

Source: DESI 2022 (2021 data)

NETHERLANDS

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	67	.	100	50	100	
	Declare social contributions	100	100	100	67	.	100	100		
	Submit financial reports to business registration office	100	100	100	67	100	100	100		
	Submit company data to statistical offices	100	100	100	33	100	100			
VAT	Declare VAT	100	100	100	67	.	100	50	0	
	Apply for a refund of VAT	100	100	71	67	.	100	100		100
	Appeal against VAT decision	100	100	86	67	.	100	100	0	0
Business changes	Register illness of employee with competent administration	100	100	80	67	100	100	50		
	Register the end of a contract of an employee with competent authority	100	100	86	67	.	100	50		
	Register new address with competent authority	100	100	57	67	.	100	100		

Source: DESI 2022 (2021 data)

AUSTRIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	100	100	100	50	100	0
	Declare social contributions	100	100	43	100	100	100	50		
	Submit financial reports to business registration office	100	100	71	100	100	100	0	100	
	Submit company data to statistical offices	100	100	71	100	100	100			
VAT	Declare VAT	100	100	86	100	100	100	100		
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	0
	Appeal against VAT decision	100	100	100	100	100	100	50	100	0
Business changes	Register illness of employee with competent administration	.	.	.	.	.	.		.	
	Register the end of a contract of an employee with competent authority	100	100	57	100	100	100	100		
	Register new address with competent authority	100	100	71	100	100	100		.	

Source: DESI 2022 (2021 data)

POLAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	67	100	100	100		
	Declare social contributions	100	100	100	67	100	100	50	100	
	Submit financial reports to business registration office	100	100	100	67	100	100	100		
	Submit company data to statistical offices	100	100	100	67	100	100			
VAT	Declare VAT	100	100	100	67	100	100	100	100	0
	Apply for a refund of VAT	100	100	100	100	100	100	100	0	0
	Appeal against VAT decision	50	100	14	0	0	0	0	0	
Business changes	Register illness of employee with competent administration	100	100	57	100	100	100	0		
	Register the end of a contract of an employee with competent authority	100	100	0	33	.	.	100		0
	Register new address with competent authority	100	100	0	67	.	.	100	0	

Source: DESI 2022 (2021 data)

PORTUGAL

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	43	100	100	100	50	0	0
	Declare social contributions	100	100	43	100	100	100	50	0	0
	Submit financial reports to business registration office	100	100	43	100	100	100	0	0	0
	Submit company data to statistical offices	100	100	100	100	100	100			
VAT	Declare VAT	100	100	57	100	100	100	50	0	0
	Apply for a refund of VAT	100	100	57	100	100	100	50	0	
	Appeal against VAT decision	100	100	57	100	100	100	50	0	
Business changes	Register illness of employee with competent administration	100	100	43	100	100	100	0	0	0
	Register the end of a contract of an employee with competent authority	100	100	43	100	100	100	50	0	
	Register new address with competent authority	100	0	43	100	100	100	100		

Source: DESI 2022 (2021 data)

ROMANIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	67	67	100	.	0		
	Declare social contributions	100	0	60	100	100	.	0		
	Submit financial reports to business registration office	100	100	0	100	.	0	0		
	Submit company data to statistical offices	100	100	71	33	100	.			
VAT	Declare VAT	100	100	83	67	100	0	0		
	Apply for a refund of VAT	100	0	20	0	100	0	50	0	
	Appeal against VAT decision	50	0	0	.	.	.	0	0	
Business changes	Register illness of employee with competent administration	0	100	0	0	0	0	0		
	Register the end of a contract of an employee with competent authority	25	0	0	.	.	.	50		0
	Register new address with competent authority	100	0	0	50	.	.	0		

Source: DESI 2022 (2021 data)

SLOVENIA

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	100	100	100	100	0	
	Declare social contributions	100	100	86	100	100	100	100	0	
	Submit financial reports to business registration office	100	100	86	67	100	100	100	0	
	Submit company data to statistical offices	100	100	100	67	100	100			
VAT	Declare VAT	100	100	100	100	100	100	100	0	
	Apply for a refund of VAT	100	100	100	100	100	100	100	100	0
	Appeal against VAT decision	25	100	50	67	0	.	50	0	0
Business changes	Register illness of employee with competent administration	100	100	43	100	100	100	100	0	
	Register the end of a contract of an employee with competent authority	100	100	57	100	100	100	50		
	Register new address with competent authority	100	100	57	67	100	100	50	0	

Source: DESI 2022 (2021 data)

SLOVAKIA		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	100	100	100	100	100	0	
	Declare social contributions	100	100	57	100	100	100	0	100	100
	Submit financial reports to business registration office	100	100	0	100	100	.	0	0	100
	Submit company data to statistical offices	100	0	71	67	.	100			
VAT	Declare VAT	100	100	100	100	.	100	50	0	100
	Apply for a refund of VAT	100	100	67	100	100	100	50	100	100
	Appeal against VAT decision	100	100	80	100	100	100	100	0	0
Business changes	Register illness of employee with competent administration	50	100	43	0	0	100	50	0	0
	Register the end of a contract of an employee with competent authority	100	0	0	.	.	.	100	0	0
	Register new address with competent authority	100	100	0	100	100	100	100	0	0

Source: DESI 2022 (2021 data)

FINLAND

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	71	100	100	100	100	100	
	Declare social contributions	100	100	57	100	100	100	100	100	0
	Submit financial reports to business registration office	100	100	33	100	100	100	100	100	100
	Submit company data to statistical offices	100	100	43	100	100	.			
VAT	Declare VAT	100	100	71	100	100	100	100	100	100
	Apply for a refund of VAT	100	100	57	100	100	100	100	100	100
	Appeal against VAT decision	100	100	57	100	100	100	100	100	100
Business changes	Register illness of employee with competent administration	100	100	43	100	0	100	100	100	
	Register the end of a contract of an employee with competent authority	100	100	0	.	.	.	100	100	
	Register new address with competent authority	100	100	43	100	.	100	100	100	

Source: DESI 2022 (2021 data)

SWEDEN

		User centricity		Transparency of Service delivery	Key Enablers			Cross-border services		
		Online availability	Mobile friendliness		eID	eDocuments	Authentic sources	Online availability	eID	eDocuments
Tax and corporate finance	Declare corporate tax	100	100	86	67	.	100	100	0	
	Declare social contributions	100	100	71	67	.	100	50		
	Submit financial reports to business registration office	100	100	100	67	100	.	100	0	
	Submit company data to statistical offices	50	100	0	.	.	.			
VAT	Declare VAT	100	100	86	67	100	100	0	0	
	Apply for a refund of VAT	100	100	71	67	100	100	100	0	
	Appeal against VAT decision	100	100	43	67	0	0	50	0	0
Business changes	Register illness of employee with competent administration	100	100	14	.	.	.	0	0	
	Register the end of a contract of an employee with competent authority	50	100	0	.	.	.	100	0	
	Register new address with competent authority	.	.	.	.	.	.		.	

Source: DESI 2022 (2021 data)