European Commission

eGovernment Benchmark 2019

Empowering Europeans through trusted digital public services

BACKGROUND REPORT

A study prepared for the European Commission DG Communications Networks, Content & Technology by:

Capgemini sogeti Part of Capgemini IDC Analyze the Future POLITECNICO MILANO 1863

Digital Single Market

This study was carried out for the European Commission by
Capgemini, IDC, Sogeti, and Politecnico di Milano

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Introduction

Introduction

1.1 An annual evaluation of online public services to steer the digital agenda

High-paced societal developments place new demands and expectations on the public sector, fuelled by quickly evolving technologies and tools. Realising the full potential of these technologies is the key challenge for governmental organisations. This requires new ways of organising, digitising interactions with citizens and businesses, optimising user experience and internal processes to open new organisational models and partnerships. Spanning these efforts across national borders under a joint eGovernment agenda is crucial in realising the Digital Single Market[1]. The Tallinn Ministerial Declaration on eGovernment, signed in October 2017, emphasizes Europe's vision on eGovernment: *'the overall vision remains to strive to be open, efficient and inclusive, providing borderless, interoperable, personalised, user-friendly, end-to-end digital public services to all citizens and businesses – at all levels of public administration*[2]*.'*

For over a decade, the eGovernment Benchmark has been a yearly monitoring instrument of the EC to provide insight into the use of information and communications technologies (ICT) in the public sector. It is an internationally recognised Benchmark in the field of eGovernment services of Member States. The eGovernment Benchmark framework corresponds with the key policy priorities in the eGovernment Action Plan[3] and the Tallinn Declaration and brings insights on the state-of-play of eGovernment in 36 European countries. The measurement evaluates the maturity of online public services in terms of user centricity, transparency, and use of key enablers. It also brings the dimension of cross-border service delivery, which is a truly European metric. The 36 countries include the European Union Member States, Iceland, Norway, Montenegro, Republic of Serbia, Switzerland, Turkey as well as newly included Albania and North Macedonia. This group of countries is referred to as 'Europe' and 'EU28+' throughout the report.

The results on the state-of-play on eGovernment will represent the baseline against which the progress and effectiveness of measures under the new eGovernment Action Plan 2016-2020 and Tallinn Declaration will be assessed. The monitoring of the digital transformation of government is a key element in assessing the progress towards completing the Digital Single Market as well as the pursuit of a more "citizen-centric Europe".

1.2 Who should read the report

The report at hand is the *Background report*; this document complements the *Insight report*, which summarises the key findings. The goal of this report is to provide a comprehensive and detailed overview on the eGovernment assessment performed. The results on the indicators that compose the framework are presented for each life event, as well as at aggregated level across all life events. This report also includes an extensive description of the benchlearning exercise that has been performed to facilitate and encourage best practices transfer across Member States.

The report is relevant to a broad spectrum of stakeholders as it provides valuable insights into the digital transformation of governments across Europe:

- **Government and public administration officials**, who are interested in observing the development of eGovernment in their own national context, and benchmark this against other European countries.
- **Researchers** in the eGovernment field or related areas that are interested in tapping into the rich data source on which the benchmarking exercise is based, and gather further insights on eGovernment across Europe. The data of both the background and

[1] Digital Single Market, more information available at: https://ec.europa.eu/commission/priorities/digital-single-market_en
[2] Tallinn Ministerial Declaration on eGovernment, page 3, online available: http://ec.europa.eu/newsroom/document.cfm?doc_id=47559
[3] European Commission (2016). The EU eGovernment Action Plan 2016-2020. Accelerating the digital transformation of government. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016DC0179

the insights reports is open, free of charge and provided in a machine-readable format. This includes all life event assessments performed since 2012. The Commission's webpage also presents via visualisations the data collected in previous measurements from 2012-2018.

- **Businesses and developers**, who are providing or are interested in developing eGovernment applications and services to public administrations across Europe. The report provides insights into the life events and assessment dimensions, highlighting the areas that need further improvement.
- **Citizens and entrepreneurs** interested in observing the state of play as well as eGovernment progress in their country and across Europe. With an increase in cross-border transactions for citizens and business, the insights provided by the benchmark are of particular relevance.

1.3 How to read the report

The present report - called the Background Report - is the extensive overview of the benchmark assessment, which aims to deliver an impactful study on eGovernment. This report is complemented by the shorter Insight Report, which presents the key findings and policy recommendations. Complementary to these two reports, country factsheets are provided to enable more focused insights at national level into the results per top-level benchmark and per life event in comparison with the rest of the EU. The research is completed by the raw data that is publicly available. The graphs presented in this report are considered most relevant to represent the data gathered. The data allows for even more representations. Please consult the Method Paper[5] which includes a comprehensive description of the method used (including full description of the questionnaire and life event models for instance).

The Background Report is structured as follows:

- *Chapter* 2 provides an overview of the measurement, including the policy priorities it addresses and a short description of the methodology[4];
- *Chapter* 3 provides the analysis of the top-level benchmarks for the indicators: User Centricity, Transparency, Cross-border Mobility and Key Enablers;
- *Chapters* 4 to 7 provide the insights for the four life events under scrutiny in this edition: "Starting up a business and early trading operations", "Family life", "Losing and finding a job" and "Studying";
- *Chapter* 8 presents the results of the benchlearning analysis of the EU Member States, analysing performances of countries that have similar pre-requisites and development paths.

[4] For a more detailed description of the methodology, please refer to the Method Paper, online available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=55174

Measuring eGovernment

Measuring eGovernment

2.1 The eGovernment Benchmark builds on EU policy priorities for 2016-2020

The eGovernment Action Plan 2016-2020 published by the European Commission proposes the vision for eGovernment in the EU and fits in a long and evolving history of digital and technological innovation policies. With the eGovernment Action Plan 2016-2020, the European Commission aims at undertaking actions along three priority areas[3]:

- **Modernisation of public administration** using key digital enablers such as eID, eSignature, eDelivery and eInvoice. Public administrations need to ensure fast and high-quality services, which require key digital enablers that are built upon shareable and reusable solutions, based on agreed standards and technical specifications; this allows for better interoperability with reduced costs of development and time to deployment.
- **Enabling Cross-border Mobility for citizens and businesses** cross-border digital public services are a cornerstone of the EU Single Market, opening markets and increasing competitions across borders. Administrations need to simplify the access to their services and information for citizens and businesses in other Member States.
- **Facilitation of digital interaction** between public administrations with citizens and businesses for high-quality services: the digital transformation provides opportunities for improving the interaction between citizens and businesses with public institutions. Creating a dialogue on what knowledge is available allows all parties to learn and find areas of growth whilst becoming more transparent.

In supporting actions on these dimensions, the following principles will be promoted:

- **Digital by Default**: services should preferably be delivered digitally whilst keeping other channels open for those who are disconnected by choice or necessity. Additionally, public services should be accessible through a single contact point.
- **Once-Only**: public administrations should ensure that citizens and businesses are only required to provide the same information once. The administrations should take actions to re-use the available data to prevent unneeded burden on the users, where data protection rules allow this.
- **Inclusiveness and accessibility**: digital public services should be designed to be inclusive by nature, and be accessible for people with different needs as those of the elderly and people with disabilities.
- **Openness & transparency**: citizens and businesses should be enabled to control access, and correct their own data and monitor the administrative processes.
- **Cross-border by default**: relevant digital public services should be made available across national borders to facilitate mobility within the Digital Single Market.
- **Interoperability by default**: public services should work seamlessly across public entities within and across borders, relying on and improving the free movement of data and digital services.
- **Trustworthiness & security**: these aspects should be implemented fundamentally within the design of the public services, as they are essential for increasing trust and usage of the digital services.

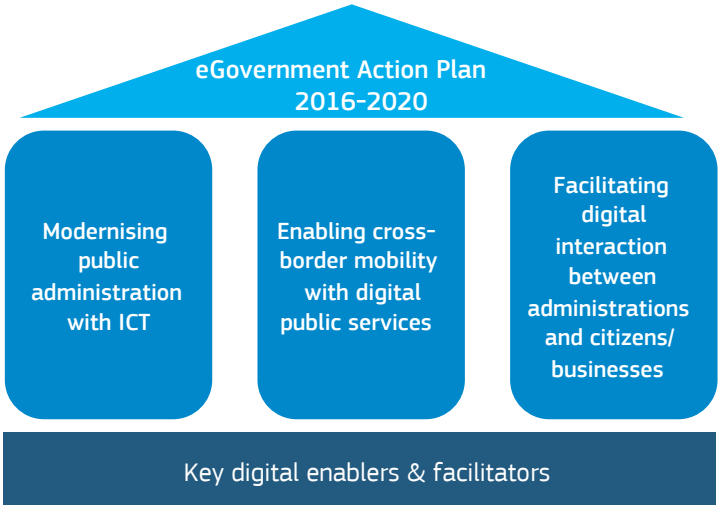

Figure 2.1 eGovernment Action Plan 2016-2020

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2.2 The eGovernment Benchmark method

The methodology and focus points of the eGovernment benchmark are summarised in this section; a more detailed description of the methodology can be found in the Method paper[4], which is re-published alongside this report. The main objective of the eGovernment benchmark is to analyse the current state of play of digital services provided by Europe's public administrations. This exercise allows everyone to see where countries stand with regard to the principles they strive towards, and to compare them amongst each other. The provided insight aids mutual learning, cooperation and convergence within Europe.

As the benchmark has been performed for several years, it provides a reference frame for the service providers to assess their performance, establish good practices and identify strong areas as well as inadequacies. Sharing these results accelerates public sector innovation as to offer higher quality services to citizens and businesses more quickly. Benchmarking is the first step of a continuous benchlearning and improvement cycle.

2.2.1 The measurement framework: four top-level benchmarks

The eGovernment benchmark framework is built on the foundation of the EU policy priority areas in the field of eGovernment. This foundation led to the selection of the Top-level benchmarks, with their underlying indicators as shown in Figure 2.2.

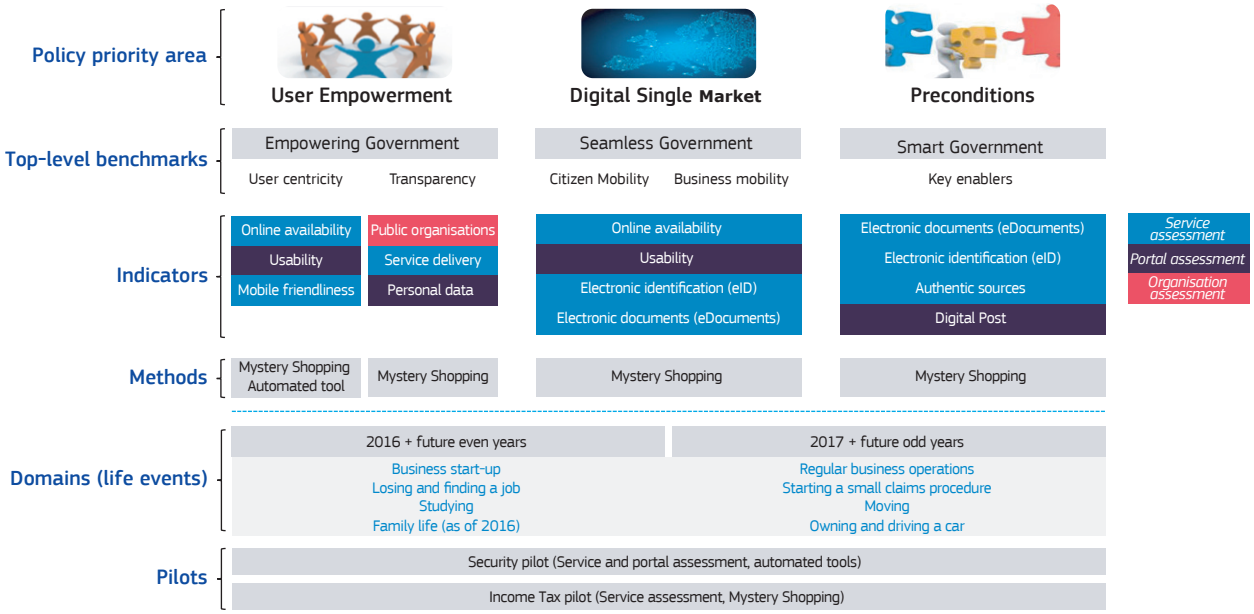

Figure 2.2 Relation between eGovernment policy priorities and the eGovernment benchmark framework

The eGovernment benchmark framework also aligns with the new eGovernment Action Plan, and focuses on topics such as the *modernisation of public administrations, Cross-border mobility*, and *facilitation of digital interactions between citizens and administrations*. The progress in these areas is measured via four **top-level benchmarks**, which comprise multiple sub-indicators:

[4] For a more detailed description of the methodology, please refer to the Method Paper, online available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=55174

- **User centricity**: indicates the extent to which a service is provided online, its mobile friendliness and its usability (in terms of available online support and feedback mechanisms).
- **Transparency**: indicates the extent to which governments are transparent about the process of service delivery, the responsibilities and performance of public organisations and the personal data processed by public administrations.
- **Cross-border mobility**: indicates the extent to which citizens and businesses can use eGovernment services from another European country and there is a true Digital Single Market.
- **Key enablers**: indicates the extent to which technical pre-conditions for eGovernment service provision are in place. The key enablers considered are electronic identification (eID), electronic documents (eDocuments), authentic sources, and digital post.

2.2.2 The life events approach

To measure the state of play of eGovernment, this benchmark uses life events to capture the landscape of public services. Each life event is measured in a biennial cycle (once every two years), allowing countries to follow-up on the results and implement measures to tackle potential inadequacies along the life events. The life events are associated with a user-journey that businesses and/or citizens go through to attain specific goals.

The life events are evaluated as follows: Business start-up, Family, Losing and finding a job and studying are observed in the even years - 2018 and earlier, while Regular business operations, General administration: moving, Owning and driving a car and Starting a small claims procedure in the odd years - 2017 and earlier.

	2012 + 2014 + 2016 + 2018	2013 + 2015 + 2017
Business life events	Business start-up	Regular business operations
Citizen life events	Losing and finding a job Studying Family life (as of 2016)	Starting a small claims procedure Moving Owning and driving a car

Figure 2.3 Overview of life events under assessment in 2012 – 2018

2.2.3 The eGovernment benchmark since 2012

Since the eGovernment benchmark assessment was first performed in 2012, the methodology has been updated and refined, considering new policy priorities and learning from experience. The largest update took place prior to the 2016 assessment, where a new life event was introduced: Family life. New indicators have also been included since this update, regarding Digital Post, Transparency of personal data and Mobile friendliness.

2.2.4 Method of data collection

The method most used in the benchmark exercise is Mystery Shopping. 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 top-level benchmarks. Besides Mystery Shopping, the assessment of Mobile friendliness is conducted using online and openly available tools[5] [6].

[5] Rankwatch Mobile friendly check, available at: https://www.rankwatch.com/tools/mobile-friendly-check.html
[6] Google Mobile friendly test, available at: https://search.google.com/test/mobile-friendly

2

The Mystery Shopping exercise at a glance:

- Mystery Shoppers are users of government services themselves, which provides a certain level of validity and involvement into the measurement: how they experience the eGovernment services is a valid real-life user experience.
- All Mystery Shoppers are briefed and clearly instructed to minimise subjectivity. Additionally, they assess the life events using specific personas. This standardises possible differences in personal situations.
- In principle, every country is evaluated by two Mystery Shoppers and their results are compared. Inconsistencies are re-evaluated by the research team in order to achieve a high level of reliability. For Cross Border Mobility, all participating countries are assessed by two Mystery Shoppers from another country.
- Every Mystery Shopper is a country national owning a national eID (if any).
- The Mystery Shoppers' 'journey' is time-boxed, i.e. each Mystery Shopper has limited time to assess one life event. This implies that when a particular feature could not be found within reasonable time, it is answered negatively. This does not mean per se that the particular feature is not available online – it means that it apparently was too difficult to find intuitively, or with too many clicks. This makes it very likely that regular citizens or entrepreneurs will not use it, nor will they find it.
- After completion of the Mystery Shopping exercise, results are sent for validation to the EU28+ country representatives. This is an intense collaborative process. The representatives are involved at the start and at the end of the evaluation: at the start in order to validate the sample and key characteristics of the services under assessment; at the end to validate the research results and to correct potential obvious erroneous findings in collaboration with the responsible organisations in a country.

Part one: Synthesis of top-level benchmarks

Synthesis of top-level benchmarks

The focus within this chapter is to summarise the results of the eGovernment benchmark analyses aggregated on the Top-level benchmarks. The following section, 3.1, provides a broad layout of the current state-of-play, followed by sections where each Top-level benchmark is explored in more detail: 3.2 User centricity, 3.3 Transparency, 3.4 Cross-border mobility, 3.5 Key enablers. Section 3.6 overviews how the eGovernment benchmark relates to the Digital Economy and Society Index (DESI)[7].

3.1 Overviewing the top-level benchmarks results

The life events included in the eGovernment benchmark are evaluated on four Top-level benchmarks: User centricity, Transparency, Cross-border mobility and Key enablers. As all life events are measured every two years, the biennial averages summarise the findings from the whole eGovernment spectrum. A methodology update took place in the 2016 eGovernment benchmark. Therefore, not all biennial averages can be compared overall all years of the eGovernment benchmark. However, the biennial average from 2017 can be compared with the biennial average from 2018, essentially providing an overview of the growth in the Business start-up, Family, Losing and finding a job and Studying life events.

Figure 3.1 shows the 2018 biennial EU28+ averages, and how they changed compared to 2017. User centricity is the most mature benchmark at 85%, followed by Transparency at 62% (58.6 + 3.6), Key enablers at 58% (53.5 + 4.8 Figure 3.1) and Cross-border mobility at 53. The EU28+ improved most in the Key enablers benchmark, with 5 percentage points (p.p.), followed by Transparency with 4 p.p., User centricity with 2 p.p. and Cross-border mobility with 1 p.p.

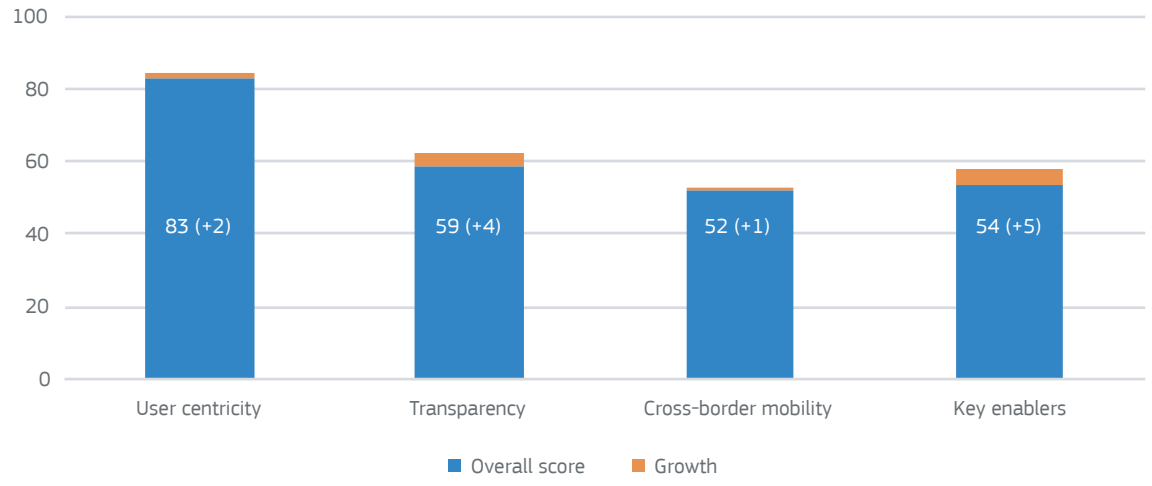

Figure 3.1 Top-level benchmark scores (2018 biennial average, Growth compared to 2017 biennial average)

These results indicate that User centricity is well developed across the countries. Cross-border mobility still holds potential value, though the pace with which it has developed the last couple of years is low. The improvement pace within the other benchmarks does show results of the EU28+ governments' efforts to improve the provision of services and inform citizens and businesses.

An overview of eGovernment performance per life event is presented in Figure 3.2, which shows the average scores of the Top-level benchmarks per domain. The most mature benchmark is the Business start-up life event at 76%, followed by Losing and finding a job and Regular business operations at 71%, Studying at 68%, General administration: moving at 66%, Family at 63%,

[7] DESI, more information available online at: https://ec.europa.eu/digital-single-market/en/desi

Owning and driving a car at 56% and finally Starting a small claims procedure at 51%. Within the life events evaluated in the even years, the Family life event improved the most with 10 p.p., followed by Business start-up with 7 p.p., Losing and finding a job with 5 p.p. and Studying with 3 p.p.

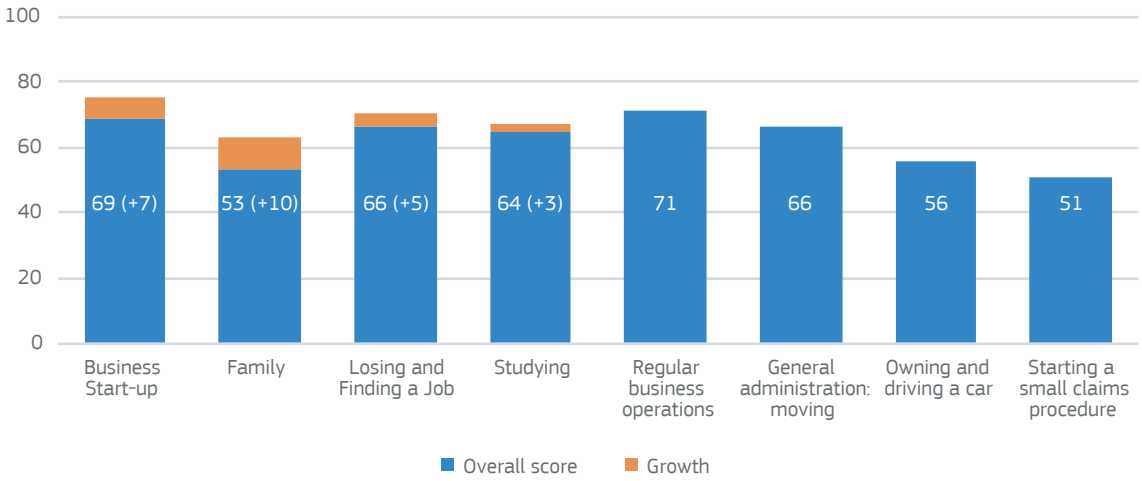

Figure 3.2 Average scores Per life events (average of Top-level benchmarks, Growth is compared to 2016)

Insight into the results for the individual countries is provided in Figure 3.3 (for 2017 life events) and Figure 3.4 (for 2018 life events). Nine countries are ranked in the top 10 in both years: Malta, Estonia, Lithuania, Latvia, Austria, Portugal, Norway, Denmark and the Netherlands. These nine countries are joined by Sweden in 2018, and by Finland in 2017.

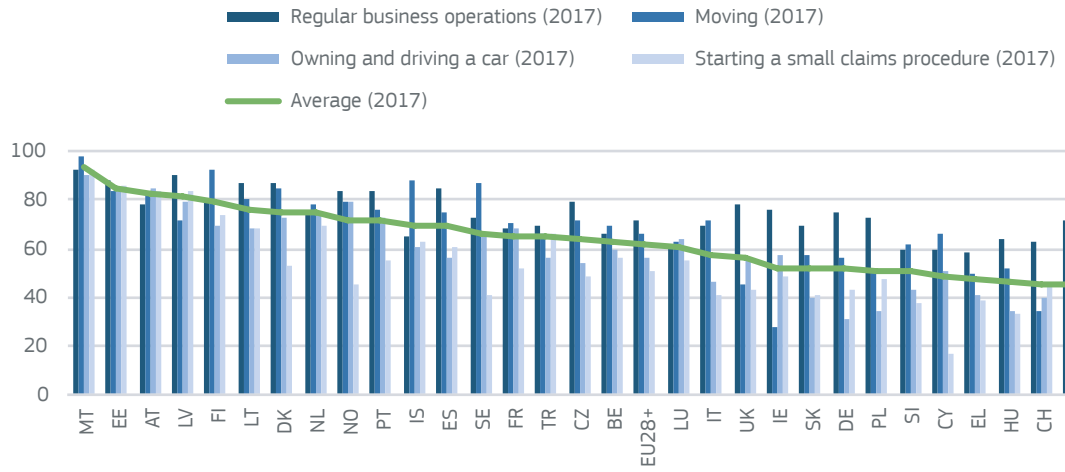

Figure 3.3 Country ranked on the average of the Top-level benchmarks (per 2017 life event and country)

Within Figure 3.3, the pattern from Figure 3.2 re-emerges: in the majority of countries (19), Regular business operations is the most mature, while Starting a small claims procedure is the least mature. Moving is the most mature life event within 12 countries and Owning and driving a car in 2 of the EU28+ countries.

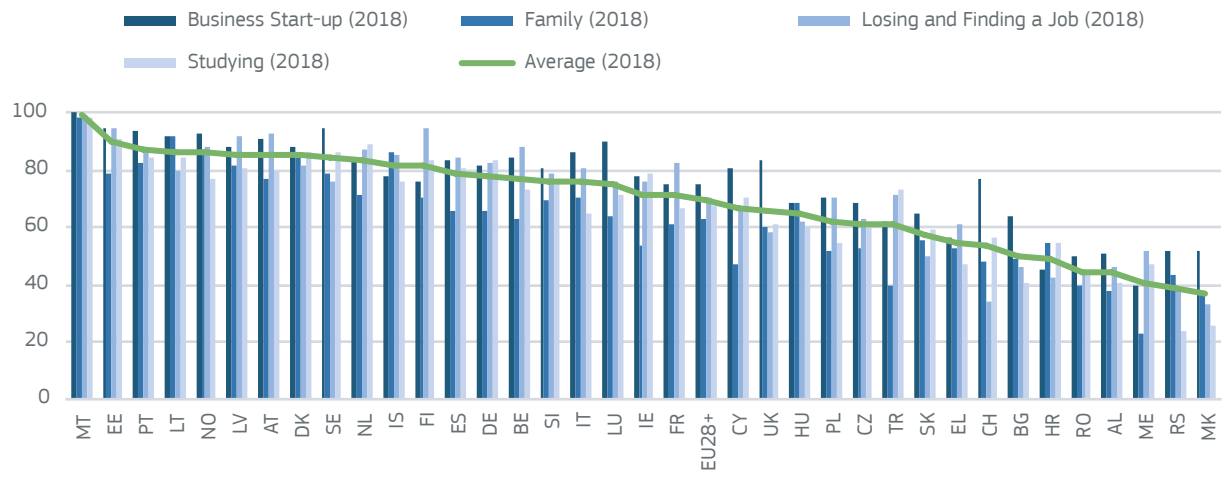

Figure 3.4 Country ranked on the average of the Top-level benchmarks (per 2018 life event and country)

Figure 3.4 shows that Business start-up services are the most well developed in 20 of the EU28+ countries, while Family services are least mature in 19 countries. Losing and finding a job is the most mature life event in nine countries, while Studying and Family are most mature in five and two countries respectively.

The following chapters will dive deeper into the results for each of the Top-level benchmarks and their constituent sub-indicators. These further analyses pinpoint specific areas where services are well developed and where there is still value to be exploited by the service providers.

3.2 User centricity

User centricity, the first of the eGovernment Top-level benchmark, focusses on how the services are being provided to citizens and businesses. This benchmark consists of three sub-indicators: Online availability, Usability and Mobile friendliness. These indicators measure three different aspects of the service provision: how the services are made available, whether there are usability options available within the services and whether they are easily available using portable devices. Within these three sub-indicators, Online availability has the most weight in calculating the User centricity benchmark.

Figure 3.5 shows the EU28+ average scores of the three sub-indicators for each of the 2018 and 2017 life events. Overall, Usability is most often the best scoring indicator within User centricity, with a biennial average of 90%, followed by Online availability at 85% and Mobile friendliness at 68%. This shows that Mobile friendliness holds the most opportunities for governments to provide more value through their services.

Online availability is best developed for the business-related services, Regular business operations scores 94% and Business start-up 91%. Of the citizen-related life events, Online availability is most developed in the General administration: moving life event (at 88%), followed by Studying (87%) and Owning and driving a car (84%). Usability is most mature for Regular business operations services (at 95%), followed by services related to Losing and finding a job (93%) and both Family and Business start-up (92%). Mobile friendliness is generally lower than the other two sub-indicators as the most mature life event is Regular business operations (75%), followed by Family (73%) and Owning and driving a car (70%).

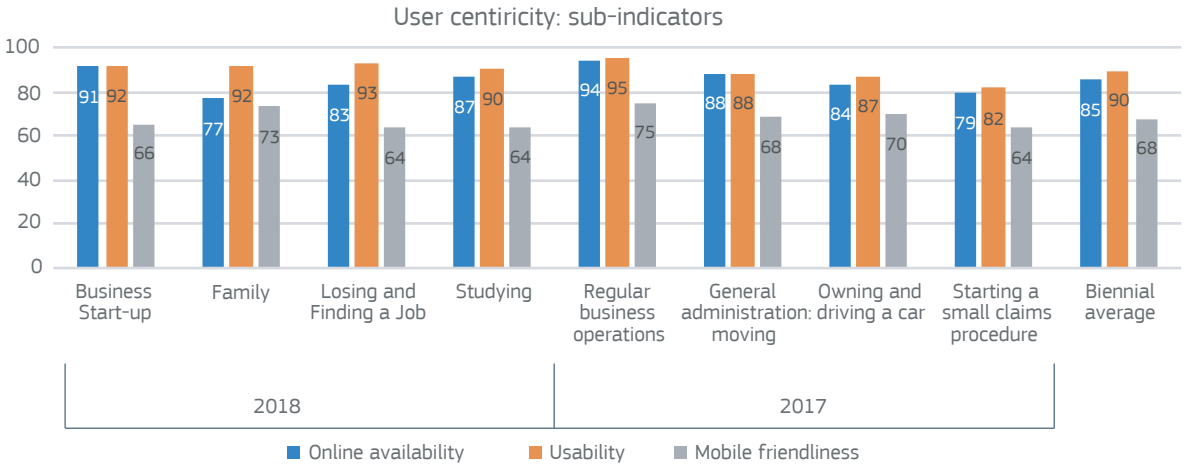

Figure 3.5 User centricity scores per 2018 and 2017 life events (EU28+ average)

The following sections will provide more detail about the sub-indicators, the aspects they are based on and the insights they provide.

3.2.1 Online availability of services

The Online availability sub-indicator evaluates how the services are made available to citizens and businesses. An overview of how this sub-indicator is evaluated is shown in Figure 3.6. The evaluation is performed on four factors. First, it is checked whether the service is automated. Second, it is checked whether the service itself is available online. Third, it is checked whether information about the service is online. Finally, it is checked if the service is available through one of the national Portals relevant to that life event.

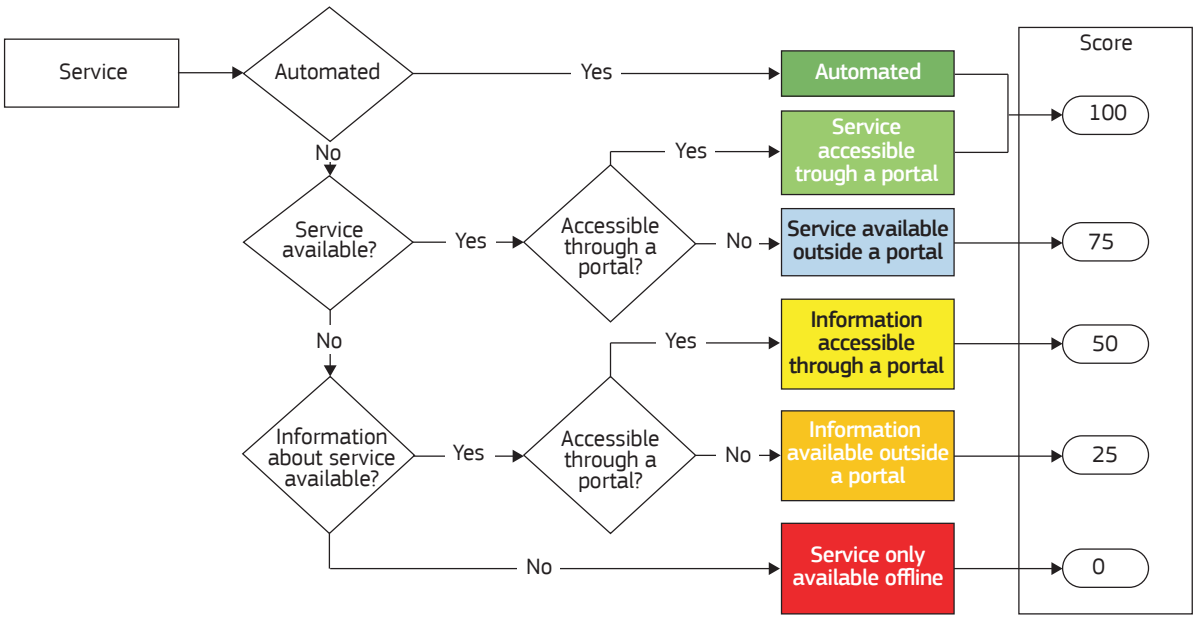

Figure 3.6 Flowchart of the Online availability evaluation to scores

Services are defined as automated when they require no initiation or interaction from users to be performed. When each step necessary for obtaining the service can be done completely online, the service is determined to be “online”. If a service is not online, but online information

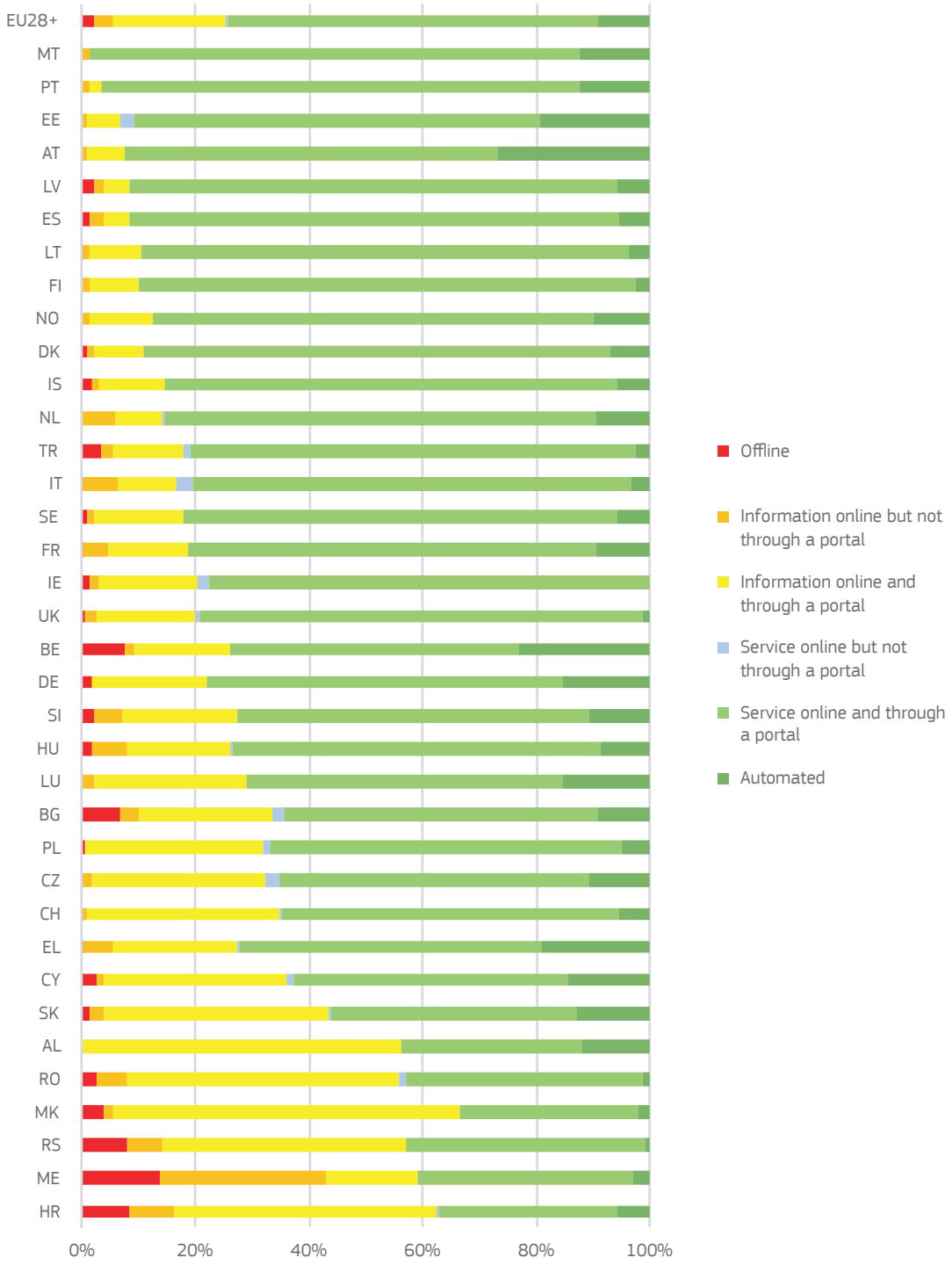

Figure 3.7 Online availability of public services (2018 biennial average per country)

is provided about how to successfully complete the service, the service is determined as "providing information online". If the service is not automated, not available online and no information is provided online either, the service is determined to be "offline". For services classified as "online", or "providing information online" an additional assessment is made whether they are available through a relevant portal. These six levels result into the scores as displayed on the right of Figure 3.6.

Figure 3.7, depicts the six different levels to which public services are made available. Within the EU28+, 7% of services are automated and 69% of services are available online and through a portal. Information is available on 22% of services (of which 19 percentage points (p.p.) are reachable through a portal), while 2% of services are only available offline.

The country with the highest level of automated services is Austria with 27%, followed by Belgium with 23% and Estonia with 20%. The countries where most services are either automated or fully available online are Malta, Portugal and Estonia with 99%, 97% and 93%, respectively. The countries in which most often only information is provided do so in about over 50% of services. The highest frequency of offline only services is 14% . The following section will dive deeper in differences between the administrative levels that provide the services.

Figure 3.8 shows the average Online availability scores for the levels of public administrations within the EU28+ countries. The eGovernment Benchmark distinguishes three levels: National, Regional and Local administrations. Services provided by national governments have the highest average score for Online availability, followed by regional and local administrations, scoring 87%, 85% and 74% respectively. Within the EU28+ countries, national services are most mature with the best result in 14 countries. Regional administrations also score the highest regularly (13 countries), while local services score highest in only seven countries. Norway and Denmark score 100% on both regional and local services. Please note that the sample of regional and local services can be limited within some countries and some countries have no services provided on a regional level (i.e. Malta, Cyprus, Serbia and Montenegro).

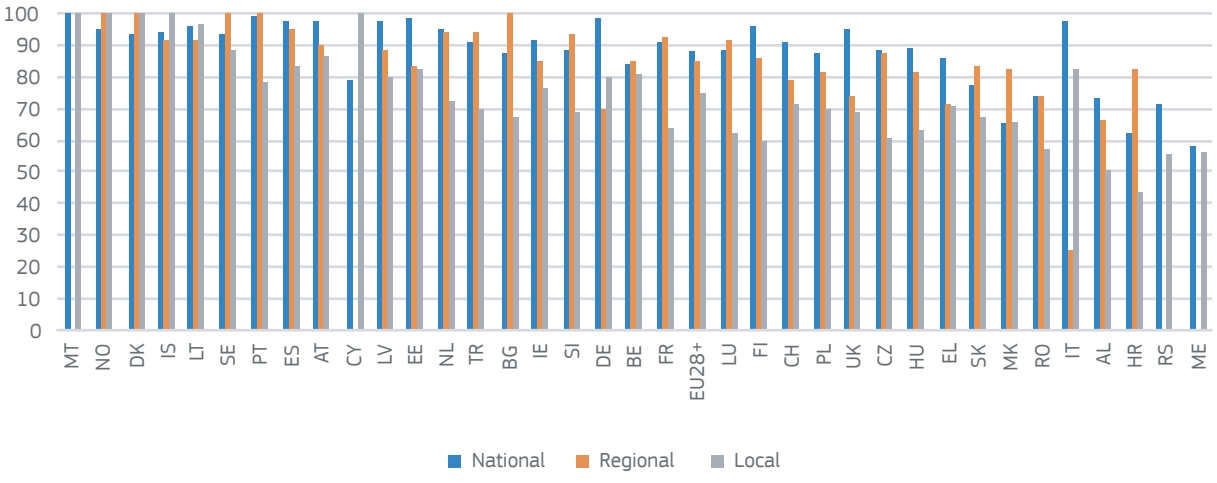

Figure 3.8 Online availability of public services at national, regional and local level (2018 biennial average per country)

3.2.2 Usability of services

The second indicator under the User centricity top-level benchmark is Usability; this indicator is evaluated on the national portals of eGovernment life events. The EU28+ countries have developed their Usability aspects well, as five out the seven aspects score above 80% each of the last three years. Of last years' life events, the availability of other access channels, the FAQ section and the identifiable governmental department score over 95%. The availability of a complaint procedure and the availability of discussion fora or social media score under 90%. The other aspects score between 90% and 95% in 2018.

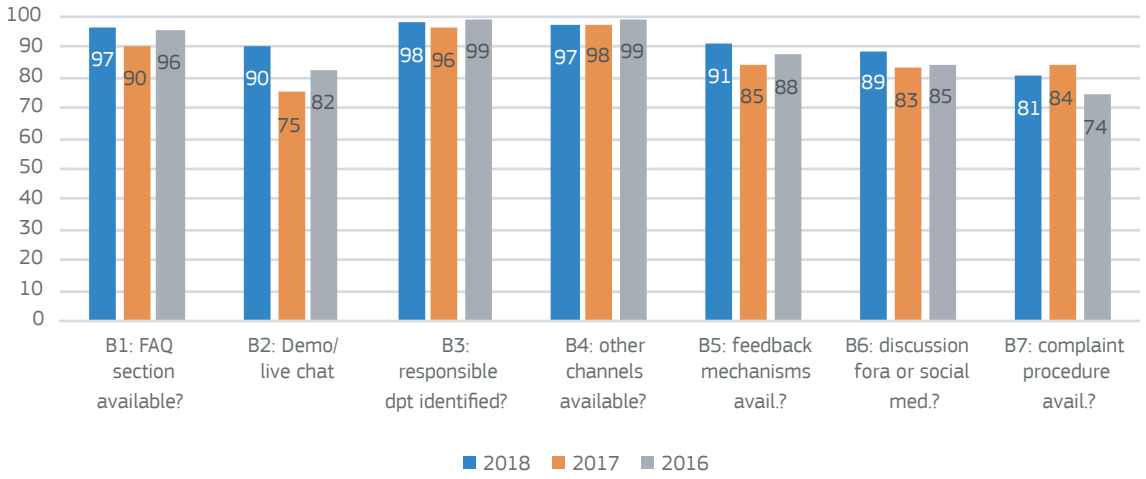

Figure 3.9 Availability of online support (annual averages)

There is little difference in most Usability aspects scores between 2018 and 2017, where complaint procedures and availability of other channels score slightly higher (3 and 1 p.p.), availability of feedback mechanisms, discussion fora or social media and FAQ section score slightly lower (6,6 and 7 p.p.). In the availability of a Demo function or live chat there is a bigger change. The demo function or live chat scored 75% in 2017, while it scores 90% in 2018. This aspect also improved the most between 2016 and 2018 (8 p.p.), proof of recent improvements within those life events. The availability of a complaint procedure also improved with 7 p.p. Most other aspects improved slightly (1 to 5 p.p.). On the other hand, the availability of responsible department and other channels show a slight decrease, which is likely related to the increase in participating countries.

3.2.3 Mobile friendliness of services per life event

Increased mobility is part of the digital transformation of society, enabled by the use the internet, resulting in a move from desktops to phones and tablets. Meeting the users' needs entails providing mobile friendly eGovernment services; Figure 3.10 shows the scores for the Mobile friendliness indicator. Over the EU28+ as a whole, the biennial average is 67%. The annual average scores are 67%, 69% and 54% in 2018, 2017 and 2016 respectively. This is proof of significant growth within the life events evaluated in 2016 and 2018.

The countries with the most Mobile friendly services are the Netherlands with 90%, Norway and Finland both with 89%. The lowest biennial averages appear in Montenegro with 27%, Hungary with 42% and Cyprus with 43%. Growth within the 2018 life events is highest in Ireland, Greece and Italy with an increase of 35, 28 and 28 p.p., respectively.

3.2.4 Mandatory online services

Developing the digital channel to provide services also affects the availability of analogue services. An increasing number of people who use eGovernment services allows for cost saving

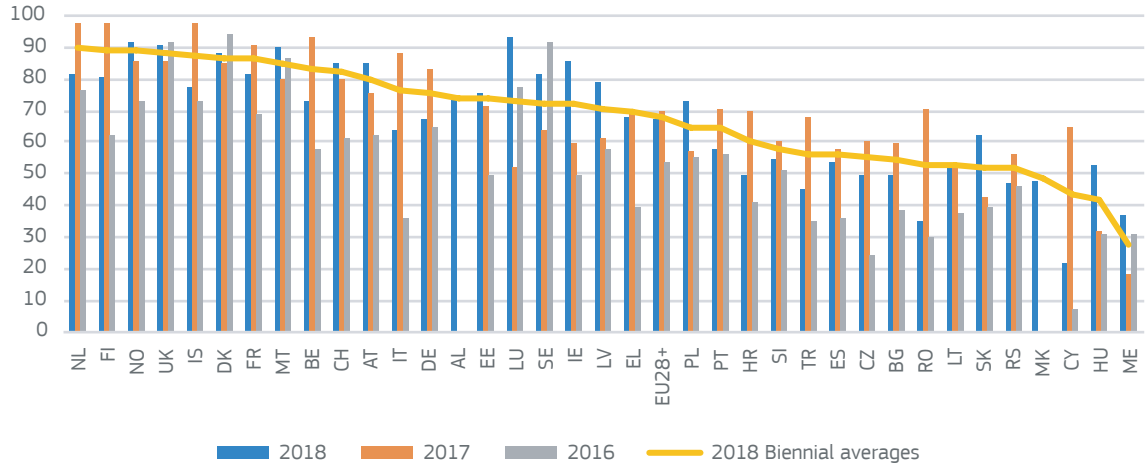

Figure 3.10 Mobile friendliness (Country yearly average of life events, MK and AL newly included in 2018)

on the non-digital service provision. Therefore, governments might want to nudge citizens to make use of the eGovernment possibilities by making them only digitally available. This might create a mismatch with the needs and preferences of specific groups of citizens. To provide further insights in the offline and online availability of services, the eGovernment benchmark contains an assessment whether services are available digitally only. This assessment is only exploratory, and does not form part of any of the Benchmarks scores.

Figure 3.11 shows that European citizens and businesses can still fall back on non-digital channels in the vast majority of occasions. The number of countries with an offline option for all their services is only below 25 for the Business start-up and Regular business operations life events. For Family, Moving and Starting a small claims procedure services many countries always have offline options available. For Family this goes for 30 countries, for Moving this goes for 33 countries, and for Starting a small claims procedure this goes for all countries. Some of the services related to Studying or Losing and finding a job are only available online, this is the case for 6 in the Studying life event and 8 countries in the Losing and finding a job life event.

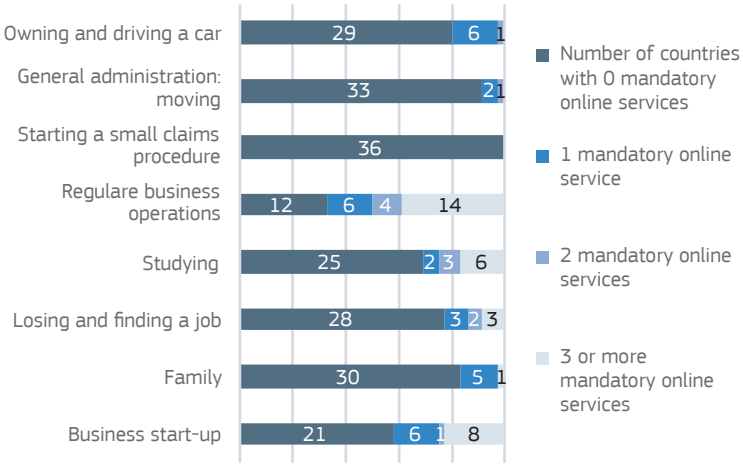

Figure 3.11 Number of countries per life event with mandatory online services

3.3 Transparency

The second Top-level benchmark of the eGovernment Benchmark is Transparency; it evaluates how public administrations inform their citizens and entrepreneurs. Citizens and businesses want to know what to expect from their governments and how to keep them accountable. The first two sub-indicators (i.e. Transparency of service delivery and Transparency of public organisations) serve these aims. The third sub-indicator, Transparency of personal data, assesses the extent to which Europeans can access and possibly alter their personal data held by governments, and to see how it is handled.

The average scores for the EU28+ countries on the three sub-indicators are shown in Figure 3.12. Transparency of public organisations has the highest average score of all life events (an average of 72%), compared to personal data (60%) and service delivery (55%).

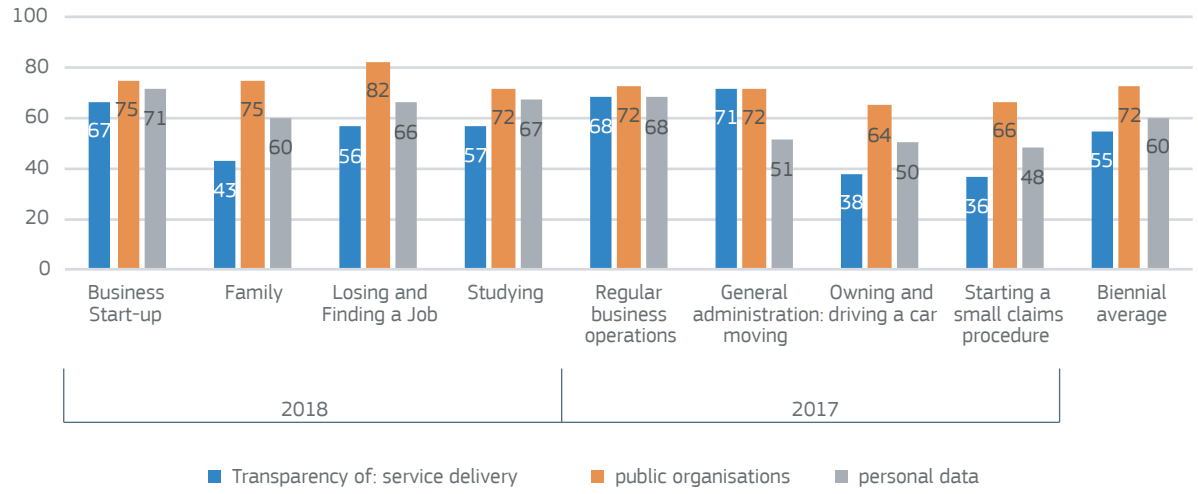

Figure 3.12 Transparency of service delivery, public organisations and personal data per life event (EU28+ average)

Within the life events, Business start-up scores highest across the three sub-indicators (71%), followed by Regular business operation (69%), Losing and finding a job (68%), Studying and Moving (both 65%), Owning and driving a car (51%) and Starting a small claims procedure (50%). Looking into the sub-indicators, Transparency of public organisations scores highest in all life events, though the difference, and the position of the other two sub-indicators depends on the life event. Transparency of personal data scores higher in most life events, except for Regular business operation and General administration: moving. The Business-related life events score relatively consistent with all three scores within 10 p.p. of each other, the largest gaps occur within Family and Starting a small claims procedure are 36 and 30 p.p.

3.3.1 Transparency of service delivery

The first Transparency sub-indicator measures the extent to which the service delivery process is transparent, and the service provider anticipates users' needs concerning the transparency of the service process. For example, it provides information on whether the service provider provides insight into how long it will take to complete the online service, on the possibility to track progress, and on the time until an answer from the administration can be expected. This indicator is a key contributor to the overall user experience, users need to be able to anticipate on how the service will progress.

The sub-indicator assesses seven aspects of the Transparency of service delivery. The EU28+ averages of these aspects are shown in Figure

3.13 The life events evaluated in 2018 are the same as those in 2016, while in 2017 a different set was evaluated. Of all the aspects, the biennial averages of the delivery notice after successful completion scores highest with 60%, followed by transparency on delivery timelines with 56% and service progress tracking with 51%. Most room for development is apparent for Transparency on service performance, which has an average score of 38%, saving a draft and transparency on the duration of the process with both having an average score of 46%.

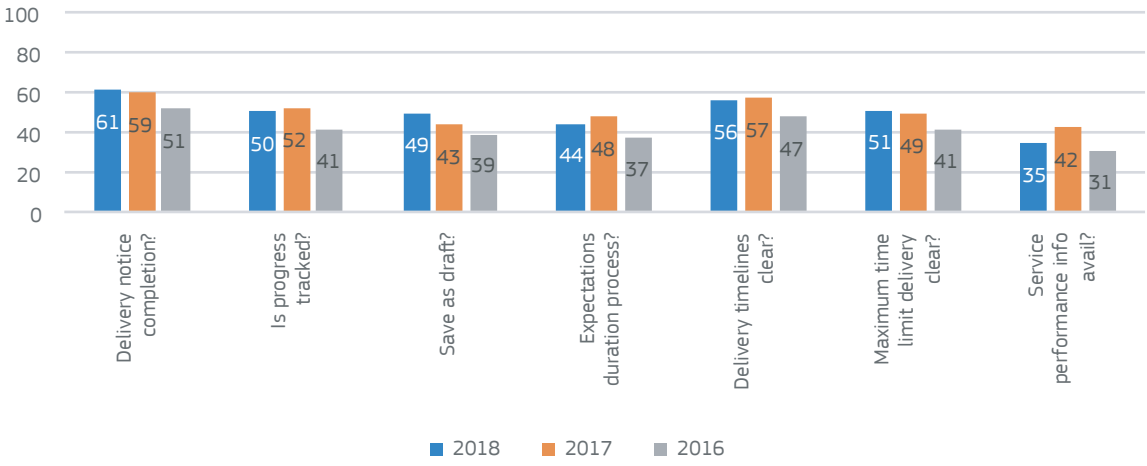

Figure 3.13 Transparency of service delivery (sub indicator annual EU28+ averages)

If we compare the 2016 scores with the 2018 scores, it becomes clear that the transparency of service delivery is improving. All the indicator scores have gone up, and the thee majority of them with 9 to 10 p.p. The expectations on the process duration and service performance information improved slightly less, with 7 and 4 p.p. respectively. Please note that two countries (Albania and North Macedonia) have been added to the sample in 2018.

3.3.2 Transparency of public administrations

The second sub-indicator, Transparency of public organisations contributes to the accountability of the administrations towards citizens and businesses. It answers questions related to public entities' structure, responsibilities, reviews and elements around key policy making processes and how citizens can participate. It is important to note that several life event specific aspects are included.

The scores for the aspects evaluated as part of Transparency of public organisations are shown in Figure 3.14. It is apparent that several aspects score very well across the board with biennial averages over 95: transparency on organisational structure, mission and responsibilities, access to information, a process to request additional information and legislation. Another subset of aspects scores generally well, with biennial averages of over 80: complaint processes related to information requests, information about budget and annual accounts, and transparency related to policy making processes. Transparency can be improved for the following aspects, which scored below 50%: external reports, participation in the policy process, monitoring methods and user's satisfaction.

Most aspects are consistent, governments continue to provide a high level of transparency in certain aspects, though growth in others appears harder to attain. Growth within the 2018 life events, when comparing to 2016 is often limited to a couple of percentage points. Noteworthy exceptions are the 7 p.p. improvement in complaint processes about information requests, the 8 p.p. improvement in participation in policy processes, and the 6 p.p. improvement in monitoring methods.

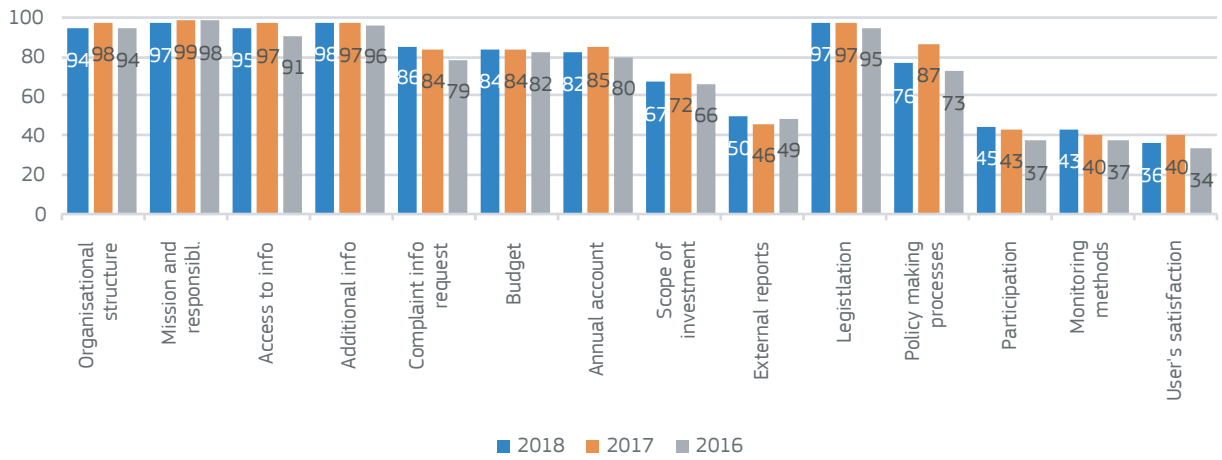

Figure 3.14 Transparency of public organisations (annual EU28+ averages)

3.3.3 Transparency of personal data

The third sub-indicator of this Top-level Benchmark is Transparency of personal data. In times when data is becoming increasingly important, and re-use of data is increasing, users need to be able to manage their personal data and need to be informed on how it is used. Are users able to access their data, to modify it and monitor who used it? Among others, these questions form the basis of this sub-indicator.

The Transparency of personal data sub-indicator is based on five aspects, whose EU28+ average scores are shown in Figure 3.15. The highest scoring aspect in terms of the 2018 biennial averages is the notification on incorrect personal data, 76%, followed by the complaint procedures, 69%, the ability to modify data, 67%, and the online access to personal data, 64%, while the ability to monitor who has consulted your data scores significantly lower, 27%.

The EU28+ efforts in improving the Transparency of personal data is apparent when comparing the results of 2018 to those from 2016. Growth within data usage monitoring, the notification of incorrect data and complaint procedure aspects are impressive with 26, 11 and 16 p.p. respectively. The following section goes into detail of the data usage monitoring sub-indicator.

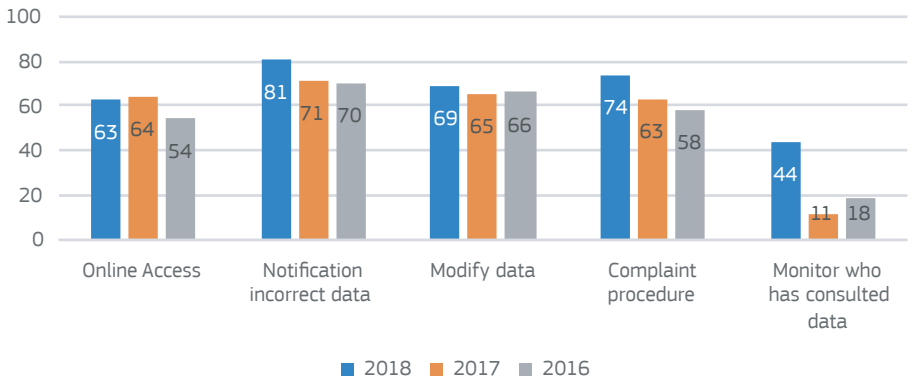

Figure 3.15 Transparency of personal data (annual EU28+ average)

The level with which citizens and businesses are able to monitor the usage of their personal data is scored using maturity levels. A new maturity level has been introduced between 2016 and 2018, for administrations that inform users who are entitled to use their data and why. All levels used in the evaluation, from less to more mature allow users to:

0. not monitor their personal data usage in any way;
1. monitor who is entitled to use their personal data and why[8];
2. monitor whether their data has been consulted;
3. monitor whether and when their data has been consulted;
4. monitor whether and when their data has been consulted, and by which department/ organisation;
5. monitor the same aspects as levels 4, and to see for what purpose their data has been consulted.

Figure 3.16 shows the number of EU28+ countries in each of the maturity stages for the 2018 and 2016 life events. The EU28+ countries improved their personal data monitoring functionalities across the board. Fewer countries are at level 0 or 1, and several countries have achieved the highest maturity level for the first time.

As the developments in the different life events are comparable to a high degree, they are described as an example only for the life event. The results are shown in Figure 3.17. In the 2016 evaluation of the Business start-up life event, 22 of the then 34 countries were at level 0 (65% of all countries in total). In 2018 this number dropped, and there were only 11 countries split over level 0 and 1 in 2018 (level 1 was not available in 2016). In 2016, there were 7 countries (21% of the total) at level 2 and 4 countries (12% of the total) at level 3. In 2018 this has grown to 9 countries at both those levels, (25% of all countries, for each level). Level 4 contained only 3 countries in 2016, which formed 9% of all countries. In 2018, two other countries reached level 4, and this level now contains 14% of all countries. The previously empty Level 5 contains two countries in 2018, 7% of all countries. As mentioned earlier, similar developments are apparent in all life events.

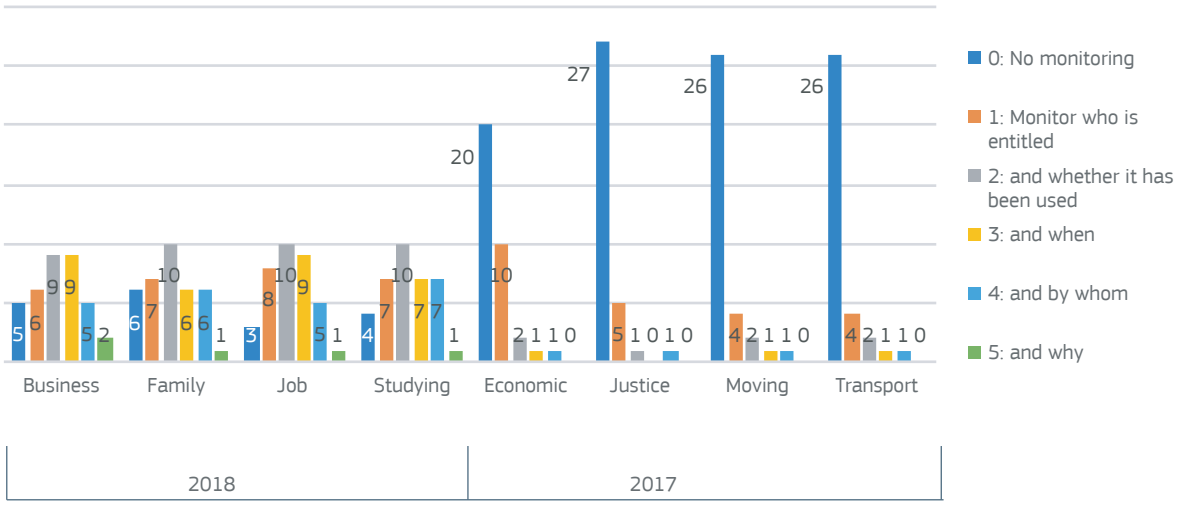

Figure 3.16 Number of EU28+ countries per Personal data maturity level (per 2017 and 2018 life event)

[8] Not included in 2016 evaluation

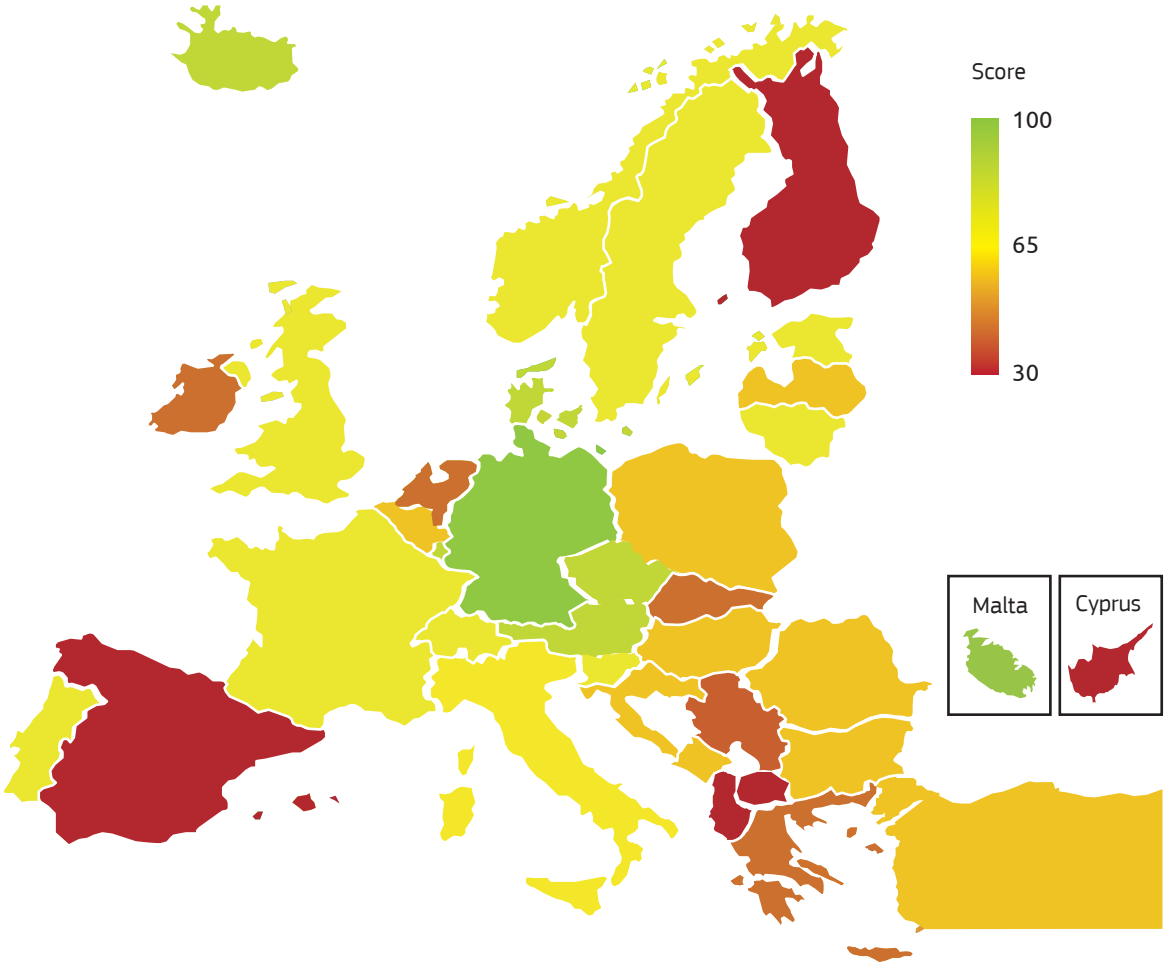

Figure 3.17 Personal data Maturity levels for the EU28+ (Business start-up life event)

3.4 Cross-border mobility

The third Top-level benchmark is Cross-border mobility; this Benchmark monitors the extent to which public services are available to European citizens across national borders. Although the physical Union provides few barriers to move between borders, virtual borders still exist. Performing services in other countries, from end-to-end, is unfortunately not yet a given. This Top-level benchmark assesses four indicators, for businesses' and citizens' services separately: Online availability for selected basic and extended services, Usability of relevant cross-border portals, cross-border eID and eDocuments.

Figure 3.18 provides an overview of the sub-indicator with biennial averages of the EU28+ for the business and citizen-related life events. Business-related life events score higher across the sub-indicators, where Usability scores highest for both types of life events.

Figure 3.19 provides insight into how the Online availability differs between the national and the cross-border evaluation. Within the EU28+, Online availability scores an average of 22 p.p., with the national score being higher compared to the cross-border one (87% vs 65%).

Most countries score higher on the national evaluation of Online availability. The following

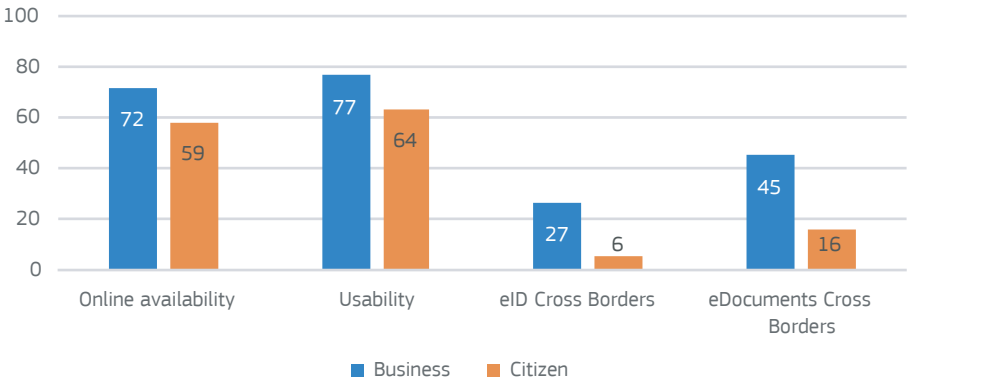

Figure 3.18 Cross-border Online availability, usability, eID and eDocuments (EU28+ biennial average)

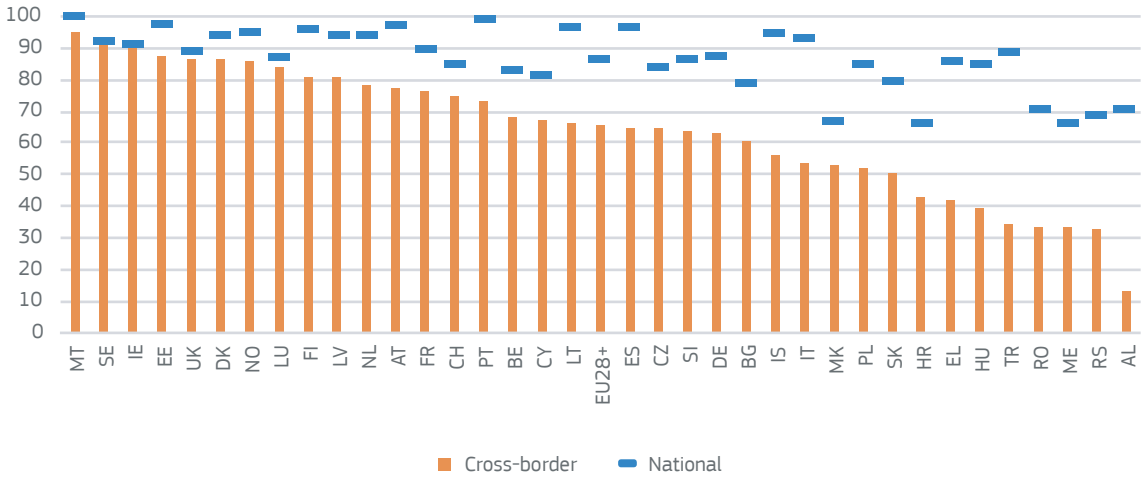

Figure 3.19 Comparing National and Cross-border online availability (biennial average 2018 per country)

countries have cross border and national scores that are similar (within a 10 p.p. range): Malta (National 100% vs Cross-border 95%), Denmark (94% vs 86%), Norway (95 vs 86%), Luxembourg (87% vs 84%). Two countries' scores are close together, though slightly higher on the cross-border evaluation: Sweden (93% vs 94%) and Ireland (92% vs 93%).

3.5 Key enablers

Providing efficient eGovernment services that meet the users' needs requires the adoption of a set of fundamental building blocks; the key enablers. These building blocks are essential in standardising process flows, digital interaction with public administrations and lowering the burden for citizens and businesses. The Key enablers Top-level benchmark evaluates the implementation of those building blocks in four different sub-indicators:

- **eID (electronic identification)**: a government-issued, electronic identification solution to determine if the user is who he claims to be. eID systems are required to be able to perform secure, trustworthy and efficient digital services.

- **eDocuments (electronic documents)**: being able to digitally manage documents as application forms or proofs reduces the need for analogue processes; sending post, paper management and unnecessary physical meetings.
- **Authentic sources**: implementing the information that is already known by public administrations by making use base registries to automatically validate or fetch data. Such infrastructure facilitates pre-filling of online forms and the implementation of the 'once-only principle'; improving the possibilities to perform services automatically by reusing known data.
- **Digital post**: digital mailboxes allow citizens to receive information wherever they require it, opening the path for efficient and secure communication between administrations, citizens and businesses.

The annual EU28+ averages for these sub-indicators are presented in Figure 3.20. Based on the 2017 and 2018 scores, eDocuments is the best implemented Key enabler with a score of 64%, closely followed by Digital post (63%). eID and Authentic sources are also close together, with 56% and 51%, respectively.

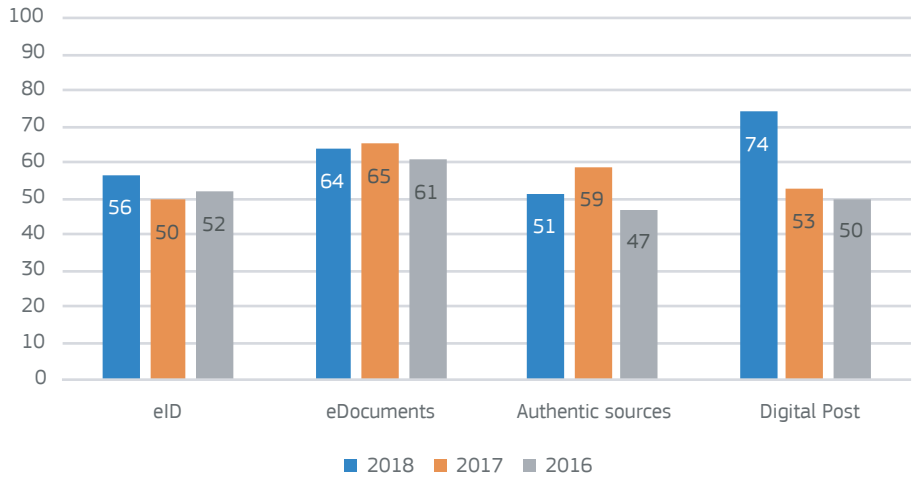

Figure 3.20 Availability of the Key enablers (Annual EU28+ averages)

Comparing 2016 scores with 2018, provides insight into growth within those life events, showing that the implementation of all Key enablers has improved. The implementation of Digital post has risen greatly. eID, eDocuments and Authentic sources scores have risen with up to 4 p.p. where Digital post improved with 24 p.p. The Digital post sub-indicator is measured on the national portal level, which shows the EU28+ efforts in improving their main eGovernment service channels.

3.6 Digital Economy and Society Index (DESI)

The eGovernment services that this benchmark evaluates do not stand on their own in European developments; they form an essential part of the digital transformation impacting citizens and businesses across the continent. This is also the reason that insights and results from the eGovernment Benchmark are part of the EU's Digital Economy and Society Index (DESI). The DESI is an important tool to track progress on the digital performance of the European Member States. It contains 44separate indicators across

five dimensions: Connectivity, Human Capital, Use of internet, Integration of digital technology and Digital public services.

eGovernment finds its place within the fifth dimension, Digital public services. Three indicators of the indicators of the Digital public services dimension link to the eGovernment Benchmark results:

- **Pre-filled forms**: This indicator captures the degree to which data that is already known to the public administration is pre-filled in forms that are offered to the user[9]. It is linked to the biennial average for the Authentic sources indicator of the eGovernment Benchmark.
- **Online service completion**: This indicator captures the degree to which the various steps in dealing with the public administration can be done completely online9. It links to the biennial average for the Online availability indicator of the eGovernment Benchmark.
- **Digital public services for businesses**: This indicator captures the extent to which public services for businesses are interoperable and cross-border9. It is calculated as the average of the national and cross-border online availability for basic services within the business-related life events of the last two years.

The following sections will present the results of these three indicators, which are measured only for the Member States.

Figure 3.21 shows the results on the Online service completion indicator. The average score for the EU Member States is 88%, with Malta as a leader with 100%, followed by Portugal with 99% and Estonia with 98%.

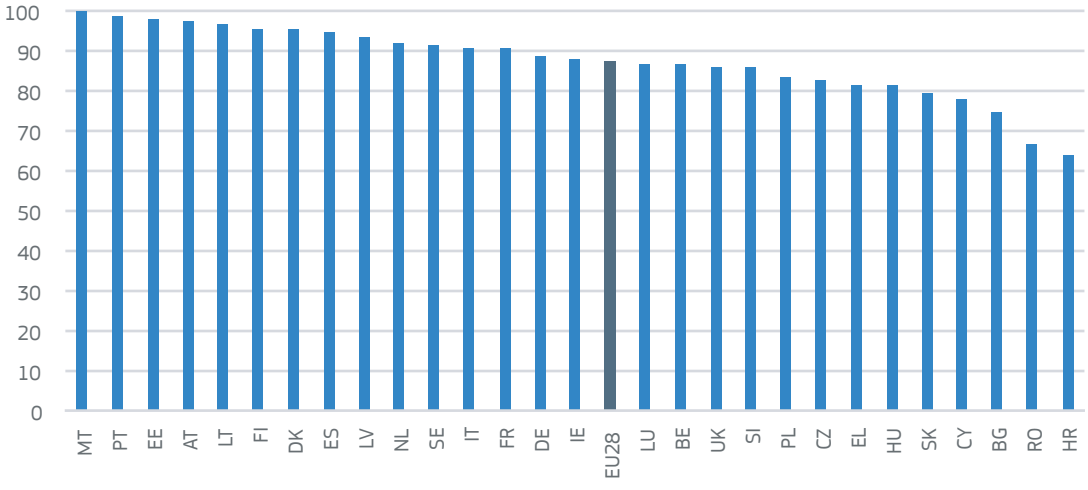

Figure 3.21 Online service completion (biennial average 2018)

Figure 3.22 displays the scores for the Digital public services for businesses indicator combining the online availability results for basic services both nationally and across borders. The Member States' average stands at 85. The best performing countries are Denmark, the United Kingdom and Ireland with scores of 100%, 99% and 99%, respectively.

[9] DESI, more information available online at: https://ec.europa.eu/digital-single-market/en/desi

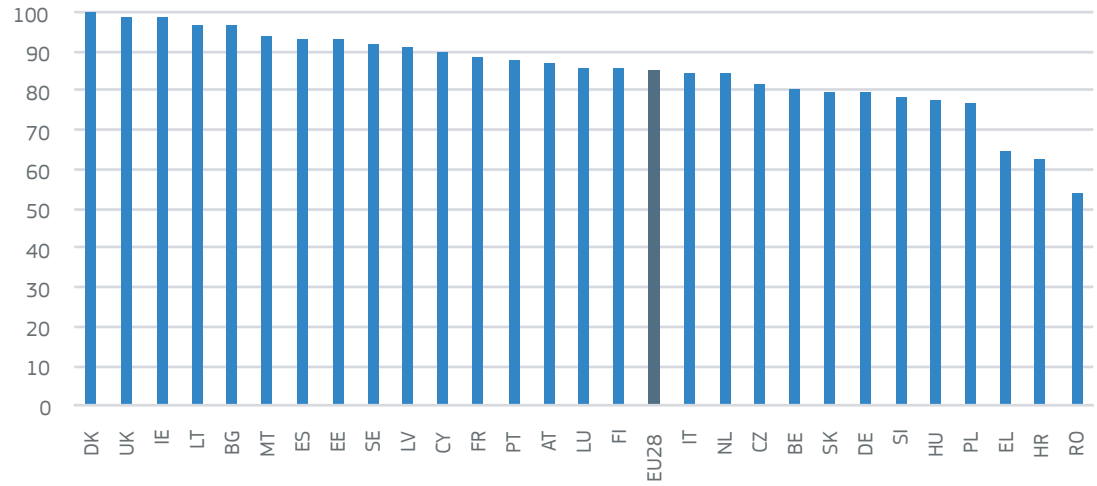

Figure 3.22 Digital public services for businesses (biennial average 2018)

In Figure 3.23 the data for the Pre-filled forms indicator is displayed, with an EU28 average of 58. The best performing countries are Malta, Estonia and Lithuania with 100%, 89% and 88%, respectively, which is significantly above average.

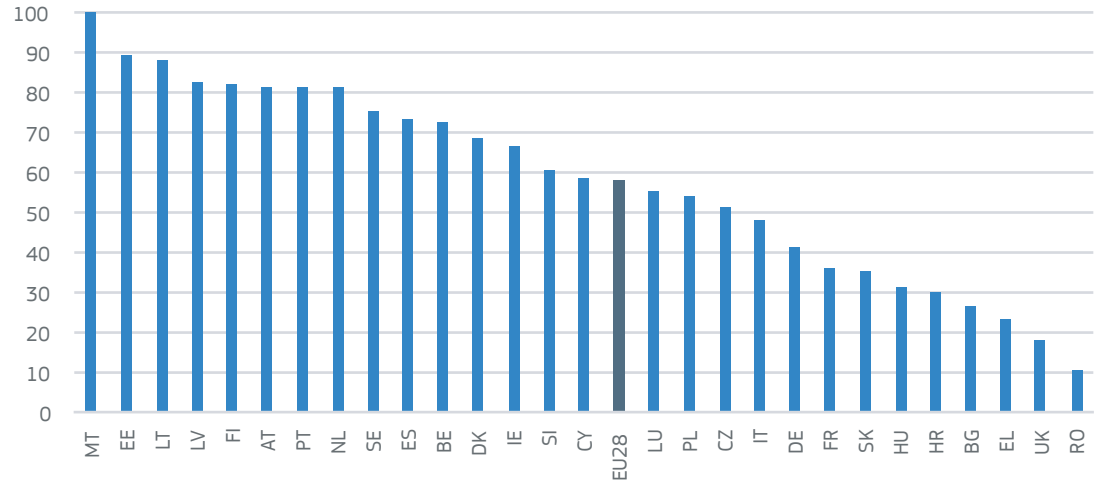

Figure 3.23 Pre-filled forms (biennial average 2018)

Part two:
Deep dive into the life events

Starting up a business and early trading operations

Starting up a business and early trading operations

BUSINESS START-UP

This chapter assesses the Top-level benchmarks in the life event Business start-up. After a short introduction to the life event, the results on User centricity, Transparency, Cross-border mobility and Key enablers will be presented and elaborated upon.

4.1 Introduction to life event

Enabling businesses and entrepreneurs to thrive is of enormous value to citizens, national governments and the EU. When the entrepreneurial spirit is supported, economic value will increase, jobs will be created, and personal lives will be enriched. Governments and the EU have their role to play supporting their operations, creating and enforcing the framework in which businesses can operate fairly. Governments and businesses need to communicate in the form of governmental services. These services form the two business related life events that are part of the eGovernment Benchmark; and Regular business operations.

The Regular business operations life event has been evaluated in the previous eGovernment Benchmark reports as published in the 'even' years (2012, 2014, onwards), and the Business start-up life event is evaluated in the reports published in the 'odd' years (2013 onwards) including the current version of the report. The life event includes services related to pre-registration (e.g. orientation), registrations (e.g. basic company registration, insurance-/tax-related matters) and early trading activities (e.g. registering a new employee and work place safety-related matters). The eGovernment Benchmark provides an overview of how entrepreneurs can interact with these service and how/ what information is provided to them.

4.2 User centricity

Governmental services enable interaction between public administrations, citizens and businesses. It is essential to put the user at the centre when designing government services. By providing user-centric services optimal interactions can be created. The User centricity benchmark focusses on the Online availability, Mobile friendliness and Usability of the services. This chapter describes the results from the first two indicators for the services relevant for the Business start-up life event.

4.2.1 Online availability

The results of the Business start-up online availability assessment is shown in Figure 4.1. This assessment evaluates to what extent services are provided automatically, services are provided online, information about the services is provided online and whether they are online at all. Additionally, availability of the service through the relevant portals is also assessed.

Taking a broad overview of all the services in the EU28+ countries, just over 13% of the services are provided automatically, 69% are available online and through a portal, while in 17% of cases only information is provided (of which 80% is available through a portal). Hardly any service is only fully available offline, or outside of the portals (0.3% and 0.2% respectively).

The service "publish the registration in official journal or equivalent stands" out amongst the individual services, as it is automated in nearly 80% of the EU28+ countries. Eight out of 33 services score very well, either by being available online and through a portal or by being automatically provided in over 90% of the applicable countries. Examples of such high scoring services are "obtaining information about starting a business", "obtaining a certificate of no outstanding taxes", and "registering the company as an employer". Services that are available online and through a portal or being automatically provided in less than 60% of the countries are "confirming managerial qualifications", "confirming activity-related qualifications", "validating formal signatures, "registering with mandatory civil insurance", "training related obligations", and "applying for environmental permits". Countries that do not provide the service online do provide information digitally, except for "obtaining certificates of no outstanding taxes" and "social security/ healthcare charges" where they are only available in one of the countries.

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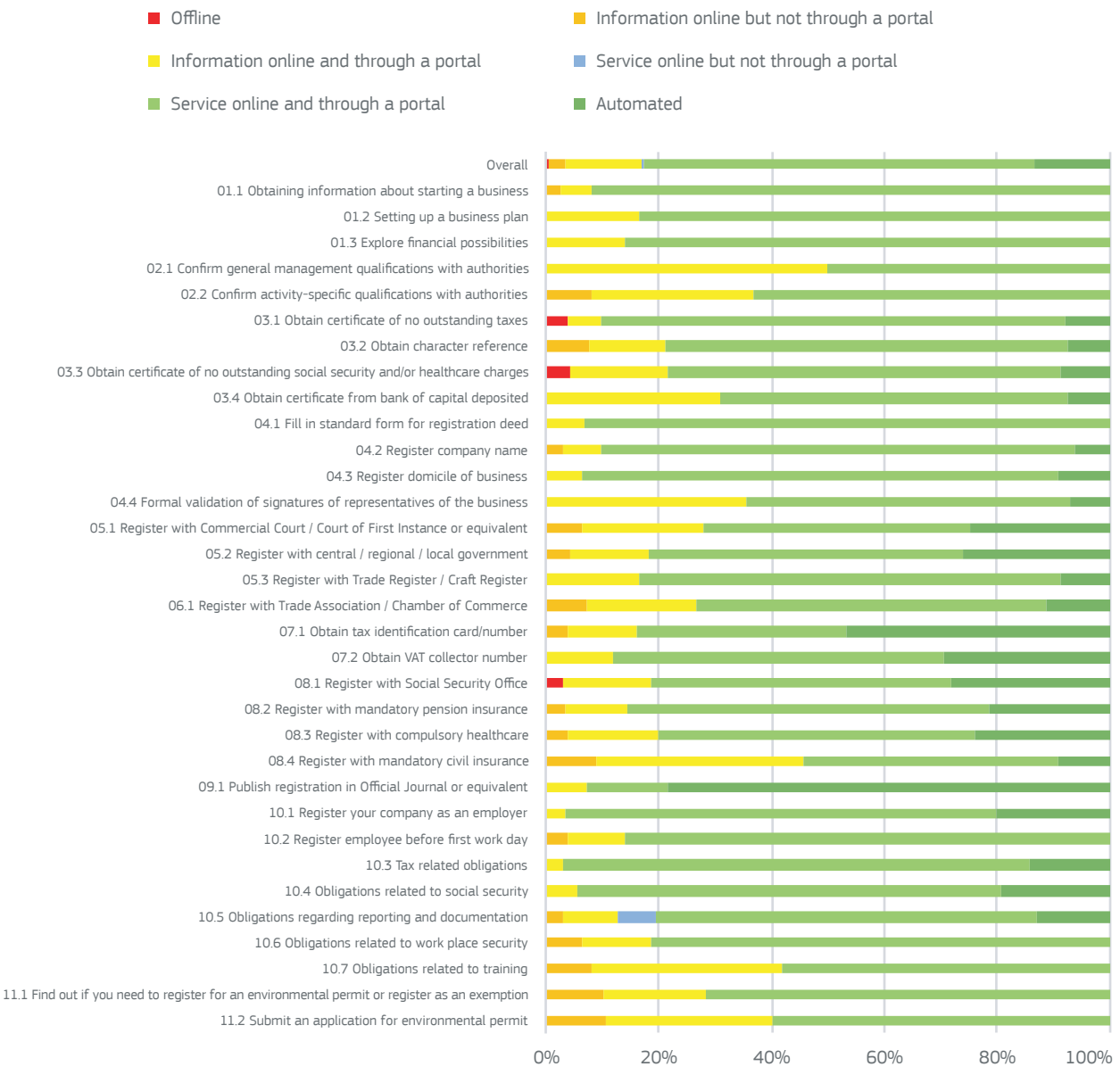

Figure 4.1 Availability of services in the life event Business start-up

4.2.2 Mobile friendliness

Online availability is an important part of the service delivery. Making services mobile friendly increases the usage and the value of the service, empowering users that have the information at their fingertips. This section describes the findings from the Mobile friendliness analysis for the Business start-up life event, with the results provided in Figure 4.2.

Of all the Business start-up services provided by the EU28+ countries, 62% of them are mobile friendly, which is the lowest result in comparison to the other life events described in this report. The most mobile friendly service is "confirmation of management qualifications", with a score of 100%. In "publication of registration", the proportion of mobile friendly URLs is the lowest - though this service only represents three countries as this service is often automated.

Most services are provided in a mobile friendly manner in 40 to 70 percent of the relevant countries. Noteworthy, positive exceptions are exploring financial possibilities, "obtaining information about starting a business", "setting up a business plan" and "registering with the chamber of commerce".

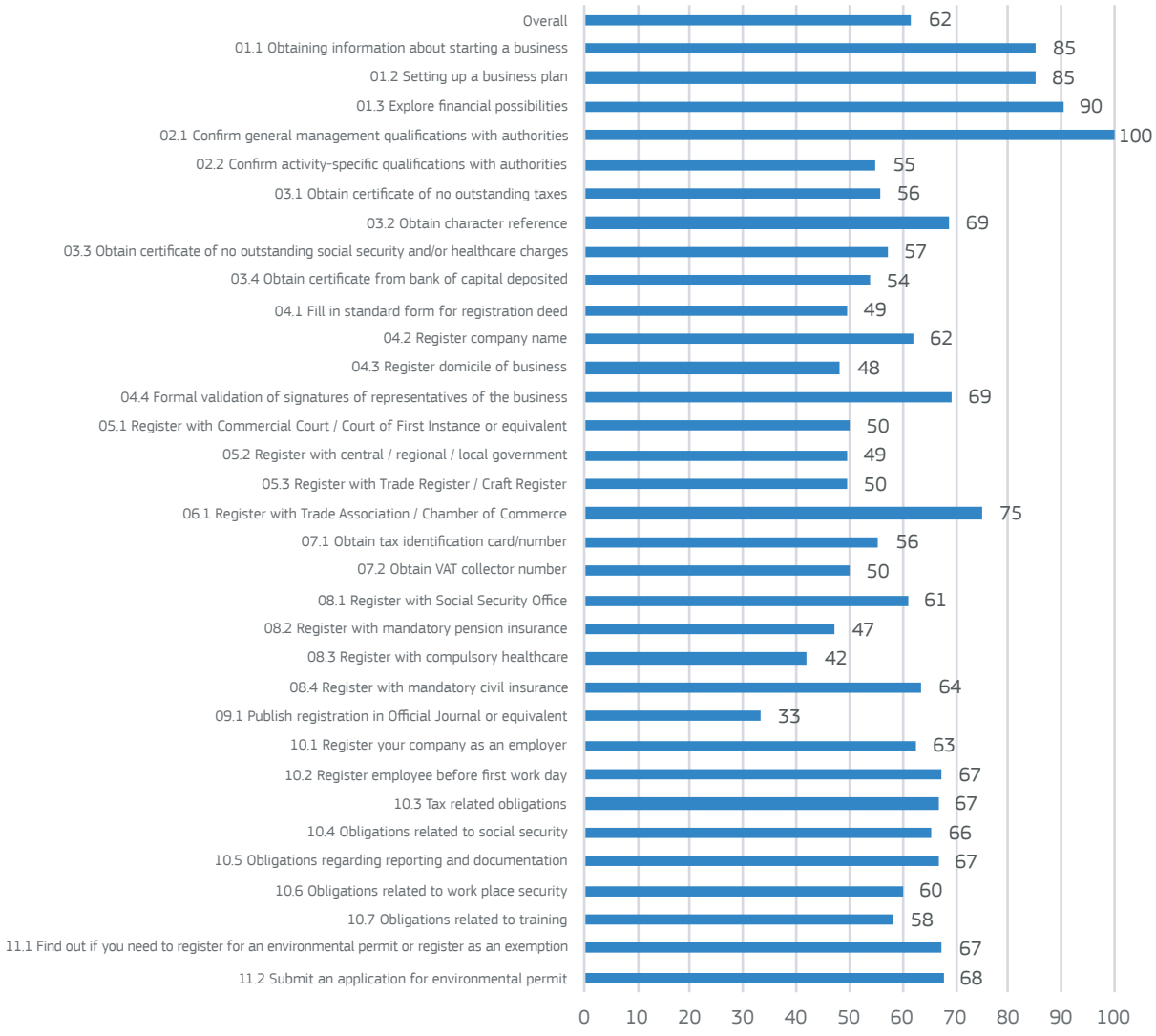

Figure 4.2 Average mobile friendliness score per service in the life event Business start-up

4.3 Transparency

Transparency of eGovernment services is essential to build trust with users. Public institutions need to be clear on the course of actions within the service, on how people's personal information is processed and used and how the institutions themselves operate. The eGovernment benchmark assesses these aspects in the following indicators: Transparency of service delivery, Transparency of public organisations and Transparency of personal data. This chapter describes the results of the Transparency of service delivery analysis, performed on the subsection of services that is transactional (basic).

As shown in Figure 4.3, the overall Transparency score for all EU28+ Business start-up services

stands at 55%, the highest of this year's life events. All services score between 21% and 76%. Sixteen of the 26 of the evaluated services fall between 45% and 65%, which is within ten percentage points (p.p.) of the overall average.

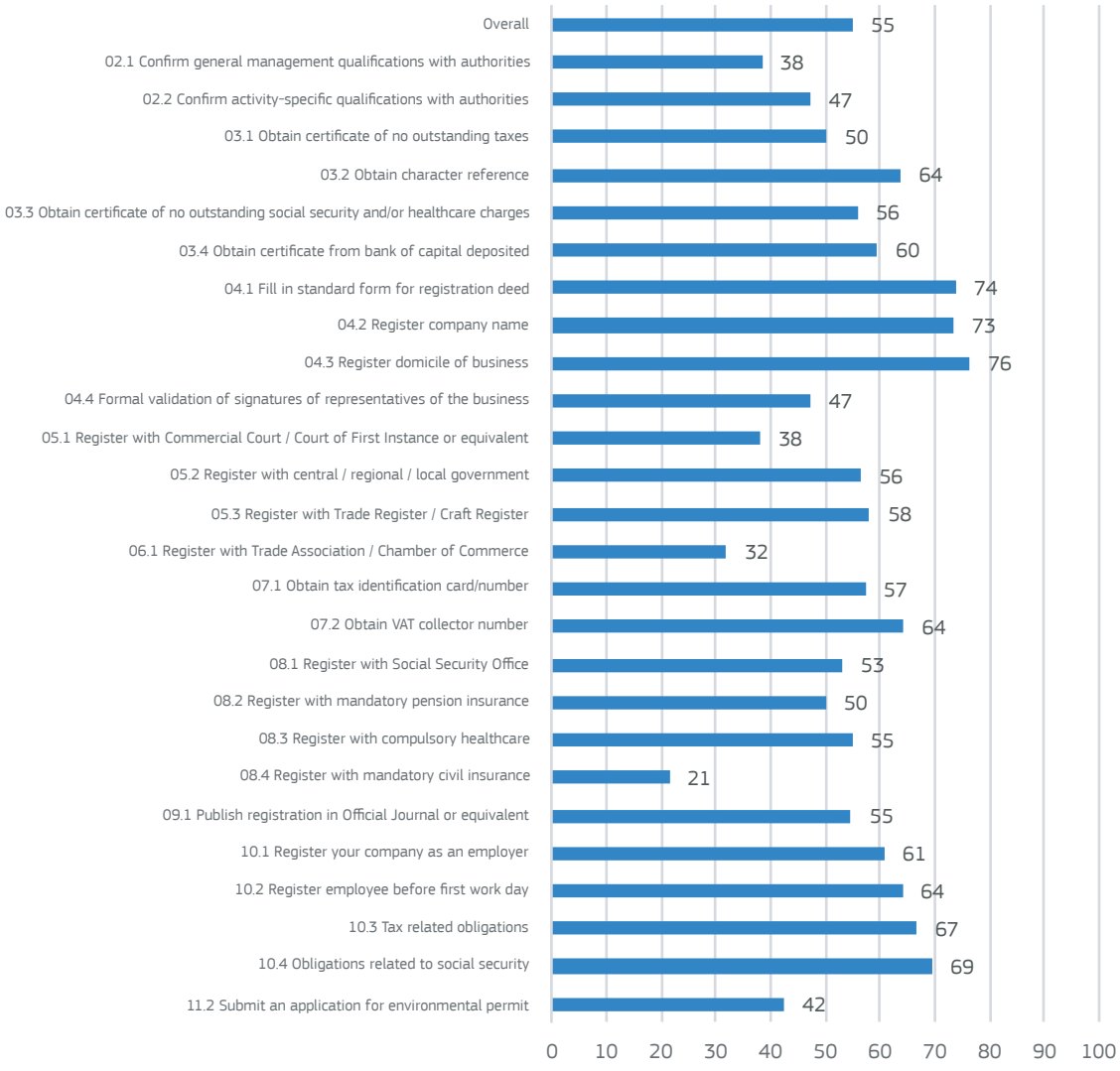

Figure 4.3 Average transparency score per service in the life event Business start-up

The service that is provided in the most transparent manner is "register domicile of business" with a score of 76%, followed by "fill in standard registration" (74%) and "register company name" (73%). The service with the lowest Transparency amongst the EU28+ countries is "registering with mandatory civil insurance" with a score of 21%, followed by "registering with the trade association" (32%), "confirming general management qualifications" and "registering with commercial courts" (38%).

4.4 Cross-border mobility

Realising the European Digital Single Market entails enabling citizens, entrepreneurs and businesses to live, work, trade and thrive across borders. The way governments organise and provide their services plays a significant role in realising this potential. eGovernment services have

the potential to make operating across borders significantly easier. Providing foreigners access to digital services, especially when supported by the implementation of internationally functional key enablers, brings the Digital Single market closer to reality. In the eGovernment Benchmark, the online availability, usability and implementation of eID and eDocuments are subjects of the cross-border evaluation. This chapter focusses on the Cross-border online availability for the relevant services of the Business start-up life event.

The overview of how services are made available to foreign EU citizens for the Business start-up services is shown in Figure 4.4. Overall, 16% of these services are automatically provided, 42% are available online, of 26% only information is available and 16% of services are not digitally available. The general data reveals a similar pattern to the national Online availability, where services that perform well nationally, are also among the top services in the cross-border evaluation.

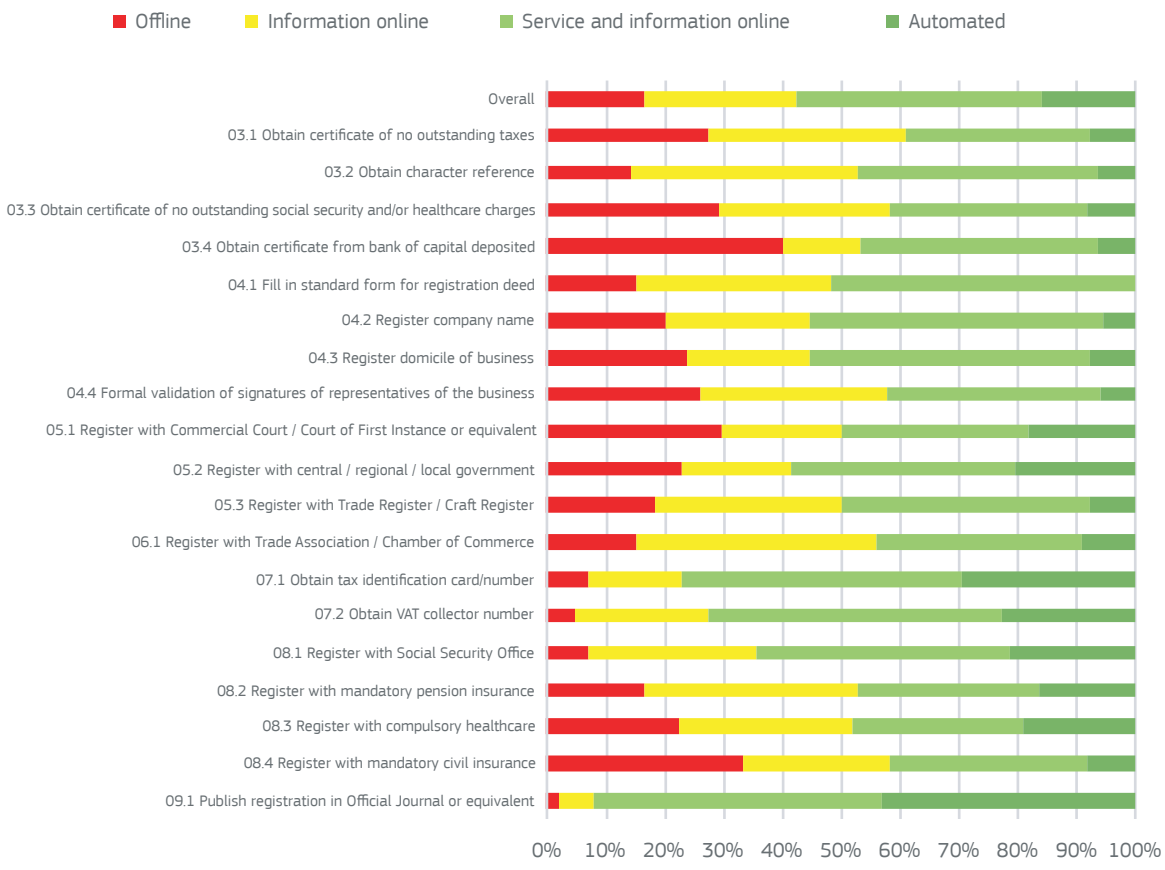

Figure 4.4 Cross-border availability of services in the life event Business start-up

Looking at individual services, "publication of business registration" performs best as it is provided automatically or digitally in over 90% of EU28+ countries. Other top services are "obtain tax identification card/number", "obtain VAT collector number", and "register with social security office". "Obtaining a certificate of no outstanding taxes", is the least often provided automatically or online at less than 40%, and "obtaining a certificate from bank of capital" as it is the most often only offline at 40%.

4.5 Key enablers

This chapter describes the results of the evaluation of the implementation of these three technologies for the Business start-up life event. Key enablers are technologies - eID, eDocuments and Authentic sources - that improve the services' ease of access, use and accuracy. A national eID system allows citizens to have a single sign-on, which is recognised across governmental entities, it allows for more secure and scalable authentication as users are less burdened, and different authorities do not each have to implement their own identification system. Additionally, such a system opens the possibility for users to switch between entities within one session. The implementation of eDocuments allows users to interact with governments using verified files, uploading and downloading files directly to and from the public administrations. The Authentic sources technology allows service providers to assist users by pre-filling information that is already available, decreasing the amount of information to be filled for each service and giving the user the opportunity to double-check that the information is correct.

National eID systems are implemented in 75% of analysed services where authentication is required, and users can switch between multiple service providers in 72% of those cases, as shown in Figure 4.5. A specific authenticator is available for 9% of the EU28+ related services of which 32% enable users to switch to a new service provider within a single session. Unfortunately, in 16% of services no online authentication method is available. National eID systems are implemented in over 80% of countries for 9 services, and in over 60% of countries for 22 services. The service where national eIDs are most common is "publication of the company registration", with 96% availability of use, followed by "obtaining certificate of no outstanding taxes" and "related to tax- or social security related obligations" (both 89% availability of use). The following services are not available using a national eID system in over 40% of countries: confirm general management qualifications (67%), followed by registering with the trade association (48%) and registering with mandatory civil insurance (44%).

Figure 4.5 depicts the results of the eDocuments analysis, when documents are required for fulfilling the service. The benchmark assesses whether it is possible to download or upload documents digitally. The overall level of eDocuments implementation level stands at 82%. The variety in eDocument implementation in the different services is limited, as the highest percentage is 100% for "registering with mandatory civil insurance" and "publication of the company registration in the official journal" and the lowest percentage is 66% for "obtaining a certificate of no outstanding taxes" and "registration of an employee before the first working day".

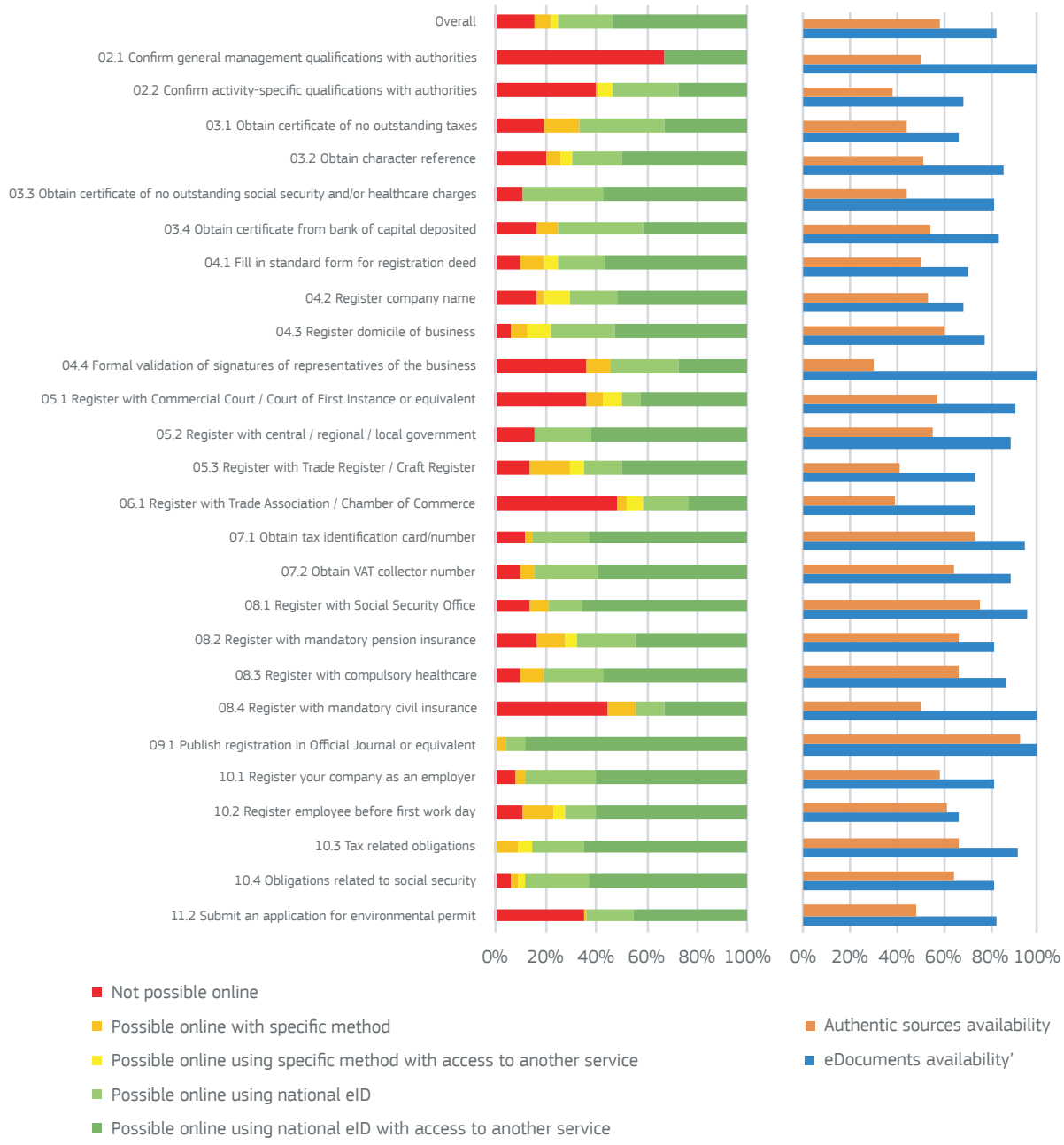

Figure 4.5 Availability of eID, eDocuments and Authentic sources per service in the life event Business start-up

The implementation of Authentic sources differs to a greater extent compared to eDocuments technologies, with an overall implementation level of 58%. Authentic sources are most often implemented in "publication of company registration in the official journal" at 92%, followed by "registering with social security" (75%) and "obtaining a tax ID number" (73%). On the low end, "formal validation of signatures" least often implements Authentic sources, only in 30% of relevant countries. The following services implemented Authentic sources in the minority of countries as well; "confirm activity-specific qualifications" (37%), "register with trade

association" (39%), "register with trade register" (41%), "obtaining certificates of no outstanding taxes" or "obtaining certificates of no outstanding social security charges", and "applying for an environmental permit"(48%).

The value of eGovernment services depends on a large part on the interaction between the Online availability of the services, and the implementation of the Key enablers. For example, if all services are available online but there is no option to use a national eID, implementing the use of a national eID would improve the service quality significantly. On the other hand, when countries have set up infrastructure for the Key enablers, but their services are lacking in Online availability, the service quality could be significantly improved by making services available online.

Figure 4.6 Correlation Online availability and Key enablers in the life event Business start-up by country

How the scores for Online availability compare to Key enablers for the Business start-up services is shown in Figure 4.6. Over all the EU28+ countries, the Online availability score is 91%, where the Key enablers score is 73. This gap of 18 p.p. is the lowest within the life events evaluated for this report.

The trend within countries is that the level of Key enablers' implementation is lower than the Online availability, with noteworthy exceptions of Malta (Key enablers and Online availability both scoring 100%) and Cyprus (Online availability: 88% and Key enablers: 92%). Of the countries with high levels of Online availability (>95%), most also score high on Key enablers (both scores within a 5 p.p. range of each other). Countries for which this is the case are: Luxembourg (Online availability 100%, Key Enablers 98%), Portugal (Online availability 100%, Key enablers 97%), Estonia (Online availability 100%, Key enablers 96%), Norway (Online availability 100%, Key enablers 96%), Sweden (Online availability 99%, Key enablers 95%), Lithuania (Online availability 98%, Key enablers 96%), Italy (Online availability 95%, Key enablers 91%) and Cyprus (Online availability 88%, Key enablers 92)%. Most other countries scored between ten and thirty p.p. higher on Online availability.

4.6 Progress across Europe

The top-level benchmarks, presented earlier in this chapter, describe how the EU28+ countries provide their eGovernment services on specific aspects. These aspects come together to provide an overall picture of how countries stack up against each other. As this year's report describes the assessment of the same life events evaluated in 2016, using the same methodology, insight can be gained on possible trends in the scores. Note that two countries have been added to the eGovernment benchmark this year, which slightly influence comparisons with EU28+ averages.

Figure 4.7 displays how countries score on average of the Top-level benchmarks within the Business start-up life event. Overall, the EU28+ average stands at 76%, increasing from 69% in 2016. This increase of the EU28+ average by seven percentage points (p.p.) between 2016 and 2018 is the highest compared to the rest of life events.

The top three countries currently are Malta, Estonia and Sweden. Other countries that score over 10 or more p.p. higher than the EU28+ average are: Portugal, Norway, Lithuania, Austria, Luxembourg, Denmark, Latvia and Italy. The following countries score ten or more p.p. below the EU28+ average (in ascending order): Albania, North Macedonia, Serbia, Greece, Turkey, Bulgaria and Slovakia, Montenegro, Croatia and Romania. The biggest improvements are apparent in Luxembourg (+23 p.p.), Hungary (+20 p.p) and Slovenia (+17 p.p.).

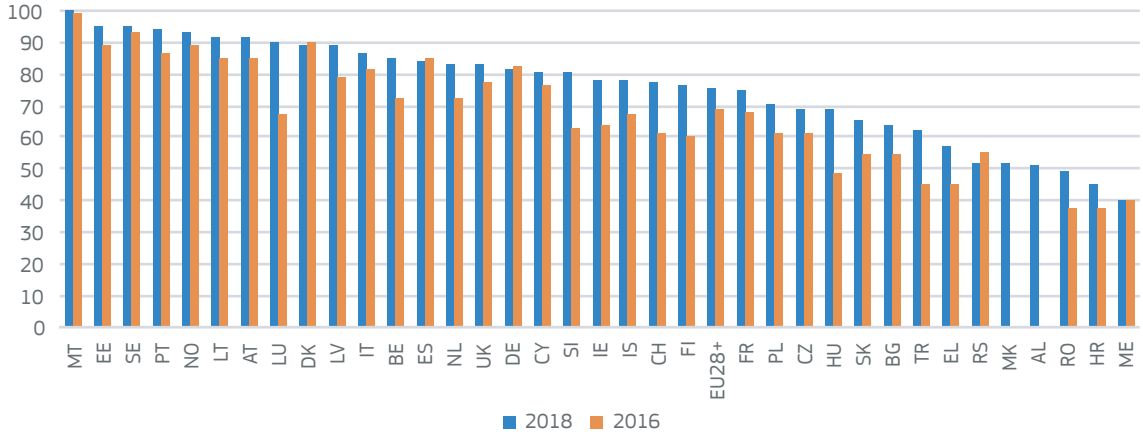

Figure 4.7 Country ranking of the 2018 and 2016 averages of top level benchmarks in the life event Business start-up

To gain insight in what aspects the EU28+ countries have grown most, an overview of the top-level benchmarks of the Business start-up averages from 2018 and 2016 is provided in Figure 4.8. User centricity was and remains the highest scoring benchmark, though it has not improved the most (+5 p.p.). The biggest improvements are shown in Key enablers, with a growth of 11 p.p., followed by Transparent government (+8 p.p.) and Cross-border mobility (+4 p.p.).

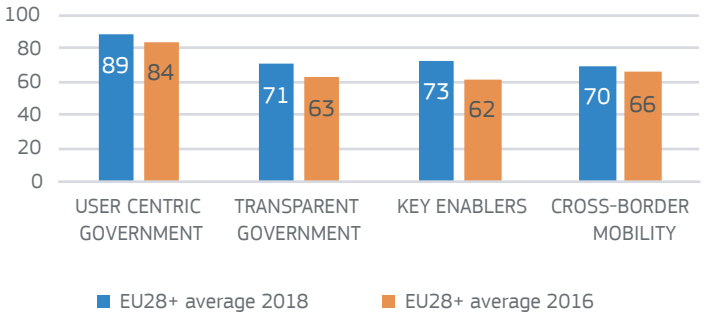

Figure 4.8 EU28+ averages of the top-level benchmarks from 2018 and 2016 of the life event Business start-up

Family life

Family life

This chapter assesses the Top-level benchmarks in the Family life event. After a short introduction to the life event, the results on User centricity, Transparency and Key enablers will be presented and elaborated upon. Note that this life event is not part of the Cross-border mobility evaluation.

5.1 Introduction to life event

The Family life event has been introduced in 2016, aimed at assessing services that citizens encounter during times of change in their life: marriage, the birth of a child and retiring from work. A new service was added this year, personal income tax, reflecting one of the most frequently occurring interactions between citizens and governments across Europe. It is relevant to note that within this life event services are frequently provided by local governments. Therefore, this chapter provides insight in how the level of government might influence the results on the top-level benchmarks.

5.2 User centricity

The User centricity benchmark focusses on the Online availability and Mobile friendliness of the services relevant for the Family life event.

5.2.1 Online availability

The findings of the Online availability assessment are shown in Figure 5.1. Of all the services, 4% are provided automatically, 56% are provided online (of which 1 p.p. is only available outside of a portal), for 38% of services only information is available online, while the service is fully offline in 2% of cases.

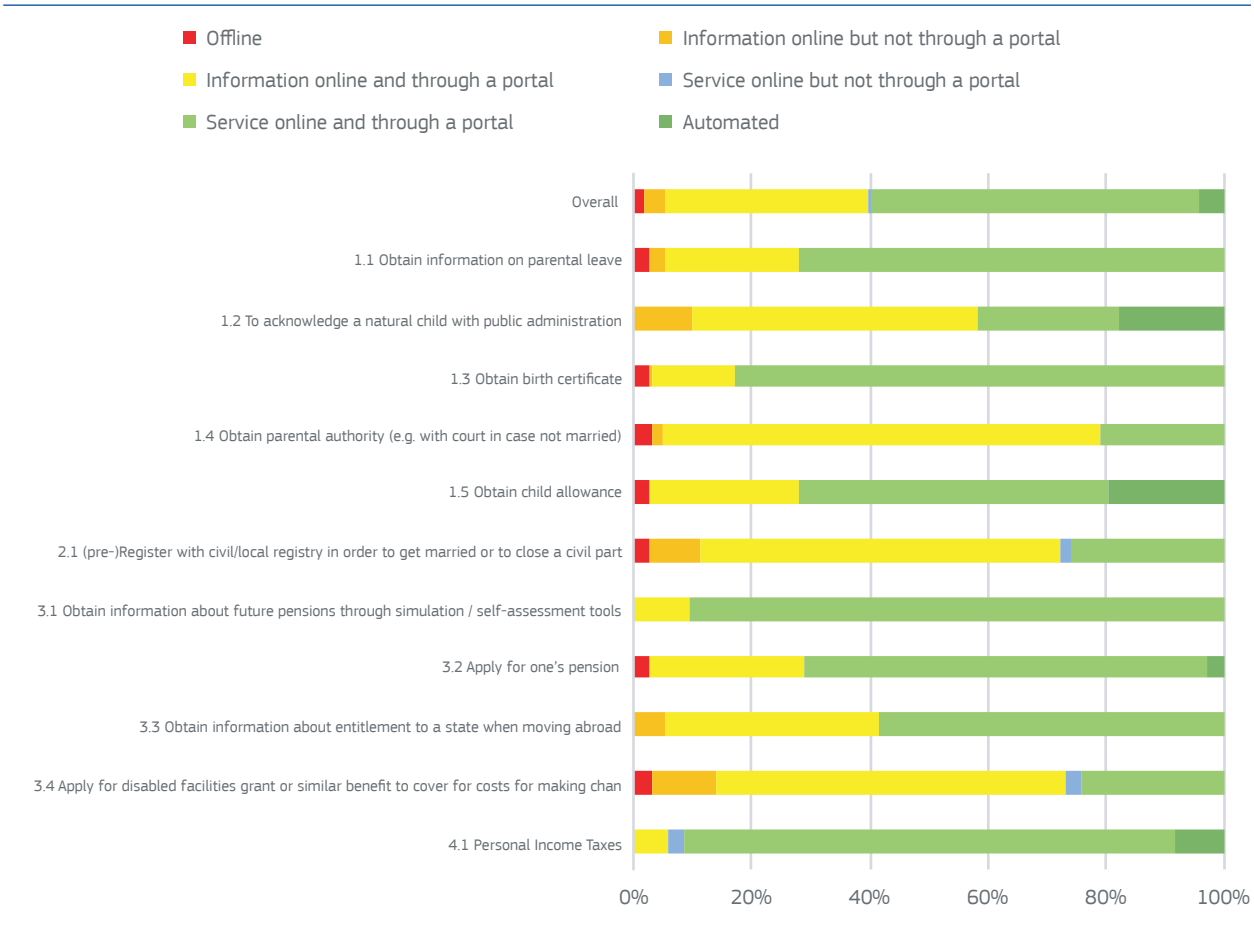

Figure 5.1 Availability of services in the life event Family

The service that is most frequently provided automatically is "obtaining child allowance" in 19% of countries, followed by acknowledging a natural child in 18%. The following services are most often provided either digitally or automatically: "personal income tax" (94% of countries), "obtaining information about future pensions" (91%) and "obtaining a birth certificate" (83%). The services about which most countries only provide information digitally are: "pre-registering a marriage" and "applying for grants related to disabilities" (both in 70% of countries) and "acknowledging a natural child" (58%). In general, if a service is only available online, this is the case in only one country, although which country this is differs per service. The percentages in the graph differ slightly due to the total number of countries in which the services are applicable.

5.2.2 Mobile friendliness

The overall Mobile friendliness of Family related URLs stands at 75%, making this the most Mobile friendly life event of this year's Benchmark. Within the Family specific services, "obtaining information on parental the leave" is the most mobile friendly (in 90% of countries), followed by "applying for disability grants" (84%). The services that are least often mobile friendly is "obtaining information about entitlements when moving abroad" (58%) and "obtaining a birth certificate" (66%).

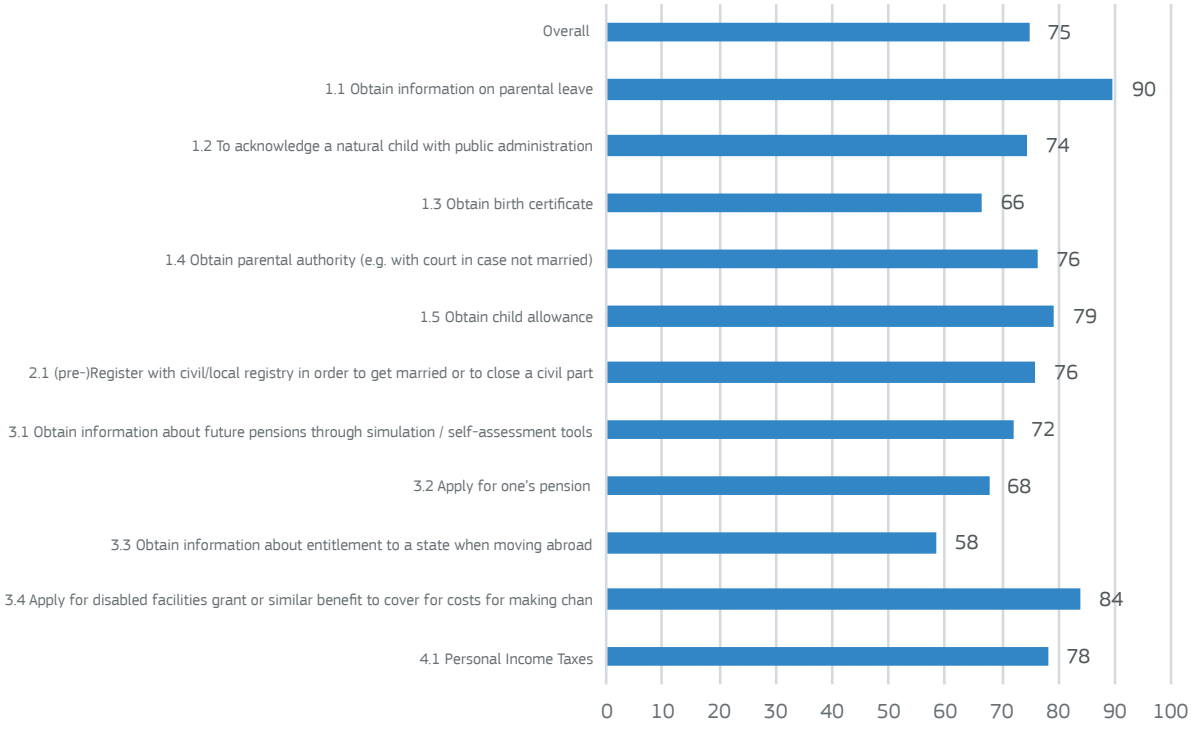

Figure 5.2 Average mobile friendliness score per service in the life event Family

5.3 Transparency

Figure 5.3 depicts the Transparency scores of the services related to the Family life event. The overall average of 39% is the lowest of the life events in this report. The highest scoring service is "personal income tax" (57%), followed by "obtaining a birth certificate" (56%) and "applying for pension" (48%). The lowest scoring services are "applying for disability related grants" (24%), "obtaining parental authority" (25%), "acknowledging a natural child" and "pre-registering a marriage" (both with 29%).

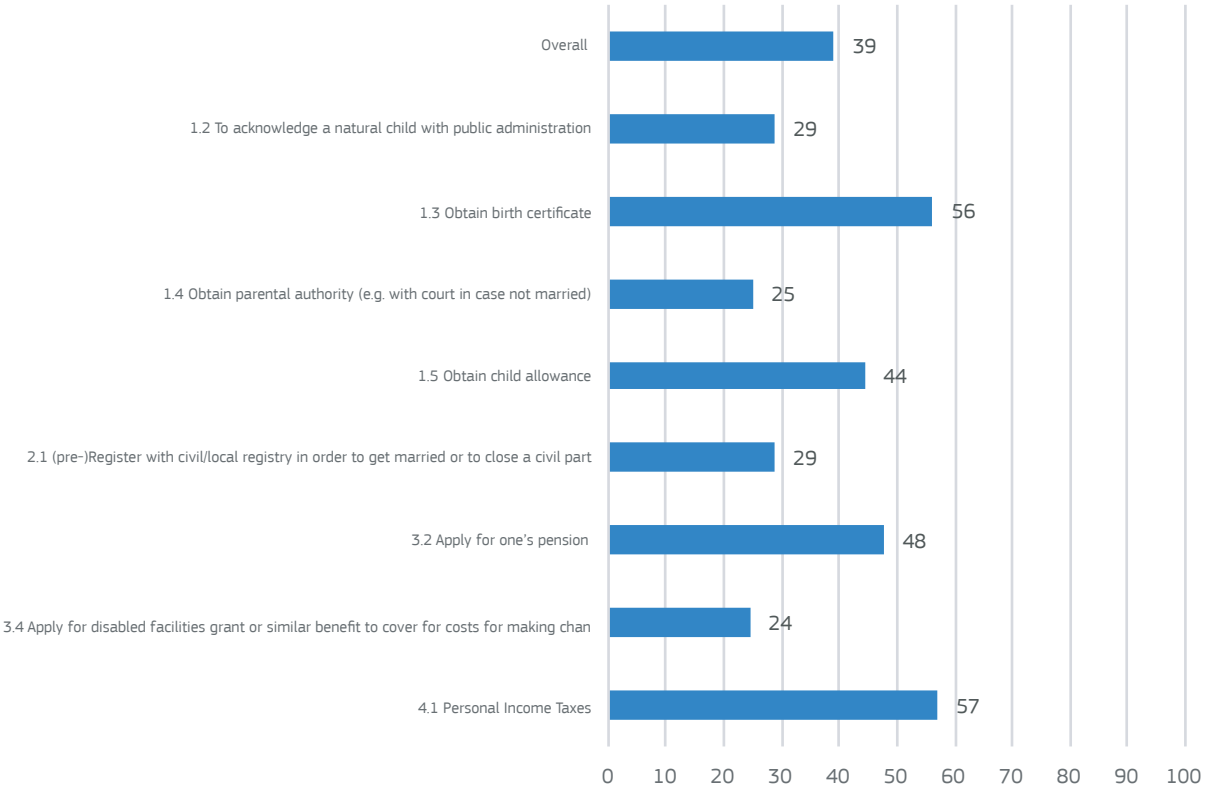

Figure 5.3 Average transparency score per service in the life event Family

5.4 Key enablers

Implementation of Key enablers within the Family helps citizens in their interaction with governments, often on a more local level. The results of this evaluation are shown in Figure 5.4.

National eID systems are implemented in 46% of services, where users can access other service providers in 71% of those cases. In 4% of evaluated cases, a specific eID solution is implemented, the remaining 50% had no eID system in place. Within specific services, a trend can be recognised that services which are more often provided on a national level, more often implement eID; for example "personal income tax" (82% of countries implement an eID) and "obtaining a child allowance" (65%). Noteworthy exception is "obtaining a birth certificate" (64%), which is often provided locally, but still has high implementation levels. The services that least often make use of an eID are "obtaining parental authority", "applying for disability related grants" and "pre-registering for a marriage or partnership".

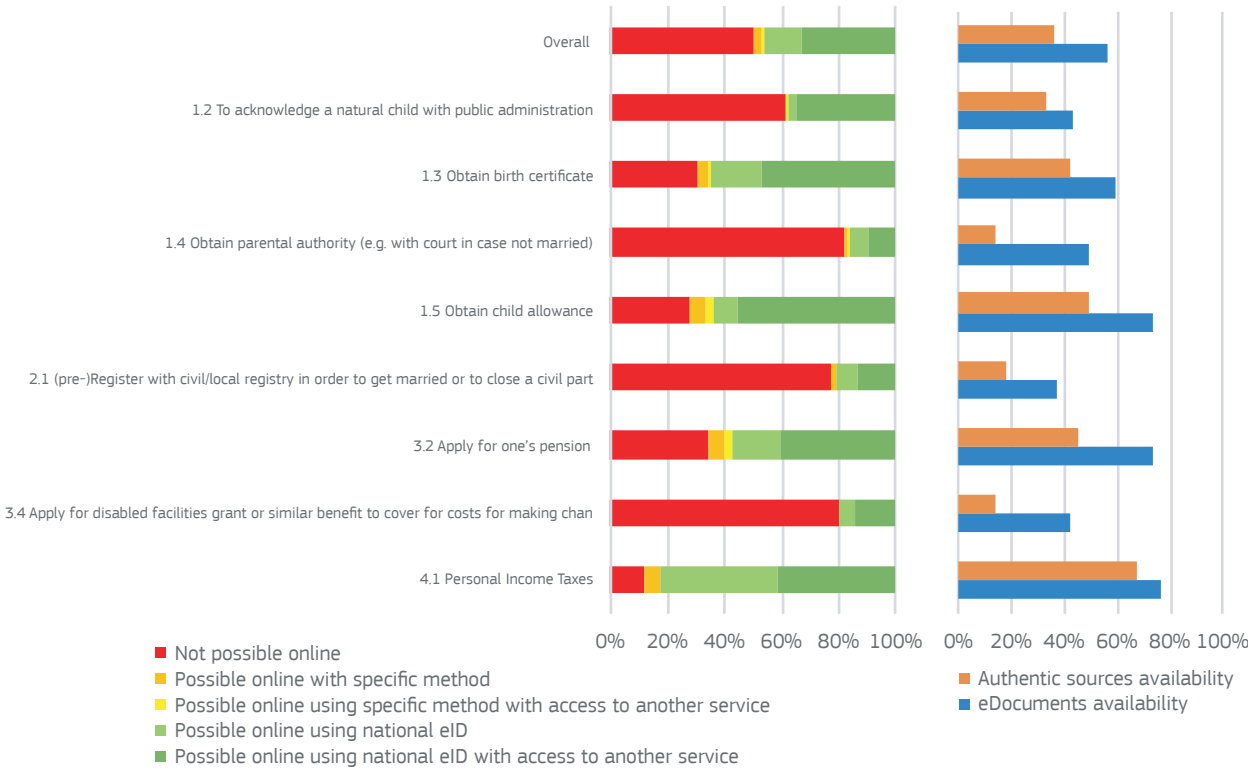

Figure 5.4 Availability of eID, eDocuments and Authentic sources per service in the life event Family

A similar pattern appears in the implementation of eDocuments and Authentic sources, as services rank similarly. For eDocuments the overall implementation level is 56%. Regarding eDocuments, "applying for pension" breaks the trend as it scores over 10 p.p. higher compared to eID. Within the elated services, Authentic sources are implemented in only 36% of cases or less within all services.

Comparing Online availability with Key enablers, as in Figure 5.5, shows that countries score on average 27 p.p. higher on the first. This is the biggest gap amongst the life events, a shared position with the Studying life event for which the gap is the same size. The only country without a difference in scores is Malta (Online availability: 100% vs Key enablers: 100%). The trend within other countries is that the Key enablers score is lower, and that the gap between the two scores increases when the score increases.

There is a group of countries that score high on Online availability (score > 80%) and on Key enablers (gap <= 10 p.p. with Online availability): Lithuania, Denmark, Norway, Portugal, Iceland, Slovenia and Hungary. A group of countries that score high on Online availability (>80%) with larger gaps (>10 p.p.): Ireland (Online availability: 82% vs Key enablers: 23%), Switzerland (83% vs 24%), United Kingdom (80% vs 33%), Germany (86% vs 42%), Poland (83% vs 45%), Finland (90% vs 57%), Spain (84% vs 53%), Slovakia (80% vs 49%), Estonia (85% vs 64%), Austria (86% vs 64%), Latvia (88% vs 71%) and Sweden (87% vs 74%). Some countries with lower Online availability (<80%) are well aligned with their Key enablers (gap < 20 p.p.): the Netherlands (75% vs 65%), Cyprus (65% vs 52%), Luxembourg (67% vs 49%), Montenegro (19% vs 1%) and Italy (76% vs 57%). Another group of countries has a scoring gap of over 50 p.p., mainly due to low Key enablers scores.

Figure 5.5 Correlation Online availability and Key enablers in the life event Family by country

5.5 Progress across Europe

The average scores of the four Top-level benchmarks for both 2018 and 2016 are displayed in Figure 5.6. Please note that in 2018 the Personal income tax service has been added. This addition slightly influences the comparison between 2016 and 2018. In addition, two new countries (North Macedonia and Albania) are included in the analysis, which affects the EU28+ average.

The overall EU28+ average stands at 63%, coming from 53% in 2016, a relative improvement of 19%. The highest scoring country is Malta at

99%, followed by Lithuania (92%) and Norway (88%). The countries that improved the most are Hungary (69%, an increase of 35 p.p.), Slovenia (70%, 32 p.p. increase) and Portugal (83%, 22 p.p. increase). Montenegro is the only country that showed a slight decrease of 2 p.p.

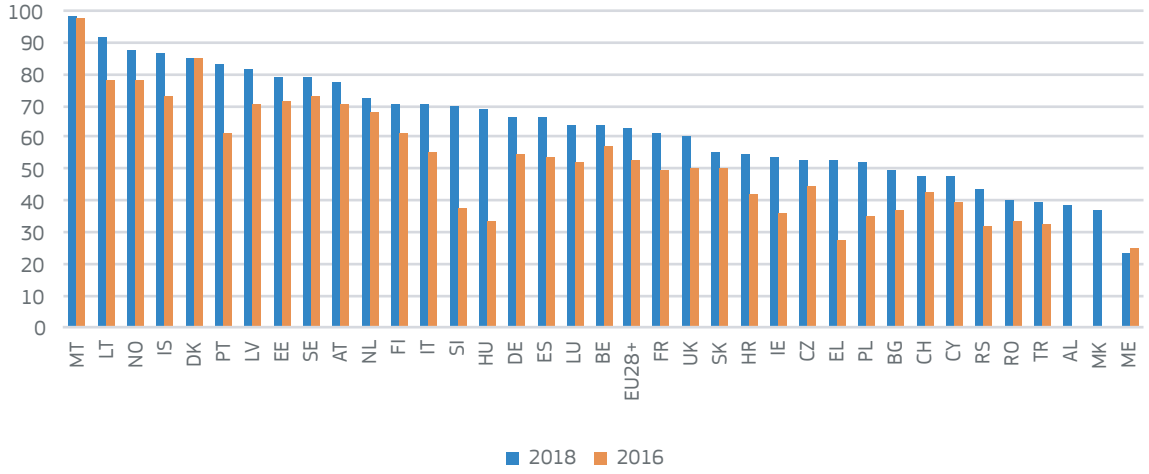

Figure 5.6 Country ranking of the 2018 and 2016 averages of top level benchmarks in the life event Family

Splitting the overall average on the Top-level benchmarks, as in Figure 5.7, the EU28+ countries improved most on Key enablers with increase of 13 p.p. The other two relevant Top-level benchmarks improved as well: Transparency; 10 p.p., User centricity; 7 p.p.

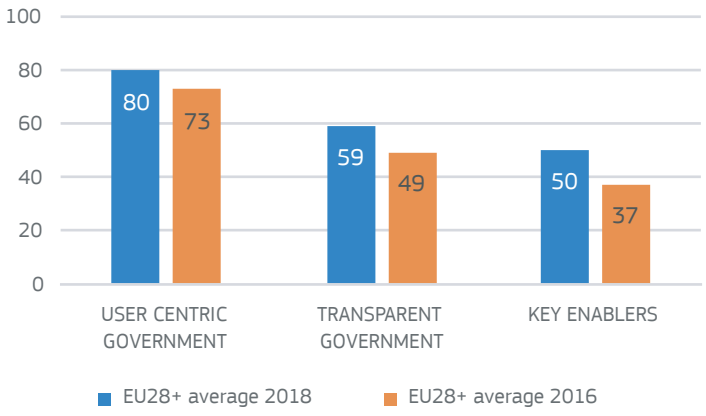

Figure 5.7 EU28+ averages of the top-level benchmarks from 2018 and 2016 of the life event Family

Losing and finding a job

Losing and finding a job

This chapter assesses the Top-level benchmarks in the life event Losing and finding a job. After a short introduction to the life event, the results on User centricity, Transparency and Key enablers will be presented and elaborated upon. As with the evaluation of the Family life event, these services are not assessed on their Cross-border mobility.

6.1 Introduction to life event

This life event has been part of the eGovernment Benchmark since it was first conducted, and it was last measured in 2016. As with the evaluation of the life event, these services are not assessed on their Cross-border mobility.

The Losing and finding a job services split up in two main categories, with several sections each. The first category is Losing a job, which comprises

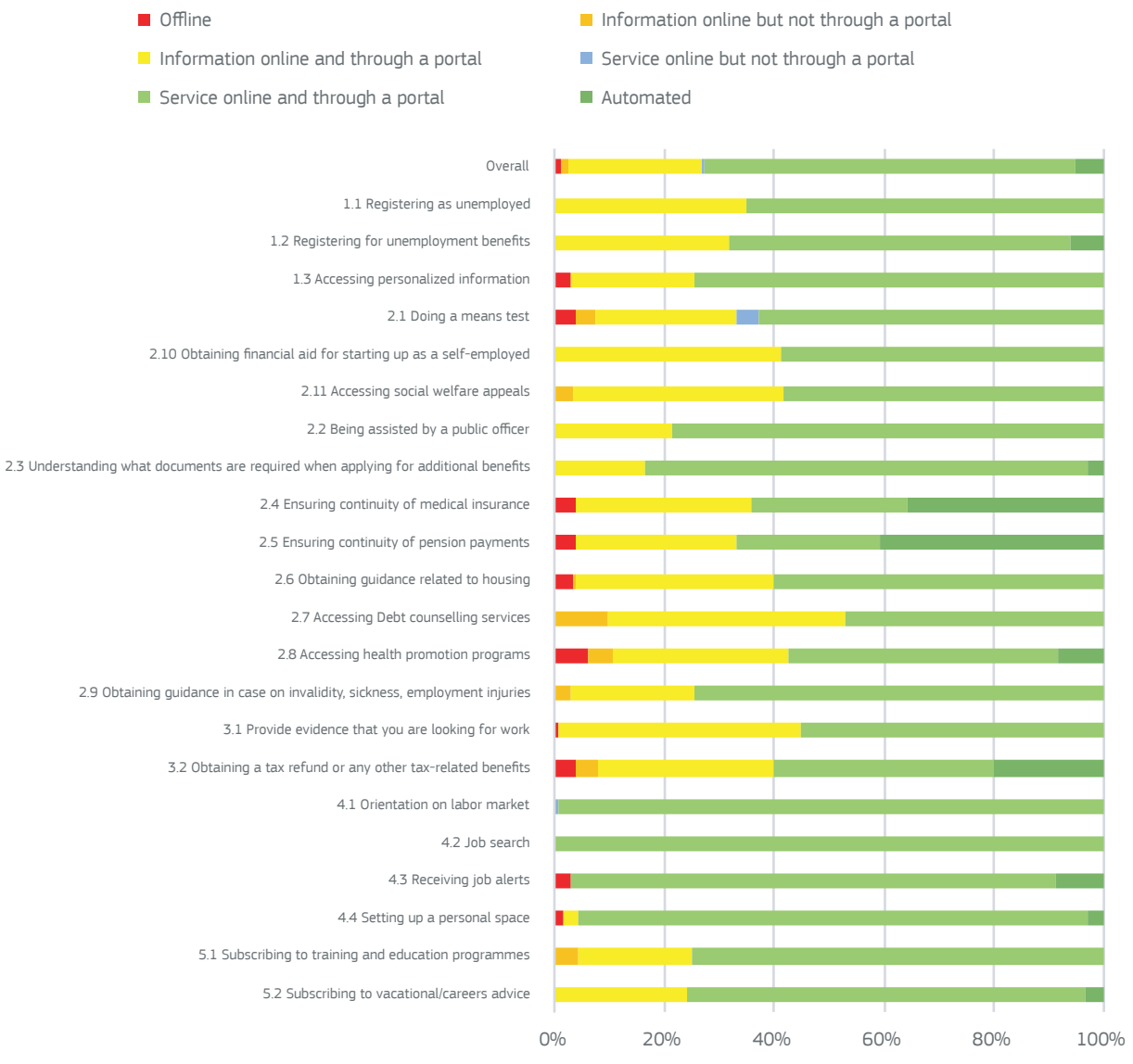

Figure 6.1 Availability of services in the life event Losing and finding a job

immediate actions for unemployed, applying for additional benefits and allowance and receiving benefits which apply to you. The second element is Finding a job, which comprises searching for a job and participating in training programs.

6.2 User centricity

The User centricity benchmark focusses on the Online availability and Mobile friendliness of the services relevant for Losing and finding a job.

6.2.1 Online availability

The Online availability results for the Losing and finding a job services are shown in Figure 6.1. Overall, 5% of services are provided automatically and 68% are provided fully online. Of the remaining 27%, 26 p.p. of services have information available digitally, while the other 1 p.p. is only available offline.

Within the services, "ensuring continuity of medical insurance", "ensuring continuity of pension payments" and "obtaining tax-related benefits" are provided automatically most often, in 41%, 36% and 20% of countries. "Orientation on the labour market" and "job search" are provided digitally in all the relevant countries. Several other services are provided digitally, or automatically, in over 80% of countries: "receiving job alerts", "setting up a personal space" and "understanding what documents are required for the application for additional benefits". Generally, services have only information provided digitally in between 20% and 40% of countries, except for the services mentioned earlier. Additionally, the following services have only information available digitally more frequently: "access to debt counselling" (only information in 53% of countries), "providing evidence that you are looking for work" (44%), "appealing to social welfare decisions" (42%) and "obtaining financial aid" (41%). For the services that are, in part, only provided offline, these services are only available offline in one of the countries.

6.2.2 Mobile friendliness

Losing and finding a job services are provided in a mobile friendly manner in 63% of the evaluated cases, as the results in Figure 6.2 show. The most mobile friendly services are "obtaining a tax refund or any other tax-related benefits" (at 81%), "accessing Debt counselling"(78%) and "obtaining financial aid for starting up as a self-employed" (74%). The least mobile friendly services across the EU28+ countries are "setting up a personal space" (44%), "subscribing to career advice" (51%) and "doing a means test" (52%).

6.3 Transparency

The findings of the Transparency evaluation are summarised in Figure 6.3, showing an average score of 49% over all the Losing and finding a job services. Most services are close together in their score, within 36% and 56%, with the exception of Job search, which is a positive outlier with a score of 91%.

6.4 Key enablers

The implementation levels of the Key enablers within the Losing and finding a job services are displayed in Figure 6.4. With regard to eID, a national eID system is implemented in 64% of evaluated services; in 46% of all services, citizens are able to access multiple services during one session. No eID system was available in 28% of the services, with the remaining 8% of services allowing users to be identified with a specific eID. Analysing the specific service results, most of them score similar to the overall average with regards to implementation of a national eID (within 5 p.p.), except for service "accessing social welfare appeals" (national eID implement in 56% of countries), "ensuring continuity of pension payments" and "ensuring continuity of medical insurance" (70% and 76%, respectively). Most services are relatively in line with the overall average on the percentage of countries without any eID system (within 6 p.p.), except for "accessing social welfare appeals" (no eID in 40% of countries) and "job search" (7%).

A form of authenticated eDocuments is used in 85% of all Losing and finding a job services, which is high compared to the other life events and to the rest of the Key enablers. The highest implementation level is within service ensuring continuity of pension payments service, where all countries use eDocuments, followed by ensuring continuity of medical insurance (in 94%

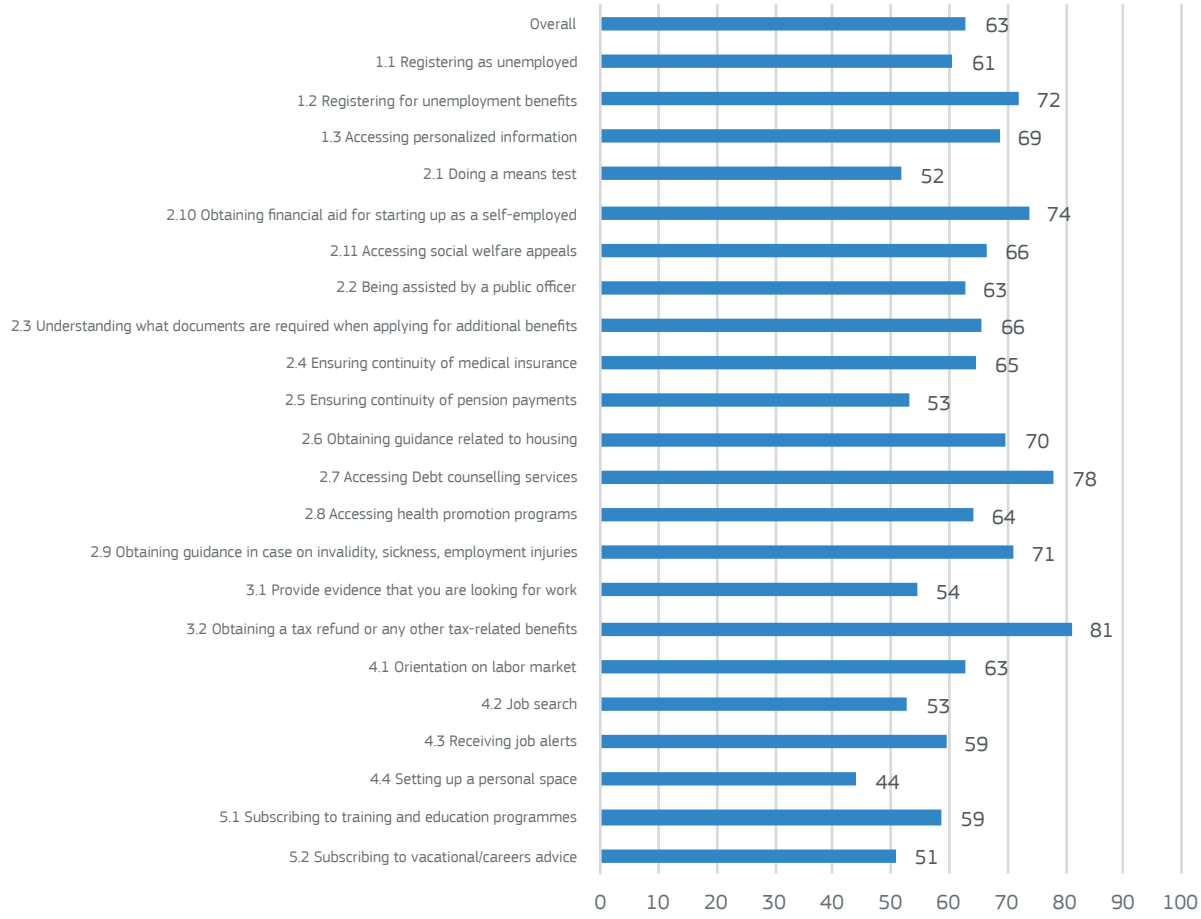

Figure 6.2 Average mobile friendliness score per service in the life event Losing and finding a job

of countries) and registering for unemployment benefits (93%). The services with the lowest eDocuments usage in this life event are: providing evidence that one is looking for work (73%), registering as unemployed (75%) and access to social welfare appeals (81%).

Authentic sources are implemented in 54% of all services. These systems are most often used within "ensuring continuity of medical insurance" (76% of countries) and "ensuring continuity of pension payments" (70%), followed at a distance by "registering for unemployment benefits" (58%). Authentic sources are least often used within the following services: "access social welfare appeals" (38%), "obtaining tax-related benefits" (42%) and "job search" (49%).

When comparing Online availability and Key enablers within the EU28+ countries, it stands out that several countries score higher on the Key enablers indicator, where this is rare in other life events. This is the case for Finland (Online availability: 99% vs Key enablers 100%), Norway (98% vs 99%), the Netherlands (93% vs 99%), Belgium (90% vs 93%), Spain (84% vs 85%) and Cyprus (79% vs 73%). In other countries, the smallest gaps (<10 p.p.) are apparent in Malta (100% vs 100%), Estonia (99% vs 94%), Latvia (100% vs 92%), Austria (99% vs 92%), Italy (89% vs 85%), Iceland (85% vs 76%), Ireland (84 vs 77%) and Montenegro (57% vs 50%). The following countries have larger gaps (> 40 p.p. difference): Czech Republic (84% vs 44%), Poland (94% vs 47%), North Macedonia (53% vs 0%), Serbia (60% vs 7%), United Kingdom (84% vs 30%), Switzerland (57% vs 0%) and Bulgaria (73% vs 6%).

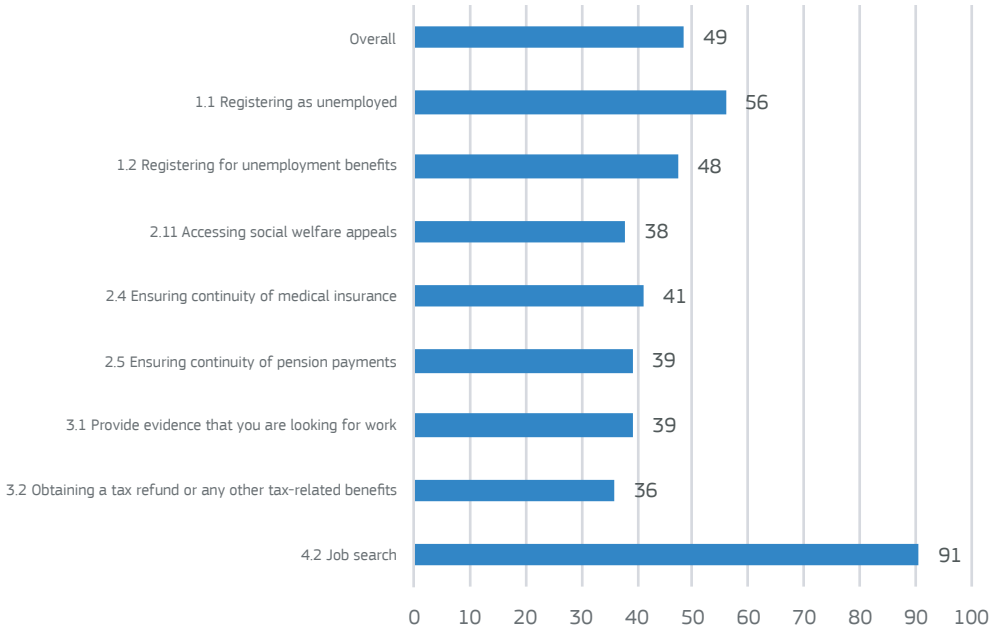

Figure 6.3 Average transparency score per service in the life event Losing and finding a job

6.5 Progress across Europe

The average score of the three top-level benchmarks provides the overall score for Losing and finding a job. The EU28+ average is 71% for 2018, and 66% for 2016. Whilst noting that Albania and North Macedonia are newly included, the overall average has improved 5 p.p. The top three scoring countries are Malta (score of 100% in 2018), Estonia (95%) and Finland (95%). The biggest absolute improvement took place in Greece (24 p.p.), Luxembourg (23% p.p.) and Ireland (22 p.p.).

The EU28+ averages of the Top-level benchmarks for 2018 and 2016 are shown in Figure 6.7, which provides insight into where the overall improvement originates from. The biggest improvement is apparent within Key enablers and Transparency (+6 p.p.), where User centricity also improved (+2 p.p.).

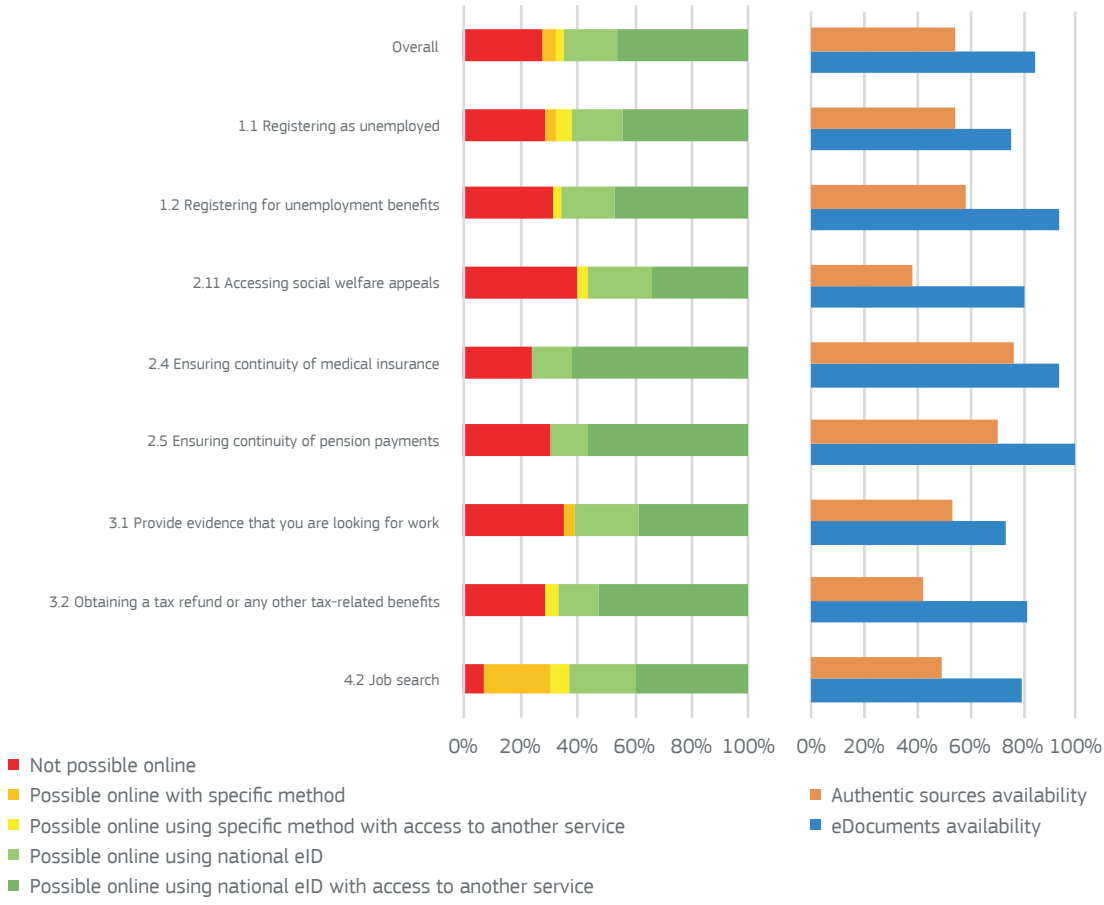

Figure 6.4 Availability of eID, eDocuments and Authentic sources per service in the life event Losing and finding a job

Figure 6.5 Correlation Online availability and Key enablers in the life event Losing and finding a job by country

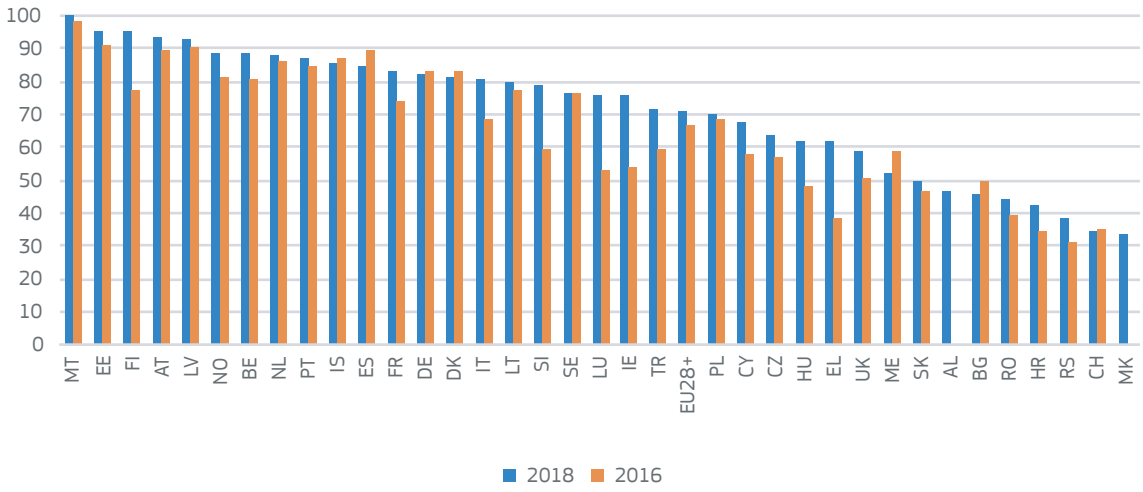

Figure 6.6 Country ranking of the 2018 and 2016 averages of top level benchmarks in the life event Losing and finding a job

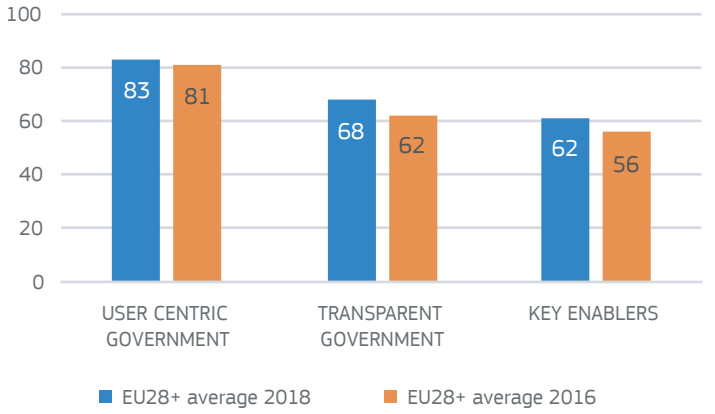

Figure 6.7 EU28+ averages of the top-level benchmarks from 2018 and 2016 of the life event Losing and finding a job

Studying

Studying

This chapter assesses the Top-level benchmarks in the life event Studying. After a short introduction to the life event, the results on User centricity, Transparency, Cross-border mobility and Key enablers will be presented and elaborated upon.

7.1 Introduction to life event

The Studying life event describes services that enable citizens to find and enrol with higher education of their choosing. These processes can set out clear expectations, requirements and regulations to make sure (prospective) students can make informed decisions about their future. Thirteen services are defined within this life event, which can be split into three categories: orientation about available studies, enrolment into higher education and support. As with the Business start-up life event, part of the Studying services event are evaluated on its Cross-border mobility.

7.2 User centricity

The User centricity benchmark focusses on the Online availability and Mobile friendliness of the services relevant for Studying.

7.2.1 Online availability

How countries provide their Studying related services is displayed in Figure 7.1. In general, few

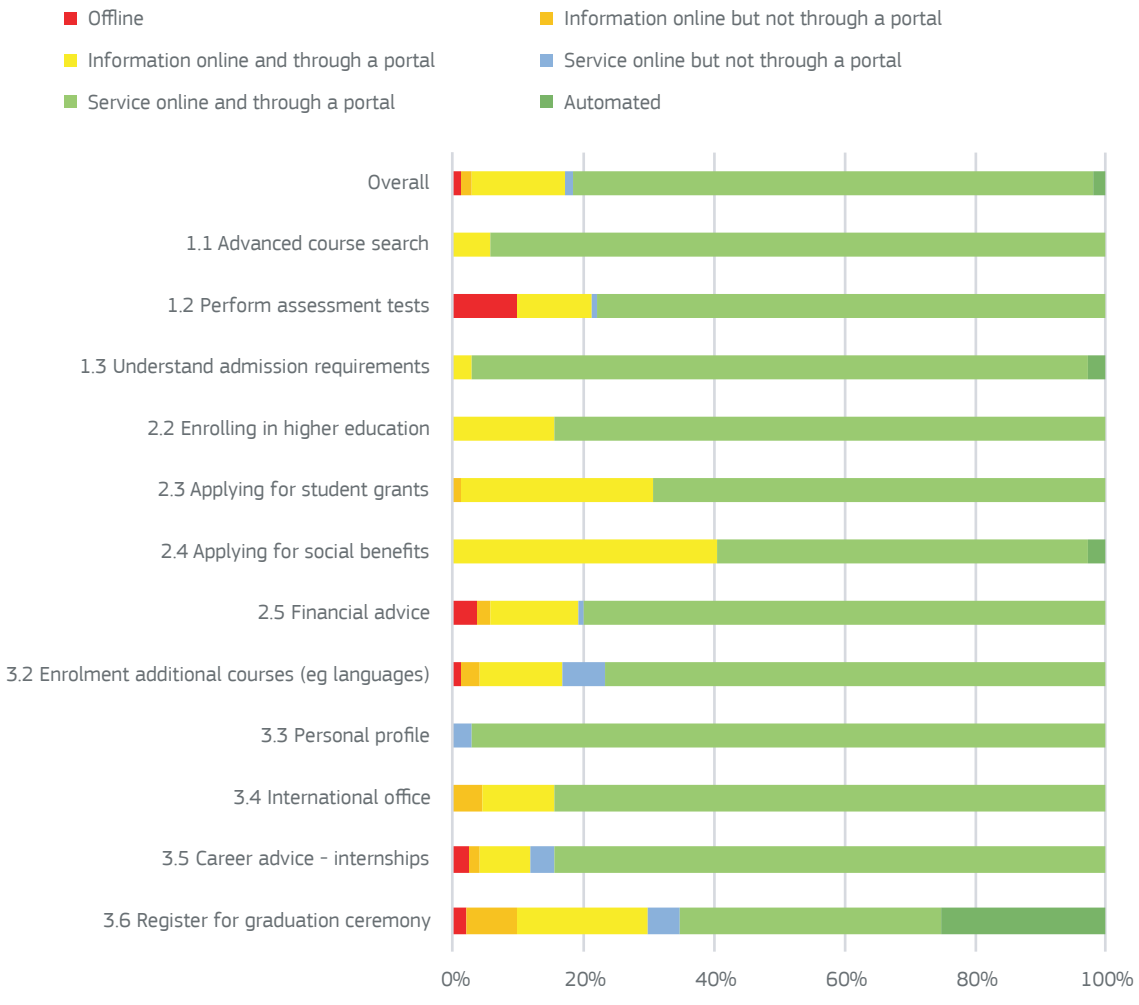

Figure 7.1 Availability of services in the life event Studying

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services are provided automatically (2%) where in other life events this percentage is at least 5%. The services are available online through a portal in 80% of cases, which is the highest percentage of life events, an additional 1% is available outside of a portal. Of the remaining 17%, 15 p.p. of services provide information online (of which 1 p.p. is only available outside a portal) and 2 p.p. is only available offline.

Within the Studying services, personal profiles are provided digitally in all relevant countries, available through a portal in 97% of countries. Services "understanding admission requirements" and "advanced course search" are also available online in nearly all relevant countries (97% and 94%, respectively). Several other services are provided online or automatically in over 80% of countries; "career advice" (88%), , "enrolling in higher education" and "international office" (both at 84%), "enrolment into additional courses" (83%), and "financial advice" (81%). Within other services, this percentage is still over 50%, though lowest in service "applying for social benefits" (59%) and "applying for student grants" (69%). The service that is available offline-only most often is "performing assessment tests" at 10% of relevant countries.

7.2.2 Mobile friendliness

The Mobile friendliness results for the Studying services are shown in Figure 7.2.. With an overall average of 64%, most services are provided in a comparable percentage of EU28+ countries, between 60% and 70%. The main outlier is service "access to a personal profile" at 45%, with the top three services all mobile friendly in 69% of relevant countries; "advanced course search", "enrolment into additional courses" and "international office".

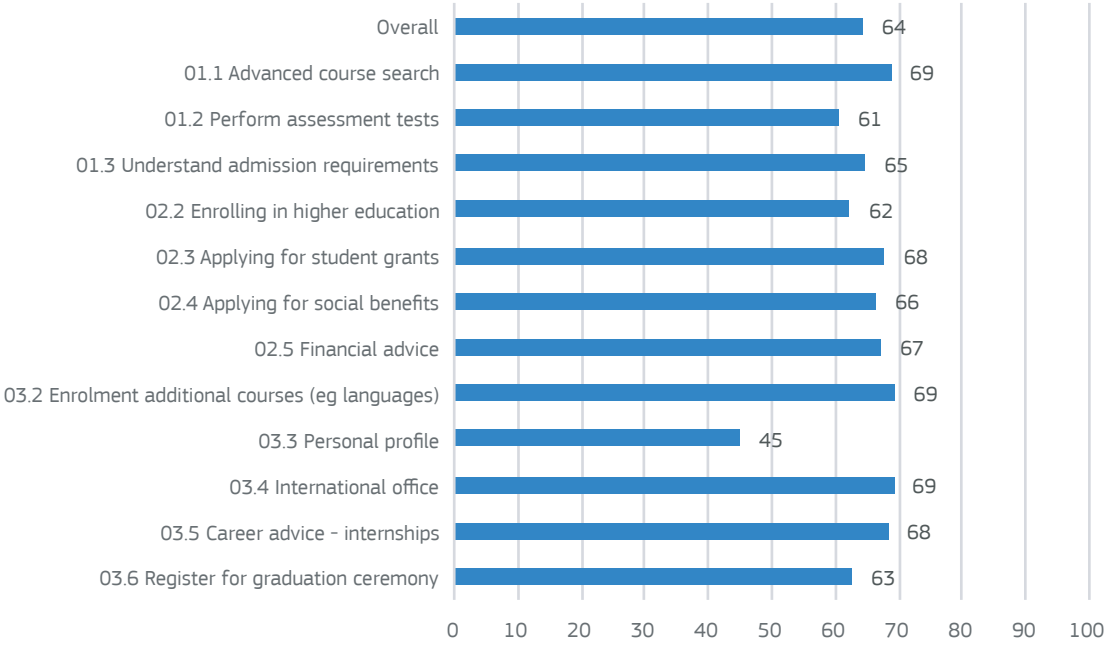

Figure 7.2 Average mobile friendliness score per service in the life event Studying

7.3 Transparency

The Transparency of service delivery is evaluated of the four transactional services as shown in Figure 7.3. The overall average is 51%. The most transparent service within the EU28+ countries is "enrolling in higher education" at 67% followed by "applying for student grants" at 57% and "applying for social benefits" at 45%. The service with the lowest transparency of service delivery is "registering for graduation ceremony" at 37%.

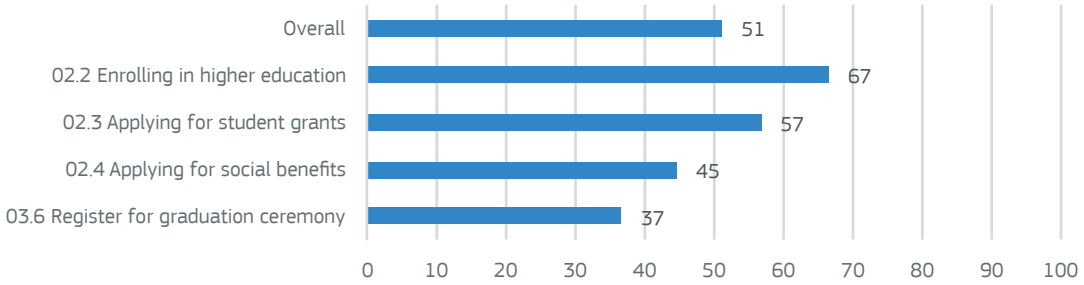

Figure 7.3 Average transparency score per service in the life event Studying

7.4 Cross-border mobility

The overview of how Studying services are made available to foreign citizens is provided in Figure 7.4.. 61% of services are provided digitally and 1% is provided automatically. Information is provided online in 21%, where 17% of services has no online presence.

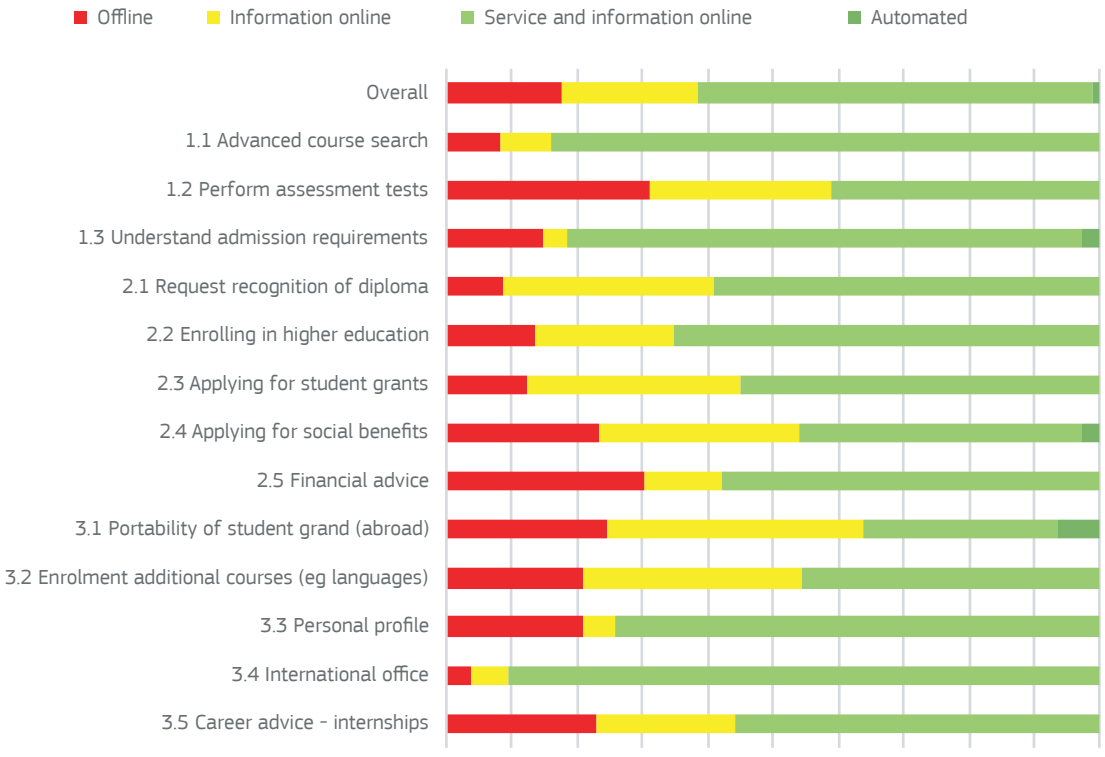

Figure 7.4 Cross-border availability of services in the life event Studying

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The service that is offered digitally or automatically most is “international office” (90%), followed by ”advanced course search” (84%) and ”understanding admission requirements” (82%). The services are least frequently available to foreigners are ”portability of student grant” (36%), , “applying for social benefits” and “enrolment into additional courses” both at 46%. The services that lack an online presence most often are ”performing assessment tests” (not available in 31% of cases) and ”financial advice” (30%).

7.5 Key enablers

The uptake of the three Key enabler technologies is displayed in Figure 7.5. Though a relatively small sample, it is remarkable that all three Key enablers are available in the majority of countries for all services. A form of eID infrastructure is implemented in 74% of cases, in 52 p.p. this is a national eID system (of which 31 p.p. allows students to access other services). In the majority of specific eID implementations it was not possible to access other services (17% vs 4% of total cases). Within the services, uptake of national eIDs is at 55% for all services except applying for social benefits (46%), in which the number of countries without any form of eID is also highest (39% where the rest is under 30%).

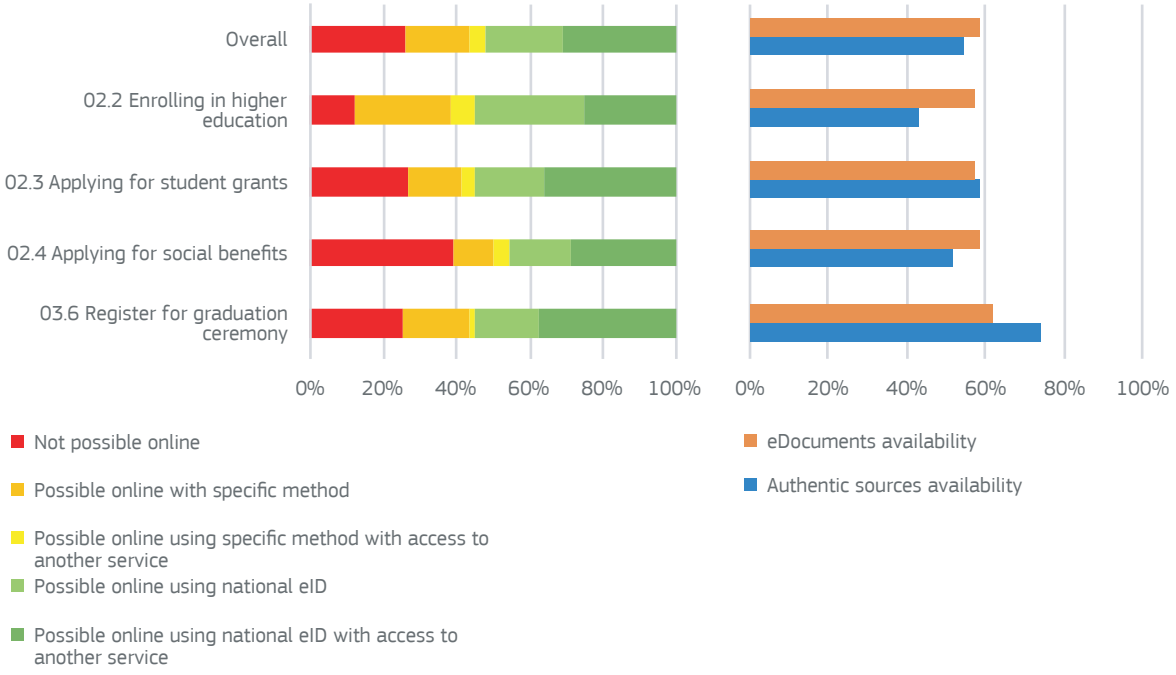

Figure 7.5 Availability of eID, eDocuments and Authentic sources per service in the life event Studying

eDocuments technologies are implemented in 58% of services, with high agreement within the services as the difference between the lowest and highest level of uptake is 5 p.p. The uptake levels for Authentic sources varies more, with an average of 54%, minimum of 43% and maximum of 74%. Ranking the services from highest to lowest: “registering for the graduation ceremony” (74%), “applying for student grants” (58%), “applying for social benefits” (52%) and ”enrolling in higher education” (43%).

Figure 7.6 Correlation Online availability and Key enablers in the life event Studying by country

Comparing the Key enablers scores with Online availability, the EU28+ countries score an average 27 p.p. higher on Online availability. The overview of this difference within each country is shown in Figure 7.6. Malta scores the same on both indicators (Online availability: 100% vs Key enablers: 100%), two countries score higher on Key enablers; Cyprus (73% vs 83%) and Denmark (96% vs 100%). The other countries score higher on Online availability, within some the difference is minimal (less than 10 p.p.): Estonia (99% vs 98%), Spain (100% vs 97%), the Netherlands (99% vs 98%), Lithuania (99% vs 97%), Latvia (93% vs 88%) and Albania (64% vs 56%).

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7.6 Progress across Europe

The Top-level benchmarks provide a picture of the eGovernment standings within the EU28+ countries, the averages of the 2018 and 2016 scores are displayed in Figure 7.7. The EU28+ average stands at 68%, up from 64% in 2016. This increase of 4 p.p. is the smallest of the life events evaluated this year. Please note that North Macedonia and Albania have been newly added in this year's analysis.

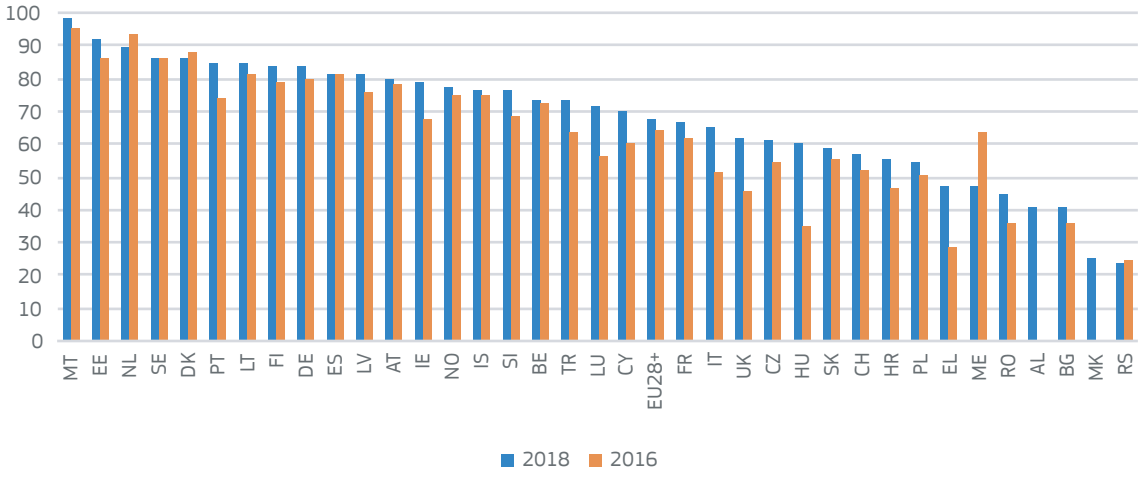

Figure 7.7 Country ranking of the 2018 and 2016 averages of top level benchmarks in the life event Studying

Comparing individual countries, the top 3 is made up of Malta (scoring 98% in 2018), Estonia (92%) and the Netherlands (90%). The lowest scoring countries are Serbia (23%), North Macedonia (26%) and Bulgaria (41%). Between 2016 and 2018 Hungary improved the most within this life event with 25 p.p., followed by Greece (19p.p.) and the United Kingdom (16p.p.). Several countries have lower scores compared to the previous analysis; Serbia (1 p.p.), Denmark (2 p.p.), the Netherlands (4 p.p.) and Montenegro (16 p.p.), this was mostly caused by including additional universities in the eGovernment benchmark sample.

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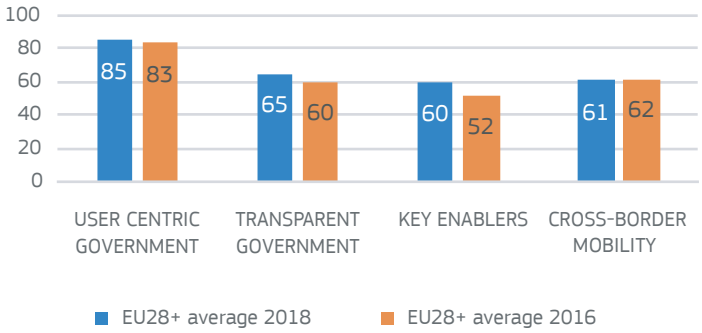

Figure 7.8 EU28+ averages of the top-level benchmarks from 2018 and 2016 of the life event Studying

Calculating the EU28+ averages of 2016 and 2018 per Top-level benchmark as in Figure 7.8 shows that Key enablers improved most with 8 p.p. The User centricity and Transparency improved slightly with 2 and 5 p.p., whilst Cross-border mobility slightly declined with 1 p.p.

Part three: Benchlearning

The Explorative Benchlearning perspective

8.1 The benchlearning approach

8.1.1 Introduction to the benchlearning perspective

The eGovernment benchlearning exercise aims to compare eGovernment performances among countries with similar characteristics, such as status quo features and innovation drivers. It allows us to identify countries with similar context that do well and countries that could do better. In this way, the eGoverment benchlearning approach adds to the dissemination of best practices. The benchlearning exercise might give an indication of how country characteristics could influence eGovernment performance, thereby hinting at opportunities to enhance the efficiency of eGovernment policies.

The benchlearning approach was first applied in the 2015 eGovernment Benchmark report. In the 2016 eGovernment benchmark report, time series were added to analyse the development of country performances. Further revisions followed in 2017: a) clarification of the benchlearning process and analysis; b) removal of the statistical cluster analysis; c) inclusion of the main DESI9 dimensions in the indicators; d) specification of the link between the benchlearning exercise and the Mystery Shopping benchmark assessment; and e) establishment of a clearer link between countries' contexts and their eGovernment performances. The 2018 methodology was considered mature and has been entirely preserved for the 2019 report.

The 2019 benchlearning analysis covers the EU Member States (28 out of the 36 countries that participated in the eGovernment Benchmark). The analysis uses Eurostat as one of its main data sources, whose data is based on the EU28 countries.

8.1.2 The framework of the explorative benchlearning perspective

The benchlearning exercise consists of two main steps. The first step analyses countries' eGovernment maturity. eGovernment maturity reflects citizen use of eGovernment services and the public administrations' ability to provide efficient and effective procedures and services. It is assessed through two **absolute indicators**: Penetration and Digitisation.

The second step assesses country factors that define the specific context of individual countries through a series of **relative indicators**.

8.2 Step 1: Measuring country performance through the absolute indicators

8.2.1 Penetration

The Penetration indicator captures the extent to which the online channels are used for obtaining government services. Although the availability of online services has increased within the EU, it is vital to know whether the use of digital services has increased as well. Digitalising public services is one of the EU priorities. It is necessary to compare the supply of online public services with their use in order to understand eGovernment maturity. To this end, the Penetration index relates a) the number of individuals that submitted online forms in the last twelve months to b) the total number of individuals that had to submit official forms to administrative authorities.

It is assumed that the proportion of people needing to submit forms is the same for both the set of internet users and the whole population. This assumption should offset the positive bias towards countries where a small population of internet users is combined with a high score of eGovernment users. The indicator was calculated on the basis of the Eurostat datasets[10] on eGovernment Users[11] and Internet Users[12]. Figure 8.1 shows the design of the Penetration indicator.

Figure 8.2 shows the Penetration index for each country. The 28 EU countries score 57% on average. There is a broad range in scores, with two countries scoring a percentage below 30%

[10] Eurostat datasets accessible on: https://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries

[11] eGovernment users: Indicator: Citizens submitting filled forms to eGov services, last 12 months; Breakdown: All individuals; Unit of measure: % of users who need to submit official forms

[12] Internet users: Indicator: internet used in the last 12 months; Breakdown: all individuals; Unit of measure: % of individuals

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Indicator	Composed variables	Data source
Penetration	Internet use: % of individuals using internet in the last 12 months eGovernment users: % of individuals submitting filled forms of users who need to submit forms	Eurostat

Figure 8.1 Penetration indicator design

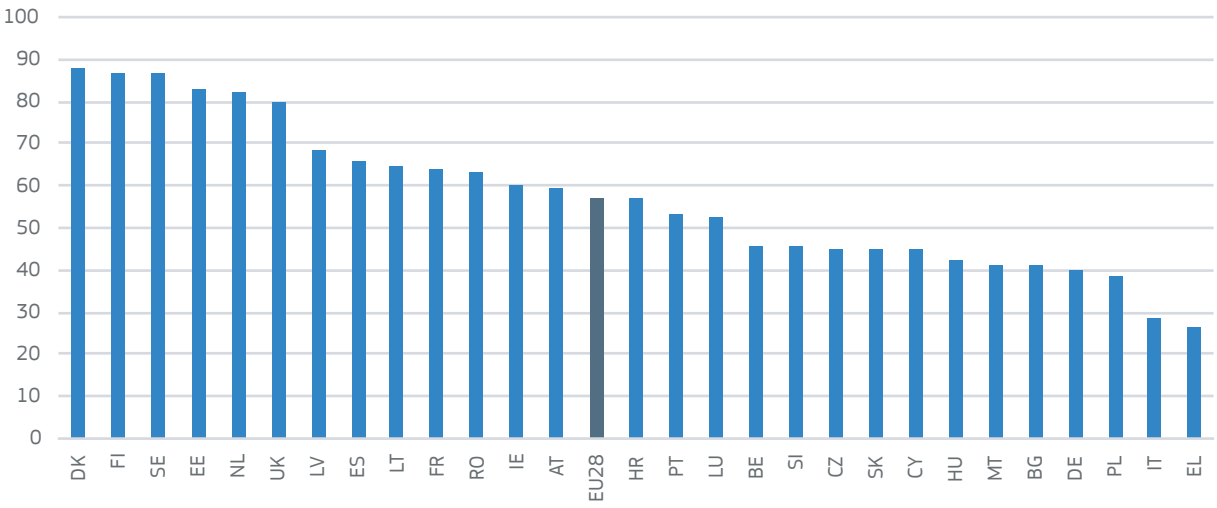

Figure 8.2 Penetration index

(Italy and Greece) and six countries scoring a percentage above 70% (Denmark, Finland, Sweden, Estonia, the Netherlands and the United Kingdom).

There are two options for raising the Penetration performance. First, the number of people that submit official forms online to administrative authorities could be raised. Second, the number of people that need to submit forms to public administrations (for instance by automating procedures and reducing red tape) could be lowered. Options to raise the use of the online channel include the digitisation of more administrative forms, increasing the ease with which existing services can be used, and raising awareness about eGovernment services. Data sharing and data integration could be used to simplify and automate administrative procedures, thereby lowering the number of forms to be filled in.

8.2.2 Digitisation

The Digitisation index captures the Digitisation level of the back and front office, using the four top-level benchmarks from the Mystery Shopping method (Figure 8.3):

- **User centricity**: indicates the extent to which a service is provided online, its Mobile friendliness and its usability (in terms of available online support and feedback mechanisms).
- **Transparency**: indicates the extent to which governments are transparent about the process of service delivery, the responsibilities and performance of public organisations and the personal data processed in public services.
- **Cross-border mobility**: indicates the extent to which users of public services from another European country can use the online services.
- **Key enablers**: indicates the extent to which technical and organisational pre-conditions for eGovernment service provision are in place, such as electronic identification and authentic sources.

The eight life events that compose the Digitisation indicator are measured in a biennial cycle (four each year). Therefore, Digitisation is calculated as the biennial average of these eight life events. The biennial European average is 66%. Results for the Digitisation indicator, as observed in

Indicator	Composed variables	Data source
Digitisation	**Average of:** • User Centric Government • Transparant Government • Citizen and Business (3:1) Mobility • Key Enablers	**eGovernment Benchmark** - Mystery shopping

Figure 8.3 Digitisation indicator design

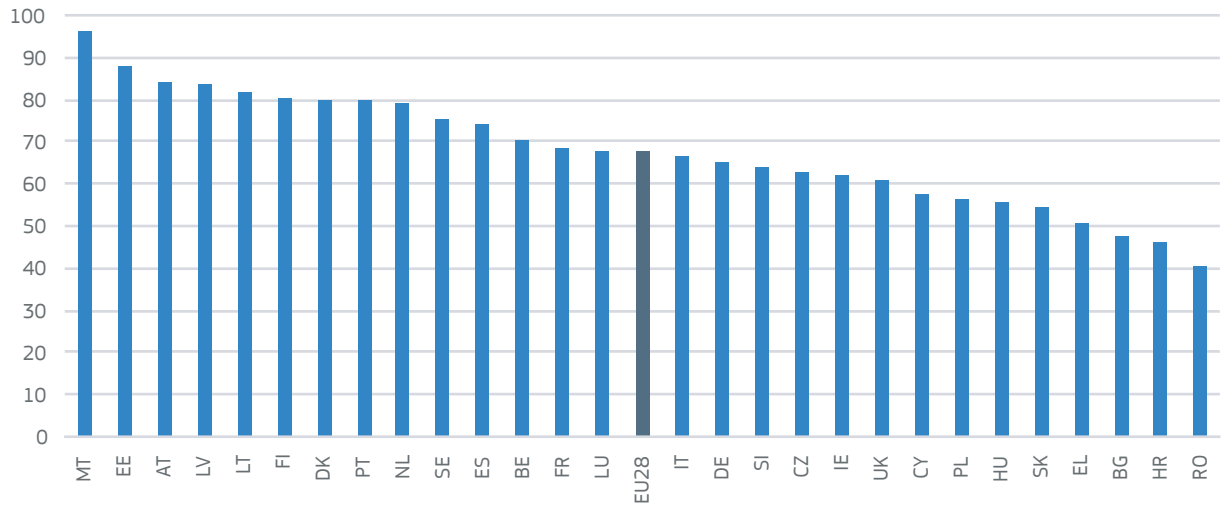

Figure 8.4 Digitisation Index

Figure 8.4, show less variability than the ones for the Penetration indicator. Most countries scored above 50%, except Bulgaria, Greece, Croatia and Romania. To improve the Digitisation score, progress should be made in at least one of the four top-level benchmarks from the Mystery Shopping exercise (more detailed recommendations can be found in previous chapters).

8.2.3 Understanding performances

Combining Penetration and Digitisation performances provides insights in a country's ability to match high levels of digital service usage with a high availability of digital services. Figure 8.5 shows four scenarios with different levels of Penetration and Digitisation:

- **Non-consolidated eGovernment**: this scenario contains lower levels of Digitisation and lower levels of Penetration. A government in this scenario does not utilise ICT opportunities yet and has limited number of users of online public service but could reap corresponding benefits in the future.
- **Unexploited eGovernment**: this scenario contains lower levels of Digitisation combined with higher levels of Penetration. A government in this scenario is enhancing its digital transformation process, but it already has a large number of citizens and businesses using eGovernment services. Countries in this scenario could optimise efficiencies in managing their resources and might have room to leverage high online use of eGovernment services.
- **Expandable eGovernment**: this scenario contains higher levels of Digitisation and lower levels of Penetration. A government in this scenario innovates its public services effectively. Expanding the number of online users would contribute to unfolding more potential benefits.
- **Fruitful eGovernment**: this scenario contains high levels of both Digitisation and Penetration. A government in this scenario achieved innovative digital services with many users. This helps to deliver public services in an efficient and effective way.

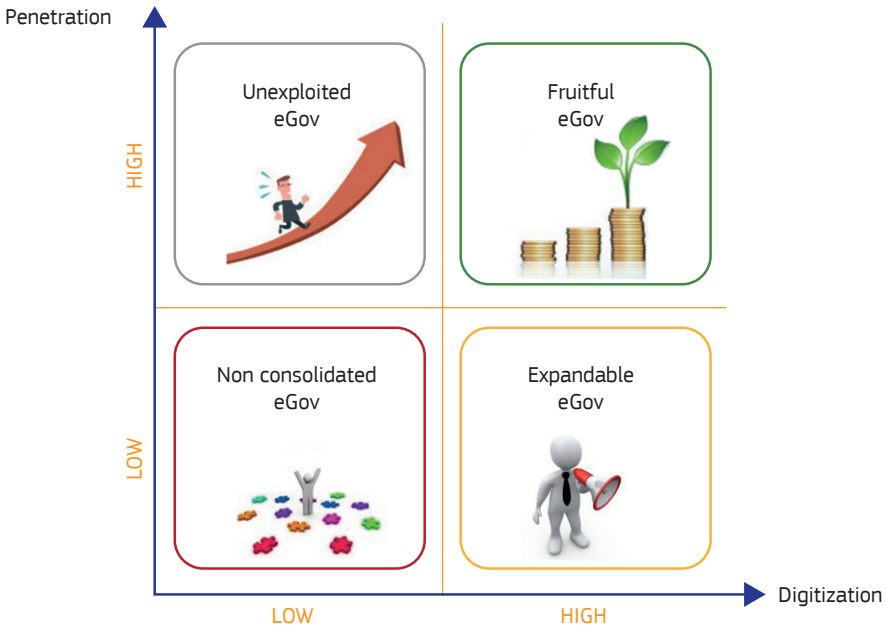

Figure 8.5 Penetration and Digitisation scenarios

A few remarks regarding the classification of the countries according to the four scenarios:

- **Non-consolidated eGovernment**: Eleven countries fall within this scenario (Bulgaria, Croatia, Cyprus, Czech Republic, Germany, Greece, Hungary, Italy, Poland, Slovakia and Slovenia). These countries could enhance Penetration and Digitisation by digitising both front and back offices of public service providers. ICT opportunities would need to be realised and citizens and businesses would need to be convinced to use eGovernment services.
- **Unexploited eGovernment**: The countries in this scenario have a level of Digitisation below the European average, but a high level of Penetration. Two countries fall in this category: Romania and the United Kingdom. Business and citizens know how to use eGovernment services, but there are still opportunities to improve the quantity and quality of digital services.
- **Expandable eGovernment**: In this scenario, there is high Digitisation but low Penetration. Four countries fall within this scenario: Belgium, Luxembourg, Malta and Portugal.
- **Fruitful eGovernment**: The fruitful eGovernment scenario has both high Digitisation and high Penetration levels. This is achieved by combining a solid supply of digital services with a satisfactory number of users. Eleven countries fall within this scenario: Austria, Denmark, Estonia, Finland, France, Ireland, Latvia, Lithuania, the Netherlands, Spain and Sweden.

A positive linear correlation can be found between the Penetration and Digitisation indicators as depicted in Figure 8.6. If a country has a higher level of Digitisation it is more likely to have a higher level of Penetration as well, and vice versa.

Even within the same scenario, there are still considerable differences between countries. For

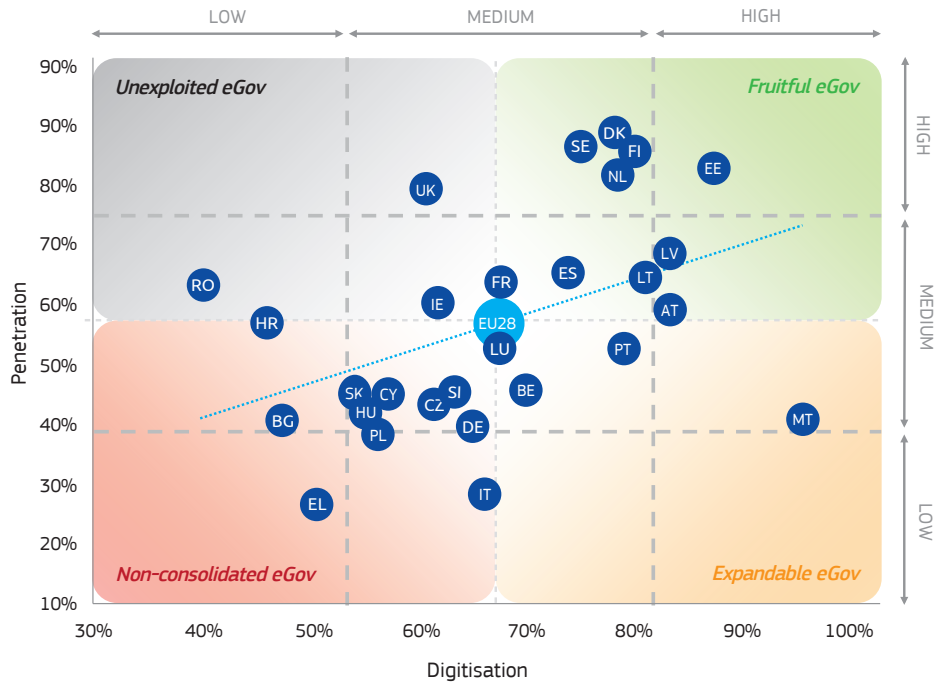

Figure 8.6 Penetration vs Digitisation

some countries, the performance is close to the European average, while the performance of other countries in the same scenario strongly diverges from the European average. To illustrate: within the Expandable eGovernment scenario, Luxembourg's performance is close to the European average, while Malta's performance lies further from the average. To offer a more detailed picture of European eGovernment, each scenario is further divided into four blocks. These blocks separate countries with levels of Penetration and Digitisation near to the European average and countries with levels above or below the European average, as illustrated in Figure 8.6. Two lines are drawn, one corresponding with the European average plus the standard deviation (μ+δ), and one corresponding with the European average minus the standard deviation (μ-δ). When countries' Digitisation or Penetration levels fall outside the plotted lines, performance is considered either low (below μ-δ) or high (above μ+δ). The standard deviation (δ) for Digitisation is 14%, for Penetration it is 18%.

If one considers the distribution of the countries over the four scenarios, there seems to be some kind of digital polarisation: countries display either high or low performance on both indicators. Estonia, Denmark and Finland are the best scoring European countries, scoring high on both Penetration and Digitisation. Most room for improvement can be found in Greece.

Large differences in the EU average can be found in Greece (Non-consolidated eGovernment scenario), Italy (Non-consolidated eGovernment scenario), Romania (Unexploited eGovernment scenario), and Malta (Expandable eGovernment scenario). Greece has both a lower Penetration level (27%), and Digitisation level (48%). Italy has a lower Penetration level (28%) and a medium Digitisation level (63%). Romania has a medium Penetration level (63%), combined with the lowest level of Digitisation (36%). Malta clearly exceeds the European average, having the highest level of Digitisation (94%).

8.3 Step 2: Understanding the impact of context-specific variables on performances

8.3.1 Methodology

The second step of the benchlearning analysis searches for the exogenous factors ('relative indicators') that influence country performance.

Relative indicators have the potential to affect eGovernment performance were identified by going through several databases (Eurostat, the European Commission's Digital Economy and Society Index, Transparency International, World Bank, etc.). Each indicator describes an exogenous factor that might relate to Digitisation and Penetration.

Statistical analyses (principal component analysis, stepwise analysis, and multivariate and univariate correlations) were performed on the initial set of relative indicators to reduce the number of indicators. If relative indicators did not correlate with the absolute indicators (Penetration and Digitisation), they were excluded. To illustrate: even though the population of a given country is of primary importance for a wide range of analyses, it does not significantly correlate with either Penetration or with Digitisation. In other words, population size does not appear to influence a country's performance in eGovernment. Therefore, it is excluded from the final list of relative indicators. The tables in Annex B show the complete list of the indicators taken into consideration during the statistical analysis described.

The relative indicators that remained after the described selection process are clustered into three categories, which contain several sub-indicators:

- **User characteristics**: citizens' ability and willingness to use online services. In this analysis users' characteristics are captured by indicators concerning Digital skills and ICT Usage.
- **Government characteristics**: elements of how public organisations act and are organised that influence eGovernment performance. In this analysis governmental characteristics are captured by indicators to evaluate Quality and Openness of government actions and institutions.

- **Digital context characteristics**: exogenous factors that can offer a proxy of the digital readiness in terms of adoption of digital technology in a country. In this analysis digital context characteristics are captured by two indicators: Connectivity, and Digital in private sector.

8.3.2 Users' characteristics that influence eGovernment performance

This indicator reflects citizens' ability and willingness to use online services, and is captured by the two following indicators:

- **Digital skills**: The Human Capital dimension from the Digital Economy and Society Index (DESI) measures the skills needed to realise the potential offered by a digital society. Such skills cover basic user skills that enable individuals to interact online and to consume digital goods and services, as well as advanced skills that empower the workforce to use technology for enhancing productivity and fostering economic growth.
- **ICT usage**: besides the Digital skills of users, another indicator that is helpful to understand user characteristics is the overall level of ICT usage. The "Use of internet" indicator (part of the DESI) covers a variety of activities performed by citizens that range from consumption of online content (videos, music, games, etc.) to modern communication activities, online shopping and banking. One can imagine that if users do not use the internet at all, it is likely that they will not use the internet for requesting public services online.

8.3.3 Government's characteristics that influence eGovernment performance

The government characteristics indicators reflect on the way public organisations act and are organised could affect eGovernment performance. In our analysis, it is measured through the following indicators:

- **Quality**: This indicator aims at summarising in one number a proxy of governments' actions. Its components are:
  - **Regulatory quality**[13]: A World Bank indicator that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that allow and promote private sector development.
  - **Rule of law**[14]: A World Bank indicator that captures perceptions of the extent to which agents have confidence in, and obey to the rules of society. In particular, the quality of contract enforcement, property rights, police and courts, as well as the likelihood of crime and violence.
  - **Government effectiveness**[15]: A World Bank indicator that captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the governments' commitment to such policies.
  - **Reputation**[16]: Considers the reputation of the government. The selected indicator is "Perceived Corruption" calculated by Transparency International, which measures the perceived level of public sector corruption worldwide.

[13] World Bank data on Regulatory quality: https://datacatalog.worldbank.org/search?search_api_views_fulltext_op=AND&query=RQ.EST&nid=&sort_by=search_api_relevance&sort_order=DESC

[14] World Bank data on Rule of law: https://datacatalog.worldbank.org/search?search_api_views_fulltext_op=AND&query=Rl.EST&nid=&sort_by=search_api_relevance&sort_by=search_api_relevance

[15] World Bank data on Government effectiveness: https://datacatalog.worldbank.org/search?search_api_views_fulltext_op=AND&query=ge.EST&nid=&sort_by=search_api_relevance&sort_by=search_api_relevance

[16] Transparency International Data on Reputation: https://www.transparency.org/cpi2018

These four indicators are highly correlated. Therefore, the Quality indicator is calculated as the average score of these four indicators.

- **Openness**: This indicator aims at identifying the openness of each country from an Open Government perspective, it takes into consideration two different aspects:
  - **Open data**[17]: A DESI indicator that measures the extent to which countries have an open data policy in place (including the transposition of the revised PSI Directive), the estimated political, social and economic impact of open data and the characteristics (functionalities, data availability and usage) of the national data portal.
  - **Voice and Accountability**[18]: A World Bank indicator that captures perceptions of the extent to which citizens are able to select their government, as well as freedom of expression, freedom of association, and free media. The Openness indicator is computed as the average of these two indicators.

8.3.4 Context Characteristics that influence eGovernment performance

The digital context characteristics reflect the status of the digital infrastructure and private sector digitisation in a country, and include:

- **Connectivity**[19]: The Connectivity indicator (DESI) measures the deployment of broadband infrastructure and its quality. Access to fast broadband-enabled services is a necessary condition for competitiveness.
- **Digital in private sector**[20]: The Integration of Digital Technology dimension (from the DESI) measures the digitisation of businesses and their exploitation of the online sales channel. By adopting digital technology, businesses can enhance efficiency, reduce costs and better engage customers, collaborators and business partners. Furthermore, when the Internet is used as a sales outlet, it offers access to wider markets and potential for growth.

8.3.5 Relative indicators analysis

The European average and its standard deviation are determined for each relative indicator, with the same method as for the absolute indicators (Penetration and Digitisation). Three categories of countries have been defined:

- **Low**: countries with a score lower than (μ-δ)
- **Medium**: countries with a score between (μ-δ) and (μ+δ)
- **High**: countries with a score higher than (μ+δ)

Figure 8.7 is a geographical mapping of each relative indicator showing the three categories described above, as also captured in the table of Figure 8.8

[17] European Data Portal data on Open Data Maturity: https://www.europeandataportal.eu/en/dashboard#tab-detailed

[18] World Bank data on Voice and Accountability: https://datacatalog.worldbank.org/search?search_api_views_fulltext_op=AND&query=VA.EST&nid=&sort_by=search_api_relevance&sort_order=DESC

[19] DESI data on Connectivity: https://digital-agenda-data.eu/charts/desi-components#chart={%22indicator%22:%22desi_1_conn%22,%22breakdown-group%22:%22desi_1_conn%22,%22unit-measure%22:%22pc_desi_1_conn%22,%22time-period%22:%222019%22}

[20] DESI data on Integration of Digital Technology: https://digital-agenda-data.eu/charts/desi-components#chart={%22indicator%22:%22desi_4_idt%22,%22breakdown-group%22:%22desi_4_idt%22,%22unit-measure%22:%22pc_desi_4_idt%22,%22time-period%22:%222019%22}

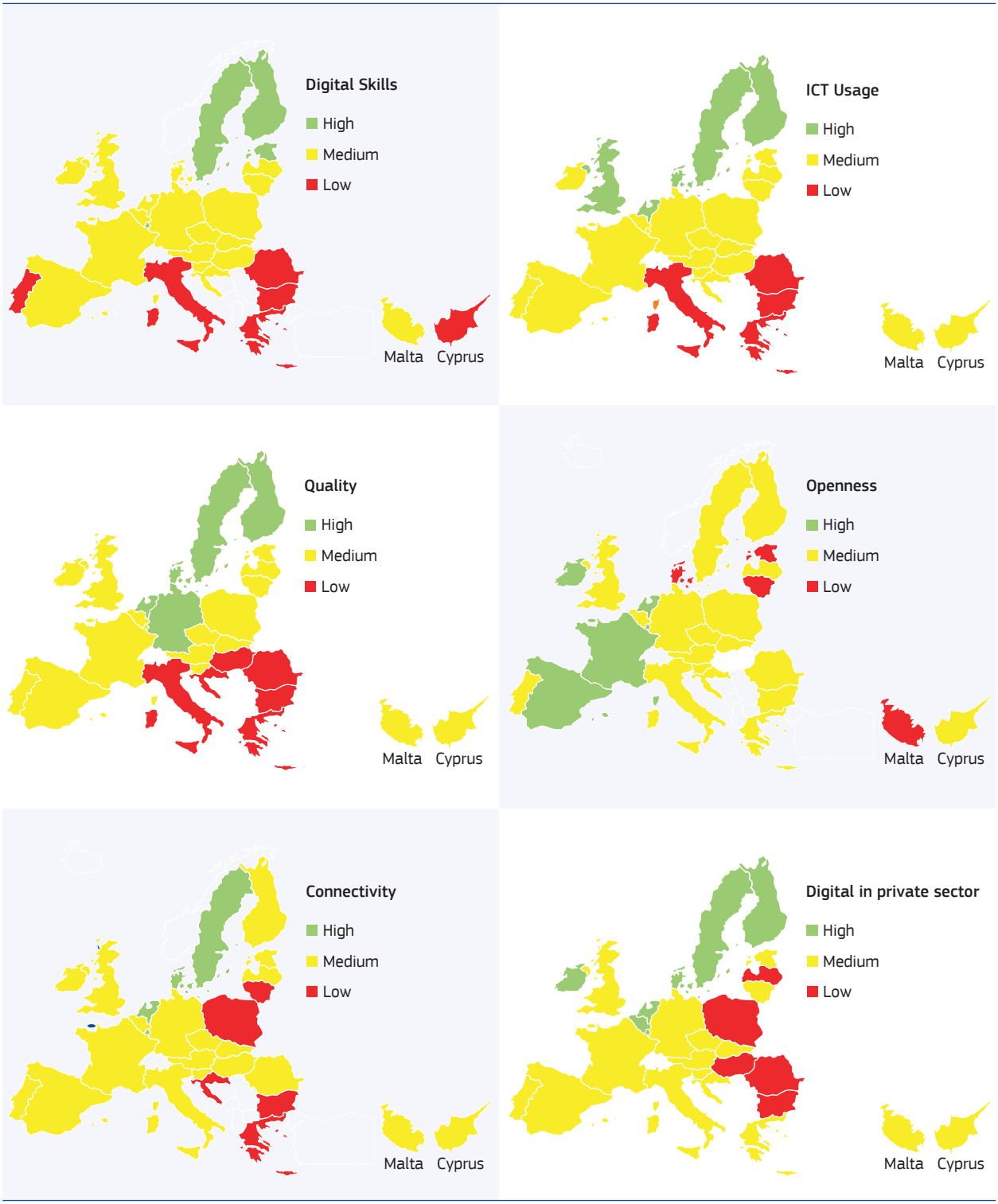

Figure 8.7 Map of relative indicators

	User characteristics		Government characteristics		Context characteristics	
	Digital skills	ICT usage	Quality	Openness	Connectivity	Digital in the private sector
AT	Medium	Medium	Medium	Medium	Medium	Medium
BE	Medium	Medium	Medium	Medium	Medium	High
BG	Low	Low	Low	Medium	Low	Low
HR	Medium	Medium	Low	Medium	Low	Medium
CY	Low	Medium	Medium	Medium	Medium	Medium
CZ	Medium	Medium	Medium	Medium	Medium	Medium
DK	Medium	High	High	Low	High	High
EE	High	Medium	Medium	Low	Medium	Medium
FI	High	High	High	Medium	Medium	High
FR	Medium	Medium	Medium	High	Medium	Medium
DE	Medium	Medium	High	Medium	Medium	Medium
EL	Low	Low	Low	Medium	Low	Medium
HU	Medium	Medium	Low	n/a	Medium	Low
IE	Medium	Medium	Medium	High	Medium	High
IT	Low	Low	Low	Medium	Medium	Medium
LV	Medium	Medium	Medium	Medium	Medium	Low
LT	Medium	Medium	Medium	Low	Low	Medium
LU	High	Medium	High	High	High	Medium
MT	Medium	Medium	Medium	Low	Medium	Medium
NL	Medium	High	High	High	High	High
PL	Medium	Medium	Medium	Medium	Low	Low
PT	Low	Medium	Medium	Medium	Medium	Medium
RO	Low	Low	Low	Medium	Medium	Low
SK	Medium	Medium	Medium	Medium	Medium	Medium
SI	Medium	Medium	Medium	Medium	Medium	Medium
ES	Medium	Medium	Medium	High	Medium	Medium
SE	High	High	High	Medium	High	High
UK	Medium	High	Medium	Medium	Medium	Medium

Figure 8.8 Country scores on relative indicators compared to European average

8.4 Comparing countries to understand and improve performance

8.4.1 Methodology and data analysis

To understand how relative indicators affect country performances, statistical linear correlation analyses were performed on the relative indicators and performances levels of Penetration and Digitisation. Only a limited statistical significance was found, due to the limited number of observations (the 28 Member States) and the size of the direct correlation between single indicators. This means that we could only determine individual correlations between each relative and absolute indicator and not perform a multivariate analysis. In the upcoming paragraphs, the term 'positive correlation' is therefore to be interpreted in a comparative way, not in absolute terms. Whenever the explained variance of the indicators Penetration or Digitisation is more than 35%, the analysis refers to a 'small positive correlation'.

Confidence intervals were identified to categorise underperforming and outperforming countries. Three types of countries can be distinguished when comparing relative with absolute indicators. The categorisation is based on the level of the absolute indicator compared to the European trend as shown in Figure 8.9:

- **Underperforming countries**: countries for which the score on the absolute indicators is lower than the European trend.
- **Average countries**: countries for which the score on the absolute indicators is in line with the European trend.
- **Outperforming countries**: countries for which the score on the absolute indicators is higher than the European trend.

The three types of countries were distinguished using a 99% confidence level for all intervals. A confidence level measures the probability that a parameter falls within a specified range of values, defined between lower and upper lines. In case of a 99% confidence interval the range contains the values with a probability of 99%. If a country's value is outside of this range, the country does not fit the linear correlation model and was expected to perform better (Underperforming country, under the lower line) or worse (Outperforming country, above the upper line). By performing this analysis, it is possible to identify countries with similar contextual variables but with different Digitisation and Penetration levels. This offers opportunities for countries with a lower level of Penetration and Digitisation to identify and learn from countries with similar contextual variables but better performances in the two absolute indicators.

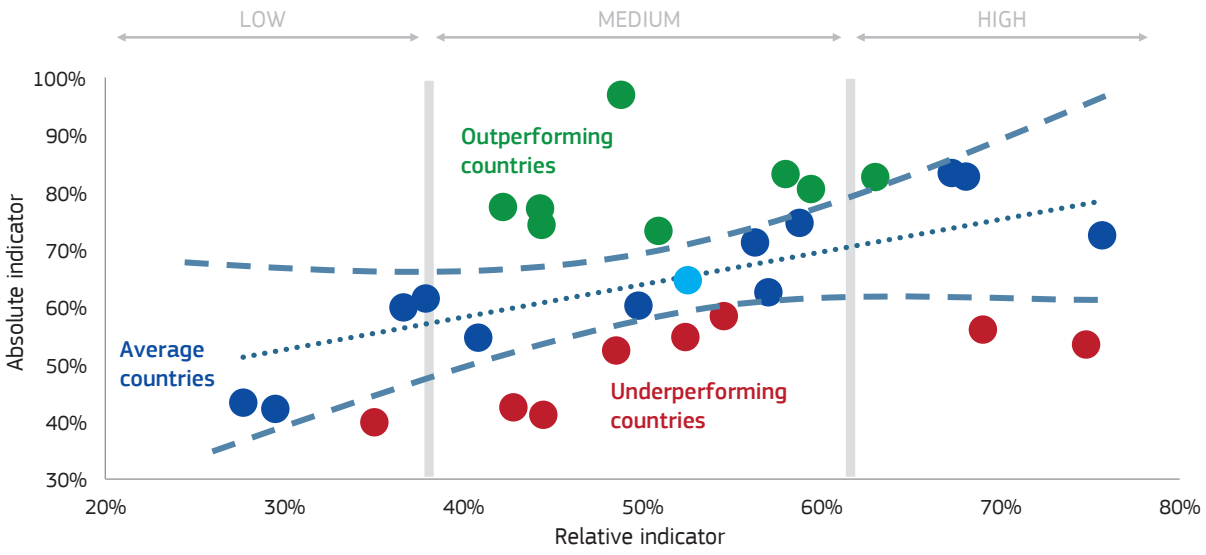

Figure 8.9 Mock-up visualisation of the performance clusters

The following sections describe the correlation between the different relative indicators and the absolute indicators (Penetration and Digitisation).

8.4.2 Users characteristics' impact on eGovernment performance

User characteristics are captured by two indicators: Digital skills and ICT usage. Using these indicators, we analyse how citizens' ability and willingness to use online services relates to eGovernment performance.

Figure 8.10 show a positive correlation between Digital skills and Penetration. Romania, Latvia, Lithuania, Spain, France, Denmark, Estonia, the Netherlands, and the United Kingdom are outperforming. Each of these countries has a higher level of Penetration than would be expected given its Digital skills level. On the other hand, for Italy, Greece, Belgium, Czech Republic, Germany, Hungary, Malta, Slovakia, Slovenia and Luxembourg one would expect higher Penetration levels, given the Digital skills level.

Digital skills also have a small positive correlation with Digitisation as illustrated in Figure 8.11. Amongst the countries with a low level of Digital skills, Romania is underperforming, and Portugal is outperforming. Instead, among the countries with a medium level of Digital skills, there is a wide variety of results: five countries are outperforming on Digitisation (Austria, Latvia, Lithuania, Malta and Spain) and four countries are underperforming (Croatia, Germany, Hungary, and Slovakia). Focusing on the countries with a high level of Digital skills, only Estonia is outperforming, while the United Kingdom is slightly underperforming. This means that the high level of Digital skills does not coincide with the expected high levels of Digitisation performance.

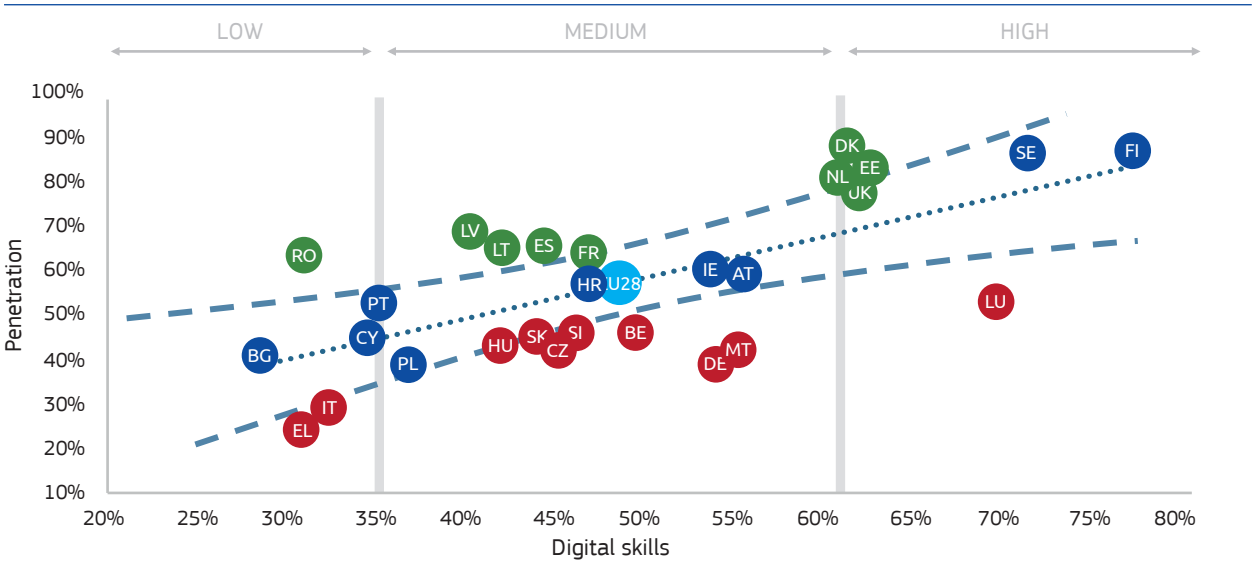

Figure 8.10 Digital skills vs Penetration

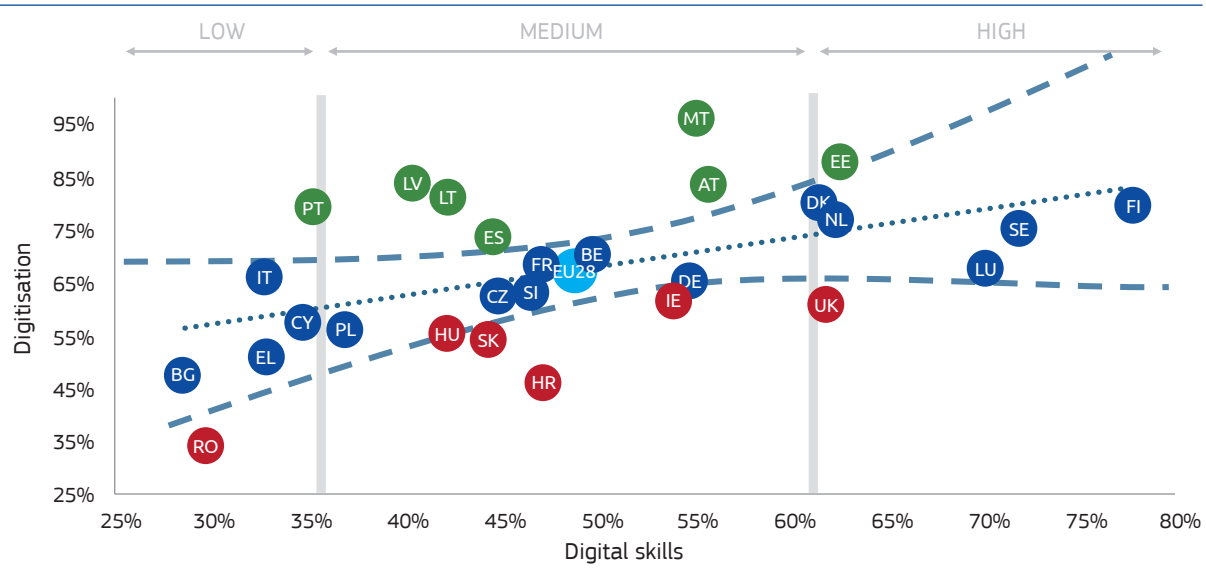

Figure 8.11 Digital skills vs Digitisation

Second, ICT usage of the population has a positive correlation with Penetration, as shown in Figure 8.12. Among the countries that have a low level of ICT usage, Romania is outperforming, Bulgaria performs in line with the average, and Greece and Italy are underperforming. Considering countries with a medium level of ICT usage, five countries are outperforming (Estonia, France, Latvia, Lithuania, and Spain), and five are underperforming (Poland, Hungary, Belgium, Germany, Malta and Luxembourg). These countries do not necessarily have very low scores on Penetration, but one would have expected higher scores given their level of ICT usage. Best performing countries are all within the interval, matching the expectations: Denmark, Finland, the Netherlands, Sweden, the United Kingdom.

Figure 8.13 shows that ICT usage has a positive correlation with Digitisation. Amongst countries with a lower level of ICT usage all record performances in line with the European trend. Amongst countries with a medium level of ICT usage, there is a greater variability. On the one hand, Austria, Estonia, Malta, Latvia and Lithuania and Portugal are outperforming. On the other hand, Croatia, Germany, Hungary, Ireland and Slovakia are underperforming. There are no outperforming countries with a high level of ICT usage, and within this group only the United Kingdom is underperforming. Again, countries that are underperforming do not necessarily have very low Digitisation scores, it only means their Digitisation scores are lower than one would expect based on the ICT usage.

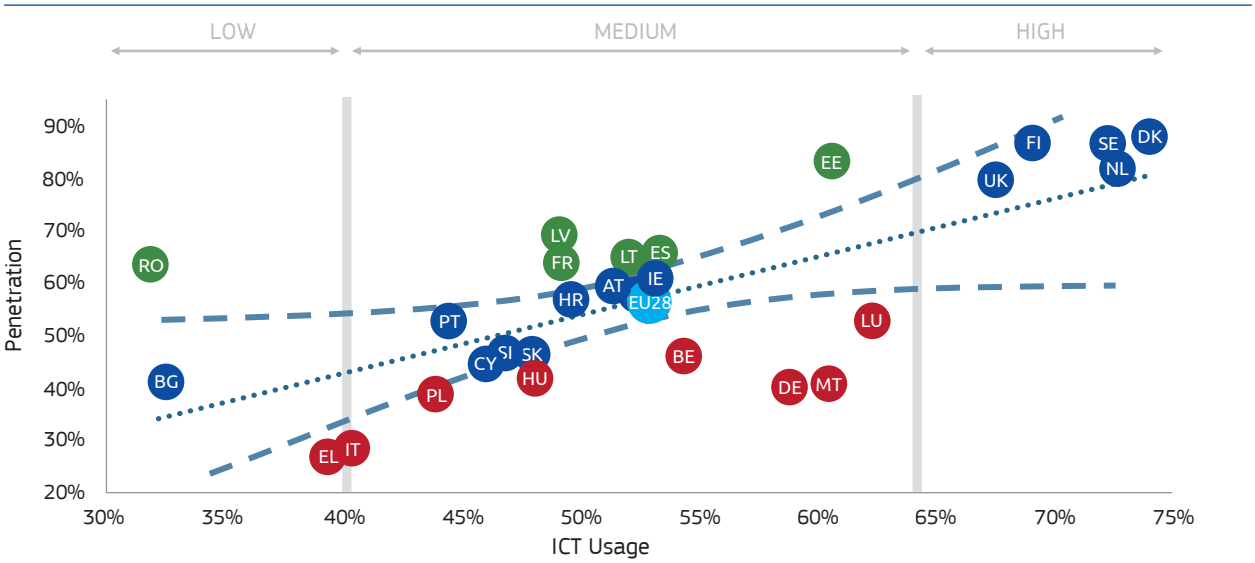

Figure 8.12 ICT usage vs Penetration

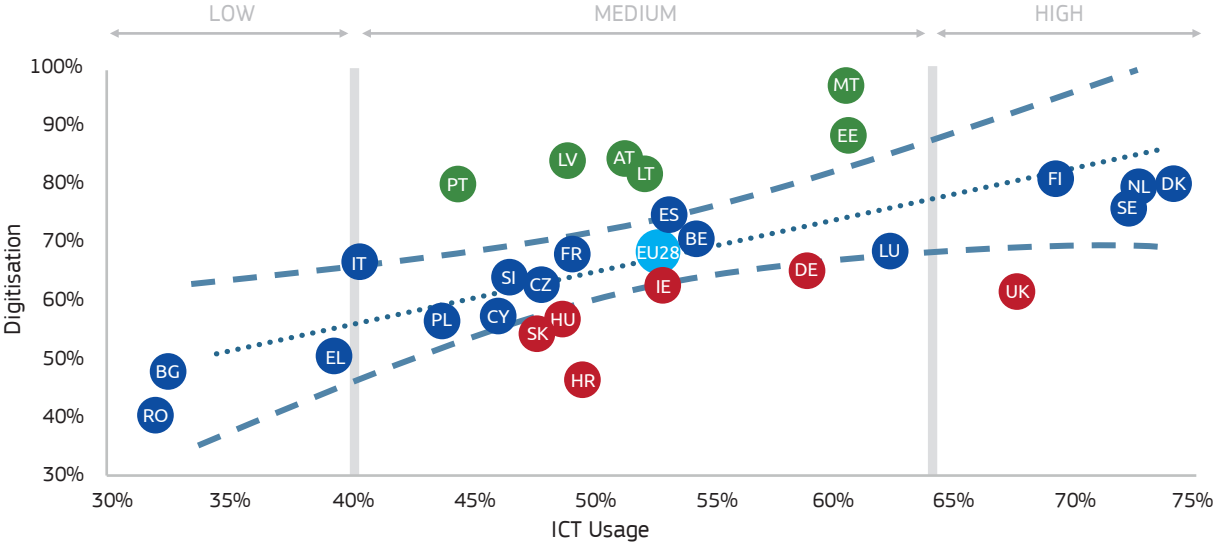

Figure 8.13 ICT usage vs Digitisation

8.4.3 Government characteristics' impact on eGovernment performance

Government characteristics have been analysed through two indicators: Quality and Openness.

Quality averages four different indicators (Regulatory quality, Rule of law, Government effectiveness and Reputation). These four indicators are highly correlated, they all reflect citizens' perceptions even though they refer to different aspects of governmental quality. The relative indicator Quality aims to describe citizens' perceptions about government's quality.

Quality has a positive correlation with Penetration, as depicted in Figure 8.14. Among the countries with a low Quality score, Romania is outperforming, whilst Italy is underperforming. Considering countries with a medium level of Quality, Estonia, Latvia, Lithuania and Spain are outperforming. On the other hand, Poland, Cyprus, Czech Republic, Malta, Slovenia and Belgium are performing less than expected. The United Kingdom and Denmark with the highest level of both Quality and Penetration, are outperforming. The Netherlands, Sweden and Finland are positioned within the confidence interval line, showing average scores. Luxembourg and Germany are the two underperforming countries amongst those with a high level of Quality, meaning higher Penetration levels were expected based on their high Quality score.

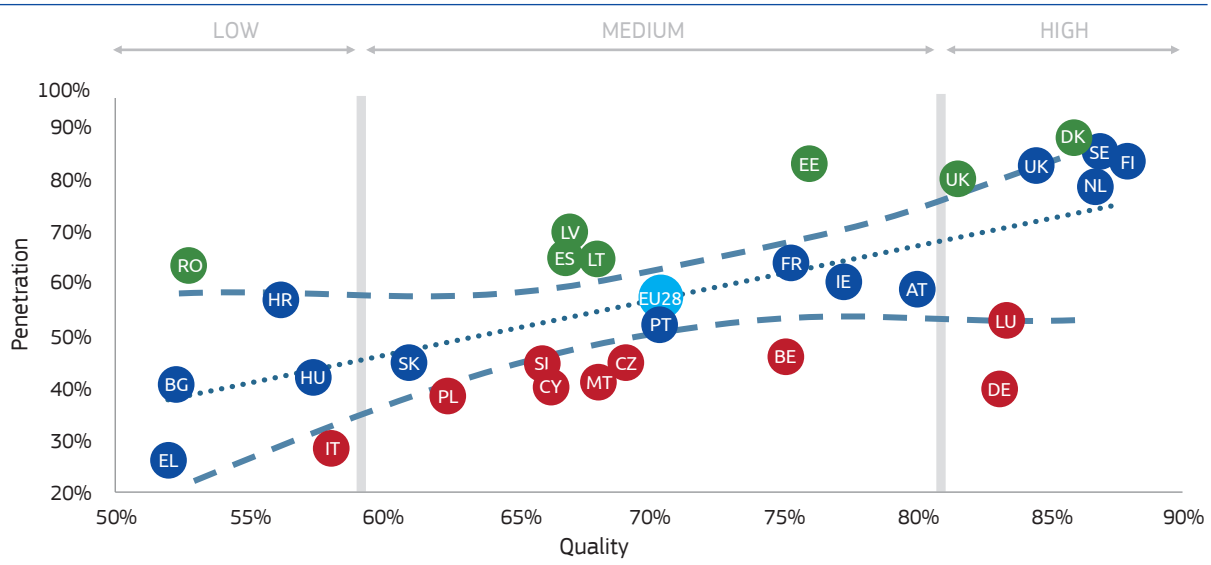

Figure 8.14 Quality vs Penetration

Figure 8.15 shows that Quality also has a positive correlation with Digitisation. Romania and Hungary are the only underperforming countries among those with a low Quality level. Considering countries belonging to the medium cluster, Cyprus and Ireland are underperforming. Several countries are outperforming in the medium cluster (Estonia, Malta, Latvia, Lithuania, Portugal and Spain). Amongst the countries with a high level of Quality, there are no outperforming countries and only three underperforming countries (Luxembourg, the United Kingdom and Germany).

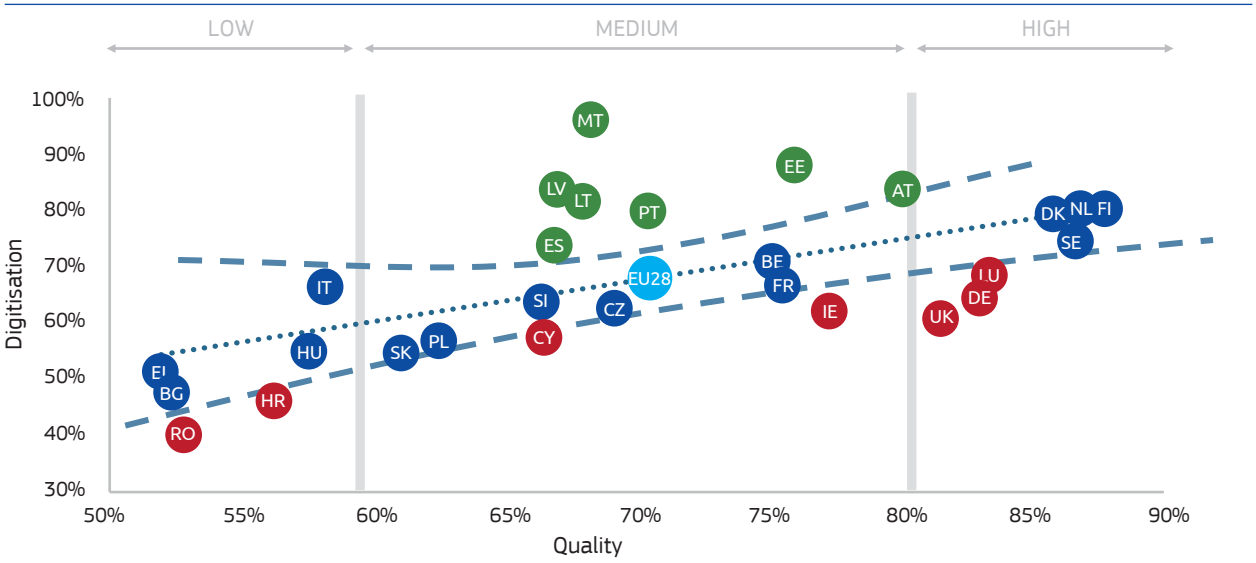

Figure 8.15 Quality vs Digitisation

Openness takes into consideration two different indicators: Open Data (a DESI Indicator) and Voice and accountability (a World Bank indicator). Different from the last couple of years Openness has no correlation with either Penetration or Digitisation. Moreover, the Open Data indicator was not reported for Hungary, therefore the country is excluded from the analysis.

Starting with the Penetration indicator, the graph in Figure 8.16 shows no correlation. This means that the level of Openness and the level of Penetration do not grow or decrease in a proportional manner.

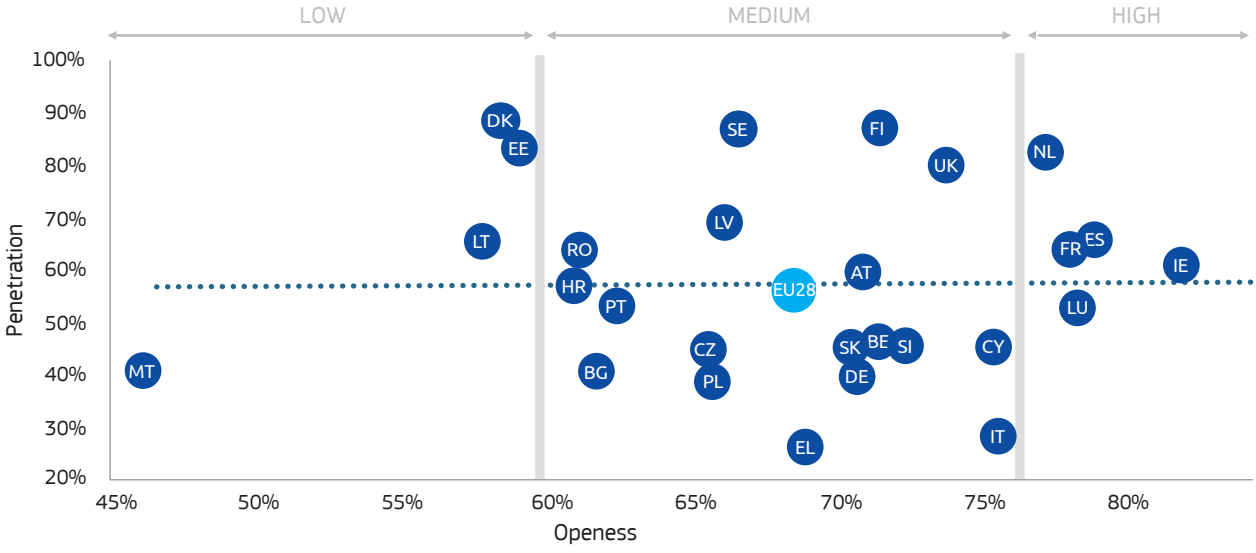

Figure 8.16 Openness vs Penetration

The Openness indicator shows no correlation with Digitisation, shown in Figure 8.17. The gentle slope of the line towards a negative end is stemming from the anomalous positioning of Malta. In fact, Malta has a remarkably high level of Digitisation combined with the lowest level of Openness.

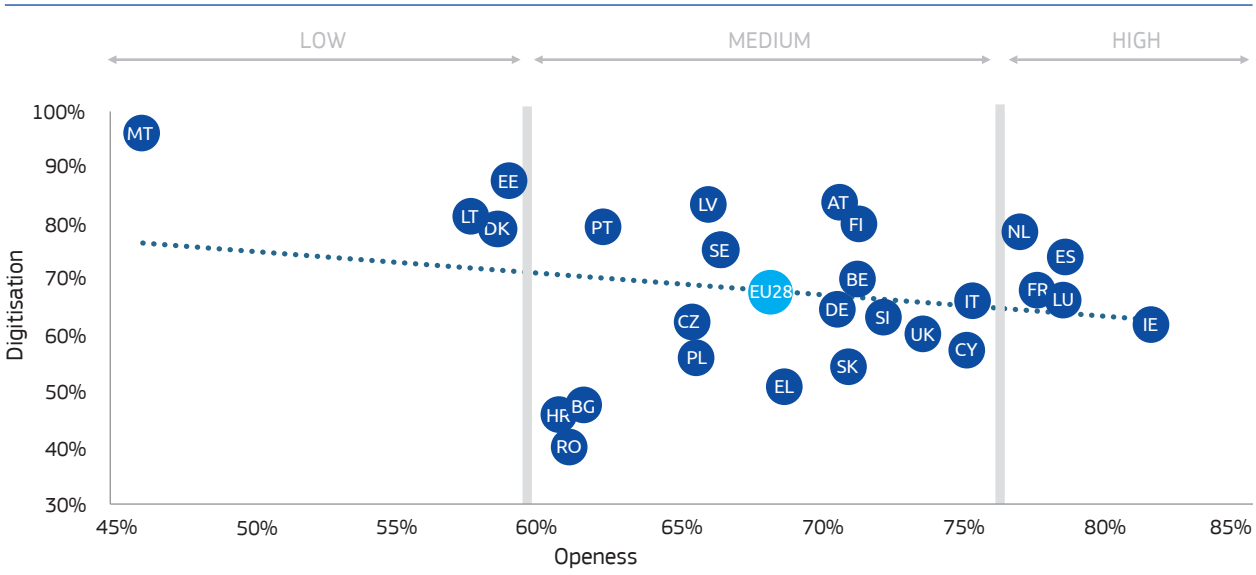

Figure 8.17 Openness vs Digitisation

8.4.4 Digital context characteristics' impact on eGovernment performance

Digital context characteristics are reflected by two indicators: Connectivity and Digital in private sector. To measure the connectivity characteristics, the DESI's Connectivity index is used.

The Connectivity index has a small positive correlation with Penetration, as observed in Figure 8.18. However, there is a great variability of data. Only Lithuania, amongst countries with a lower Connectivity, falls outside of the average and is outperforming. In the medium cluster, Estonia, Finland, France, Romania and the United Kingdom are outperforming. On the contrary, Belgium, Czech Republic, Hungary, Germany, Malta, Slovenia and Italy are underperforming within the medium cluster. In the high cluster, Sweden is outperforming, whereas Luxembourg is underperforming.

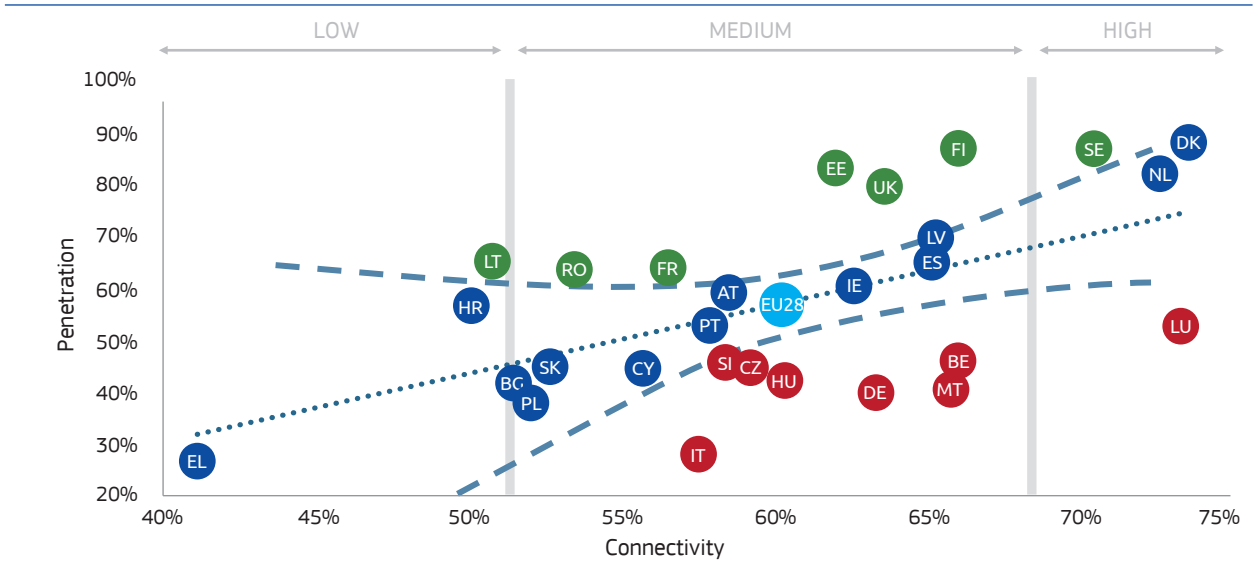

Figure 8.18 Connectivity vs Penetration

Figure 8.19 shows a positive correlation between relating Connectivity and Digitisation. Looking at performances Croatia is underperforming within the lower level of Connectivity. Hungary, Germany, Ireland, Bulgaria, the United Kingdom and Romania have a medium level of Connectivity, but they are underperforming in Digitisation. On the other hand, Austria, Estonia, Malta, Latvia, Lithuania and Portugal are countries in the medium cluster that are outperforming in Digitisation. Amongst the countries with a high level of Connectivity, only Luxembourg is underperforming (although its Digitisation level is higher than 14 other European countries, its Digitisation score was expected to be even higher based on its high level of Connectivity).

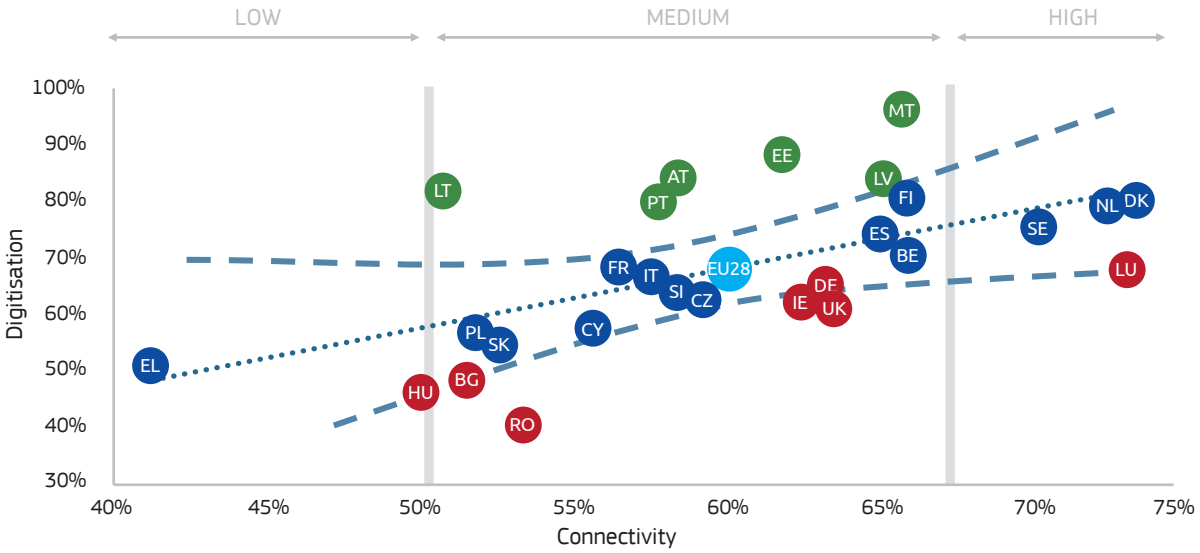

Figure 8.19 Connectivity vs Digitisation

The DESI indicator Integration of Digital Technology measures the Digitisation of businesses and their adoption of online sales channels and is here used to reflect digitalisation in the private sector.

A small positive correlation exists between Digital in private sector and Penetration, as shown in Figure 8.20. Amongst the countries with a low level of Digital in the private sector, Romania and Latvia are outperforming. This means that they show relatively high levels of Penetration based on their low levels of digitalisation in the private sector. In the medium cluster, there are seven underperforming countries (Cyprus, Czech Republic, Germany, Greece, Italy, Malta, and Slovenia) and two outperforming countries (Estonia and the United Kingdom). Looking at countries with a higher percentage of Digital in private sector, Denmark, Finland and Sweden are outperforming and Belgium is underperforming. Note that the underperforming countries do not necessarily score very low on Digitisation but score lower than expected based on their Connectivity level.

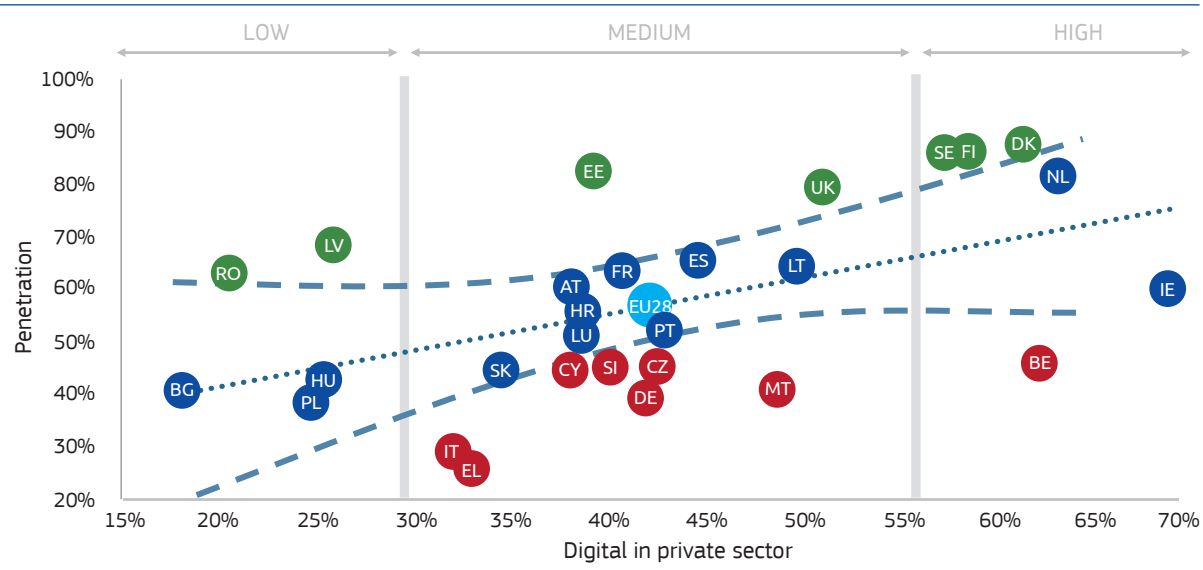

Figure 8.20 Digital in private sector vs Penetration

Figure 8.21 shows the correlation between Digital in private sector and Digitisation. Here, we observe a small positive correlation as well. Latvia has high levels of Digitisation in the public sector, despite low levels of private sector digitisation. Among the countries with low digital levels in the private sector, Romania is underperforming while Latvia is outperforming. In the medium cluster Croatia, Greece, Slovakia, Cyprus and the United Kingdom are underperforming and Austria, Estonia, Malta, Portugal and Lithuania are outperforming. Ireland shows a high level of Digital in private sector and underperformance in Digitisation.

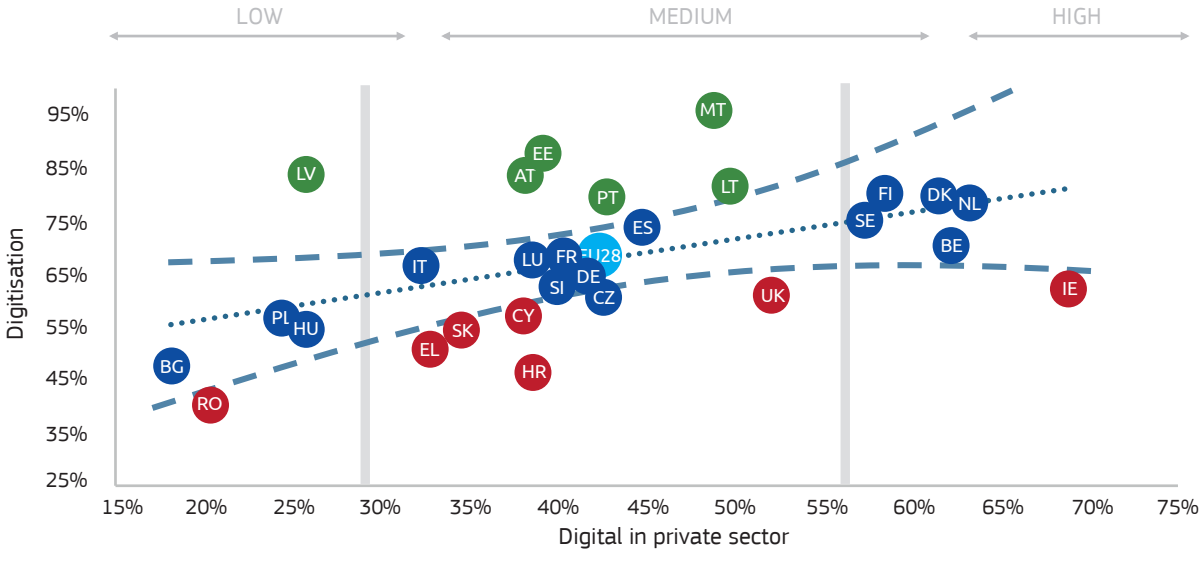

Figure 8.21 Digital in private sector vs Digitisation

8.4.5 The benchlearning perspective

Multiple, complex and sometimes interacting factors contribute to the digitisation process. Progress in eGovernment is correlated with other factors such as citizens' preferences and digital skills, public policies and digital context characteristics. Most of the relative indicators explored in the benchlearning exercise are correlated with the absolute indicators of Digitisation and Penetration, with exception of the Openness indicator.

When we consider the Penetration indicator, we see that the correlation is strongest with the relative indicators for Digital Skills, ICT usage and Quality. In general, it seems that countries with a high usage of eGovernment services are the countries with skilful citizens and a large number of daily internet users. Unfortunately, we cannot make causal statements based on the benchlearning exercise. However, our results provide some indications that it might be worthwhile to invest in awareness-raising and educational activities when it comes to increasing the use of online public services. The Quality indicator also provides some hints as what might be done to improve on eGovernment. For instance, results suggest that citizens are more likely to use online tools and public services when they assume that public service delivery will be of high quality. One possible explanation is that citizens might only be willing to share personal data online when they trust their government to provide a high quality and therefore secure online service.

When we consider the Digitisation indicator, we see that the correlation is strongest with the relative indicators for Quality and Connectivity. It seems that countries, which score well on the quality of online public services, often have a high level of deployment and a well-developed broadband infrastructure. This again provides an indication as to how eGovernment could be improved. It might be worthwhile to create fast broadband, making it faster to process service requests and to share data.

A big advantage of the benchlearning exercise is the possibility to compare countries with similar characteristics and context. In this way, best practices can be identified in countries that are similar, making it easier to translate best practices to the own context. In the same way, the benchlearning exercise might indicate which similar countries might have interesting policies that could be used as reference.

For more details, the table in the Figure 8.22 shows the relative performance in terms of Penetration and Digitisation for each relative indicator, and the overall category. The table provides a summary of the previous sections of this chapter. If a country obtained a level of Digitisation or Penetration that was lower than expected based on the relative indicator score, the country is underperforming on this indicator. In this case, the cell will be coloured red. If a country obtained a Digitisation or Penetration level that was higher than expected based on the relative indicator, the country is outperforming on this indicator. In this case, the cells will be coloured blue. Blank cells indicate Digitisation and Penetration levels that were to be expected based on the relative indicator score.

The overall Penetration and Digitisation performance is said to be 'Underperforming' if the country is underperforming in at least 3 out of 5 relative indicators (Openness did not correlate with Digitisation and Penetration, therefore is excluded). Similarly, a country is seen as 'Outperforming' if it is outperforming in at least 3 out of 5 indicators.

	Penetration							Digitisation						
	Digital skills	ICT usage	Quality	Openness	Connectivity	Digital in private sector	Overall	Digital skills	ICT usage	Quality	Openness	Connectivity	Digital in private sector	Overall
AT							Average							Outperforming
BE							Underperforming							Average
BG							Average							Average
HR							Average							Underperforming
CY							Average							Average
CZ							Underperforming							Average
DK							Outperforming							Average
EE							Outperforming							Outperforming
FI							Average							Average
FR							Outperforming							Average
DE							Underperforming							Underperforming
EL							Underperforming							Average
HU				n/a			Underperforming				n/a			Underperforming
IE							Average							Underperforming
IT							Underperforming							Average
LV							Outperforming							Outperforming
LT							Outperforming							Outperforming
LU							Underperforming							Average
MT							Underperforming							Outperforming
NL							Average							Average
PL							Average							Average
PT							Average							Outperforming
RO							Outperforming							Underperforming
SK							Average							Underperforming
SI							Underperforming							Average
ES							Outperforming							Average
SE							Average							Average
UK							Outperforming							Underperforming

Figure 8.22 Absolute and relative performances

8

Figure 8.23 relates the Penetration and Digitisation level of a country to its scores on the relative indicators (describing context and country characteristics). Arrows are used to indicate when scores diverge from the scores that would be expected based on the values of the relative indicators. If the arrow points upwards, this indicates outperformance on Penetration. If the arrow points to the right this indicates outperformance on Digitisation. Estonia, Latvia and Lithuania are outperforming countries in both Digitisation and Penetration, as shown by the upward and rightward arrows. Denmark, Spain and France are outperforming in Penetration, while performing on average on Digitisation. The United Kingdom and Romania are outperforming on Penetration but underperforming in Digitisation, looking at its level of relative indicators. Austria and Portugal are outperforming in Digitisation and show average performance on Penetration. Malta is outperforming on Digitisation but underperforming in Penetration. Bulgaria, Cyprus, Finland, Ireland, the Netherlands, Poland and Sweden perform in line with relative indicators, i.e. they match expectations based on their characteristics. Belgium, Czech Republic, Greece, Italy, Luxembourg and Slovenia are underperforming in Penetration given their country characteristics, while they perform according to expectations in terms of Digitisation. Looking at Digitisation instead, Croatia and Slovakia are underperforming, while they are performing in line with Penetration averages. Germany and Hungary are the only countries showing a relative performance below the European trend, both in Penetration and in Digitisation.

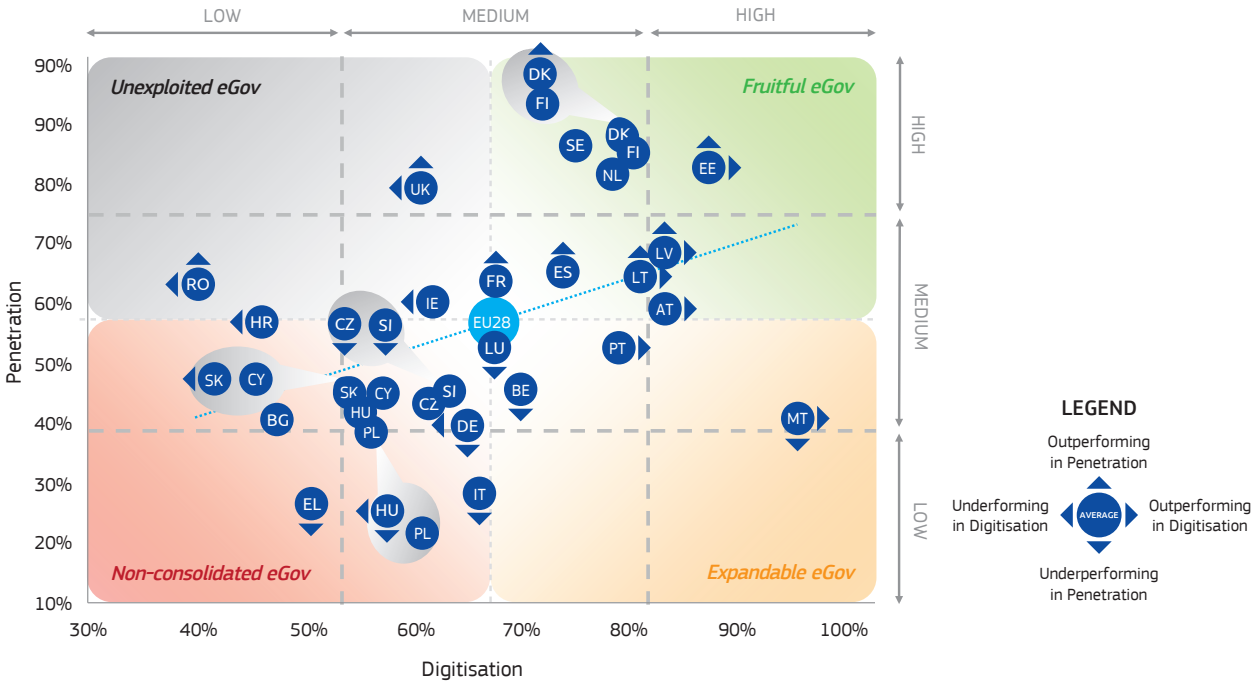

Figure 8.23 Penetration and Digitisation relative performances

Annex

Annex A: Glossary

EC	European Commission
EU	European Union
EU28+	European Union Member States, Iceland, Norway, Montenegro, Republic of Serbia, Switzerland, Turkey as well as newly included Albania and North Macedonia
ICT	information and communications technologies
eID	electronic identification
DESI	Digital Economy and Society Index
p.p.	percentage points
eDocuments	electronic documents
eGovernement	electronic government

AT	Austria
BE	Belgium
BG	Bulgaria
HR	Croatia
CY	Cyprus
CZ	Czech Republic
DK	Denmark
EE	Estonia
FI	Finland
FR	France
DE	Germany
EL	Greece
HU	Hungary
IE	Ireland
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SK	Slovakia
SI	Slovenia
ES	Spain
SE	Sweden
UK	United Kingdom
IS	Iceland
NO	Norway
ME	Montenegro
RS	Republic of Serbia
CH	Switzerland
TR	Turkey
AL	Albania
MK	North Macedonia

Annex B: methodological updates

9.1 Representation and calculation of scores

Since the 2018 eGovernment Benchmark edition official scores are rounded to the first decimal. This is how they are displayed in the source data file. Due to aesthetic and legibility considerations, the scores in the Insight report, Background report and the Factsheets are frequently displayed or mentioned rounded to the whole number, with any additional calculation or transformation being based on the full scores.

9.1.1 Rounding Biennial averages

The biennial averages have been calculated based on the rounded numbers historically. As they are the most prominent result, summarising eGovernment efforts across all domains, they are currently also calculated as the average of the rounded Life event scores per indicator to ensure comparability.

9.2 Mobile friendliness

9.2.1 Calculation method

The Mobile friendliness indicator has been introduced in the eGovernment Benchmark 2016. Initially, the score was calculated on Life event level, with the score indicating the percentage of included URLs which classified as "Mobile friendly". As of this year's eGovernment assessment, Mobile friendliness scores are calculated in a manner similar to other service-level indicators. In this new methodology the calculation of the scores depends on whether the service is national or local/ regional. A national service is deemed Mobile friendly if *any* included URL passes the test, where local and regional services' score according to the pass *rate* of the included URLs. Subsequently, the relevant service scores are averaged into the Life event Mobile friendliness score.

9.2.2 Addition of the Google Mobile friendliness test

The tooling implemented to classify the URLs has changed over the years. For the 2017 eGovern-

[21] Rankwatch Mobile friendly check, available at: https://www.rankwatch.com/tools/mobile-friendly-check.html

ment Benchmark, URLs were evaluated using the Google Mobile friendliness test. As this service limited the automated processing of URLs, the Rankwatch tool[21] became the default. Due to methodological differences URLs that were assessed as mobile friendly using Google were not mobile friendly based on Rankwatch. This subsequently can impact the Life event scores negatively compared to the last evaluation. Subsequently, we implemented the Google Mobile friendliness test to re-evaluate the URLs where Life events within countries had gone down. In several instances, the results of the assessment were still impacted negatively. Multiple websites had implemented temporary instances on the public websites, e.g. satisfaction questionnaire pop-ups, that impacted the results, these portals were checked manually and set to Mobile friendly when relevant. In such cases, the websites were tested manually and corrected where relevant.

9.2.3 Scoring website security

Last year, the eGovernment Benchmark included the results of the first security pilot tests on the websites included in the Mystery Shopping. This pilot has been repeated for the websites in the assessment this year. All URLs are run through two publicly available security testing tools: one developed by the Dutch national government; internet.nl[22], and one developed by Mozilla; the Observatory[23]. These tools both test several complementary items, which are considered basic cybersecurity hygiene; these items are further explained in Figure A.1.

The result of the tested items are combined on two axes in the Insight report, on the individual tests and on the results per URL. For the individual tests, the number of URLs that pass that test represent the Pass rate. For the individual URL, the number of tests the URL fails represent the Number of Security tests failed.

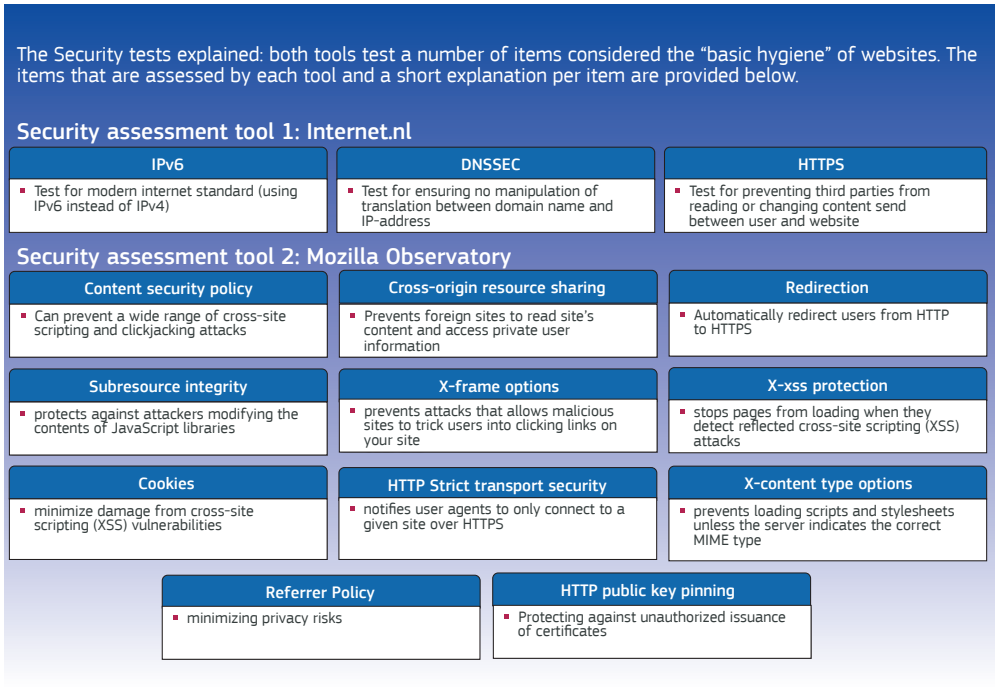

Figure A.1: Details of the items in the cybersecurity tests of Internet.nl and Mozilla

[22] The tool is an initiative of the Dutch Internet Standards Platform: www.internet.nl
[23] Mozilla security Tool: https://observatory.mozilla.org/

European Commission

eGovernment Benchmark 2019
Empowering Europeans through trusted digital public services

Background report
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