

Study on Analysis of the Needs for Cross-Border Services and Assessment of the Organisational, Legal, Technical and Semantic Barriers

Final Report

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Executive Summary

The study on the analysis of the needs for cross-border services and assessment of the organisational, legal, technical and semantic barriers (SMART 2011/0074) assessed the needs and demand, costs-benefits and barriers for cross-border services where interoperability is a key factor. The study is driven by the terms of the Digital Agenda for Europe and the eGovernment Action Plan: "By 2015, a number of key cross-border services will be available on line"¹ – "enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the European Union."² In addition to analysing the supply-side of services, a user survey was conducted with 1,200 users and the services assessed were subject to Customer Journey Mapping. All findings were then aggregated and correlated so as to identify services with the highest impact.

Inventory of cross-border eGovernment services

When looking at the vast number of public services available within the Member States (MS), an initial step consisted in moving towards a shortlist of priority cross-border services. The study team assessed an initial list of 350 services of general interest, including public services, e-Health and e-Justice³ services. A short-list of 25 cross-border online services was then determined, by identifying the Administration2Business and Administration2Citizen transactional services, categorising and redefining them, clustering them according to life events and performing a relevance check to filter out cross-border services with a viable political, social or economic appeal.

Analysis of existing and future needs and demand for cross-border eGovernment services The work on the needs for services has adopted a holistic approach in determining the key drivers behind the services. Moreover, additional drivers were explored by analysing Political, Economic, Social, Technological, Ecological and Legal factors (PESTEL analysis). The PESTEL analysis consisted in a series of questions applied per driver were applied to each of the 25 services. The average score of all PESTEL factors resulted in an aggregate PESTEL score for that specific service, ranging from 1.00 (negative impact) to 5.00 (positive impact). In addition to the PESTEL rankings, a key finding was that most of the 25 services benefit from a regulatory framework that establishes a need within the Member States to implement such services, irrespective of the market demand for these services.

By investigating the magnitude of cross-border population movement, the data collected points to an estimate of approximately 1,790,000 immigrants and commuters between EU Member States in 2009. This trend is likely to grow by 406,035 people (22,7%) over the coming 8 years, reaching 2,196,035 individuals per annum by 2020. Looking at immigrants and commuters likely to use *online* cross-border services, this study estimates there would be a total current demand of 1,262,887 users for online cross-border services per annum.

Moreover, a distribution of an estimate of 140,000 branches and immigrant business start-ups between EU Member States, provides a useful approximation of the business population that could utilise cross-border business services.

The next step consisted in down-filtering the selection of 25 services to a list of seven services as a basis for the cost benefit and barriers analysis. The down-filtering was conducted based on to the following criteria:

¹The European eGovernment Action Plan 2011-2015 Harnessing ICT to promote smart, sustainable & innovative Government, European Commission COM/2010/0743 final

² Action 91: Member States to agree a common list of key cross-border public services, A Digital Agenda for Europe

³ eGovernment is the generic term often used in this study, alongside online services which encompasses equally eHealth and eJustice services including public services.

- Representation of the service clusters defined in action 91 of the Digital Agenda for Europe⁴: Moving and residence, Health, Employment, Procurement and Business services;
- High estimated need and demand
- No overlap/redundancy with ongoing cost-benefit research
- Relevant to ongoing initiatives such as Large Scale Pilots
- Stakeholder feedback.

Moving and Residence
Register as domicile
Request ID documents
Register for Legal aid
Health
Access to patient summary
Employment
Income Tax Declaration
Business and Start-up
Register a new legal entity
Consult the business register

Table 1 Seven services for the cost benefit and barriers analysis

Certain services such as eProcurement or VAT related services have not been selected as there are ongoing initiatives already assessing the cost and impact of these services.

The quantitative and qualitative analysis of cross-border eGovernment Services

The cost benefit analysis was conducted for the seven services in seven countries: Denmark, Estonia, Germany, Netherlands, Portugal, Spain and the United Kingdom. These countries were selected for their geographical representation, variety in forms of government and size of population as well as different eGovernment maturity and participation in Large Scale Pilots.

The hypothesis at the start of this assessment was that enabling existing online services to be accessible across borders is determined by a synthesis of political and economic rationale. The second hypothesis was that the incremental costs for cross-border enabling a service are marginal. Both research assumptions were indeed found to be true although the study has shown that the rationale from a political perspective on the one hand and the economic perspective on the other hand were not always aligned. The proxy cost to make any existing online public service accessible cross-border is 176,237 Euro. This calculation is based on a high-level categorisation into Building Blocks derived from the Large Scale Pilot's building blocks and financial efforts and information collected from the Member States. The proxy cost comprises all costs related to the implementation of cross-border building blocks for one service already available at national level (excluding any development cost).

In a cost-benefit comparison the payback period primarily depends on the volume expected per country. Four out of the seven services studied have a pay-back time within up to 2,2 years based on EU average savings and implementation costs. However, not every country has the same number of cross-border cases per service. Thus the

⁴DAA, Action 91 Op.cit

prioritization of what service can bring the biggest financial gains is dependent on specific national volumes per service.

Furthermore, the customer journey mapping for the seven services studied, found the potential for administrative burden reduction for the end users worth 180 million Euro per year for all six services⁵. This potential is also driven by the expected volume.

Analysis of barriers for cross-border services

In order to further deploy and enhance cross-border services, one must better understand the barriers still encountered by both service owners and service users. The legal, operational, semantic and technical (LOST) barriers were assessed for each of the seven services. The analysis shows that there are a number of recurring barriers representing similar challenges across the services. These barriers regard both enhanced implementation and take up of online services.

- First, three major barriers are shared by all services, or indeed by any service requiring bilateral interaction: eID, eSignatures and linguistic issues.
- Second, a key challenge for many services is the readiness of local infrastructures, stakeholders and legislation.
- Third, all of the services above require stable governance mechanisms to ensure sustainability.

Boosting online cross-border services: Correlation between the different study findings

Service	Estimate Cross Border users p.a.	PESTEL score	Savings per case X Cases (EUR)	EU Pay-back time in years	Service availability	Barriers
Register as domicile	1,205,000	4,18	2,174,543	2.2	Average	11 barriers : 3 organisational, 3 legal, 2 technical, 3 semantic
Request ID documents	1,446,000	3,99	2,609,452	1.8	Average	4 barriers : 2 organisational, 1 legal, 1 technical, 0 semantic
Register for legal aid	279,000	3,63	503,483	9.5	Low	4 barriers : 1 organisational, 1 legal, 1 technical, 1 semantic
Access to patient summary	20,140,000	3,94	36,344,644	0.1	very low	10 barriers : 3 organisational, 3 legal, 2 technical, 2 semantic

⁵ Access to patient summary excluded as it is not available online for cross-border users

Income tax declaration	235,000	3,9	424,081	11.2	Average	5 barriers : 2 organisational, 1 legal, 1 technical, 1 semantic)
Register a new legal entity	18, 000	3,96	32,483	146,5	above average	12 barriers 6 organisational, 3 legal, 2 technical, 1 semantic
Consult the business register	4,641,000	3,93	8,375,149	0.6	High	6 barriers 1 organisational, 1 legal, 3 technical, 1 semantic

Table 2 Summay findings per seven services

When correlating the data collected on the return on investment and the barriers assessed, it seemed that the most stringent barriers (average and low availability of online services) concerned the services with the swiftest return on investment (marked in the blue circle).

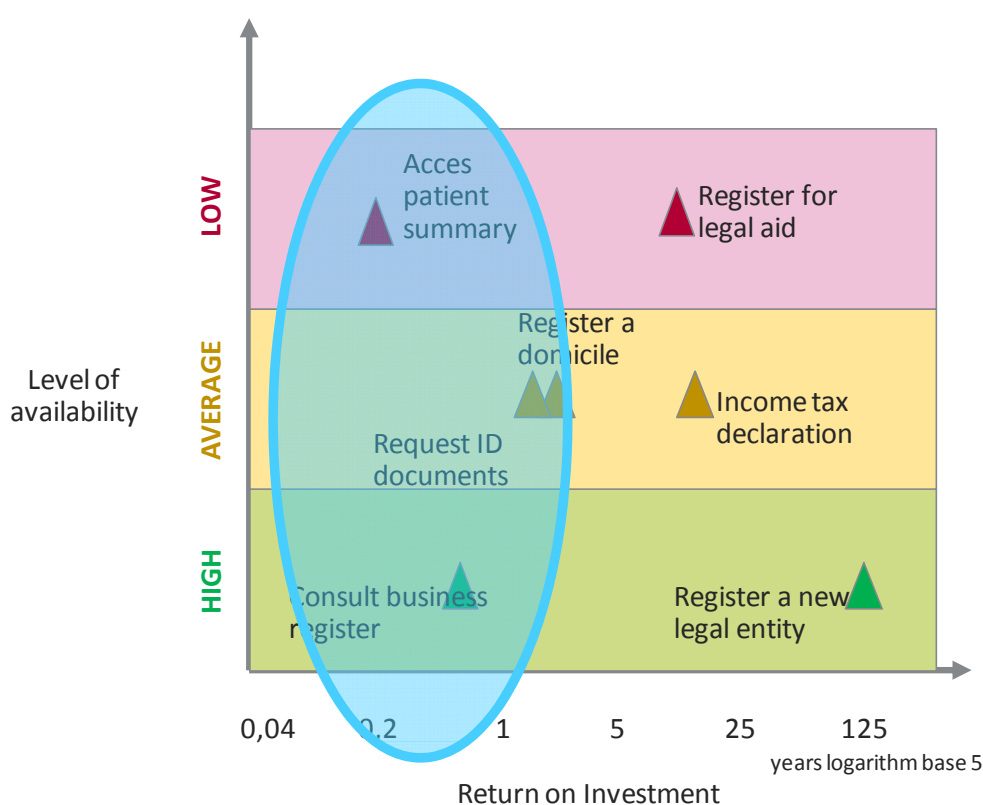


Figure 1 Return on investment and availability matrix

The potential represented by services not assessed as part of the seven down-filtered services has also been examined. The potential volume of the next top five⁶ services,

⁶ Next top 5 services for citizens: enrol as a student, vehicle taxes payment, applying for a driver's licence, order a birth certificate and ePrescription

ranked in terms of number of users per year in addition to the 7 services assessed in-depth, for citizens represents a potential of 5,288,071 users, of which 4,295,071 only for ePrescription users and 2,490,000 for businesses, including 1,491,000 users for the services: pay social contributions for employees. The tables below provide an overview of these additional services for Citizens and Businesses.

	Estimate of EU27 cross-border users/year
Services for Citizens	
Enrol as a student	130,000
Vehicle taxes payment	622,000
Applying for a driver's licence	104,000
Order a birth certificate	137,000
H1 Electronic prescriptions	4,295,071
Total estimate users for citizen services	5,288,071
Services for Business	
P1 Submitting a tender for public procurement	177,000
B2 Corporate/business tax declaration	177,000
B4 Submit VAT declarations	561,000
B5 Register a new employee	84,000
B6 Pay social contributions for employees	1,491,000
Total estimate users for business services	2,490,000

Table 3 Additional top 5 services for citizens and businesses

The conclusion would therefore be to untap the potential growth of cross-border services by looking at a combination of factors. These factors are combined potential high usage and low level maturity. In this specific case, the domain of eHealth represents the highest volume - close to 14,000,000 users per annum and 75 per cent of the cross-border volume of services for citizens.

Bringing services online from end to end would already convert the users of mixed channels to using only the online channel. The user survey conducted has given insight into quick wins. The usage of online services would skyrocket by 55,2 percent for citizen services and 38 percent for businesses, the latter already being far more digital than citizens.

More broadly, to boost online service, two distinct approaches should be taken. The first consists in addressing the major barriers impeding the roll out of online services such as eHealth and e-Justice, where the level of availability was lowest. The second way forward is to stimulate mobility thanks to better awareness raising mechanisms around the availability and ease of use of services on the one hand and the roll out of further

Next top 5 services for business: submitting a tender for public procurement, pay social, contributions for employees, register a new employee, submit VAT declarations, corporate/business tax declaration

services to complement the existing services offer, especially in the case of services for businesses.

Recommendations

Whereas the rationale to determine which services to roll-out can differ from one country to another, the study has proven there is a business case to do so. Building on the findings described above, the study therefore issues the following recommendations addressing the roll out of online cross-border services:

Member States should concentrate on the implementation of cross-border eGovernment services representing the highest impact according to their national political and economic priorities. In determining these services Member States may refer to the PESTEL analysis and estimated volume of users. In addition, it is critical for the success of cross-border services that Member States should ensure that the necessary basic infrastructure to provide services is available, operational and reliable at the national level as well from end to end. Quick wins for Member States can be achieved by re-using the building blocks from the LSPs as these provide basic infrastructure solutions. LSPs can accelerate the development of services interoperability and accessible across borders and if needed, in increasing the maturity of their national services..

This represents a clear economic benefit for Member States by Reaping benefits from local and cross-border implementation from the start. As cross border costs are only a fraction of the total implementation costs, it would be advisable to immediately implement interoperable solutions when investing in making a service online available. The costs for enabling online cross-border usage of a government service represent only an average of 4,9% of the total implementation costs for an online government service. This way, Member States can implement online government services according to their specific needs, generating instant national take-up and opening up opportunities for citizens from other Member States.

In terms of governance, the Member States should focus on developing a “Digital-by-Default Policy’ as a guiding principle for any new administrative initiative, i.e. any new service should only be deployed at the national level (including regional/local level) if it can also be offered via fully electronic channels. Local support can be set up so as to provide inclusive services.

Furthermore, cross-border workers are not evenly distributed throughout Europe or between EU27 Member States. The investment in and analysis of areas witnessing higher concentration of commuters and cross-border populations – North West Europe, Scandinavia and country specific borders – can be an excellent learning case for all countries. This could serve as an example of the benefits to be obtained to leverage the learning potential and best practices.

Less priority, but valuable, would be the regular collection of data on usage of cross-border services. Collecting additional statistical data would generate valuable information that enables governments to analyse the functioning of the Single Market, and understand the demand for specific services and calculate the benefits

The European Commission should pursue its efforts in addressing barriers linked to the mutual recognition of authentication mechanisms such as eSignature and eID. This should be done from a legal perspective by ensuring completeness and sustainability of the legal framework around eID and trust service. This also means monitoring its implementation and supporting Member States in applying it in a cross-border context.

Building Blocks should be further consolidated and maintained at EU level so as to build trust in the sustainability of the solutions developed by LSPs and similar initiatives. Secondly, the European Commission, together with the Member States, should define an operating model governing the use of general building blocks (eID, eSignatures,

eDelivery, etc) and of application specific building blocks (e-Justice, eHealth). This would address how LSP results can be formalised and applied in practice. In addition, the EC should promote the use of building blocks by all MS as a systematic approach to make national services accessible across borders.

Member States and the European Commission should combine the implementation of services around service platforms. The concept of Points of Single Contacts (for business start up) and portals (e-Justice Portal) are good examples of such initiatives to make services available across borders. Additional services, such as complementary services to the business lifecycle operations and additional judicial procedures, could be linked up to the basic services. Portals combining different services could simplify the access to information such as labour conditions, taxation, health and pensions, which could also help reap more benefits from increased service awareness.

Organisational aspects in implementing services should be addressed: Interaction and language functionalities can drive usage. Two of the primary areas for improvement mentioned by during the interviews are the provision of information in foreign languages and the ability to submit forms in languages other than the 'home country' language. A wider range of languages should be stimulated within online services or pointers should direct towards translation sites. As English is a foreign language most citizens speak, it would be a logical choice for a second language to provide. Another option is to base the provision of foreign languages on the origin of immigrants (i.e. provide the language of the country where the majority of immigrants come from). Forms and supporting evidence should be accepted when submitted in foreign languages. Alternate mechanisms such as equivalence mapping and semantics should be sought.

Finally, Member States and the European Commission should raise awareness around the existence of services, their availability and reliability. Playing in tune with the need for further aggregated services linked to each other via the same portal, users need additional information about their rights and obligations when migrating and commuting. Crossing the border indeed opens the field to services such as education, social security, tax, and so on, however cross-border services are too often considered as specific one-shot services and not so much as life events.

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1 Introduction

1.1 Background

"You participate everyday in building Europe. You work, you consume, travel, save, study or invest. You want to look after your health or you may be preparing for retirement. In all aspects of your day to day life the single market, shared by all Europeans, should work for you, give you more opportunities and allow you to plan for your future."⁷

Commissioner Michel Barnier,
in charge of Internal Market and Services.

Europe has come a long way, from different currencies and closed national economies to a Europe in which people, businesses and organisations cross physical frontiers almost without realising they are doing so. However, as barriers have been removed, new frontiers have been constructed and appear more explicitly than before. This is the case for cross-border public services. Indeed, electronic frontiers, semantic, legal and organisational hurdles are hindering the full deployment of the Single Market and reaping the benefits thereof. Although according to the eGovernment Benchmark published in February 2011⁸ eGovernment within European Countries has reached an unprecedented level of maturity, cross-border eGovernment services are still lagging behind.

Within the Malmö declaration, of November 2009, Member States and EFTA recognize that "there is a growing expectation from citizens and businesses for their governments to be more open, flexible and collaborative in their delivery of public services across Europe."⁹

The various European initiatives, such as the Digital Agenda for Europe, the European eGovernment Action Plan 2011-2015¹⁰ launched in 2010, the CIP etc. demonstrate that the access to cross-border public services provided by the various levels of European administrations and businesses is an important policy tile in the political mosaic that is intended to promote a truly united Europe.

Within the Digital Agenda, Action 91 plays in tune with the need to leverage upon further online public services to stimulate the Internal Market: "They [cross border services] can help entrepreneurs set up and run a business anywhere in Europe independently of their original location, and allow citizens to study, work, reside and retire anywhere in the EU through seamless, interoperable and sustainable cross-border public services. But as long as there is no common list of a minimum set of basic online public services that citizens and businesses can access across borders, the internal market cannot be fully functional."¹¹ Specifically, the Member States and the EC have been invited to "discuss and agree on a common list of key cross-border public services."¹² Such a structured and evidence based approach shall provide for the necessary data to prioritise the services to

⁷ Your Single Market ? Single Market Act for a highly competitive social market economy, Single Market Act Booklet, 2010

⁸ eGovernment benchmark report 2010, Digitizing Public Services in Europe Putting Ambition into Action, EC, February 2011

⁹ Ministerial Declaration on eGovernment, Malmö, Sweden, on 18 November 2009

¹⁰ The European eGovernment Action Plan 2011-2015, Harnessing ICT to promote smart, sustainable & innovative Government, COM(2010) 743

¹¹ Action 91, A Digital Agenda for Europe

¹² Action 84, A Digital Agenda for Europe

be rolled out from 2012 until 2015, thus unleashing the potential of ICT in empowering citizen and business within the Single Market.

The political will to support the development of cross-border services with the highest impact was further emphasised by the Telecom Council of 27 May 2011. Indeed, the Council and the Member States recognized "The need to develop more effective and efficient interoperable cross-border eGovernment services in the EU, thus contributing to the functioning of the digital single market and reinforcing citizens' and businesses mobility."¹³

EU policies have increasingly aimed to stimulate the cross border accessibility of eGovernment services, both through formal regulations and through policy support actions. This is done both at the horizontal level (eID, eSignatures, eDocuments and eDelivery), and by addressing vertical application domains (such as the Services Directive and its Points of Single Contact to facilitate cross border market access, eProcurement, e-Justice and eHealth).

What is the demand for cross-border public services? What are the most impactful services to deploy by 2012-2015? What needs to be done? How to promote cross-border services? How can Member States visualise the direct benefits of such services? Views addressing these questions have been exchanged between the European Commission and Member States and broader communities.

Within action 84 of the Digital Agenda, the need was thus announced to analyse the existing and future needs and cost benefit of cross-border eGovernment services and assess the organisational, legal, technical and semantic barriers together with the Member States.¹⁴

1.2 Goals and scope of the study

The European Commission has followed up on action 84 and 91 of the Digital Agenda, by commissioning the *study on the analysis of the needs for cross-border services and assessment of the organisational, legal, technical and semantic barriers*. The expected outcome of the study is therefore understood as supporting the European Commission and the Member states in validating the key cross border public services with the highest impact that should be deployed; identifying the barriers that need to be overcome; pointing to the (potential) benefits of their implementation and finally offering the necessary policy roadmap options and tangible actions.

1.3 Working definitions

It should be recognized that there is no universally accepted definition of what constitutes a cross-border service. In an on-line environment, relevant factors to consider include nationality, residence, availability of means, etc. Such notions primarily apply to citizens; for businesses, further complications can arise through the existence of multiple establishments in multiple countries. Furthermore, A2A administrations in which public sector entities interact can also be considered cross-border services if they are established in different locales.

Globally, the following criteria can play a role to determine whether a service is provided across-borders:

- The nationality of the user (or country of incorporation / establishment for a legal entity) doesn't match the country of establishment of the service provider;

¹³ Council conclusions on the European eGovernment Action Plan 2011-2015, Brussels, 27 May 2011

¹⁴ Action 84, A Digital Agenda for Europe

- The place of residence, current location, official domicile or address of the user doesn't match the country of establishment of the service provider;
- The place of residence, current location, official domicile or business (and/or subsidy) address of the user doesn't match the country of establishment of the public service provider;
- The place of (social or economic) activity of the user doesn't match the country of establishment of the service provider;
- The place of (social or economic) activity of the user doesn't match the location of establishment of the service provider
- The technological means required to use the service don't match those supported by the service provider.

As a working definition for cross-border services in order to allow the selection of services to be analyzed in further detail, the following description has been applied: cross-border eGovernment services:

- a) are provided by or on behalf of European public sector entities;
- b) at local, regional, national, or supra-national level;
- c) by means of interoperable trans-European telematic networks;
- d) in order to perform public administration tasks;
- e) that are capable of meeting a service demand of public entities, citizens, and/or businesses other than those which are native to the public sector entity's geographic level through nationality, registration or incorporation.

Another valuable definition used in this study is the concept of an *eGovernment* services or commonly referred to in this study as *online* service. This concept has been chosen as a generic term so as to encompass public services as well as health and justice related services.

Finally, to obtain a workable level of granularity, this study has worked on the basis of *atomic* services. The emphasis is on identifying an 'atomic service', i.e. elements that cannot be split up further into specific sub-requirements/subservices. The reason for this focus is that we want to analyse cross border *services*, not cross border *scenarios*. The definition detailed by OASIS¹⁵ complements this definition by making the following distinction differentiating atomic services from composite services.

- Atomic Services are visible to a service consumer (or agent) via a single interface and described via a single service description that does not use or interact with other services.
- Composite Services are visible to a service consumer (or agent) via a single interface and described via a single service description that is the aggregation or composition of one or more other services. These other services can be atomic, composite, or both.

Further to the above distinction, from a technical point of view, an atomic service can also be understood as an open, modular provision of information and services as defined in the study on User expectations of a life events approach for designing e-Government services¹⁶.

The atomic nature of the services identified in the taxonomy is critical to the success of the next phases of this study in order to determine the costs, benefits and barriers.

¹⁵ Reference Architecture Foundation for Service Oriented Architecture, Organization for the Advancement of Structured Information Standards - OASIS, (2009)

¹⁶ User expectations of a life events approach for designing e-Government services, Deloitte (2010)

1.4 Objectives of this deliverable

The deliverable at hand is the final report of this study. It summarizes the different activities performed, i.e. setting up an inventory of cross-border eGovernment services, analysing the current and future need and demand of specific services (D1.3 & D2.1), analysing the availability, usage, costs and benefits of cross-border eGovernment services (D3.1) and analysing the legal, organisational, technical and semantic barriers for implementing them (D4.1). Furthermore, it draws from the analyses' conclusions to define evidence-based recommendations for the European Commission and Member States to build on in their discussion on the implementation of cross-border eGovernment services.

1.5 Document structure

This document firstly describes the study's approach and the methods used in the different phases of the study. It explains how the study's analyses feed into each other and how they are used to draft the final recommendations. Secondly, the outcomes of previous stages of the study are summarized in the form of four individual chapters, by providing a detailed analysis of a list of cross-border eGovernment services and their need and demand, availability, costs and benefit and finally user perspective. The third section of this document consists in understanding how to boost online services. It presents an assessment of the barriers analysis and correlates the findings and provides conclusions. Finally, practical implementation challenges are presented as a reminder of the practicalities of moving ahead.

2 Methodological approach and practice

The study approach consists in five successive steps, in which multiple methods of analysis are used. Each step builds on the results of the previous one(s), eventually leading to evidence based recommendations which should spark discussion with Member States (MS) and the European Commission (EC) on the potential implementation of cross-border eGovernment services.

The figure below presents the different steps taken in this study. In a nutshell, the study consisted in 5 different phases

1. Scoping and defining cross-border services
2. Analysing the needs and demands for 25 services and down-filtering 7 services
3. Calculating costs and benefits for the 7 down-filtered services
4. Identifying and assessing the main barriers for the 7 down-filtered services
5. Correlating all the findings and drafting recommendations

In parallel to these phases, stakeholders such as the European Commission DGs and Member States were engaged.

This section describes which methods were used for each of the steps and how they lead to the final step of drafting recommendations, made in the deliverable at hand.

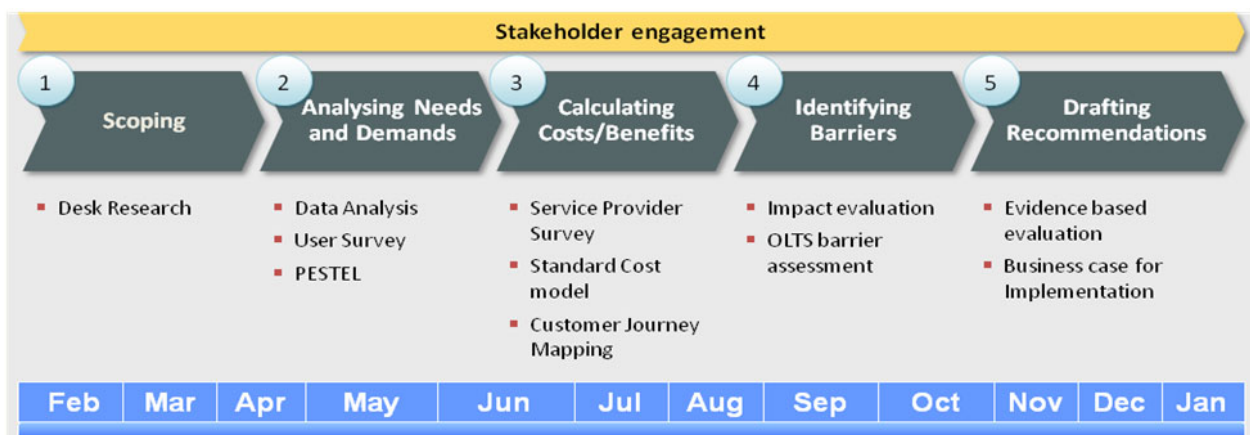


Figure 2 Study phases

2.1 Filtering process: moving towards a shortlist of cross-border services

A first issue addressed within this study is the scope and sheer number of potentially relevant cross-border services offered by the European public sector. If any meaningful (i.e. sufficiently detailed and in-depth) analysis of need, demand, barriers and of costs/benefits is to occur, the study needs to focus on a reduced number of services, to ensure that the analysis can go beyond mere generalities. This presents a specific challenge: on the basis of a sufficiently comprehensive overview of cross-border services, a methodology has to be used that allows a rational and fact based down-filtering of services to be targeted in greater detail in the further stages of the study.

This study therefore firstly took into account available data and policy objectives to identify and categorize key cross-border services among the much larger body of all

possible services. Next, the collection of services was iteratively thinned out to eliminate services for which there is no factual indication of need or demand, in order to arrive to a narrow selection of cross-border services that should receive priority attention at the Member State level.

Graphically, the approach taken by the study to down-filter the services can be presented as follows:

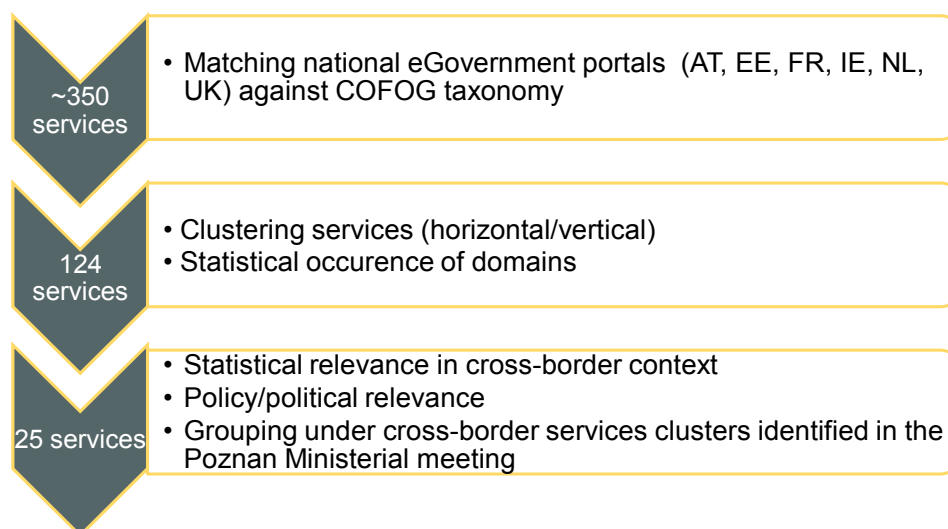


Figure 3 Downselection of services

As shown in the overview above, the initial step of the study consisted of the identification of a long list of potentially relevant cross-border services. By taking into consideration existing taxonomies of services, the objective of such a review was to understand the structuring of services and determine how to further cluster public services. For example, SOA-related literature provided for extensive technical understanding of taxonomy of services and the methodologies developed to their classification¹⁷. However, the study team required a sound basis general enough to encompass full scope of public services and be applicable to all countries. In accordance with this initial need, the study assessed the COFOG taxonomy.¹⁸

According to the definition given by Eurostat the COFOG, was developed in its current version in 1999 by the Organisation for Economic Co-operation and Development (OECD) and published by the United Nations Statistical Division as a standard classifying the purposes of government activities. The classification has three levels of detail: divisions; groups and finally classes. Divisions describe the broad objectives of government, while groups and classes both define the means by which these broad objectives are achieved.¹⁹ Further to the definition provided by Eurostat, the OECD specifies the objective of the COFOG which is to “classify government expenditure data from the System of National

¹⁷ Element and process services (Klose, Knackstedt, & Beverungen, 2009); Process, composed, basic services (Josuttis, 2007); Application, Business and Process services (Erl, 2005);

¹⁸ The UN Classification of the Functions of Government; see <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4>

¹⁹ [http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Classification_of_the_functions_of_government_\(COFOG\)](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Classification_of_the_functions_of_government_(COFOG))

Accounts by the purpose for which the funds are used.”²⁰ Thus, the purpose of the COFOG is to be general enough to cater for all types of governments and to provide for the frame outlining their accounts. Based on its classification, over 350 services can be identified (Level 3 services, according to the COFOG taxonomy). These services all fall under the ten divisions described below.

Government objective (division)	Sub-items
General public services	Executive and legislative organs, financial and fiscal affairs, external affairs foreign economic aid, basic research, R&D related to general public services, public debt services, transfers of a general character between different levels of government
Defence	Military and civil defence, foreign military aid, R&D related to defence
Public order and safety	Police, fire-protection services, law courts, prisons, R&D related to public order and safety
Economic affairs	General economic, labour and commercial affairs, agriculture, forestry, fishing and hunting, fuel and energy, mining, manufacturing and construction, transport, communication, other industries, related R&D
Environmental protection	Waste and water waste management, pollution abatement, protection of biodiversity and landscape, related R&D
Housing and community amenities	Housing development, community development, water supply, street lighting, R&D related
Health	Medical products, appliances and equipment, outpatient, hospital and public health service, R&D related to health
Recreation, culture and religion	Recreational and sporting, cultural services, broadcasting and publishing services, religious and other community services, R&D
Education	Pre-primary, primary, secondary and tertiary education, post-secondary non-tertiary education, education nondefinable by level, subsidiary services to education, R&D
Social protection	Sickness and disability, old age, survivors, family and children, unemployment, housing, R&D, social exclusion, nec

Table 4 COFOG division descriptions²¹

While existing taxonomies of public sector services such as notably the COFOG taxonomy presented a valuable input for this exercise, its scope was not adequate for the purposes of this study. The aforementioned Actions in the Digital Agenda which drive this study have a strong focus on stimulating the mobility of citizens and businesses in the Single Market through cross-border public sector services. The COFOG taxonomy however focuses on public sector functions in general, including functions which have no cross-border service component or which do not aim to facilitate mobility (such as e.g. defense, national security, foreign aid, prison services, etc).

Therefore, the study team amended these taxonomies by taking a more practice oriented approach, examining a set of eGovernment portals from a number of Member States²²

²⁰ <http://www.oecd.org/dataoecd/22/13/48250728.pdf>

²¹ <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4>

²² The portals of AT, EE, IT, FR, IE, NL, SE and UK were scanned. The countries chosen represent geographic, administrative and cultural differences. This representativity provided sufficient coverage of the – potential - eGovernment diversity.

The objective of this assessment was not to be comprehensive in nature but to provide for a sanity check against the COFOG categories explored previously. The goal of this exercise was to identify the main eGovernment services being offered via those portals (cross-border or not), and to enrich this list with services which were not specifically identified on the portals but for which a need or demand might plausibly exist. This resulted in an extended list of a total of 350 eGovernment services.

It should be noted that this approach strongly favours the identification of A2B and A2C services over A2A services, as services aimed at interconnecting administrations (certainly in cross-border scenarios) will generally not be offered or even described in general eGovernment portals. However, this bias is not problematic for the purposes of this study, given that the Digital Agenda also focuses primarily on mobility of citizens and businesses in the Internal Market (and thus on A2B and A2C services), and that A2A interactions can be addressed as back offices prerequisites to these services. In short, the emphasis on A2B and A2C services is acceptable when it comes to identifying priority services for the Member States by 2015, provided that the possibly crucial supporting role of cross-border A2A interactions (e.g. interconnections of business registers or VAT information exchanges) is not neglected.

The second step in the down-filtering process consisted of rationalizing and clustering the services into a homogeneous whole. This second step was necessary to ensure that service descriptions were not needlessly detailed or fragmented, and also to ensure that all services involved bilateral interactions (i.e. to avoid that mere information dissemination of general advice via websites would also be included in the selection, despite its smaller relevance to a study focusing on barriers and cost benefit analysis). Thus, as a part of this step, the long list of 350 services was critically analyzed, and services were re-scoped, redefined and renamed, resulting in a much narrower list of 125 services²³.

To reach this list of 125 services, commonalities and equivalences were considered, information was differentiated from transaction-based services. Further to this, the divisions of services from the COFOG were kept in mind as they provided a sectoral filter. Nonetheless, this filtering approach insomuch that it matches the supply side of services, failed to identify to match the demand-side. In other words, the user perspective and the overall life-event approach were missing.

The life-event approach has proven to be an efficient concept in packaging information and delivery of online services. A life event is to be understood as inclusive of all public services that relate to a specific situation that citizens and business can encounter. Many EU Member States have developed such an approach in order to structure their online services in a logical way that would be easily understood by their users. However, according to the IDABC definition 'Life events' package government services which are usually provided by multiple government agencies around a subject that makes sense to the citizen.²⁴ Thus, following the path of life events, would by definition contribute to the clustering of atomic services, but not necessarily their identification. Accordingly, the best approach to apprehend the long list of services was to derive 5 clusters of services which were the closest illustration of the services described in the Digital Agenda as "enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the European Union²⁵."

²³ See appendix II

²⁴ Harmonizing 'life events' online across Europe, IDABC European eGovernment Services (2003)

²⁵ Action 91: Member States to agree a common list of key cross-border public services, A Digital Agenda for Europe,

Finally, this medium list had to undergo a final relevance check to filter out cross-border services with a viable political, social or economic appeal. Of the 125 services in the medium list, an assessment was made to determine:

- Whether there was any indication of uptake in practice;
- Whether there was any indication of need/demand for the service, based on available data on that service or on general social trends that would suggest a need/demand for the service;
- Whether the service had benefited from specific policy attention at the European or national level, including e.g. through recent legislation, political declarations, or inclusion in large scale pilots or other development/deployment initiatives;
- Whether existing literature or studies suggested that the service was or should be particularly relevant for cross-border mobility;
- Whether the service was particularly known by the members of the study team as being highly developed, advanced or prioritized.
- And finally, whether the stakeholders adhered to the services identified.

On the basis of this filtering process, a shortlist of 25 services was ultimately drafted up. These services specifically take into account the five clusters of services that were described in action 91 of the Digital Agenda for Europe²⁶: Moving and residence, Health, Employment, Procurement and Business services, to ensure that the filtering outcome matches current policy priorities in the EU:

Moving and residence	Health	Employment	Procurement	Business services
M1 Register as domicile	H1 Electronic prescriptions	E1 Apply for a work permit	P1 Submit a tender for public procurement	B1 Register a new legal entity in a business register
M2 Request ID documents	H2 Access to patient summary	E2 Income Tax Declaration		B2 Corporate/business tax declaration
M3 Enrol as a student		E3 Request a pension		B3 Register for VAT
M4 Special tax declarations (vehicle taxes payment)				B4 Submit VAT declarations
M5 Apply for a driver's licence				B5 Register a new employee
M6 Order a birth certificate				B6 Pay social contributions for employees
M7 Register a death				B7 Report termination of employee(s)
M8 Register real estate purchase				B8 Register a new vehicle
M9 Register for Legal Aid				B9 Register real estate purchase
				B10 Consult the business register

²⁶ Action 91: Member States to agree a common list of key cross-border public services, A Digital Agenda for Europe

Table 5 Down-filtered list of 25 services

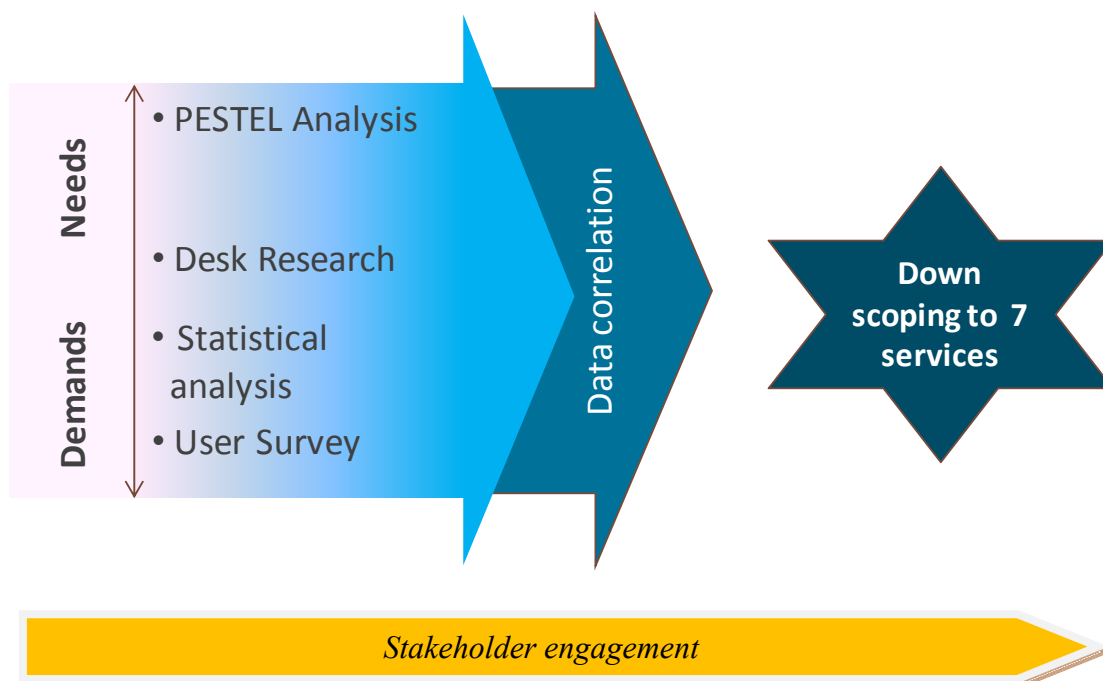
2.2 Analysing Needs and Demands

Secondly, the past and future needs (required by regulations/policies) and demands (expected by users) were fine-tuned for each of the 25 cross-border services. Therefore, quantitative and qualitative data of over 150 national and international sources was analysed. These results are complemented by a User survey that assessed the future demands for and past experiences with cross border services of over 1000 European citizens and businesses from five different EU countries (DE, ES, PL, SE, UK). Together, this has produced an accurate estimate of the current and latent demand of the 25 cross-border services.

The needs were analysed by performing desk-research on existing and planned policies and regulations, complemented by a PESTEL analysis, through which the primary changes for six key factors (Political, Economic, Social, Technological, Environmental and Legal factors) were identified and their impact on the need for specific services was assessed.

Finally, two Stakeholder meetings were organised during the course of April 2012, in which Member States (MS) and European Commission (EC) representatives scored the 25 services according to their perceived demands, needs, political and administrative relevance.

The figure below visualises how different methods are used for the need and demand analysis.



2.2.1 Statistical analysis

The statistical analysis combines different kinds of data and aggregates them into general figures of demand for specific services. The demand for cross-border services is determined by four variables:

- 1) Current usage of services, e.g. how many people currently request birth certificates.
- 2) Current online usage of services, e.g. how many people currently request birth certificates online.
- 3) Current cross-border usage of services, e.g. how many people currently request birth certificates in a different country than that of origin.
- 4) Current and expected trends, i.e. what trends can be identified that suggest an increase in demand of a service.

The data for the analysis was gathered through on the one hand the user survey and on the other hand through extensive desk research. For the desk research, more than 250 relevant articles were found (see Annex VI). To be able to analyse the data points in a structured manner, they were gathered in a data collection template. The template captures the data point, source, responsible party, date of publishing, geographical scope and main content of the article. The articles found can be divided into four types of sources:

- European Commission studies (Commission and JRC or other agencies),
- Eurobarometer and Eurostat
- National in-country statistical offices (BE, IT, FR, NL, PL, SE, TK, UK),
- Other international sources (OECD, UN)

In collecting data points, the study team specifically focused on financial, demographic and usage data. Financial data indicates to what extent governments are willing to spend money on a certain service. Combined with the availability of the service via online portals, it indicates the perceived (future) demand for a service by governments. The demographic data is used to determine to what extent EU citizens migrate within Europe and which groups of people mostly do. The more people travel, work and reside in another country, the more demand for cross-border services. The usage data indicates whether there is actual uptake of the service and more specifically what the adoption of *online* services is. By analysing the financial, demographic and usage data over a time period of a number of years, trends can be identified and an estimate of the expected future demand of cross-border services can be made.

Finally, existing European Commission studies in which rankings are made by citizens and businesses of the most important public services were also taken into account in estimating the (latent) demand for cross-border services.

The majority of the reports found were relatively general in nature and quantitative information about the use of cross-border services was limited. There were far more reports concerning citizen services than business services. Nonetheless, the data found concerning the uptake of services by cross-border immigrants or visitors was sufficient to, for the first time, make some tentative estimations of the extent of cross-border demand for the 25 services examined.

2.2.2 User Survey

As stated before, an online survey (Computer Assisted Web Interview [CAWI])) among current users and possible future users of cross-border services has been conducted to gain insight into actual and latent demand of cross-border service²⁷. The user survey complements the statistical analysis by capturing more in-depth perception of current

²⁷ The survey ran from 18.05.2012 until 29.05.2012

and potential cross-border service users on their requirements for services and their actual service usage. To prevent the respondents from spending too much time or answering too many repetitive questions (which would increase the dropout rate and decrease the quality), the user survey has been performed on seven citizen services and four business services (see Table 6). The eleven services elaborated upon in this survey match the five service categories derived from action 91 of the Digital Agenda for Europe. Moreover, via the consultation of the EC and MS representatives, certain services already appeared as critical and fit for the survey. Indeed, the user survey provides a good basis to cross-check and deepen the results of the statistical analysis.

Citizen services	
M2	Request ID documents
M3	Enrol as student
M4	Vehicle taxes payment (special declaration)
M6	Order a birth certificate
M9	Register for Legal Aid
E2	Income tax declaration
E3	Register for a pension
Business services	
P1	Submitting a tender for public procurement
B1	Register a new legal entity
B2	Corporate/business tax declaration
B10	Consult the business register

Table 6 Selection of services for User survey

The survey aimed to collect data from 200 respondents in five target countries for a total of 1,000 completed questionnaires. The five targeted countries are Spain, Poland, United Kingdom, Sweden and Germany. They have a relatively high proportion of potential users of cross-border online services as reported by Eurobarometer surveys²⁸ and a relatively high proportion of people using such services in their own country based on Eurostat data²⁹. In addition, the selection includes a country that is one of the leading practices amongst the countries that have entered the European Union more recently.

In total, the survey collected data from 1,229 respondents from 22 countries. As the respondents were selected from online panels in the 5 target countries, most people in the survey have their place of residence in one of these 5 countries (n= 1,181).

As this study focuses on cross-border services, the initial dataset of 1,229 respondents was limited to the respondents who moved to an EU country or who show the intention to move in the near future (i.e. citizens who indicated 'definitely move' or 'highly probable' in the survey). This reduced the dataset to 996 respondents.

To ensure the statistical robustness of the user survey and to be able to extrapolate results across EU27, the study team needed to make sure that the sample was statistically representative of the EU27 population. This was done by replicating questions

²⁸ See http://ec.europa.eu/public_opinion/archives/ebs/ebs_337_en.pdf

²⁹ See Eurostat: epp.eurostat.ec.europa.eu (EGovernment usage by individuals by gender)

about general population characteristics adopted from Eurostat.³⁰ (e.g. on gender, age, linguistic capabilities, employment status, ICT usage).

The questions for measuring satisfaction have been prepared by using System Usability Scale (SUS) and Analysis of Web application requirements (AWARE) methodologies. Both methodologies relating to quantification have been commonly used in other Eurostat studies and in our study we prepared a synthesis of questions which aim to examine content, structure, navigation and usability of eGovernment services. Questions to investigate potential moves or visits across EU countries give an indication of the main economic activities among EU Member States and present a snapshot of cross border activities which would indicate the potential of related eGovernment service use (latent demand of cross-border services).

2.2.3 PESTEL analysis

Whereas the user survey and statistical analysis primarily provide input for the demand-side of cross-border services, based on the current state of play in Europe, the PESTEL analysis provides an overview of some of the key drivers behind the need for cross border services, based on likely and plausible evolutions in society. Indeed, changes in e.g. demographic composition, economic pressures and communications technologies may have a very significant impact on the need for specific services.

The PESTEL analysis aims to address the challenge of potential future evolutions and their impact on the relevance of the current needs analysis. It helps to mitigate the risk that plausible future changes in needs go unidentified, and is a useful tool for analysing future influences and dynamics. The core approach of the PESTEL analysis is to identify the primary Political, Economic, Social, Technological, Environmental and Legal changes that are expected over a given timeframe. For each of the examined services, the impact of these changes was then assessed, in order to determine whether the impact for that specific factor is likely to be positive (increased need for that service), negative (decreased need) or neutral (no change).

The six factors of the PESTEL model can be summarily described as follows:

- Political factors. These refer to government policy such as the degree of public sector interference in the economy, political stability, and the political acceptability/desirability of services.
- Economic factors. These include interest rates, taxation changes, economic growth, inflation and exchange rates. Economic change can have a major impact on an administration's behaviour, and thus on its (de-)prioritization of services.
- Social factors. Changes in social trends can impact on the demand for a service and the availability and willingness of individuals to work. In the EU, for example, the population has been ageing. This has increased the need for access to series of services like healthcare.
- Technological factors: New technologies can directly create new service needs, or indirectly stimulate the need through increased uptake of technologies that facilitate access to specific services.
- Environmental/Ecological factors: Environmental/ecological factors include weather and climate change and have an impact on many industries including transport, farming, tourism and insurance. Greater environmental awareness

³⁰ Eurostat copyright states that "Except where otherwise stated, downloading and reproduction of Eurostat data/documents for personal use or for further non-commercial or commercial dissemination is authorised when appropriate acknowledgement is given to Eurostat".

increases the significance of this factor, affecting demand patterns and creating business opportunities.

- **Legal factors:** These are related to the legal environment in which citizens and businesses operate. Different categories of law include privacy laws, consumer protection, competition laws, internal market regulation, employment laws, commercial laws and public sector specific laws (such as public procurement or public sector information). As noted in the aforementioned sections, regulations can drive a need for services even in the absence of significant market demand.

While a comprehensive overview of all relevant influences within each of the six PESTEL factors is not feasible due to the unpredictability of future social changes, a number of more plausible key elements can still be identified. For each PESTEL factor, a series of three to five key questions was defined that allowed the study team to define what the expected changes for a given factor will be. E.g. is the need for the service impacted by the debt crisis (economic factor)? Is there legislation requiring the creation of the service (legal factor)? Does the ageing of the European population positively or negatively affect the need for the service (social factor)?

To perform the analysis in practice, the PESTEL questions were applied to each of the 25 services filtered out during the first stages of the study. For each question, a score was assigned from 1 (very negative expected impact on future need for the service) to 5 (very positive impact), based on a qualitative or quantitative assessment of the question, and referring to available information sources that have lead to the score. The average score of all of the questions within a given factor (e.g. all questions for the political factor) results in a score for that factor, which thus ranges from 1.00 to 5.00. Finally, the average score of all six PESTEL factors results in an aggregate PESTEL score for that specific service, again ranging from 1.00 to 5.00. The end result is thus a rationally justified score that allowed the study team to rank the 25 services in a relatively objective manner, in order to determine which of the services is likely to see the most substantial increase (or decrease) in need over the coming years.

2.2.4 Correlation of the need and demand analysis and down-filtering to seven services

The final correlation brought together the results of all need and demand analysis methods, in order to provide an overview of the current and future relevance of cross-border services. This overview in turn enabled the study team to: 1) confirm or reject the research assumptions made when choosing the current list of 25 services; 2) suggest a list of seven key cross-border services to perform further analysis on. The latter was needed to reach the appropriate level of granularity within this study's capacity.

To combine the data collected from the needs and demands analysis, the study team further elaborated upon the list of indicators identified with the EC and MS representatives during the stakeholder meetings. The table below provides a description of the indicators, including how these have been taken into account in the current down-filtering exercise

Indicator title	Indicator Description	Applied in the needs and demands phase of the study, if not why and where will it be applied
Intermediaries	Certain services involve intermediaries. This may render the work on the services more difficult and imply greater differences across MS.	No. This will be identified during the customer journey mapping (CJM) exercise conducted during phase three of the study.

Complexity	the overall complexity/ simplicity of the services should also be assessed	No. The details will be obtained via the CJM. This indicator also contradicts the demand/need for services. Results will feed into the work on the barriers and overall recommendations.
Enabling aspect	"THE" big step, that will be required in many other services. The sequence of services and their capacity to enable access to additional services	Yes. This has been taken into account in understanding the sequence of services. Work on key enablers provided for instance by the EC's eGovernment benchmark study and inputs from the Workshop underlined the need to have request for an eID as the most important key enabler giving access to a multitude of services
Ongoing Initiatives	To consider existing projects and initiatives. i.e. if the EC is already implementing for instance VAT registration, then the study around this potential new service is limited. (statement from DG TAXUD)	Yes. The study should not duplicate the work conducted elsewhere and should create synergies with the ongoing activities. It should also work on the broader business case of the ongoing LSPs in linking what is done with the Connecting Europe Facility.
Availability of national infrastructure	There must be a minimal existing infrastructure to host the service. Future trends and possible new services would then be part of the recommendations	No. This will be assessed at a high level during the CJM.
Benefits	Making life easier. There must be a clear link to the reduction of administrative burdens for the users and possibly for the administration. Therefore two aspects here should be considered	No. Benefits, both as regards satisfaction and financial will be derived in the next phase by combining information from the service provider survey for the Cost Benefit Analysis phase and the user survey.
Volume & latent demand	Statistical usage of the service. However this should be weighed accordingly as there is a risk that low usage may illustrate poor online service quality!	Yes. Chapter 3 of this document addresses this in detail. Latent demand is also extrapolated, as well as trends linked to the PESTEL analysis.
Comparing offline and online volume	Linked to the above, correlating the two may provide for a more valuable insight into usage and latent demand	Yes. Initial volumes of online usage have been assessed. The comparison with the terrestrial channel will occur during the next phase of the study.
Regularity / recurrence:	Applicable especially for businesses e.g pay VAT every quarter in most countries. More impactful that a service being used	Yes. This is taken into account in the analysis below. it will also be taken into consideration when working on the CBA.

	once in a lifetime	
Return on Investment	What are the gains (Admin. Burden, money) compared to the cost of setting up the service	No. This will be dealt with via the CBA.
Public Sector Information (PSI)	Link to the PSI directive and the availability of data. Specifically for business. Difficult criteria to use in a politically correct way for citizens, despite the fact that cross-cutting of information can contribute to fighting fraud	No. This will be dealt with in barriers and recommendations.

Table 7 Overview of study indicator descriptions

In a nutshell, the down-filtering indicators used in this phase of the study were:

- Enabling aspect
- Ongoing initiatives
- Volume and latent demand
- Regularity/ Occurrence

The down-selection of the 25 services to a shortlist of seven has been done thanks to a combined interpretation of the volume, user survey inputs, PESTEL score and overall relevance to the stakeholders. The approach was not to determine a mathematical formula to combine all factors. However, several weights can be applied in understanding the different sources and how these were used for the final filtering:

The volume extrapolation was considered as highly relevant, inasmuch that it sheds light on the quantified nature of the demand and links to the overall business case of further exploring the service. Indeed, if volume is low, it is challenging to develop a business case to encourage MS and the EC to invest. Nonetheless, low volume can also be qualified in terms of lack of availability of the service at a digitized cross border level. Along the same lines, low volume could be a forecast of a growing trend.

The inputs from the user survey may be assessed as less relevant as regards the down-selection, even if they do shed light on usage and perception. As mobility is a growing trend, the survey has also demonstrated that citizens and business who do cross the border rely upon public services. Although the user survey has not been performed on all services, in comparing the two rankings for the citizen services, similarities can be identified. Registering for pension is a service with an overall low demand, while Requesting ID documents is a service that scores high with both methods.

The PESTEL ranking was considered highly relevant as it provides a holistic quantitative approach to the services and focuses on the need as opposed to the demand for services. The political and regulatory aspects are therefore determinant in understanding the supply side of the service. Thus, the PESTEL has been useful in demonstrating the clear legal / policy and need for most of the services to be addressed within the MS. Additional trends, despite the challenge to forecast social evolution, have also highlighted the need for a broader approach to the services, rather than a sole focus on volume and perception of the service.

Finally, the stakeholder inputs have been considered critical to the continuation of the study.

The methodology and results of the scoping exercise and the Need and Demand Analysis are presented in detail in (the published) deliverable D1.3 Inventory of cross-border eGovernment services & D2.1 Analysis of existing and future needs and demand for cross-border eGovernment services³¹. An overview is also available in appendix I.

2.3 Analysing Costs and Benefits

In the third phase of this study the costs and benefits of seven cross-border eGovernment services were analysed. In consultation with the European Commission, it was decided to focus the cost benefit analysis on seven services (down-filtered in phase I and II of the study) in seven countries. To apply focus to the number of countries to investigate, five criteria were used:

- Geographical representation: Northern-Europe, Central-Europe, Western-Europe, South-Europe, Eastern-Europe;
- Representation of different forms of government: Centralised and de-centralised;
- Representation of different sizes of population: small (<20 million), medium (20-50 million) and large(>50 million);
- High level of eGovernment maturity: higher than EU27 average³²;
- Participation in Large Scale Pilots: STORK (eID), PEPPOL (eProcurement), epSOS (eHealth), SPOCS (business start up), e-CODEX (e-Justice).

2.3.1 Defining eGovernment services through qualitative analysis

The first step in gaining a clear understanding of the costs and benefits of the seven cross-border services for governments, was to know if and how the services are implemented in the countries under investigation. Therefore the study team used the **Customer Journey Mapping** method. The concept of *customer experience* was first introduced by Pine and Gilmore in 1998³³. Analysts and commentators have increasingly recognized the importance of managing the customer's experience³⁴ and in recent years Customer Journey Mapping has been developed and increasingly used in the public sector³⁵. Probably the best known example and use of the methodology is the UK Cabinet Office practical guide³⁶. The guide describes customer journey mapping (page 1) as the:

"process of tracking and describing all the experiences that customers have as they encounter a service or set of services, taking into account not only what happens to them, but also their responses to their experiences. Used well, it can reveal opportunities for improvement and innovation in that experience, acting as a strategic tool to ensure every interaction with the customer is as positive as it can be".

³¹ http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=9369

³² As measured by Capgemini, IDC, Sogeti, Rand, DTI in the EU eGovernment Benchmark 2010: *Digitizing Public Services in Europe: Putting ambition into action*, p. 33

³³ Pine, J. and Gilmore, J (1998) Welcome to the Experience Economy. Harvard Business Review. July-August

³⁴ Woodcock, N. Stone, M and Ekinci, Y (2008) Customer management in public sector organizations. Journal of direct, data and digital marketing practice. 10,1. p16-28

³⁵ Mangiaracina, R. Brugnoli, G. and Perego, A. (2009) The eCommerce Customer Journey: A Model to Assess and Compare the User Experience of the eCommerce Websites. Journal of Internet Banking and Commerce. 14,3. p1-11

³⁶ HM Government (2008) Customer Journey Mapping: Guide for Practitioners. www.cabinetoffice.gov.uk/media/123970/journey_mapping1.pdf

Customer Journey Mapping records the route people take as they interact with services, taking quantitative measures such as number of contacts made and the time taken to access a service.

What distinguishes it from data that might be gleaned from customer relationship management systems or simple analysis of web site hits is its equal focus on emotional insights about the citizen's experience. The goal is to mix quantitative approaches with qualitative, experiential data, providing a dispassionate analysis of the issues.

Within the context of this study the selection of seven services provides a clear requirement for a *task modelling approach*. This necessitates the development of a clear goal to be achieved by the online or terrestrial service user (e.g. obtaining ID documents, making an income tax declaration or registering a new business).

Terrestrial – that is to say offline world – journey mapping methods used in previous studies gather information about usability, efficiency and satisfaction at different points in the 'journey' to obtaining a service.

There are slowly emerging methodologies to examine usability, efficiency and satisfaction when using web sites and obtaining *online* services.

Our approach is innovative in combining terrestrial and online methodologies to provide a consistent and comparative approach to examine service provision through both terrestrial and online routes that users can use to obtain the seven services.

Usability is an unstructured term that essentially means "able or fit to be used". For this study, the method of Customer Journey Mapping was used to examine the usability of both online and terrestrial services, where usability was examined in two different ways:

Efficiency and effectiveness – System Usability Scale (SUS) methods examine users' experience when using online portals.

User satisfaction – The Analysis of Web application requirements (AWARE) methodology will examine user satisfaction.

Besides examining the usability of the services, Customer Journey Mapping also allows for definition of the level of service sophistication. Therefore, the European Commission³⁷ and OECD³⁸ eGovernment maturity model was integrated into the Customer Journey Mapping questionnaire. The model distinguishes four stages of online service maturity, which the investigator can apply when having mapped the customer journey:

- 1) Information
- 2) One-way interaction (downloadable forms)
- 3) Two-way interaction (electronic forms)
- 4) Transaction (full electronic case handling)

One of the most important elements to ensure robust customer journey mapping is to ensure consistency in what is being undertaken in each Member State. To ensure a consistent approach parameters for the exercise were provided by developing clear persona and details of the desired outcome. The persona were based on the previously described working definition of cross-border eGovernment services. An example of the persona and context used in each of the seven Member States for the income tax declaration is provided below. Furthermore, the persona describe *atomic* services, i.e. services that cannot be split up further into specific sub-requirements/subservices. This way, the risk of interdependencies between services – often resulting in scattered cost benefit data - and of differing interpretations of services is mitigated as much as possible.

The context and persona for all seven services are provided in [section 3.1.5](#).

³⁷ http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/

³⁸ E-Government service maturity FROM www.oecd-ilibrary.org/sites/9789264075061

E2 Income tax declaration

You are a 33 year old female and you were born and lived in Finland until 2009. You worked as a self-employed sculptor in the capital city of the country under investigation until June 2012. You have now returned 'home' and live and work in Helsinki, Finland.

When you were in the country under investigation you possessed all the required working documents and permits (e.g. employee and social insurance numbers). During the last tax year of employment in the country under investigation your net earnings are 34,000 euros. You are now required to submit a tax declaration for this amount in the country under investigation. You have to make contact with the relevant authorities to do this from Helsinki.

To increase the robustness and enrich the analysis of the efficiency and effectiveness and user satisfaction of the services, the Customer Journey Mapping results were correlated with the results from the user survey conducted for this study's need and demand analysis. Furthermore, the results from the Customer Journey Mapping were complemented with information gathered from the Member State service providers on how the service is organised, when it is implemented, what the advantages and disadvantages of online service provision are, how the services can be improved and how they expect the usage to evolve over the coming years.

The insights gained from the Customer Journey Mapping, user survey and qualitative questions to the Member State service providers not only provide a clear overview of the current status of cross-border eGovernment services – i.e. the process, availability and usability - but also enable the study team to interpret and analyse the cost benefit data against the right background and to better compare the data across countries.

2.3.2 Gathering cost benefit data

The quantitative cost benefit data is gathered by sending out data gathering templates³⁹ to Member State representatives and by conducting telephone interviews (if clarification or more in-depth information was needed). Although the focus was on quantitative information, also a number of qualitative questions were asked about benefits, concerns, drivers and usage of cross-border services. The contact persons within Member States were identified through the eGovernment High Level Group representatives and through the consortium's professional network.

Besides general information on the study and user guidelines, the data gathering template for the service providers contains two main sheets.

- 1) **Implementation Costs:** The implementation costs sheet contains questions on specific costs needed to prepare and implement the service online. It distinguishes between costs for setting up an online *national* service and costs for setting up an online *cross-border* service⁴⁰. The costs are divided into a number of activities that governments might perform in order to set up the specific service, such as internal decision making, system development, system implementation and training costs. Per activity, a difference is made between internal costs, external costs and other out-of-pocket costs. The internal costs are requested in the unit of

³⁹ Screenshots of the Excel data gathering template have been included in Appendix IV.

⁴⁰ The implementation costs for offline services are not included for these are too complex and scattered.

time spent⁴¹, i.e. the time spent in hours by all employees involved (excluding the external hires) to perform the specific activity. If the type of costs or the activities described are not applicable to the country under investigation, the service provider can leave the cell blank and explain why it is not applicable in the comment box. If the data requested is not available in such detail, the service provider can provide a general amount of costs made for the implementation of the service.

- 2) **Operational Costs:** The operational costs sheet contains questions on the costs that are needed yearly to keep the service running, i.e. to maintain and provide the service. It distinguishes between costs for maintaining an online *national* service, costs for maintaining an online *cross-border* service and costs for maintaining an offline service. The costs are again divided into a number of activities that governments might perform in order to maintain a service - such as handling a request, reporting back to the citizen, handling objections, maintaining the software - and into internal costs (time spent), external costs and other out-of-pocket costs. Furthermore, the total quantity of occurrences per year is requested, as well as the total quantity of cross-border occurrences per year (preferably in 2011). The benefits are retrieved from the operational cost data, by calculating the reduction of time spent by public officers and/or the reduction of maintenance costs.

In addition, quantitative cost benefit data is retrieved from desk research of existing reports, such as annual public spending reports from national accounting offices, annual reports of government departments, evaluations of electronic public service provision and - where available - cost data published on government websites or by national media.

Output of the data gathering

The study team has searched for contact persons and gathered cost benefit data for a period of 3,5 months (August-November 2012) for the seven services and from the LSPs. The initial goal was to gather quantitative data from seven services in seven countries, adding up to a total of 49 data points. The main issues that have arisen during the data gathering exercise are:

- Because services are often provided in a decentralized manner data is scattered across multiple authorities, which makes it difficult to find the person responsible for or in possession of the requested data.
- Availability of contact persons was limited due to other pressing daily operations obligations.
- The contact persons did not always regard this study as a priority in light of many local challenges such as austerity measures due to the current economic situation and did not always have the leeway to spend time on gathering data within their country despite initial political intentions.
- Member States are reluctant to provide their cost data, because they feel this information is confidential and should not be used for comparison purposes (even

⁴¹ The time spent is monetised by multiplying it with the hourly tariff of the type of employee that is indicated by the service provider to have spent most time performing this activity. The hourly tariffs are based on the ISCO table for Tariffs (€ per hour) per employee type and country incl. 25% overhead see <http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm> and http://ec.europa.eu/dgs/secretariat_general/admin_burden/eu_scm/eu_scm_en.htm).

though the data is treated confidentially by the European Commission and the consortium).

- In many countries, specified cost data is not available, especially not on the service level or on the user level (cross-border/national).
- Costs of service implementation often include historic and 'sunk' costs, which are hard to retrieve by current personnel.
- Services and how they are organized differ greatly across countries, leading to misinterpretation of what the service entails by service providers, sometimes hardly comparable data gathering results or no results because the service as such does not exist in the country under investigation.
- There are different levels of service sophistication, making it hard to compare cost data across countries.

Despite the data gathering issues, the study team has received 20 filled templates from 5 different countries. Including templates filled by desk research, a total of 22 templates for 7 different services in 6 different countries have been retrieved.

The extensiveness of the data retrieved differs per country and per service. Most service providers find it hard to provide estimates or precise data on the costs made to implement services. Mostly because these costs were made years ago or because the costs made cannot be distinguished per service (as they are made for a set of services). Furthermore, service providers often do not distinguish between costs for national and for cross-border services.

2.3.3 Analysing the cost benefit data

As the main goal of the cost benefit analysis is to provide Member States and the European Commission with insights on what impact the implementation of cross-border eGovernment services has on governments - as opposed to benchmarking a country's performance - the analysis does not include a comparison of costs and benefits between specific countries. Instead, the median costs with ranges and benefits are calculated across countries.

For the implementation costs a median is made of what activities are needed to implement an online service, what it costs and what incremental costs are generally made to provide a service cross-border.

The operational cost data consist of:

- Internal/total costs
- Cross-border/total costs
- Online/offline costs
- Time spent per occurrence

The outcomes of the comparisons are then analysed from different angles, combining the quantitative results with qualitative data from the Customer Journey Mapping, desk research and research performed in earlier stages of this study:

- Trends: Do Political, Economic, Social, Technical, Ecological and Legal developments explain the cost benefit data (including the qualitative data) and how will these developments potentially influence future implementation of cross-border services? (based on earlier performed PESTEL analysis)

- User perspective: What advantages and disadvantages concerning online cross-border services are perceived by citizens and businesses and to what extent do they correspond with user survey results and the current usage of services?
- Large Scale Pilots: What costs for implementing cross-border services can be derived from LSP data and does contribution to a Large Scale Pilot influence the availability, costs and benefits of (online) cross-border services in a country?
- Governance: Does the way public service provision is organised influence the availability, costs and benefits of (online) cross-border services in a country?
- Efficiency and effectiveness: Does the implementation of online services result in a time and/or cost reduction for governments and how much additional costs do governments make when providing the online service cross-border?
- Services: Is there a difference in the costs and benefits between (groups of) services and how can these differences be explained?

The methodology and results of the cost benefit analysis are presented in detail in deliverable D3.1 Report on quantitative and qualitative analysis of cross-border eGovernment Services.

2.4 Conducting the analysis of Barriers

The objective of the fourth phase of this study was to identify and assess the organisational, legal, technical and semantic (LOST) barriers that hinder the deployment of possible cross-border e-Government services in the EU. The identification of the various barriers aims to outline as broad as possible a list from the perspective of all stakeholders involved: businesses and citizens that would use the services, public authorities as possible recipients of services themselves and public authorities delivering services at all various levels of government: European, national, regional and local.

This analysis was conducted on the same countries and services as targeted by the cost benefit analysis. Data collection and analysis was therefore done in parallel between the cost benefit analysis and the barriers analysis. Specifically, the study team raised relevant questions on observed barriers with stakeholders during the cost benefit analysis, primarily by asking service providers to identify which LOST issues they encountered in practice, whether they were able to resolve them to their own satisfaction, and if so, how. The goal was to ask open questions, focusing on the bigger picture rather than on specific details (e.g. asking about any required legislative changes or whether new standardisation work was needed, rather than implementations of specific Directives or compliance with specific standards).

As a result, the barrier analysis focuses on practical implementation barriers, rather than on theoretical analysis of potential barriers.

2.4.1 Data collection for the barriers' analysis

As a first step, service providers which were to be interviewed within the cost benefit analysis data collection were asked to explain which barriers they encountered (or still encounter) when implementing or managing the examined services in their own country. The questions covered each of the four targeted barriers types - organisational, legal, technical and semantic. The goal was to ask open questions, focusing on the bigger picture rather than on specific details (e.g. asking about any required legislative changes

or whether new standardisation work was needed, rather than implementations of specific Directives or compliance with specific standards).

Interviewees were invited to provide their experiences on the barriers on the basis of these questions. This input was:

- Focused on identifying significant barriers, which were substantial enough for stakeholders to remember and explain during the interviews themselves, without having to consult additional experts.
- Pragmatic. The goal was not to complete a theoretical study with numerous details, but rather to determine what the main issues were.

The input obtained in this way was fragmentary, given that data was not available on all services for all countries, and that interviewees were not always aware of all relevant issues. In total, this first step resulted in 8 substantive data points, with information being provided by interviewees from the following Member States/services:

Member State	Service(s) commented
Denmark	Registering a new domicile, requesting ID documents
Spain	Registering a new domicile, requesting ID documents, registering a new legal entity
Germany	Declaring income taxes
Estonia	Declaring income taxes, registering a new legal entity

Table 8 Barriers analysis: services assessed per country

While this was acceptable in the light of the general objective of obtaining information on the primary practical barriers, we none the less enriched this information with external information, notably obtained from the relevant Large Scale Pilots (LSPs) insofar as the examined services were also addressed by an LSP. In this way, the primary barriers were identified for each service. Specifically, inputs were sought and obtained via deliverables and direct discussions with participants in the LSPs STORK, SPOCS, e-CODEX and epSOS. Finally, additional information for the service "Consulting the business register" was sought from an alternative source, since no information was available from the Member States or from a relevant LSP. Therefore, the analysis was done based on desk research and on the analysis of the Directive 2012/17/EU regulating this issue and the reports preceding the adoption of this Directive⁴².

2.4.2 Structuring and analysing the barriers

Having collected the required inputs, the resulting data was bundled into seven fiches, each focusing on a specific service. In each of these fiches, we have summarised:

- The nature and scope of the service;
- Which barriers we would logically expect, given the nature and scope of the service. This will be split into the four categories of barriers (legal, semantic, technical and organisational).
- Which barriers were primarily reported during the interviews or in external inputs, structured along the four major categories. This also included an assessment of their severity in terms of having a small, medium or large impact on the

⁴² See

<http://www.europarl.europa.eu/oel/popups/ficheprocedure.do?lang=en&reference=2011/0038%28COD%29>

availability and functionality of cross border services, and an indication of whether the barrier had been conclusively dealt with or was still (partially) unaddressed. The assessment of severity was not linked to the number of times an issue was signalled, but rather on the basis of its impact on the service offering:

- Small: the service can be offered in spite of the barrier, although some minor inconveniences exist (e.g. the service relies on PDF scans, which cannot be semantically understood, meaning that the service suffers the same downsides as paper processes).
- Medium: the service can be offered in spite of the barrier, but not comprehensively (e.g. for an entire process or for all Member States), or only in a way that negates its advantages over paper processes (e.g. after concluding an electronic process, the citizen still needs to send paper documents).
- Large: the service cannot be offered in all or most Member States in any reasonably functional form.
- Finally, the main barrier in each category was identified, including an indication of its severity and who the barrier principally impacted (citizens – businesses – administrations).

Major trends for each service were identified at the end of each fiche.

As a concluding step, we examined what the main barriers were across the different service, their nature and severity, and who they principally impact (citizens – businesses – administrations). We also assessed to what extent these barriers are affected by prior or ongoing LSPs or other EU level initiatives (e.g. legislative proposals). Have the barriers actually already been addressed, or are they being addressed, or is there no plan yet?

Finally, an initial view was presented of how to deal with these barriers and what measures can be taken to overcome them, both at the national and EU level.

*The methodology and results of the Barrier Analysis are presented in detail in deliverable **D4.1 Analysis of organisational, legal, technical and semantic barriers for cross-border services.***

2.5 Drawing conclusions and determining how to boost cross-border online services

2.5.1 Overall correlation and assessment

The final stage of the study is to combine the data collected during the previous phases. Drawing up the recommendations consolidates all of the findings and hence builds on the previously elaborated methodologies. To ensure the robustness of its conclusions, the study will adhere to the following guiding principles in developing insight and recommendations:

1. Evidence based - Basing policy decisions and advice upon the best available evidence from a wide range of sources; ensuring that the evidence is presented in an accessible and meaningful form.
2. Forward Looking - Defining policy outcomes and taking a long term view
3. Outward Looking - Taking account of the national, European and international situation; learning from the experience of other countries; recognising regional variations.
4. Innovative, Flexible - Questioning established ways of dealing with things, encouraging new and creative ideas, identifying and considering ways to manage risks.

5. Joined Up - Looking beyond institutional and State boundaries; setting cross-cutting objectives; defining and communicating joint working arrangements across organisations; ensuring that implementation requirements are carefully considered when developing policy recommendations.

The concluding chapter on boosting online cross-border services will enhance the initial findings underlined in the cost benefit analysis and barriers assessment by providing recommendations. It comprises additional suggestions to improve current cross-border services as well as pave the way for the development and deployment of further high impact services in supporting the Internal Market. A step back from the seven services will be taken in order to prioritise high impact services for future activities within the EC and the MS. This section will

- Address the seven services down-filtered thanks to the needs and demands
- Extend its approach to encompass broader range of services. This stems mainly from the interactions with all stakeholders who believe there are few fundamental differences across the services. This shall be dealt with in detail in chapter four.

Conclusions will be drawn on the basis of the correlations made at the beginning of this chapter on boosting online cross-border services.

Finally, the chapter will conclude by offering a series of recommendations for Member States, the European Commission and the two together. This final phase of the study thus adopts a holistic approach by considering policy, governance, technology, legal, economic and organisational aspects. This also ensures the recommendations are documented, sound and have taken into account the necessary parameters to be successfully implemented. It plays in-tune with the horizontal approach used in previous stages of the studies: the PESTEL and LOST approach.

Indeed, the PESTEL – an extended view of the LOST analysis –has been used throughout the study as a means by which data has been structured in a holistic manner. The PESTEL has the advantage of being flexible in its categories and guaranteeing that all aspects are duly taken into account. In the context of the final conclusions on how to boost online cross-border services the following categories shall be used:

Economic: Macro and micro econometrics: demonstrating the “value for money”: Return on investment and cost savings for all the stakeholders (Citizens, Business, Administrations and Industry) in developing cross border services.

Governance: Overall landscape and structure in terms of roles and responsibilities and coordination, accompanying the development, deployment, maintenance and overall sustainability and scalability aspects required by the provision and use of cross-border services.

Organisational: Structure and or model, as in set up, required by cross-border services, including non technical requirements such as the handling of different languages.

Legal: Cross-cutting directives and regulations, etc, setting the frame for the legality of the policy, governance, technology, organisational aspects as well as the legality of the service provision.

Social and Communication: raising awareness within the administration and towards users.

Technology: Key technical enablers that are the core functionalities required at a technical level, including semantics. This will also address the overarching technical architecture and functional requirements necessary for cross border services. This factor was assessed and decomposed into legal aspects.

Note that the environmental factor has been removed as its impact falls outside the scope of the cost benefit, barriers and correlation phases of the study.

Along the lines of the above, the recommendations will weave the PESTEL factors into the recommendations so as to provide a consistent and comprehensive way forward.

3 Data gathering and initial findings: Understanding the overall needs and demand for cross-border services

The multiple analyses performed in this study have provided rich insights on the need, demand, costs, benefits and barriers for cross-border services in Europe. They provide valuable input for discussion between and within Member States and European Commission on if and what cross-border eGovernment services should be implemented. Again by eGovernment a broad perspective is adopted when using this term encompassing online services of general interest such as eHealth and e-Justice. This section presents the main findings and conclusions on each of the four first phases of this study, based on which the final recommendations are drafted.

The demand (expected by users) and need (required by regulations/policies) for cross-border eGovernment services are crucial indicators to define their importance and impact. Demand for online cross-border services is likely to be determined by at least two variables:

- 1) demand for eGovernment services, such as people registering a child at school online;
- 2) demand for cross-border services, such as people moving abroad and therefore in need to register a child to a new school.

The need for cross-border eGovernment services is driven by political, economic, social, technological, environmental and legal factors.

3.1 Uptake of eGovernment services

The demand for eGovernment services has long been a topic of policy debate, mainly in view of the slow growth in uptake of eGovernment services. We know that uptake of eGovernment services has grown steadily if slowly over recent years.

EU27 ⁴³	2005	2006	2007	2008	2009	2010
% of individuals using the internet for interaction with public authorities	23	25	30	28	30	32
% of companies using the internet for interaction with public authorities	57	63	65	68	72	n.a.

Table 9 eGovernment usage in the EU

The user survey and statistical analysis show great differences of online service uptake per country, per population and per service. Also, businesses seem to have a higher preference for using online channels for government services than citizens. For citizens, income tax declaration is a highly used service, for businesses, business tax declaration and consulting a business register are most used.

The main barriers for adopting eGovernment services identified by the user survey respondents are security concerns and the need for further offline activities when using

⁴³ Source: Eurostat:

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tsiir130&plugin=1>

Percentage of individuals aged 16 to 74 using the Internet for interaction with public authorities

an online service. The overall complexity of online services, the lack of availability and the lack of awareness are also mentioned as barriers.

However, when having used the eGovernment service, the satisfaction rates given by users are high, which will possibly boost the uptake of eGovernment services on the long term. Moreover, a Eurostat survey⁴⁴ showed that on average 37 per cent of EU 27 Member State people surveyed were 'interested' in using eGovernment services, but not yet using them. This percentage can also be seen as the latent demand for eGovernment services.

Overall, there is a consistent trend towards increased adoption of eGovernment across EU countries, and uptake by companies is consistently and significantly higher than by citizens.

3.2 Mobility of European citizens and companies

The second driver of demand is transnational mobility of European citizens and companies, thus creating a need for cross border public services to cater for provisions of the welfare state. The more people travel, work and reside in another country, the more demand for cross-border services is expected to grow.

By investigating the magnitude of cross-border population movement, the results of the statistical analysis show that every year, approximately 1,205 million European citizens move from one Member State to another. Adding commuters, the total figure reaches 1,790 million citizens. Looking at immigrants and commuters likely to use *online* cross-border services, this study estimates *there would be a total current demand of 1,262,887 users per year for online cross-border services. In addition, 140,000 branches are yearly set up across borders within the EU*, a number that provides a useful approximation of the business population that could utilise cross-border business services.

These user volumes are likely to grow over the coming 8 years. Below data depicts some of the trends that currently take place in the cross-border mobility field:

- According to a European survey, from 2009 to 2010 the number of EU citizens having worked in other Member States has increased from 10 percent (more than 50 million people) to 13 percent (more than 65 million people). Moreover 17 percent of EU citizens surveyed pictured themselves working in another country in the future⁴⁵. This has been backed by the data collected in the survey conducted in the context of this study as well. As a consequence, the number of international couples (both spouses and registered partners) is on the rise. Today statistics point to around 16 million international couples in the European Union. In 2007, out of the 2.4 million new marriages, 13% (307,158) had an international element. Similarly, 41,000 of 211,000 registered partnerships in the EU today have an international dimension. Furthermore, in 2007, roughly 637,000 international marriages were dissolved due to divorce or death.⁴⁶
- Alongside traditional migration and mobility, new forms of mobility are taking place⁴⁷. People are moving abroad, mainly to other Member States, for shorter periods to seek work, pursue their education or other life opportunities. These mobile people tend to be well-educated young adults, towards the higher end of the occupational scale.

⁴⁴ Eurostat: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/EGovernment_statistics#Use_of_online_services_by_the_citizens

⁴⁵ <http://finance.yahoo.com/news/As-EU-workers-move-and-age-apf-3702105059.html?x=0>

⁴⁶ Clearer property rights for Europe's 16 million international couples – frequently asked questions, MEMO/11/175, Brussels, 16 March 2011

⁴⁷ Third Demography Report: population is becoming older and more diverse, European Commission, 2011

- As a consequence of this increased mobility, according to a Eurobarometer survey⁴⁸, there is an increasing need for cross-border service provision: for example. Some 4 % of EU nationals received medical treatment in another EU Member State in 2007⁴⁹. There are also increasing administrative costs: the rise in international marriages correspond to a rise in divorces and to increasing costs for administrative and legal procedure. The additional costs for international divorces are estimated at €1.1 billion a year. These are mostly made up of additional lawyers' fees because of inadequate information, parallel legal proceedings in different countries, legal complexity of cases and lengthy proceedings.^{50 51}

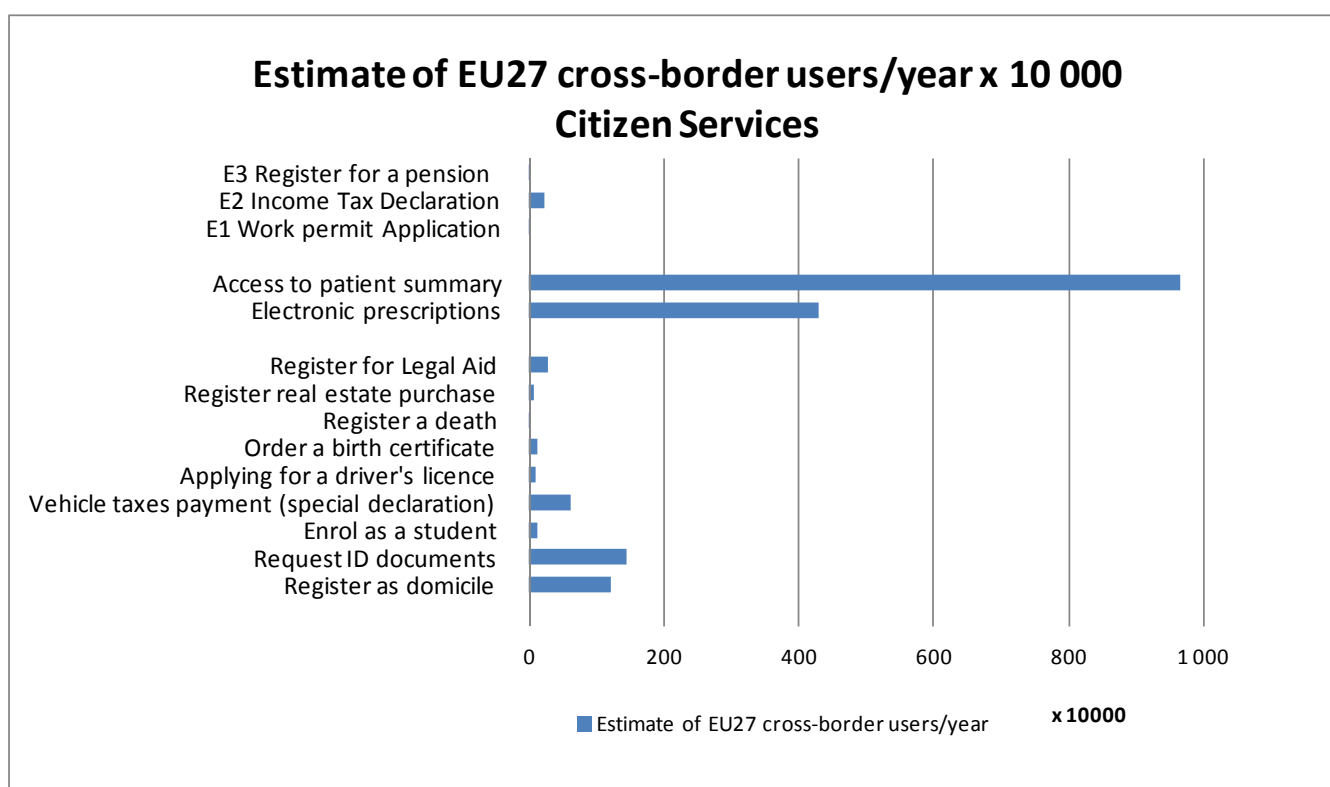


Figure 4 Estimate of EU27 cross-border users per year: citizen services

⁴⁸ Eurobarometer survey on geographic and labour market mobility, Europeans and mobility: first results of an EU-wide survey, 2006

⁴⁹ Demography Report 2010, Older, more numerous and diverse Europeans.

⁵⁰ Clearer property rights for Europe's 16 million international couples – frequently asked questions, MEMO/11/175, Brussels, 16 March 2011

⁵¹ Eurobarometers, New Europeans, Report, Fieldwork : March 2010 – April 2010, Publication: April 2011

The services most used by citizens are eHealth services. These represent 75% of the current volume per annum:

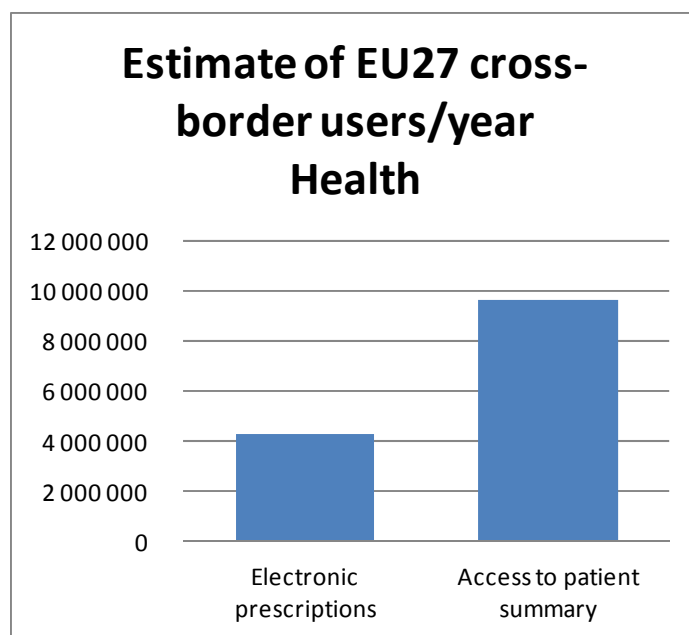


Figure 5 Volume of citizens using eHealth services

Moving now to business statistics, we also see an increase in cross-border activity and trade. Intra-EU trade of goods has increased at an annual rate of 7,6% between 1999 and 2006.

- Overall, one in five EU retailers (21%) sell cross-border, via distance sales methods, to at least one other EU country; the same proportion (21%) advertise on a cross-border basis. The businesses most likely to be involved in cross-border retailing are medium and medium-large retail enterprises, with a limited number of outlets in other Member States and with existing language capabilities. The Single Market Act points out that the economic gains of full implementation of the Services Directive range between 60 and 140 billion Euro, representing a growth potential of 0.6-1.5% of EU GDP.⁵²

⁵² Unleashing Cross-Border Services January 2011, BusinessEurope

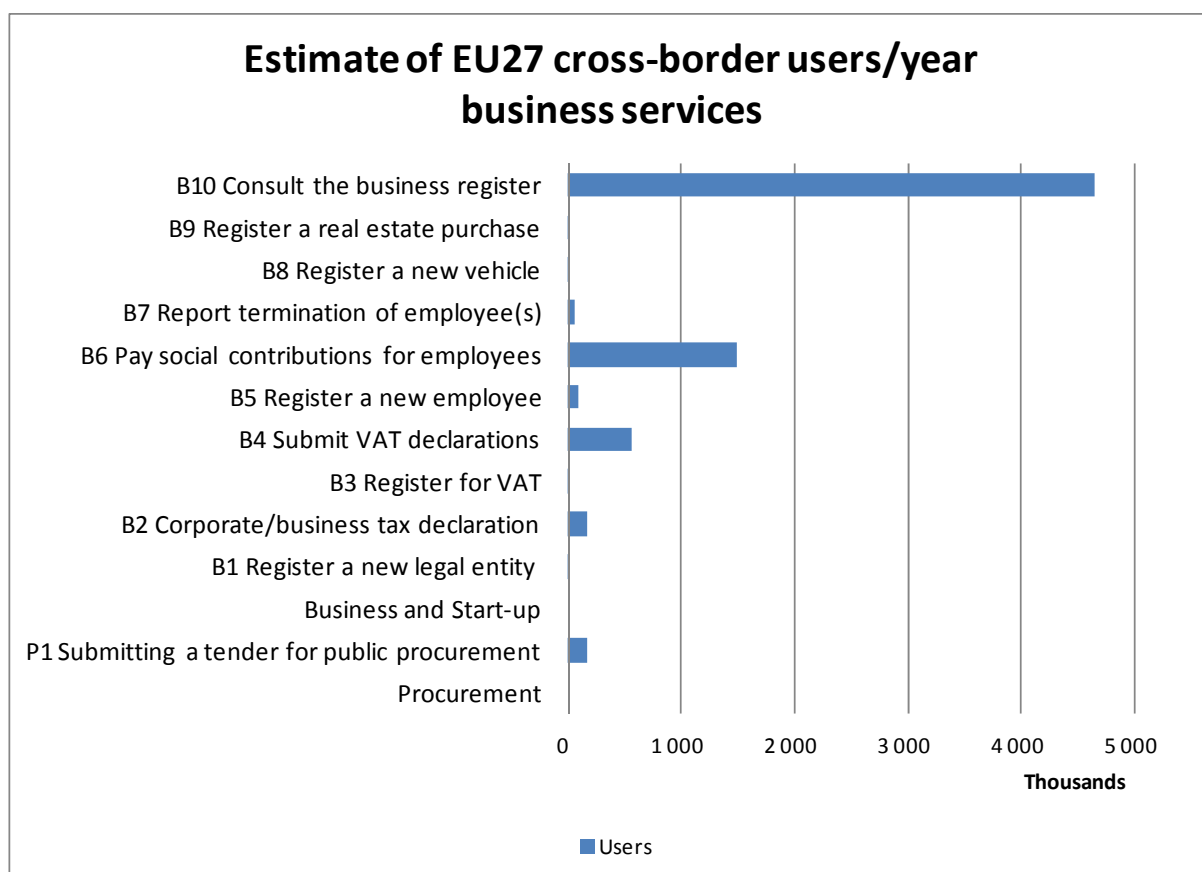


Figure 6 Estimate of EU27 cross-border users: business services

7,645 million cross-border business services have been used. When considering services used by businesses, the most used is Consult the Business Register with over 4,6 million users.

By looking at immigration and commuting flows from the various Eurobarometer and Eurostat documents⁵³, it has been estimated that the total number of immigrants and commuters between EU Member States will increase up to 2,196 million citizens by 2020. When considering growth in terms of uptake of online services combined to the estimated growth of cross-border commuters and immigrants, we can therefore conclude that *within the upcoming 8 years 942,439 additional citizens and 213,221 additional businesses are likely to recourse to online cross-border services each year.*

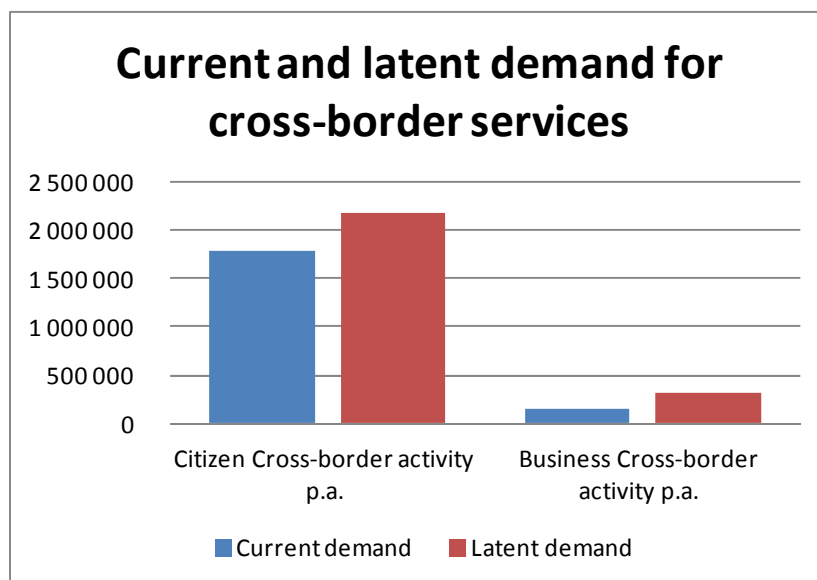
Table 10 sums up what total *current* and *latent* demand for cross-border eGovernment services by businesses and citizens has been estimated.

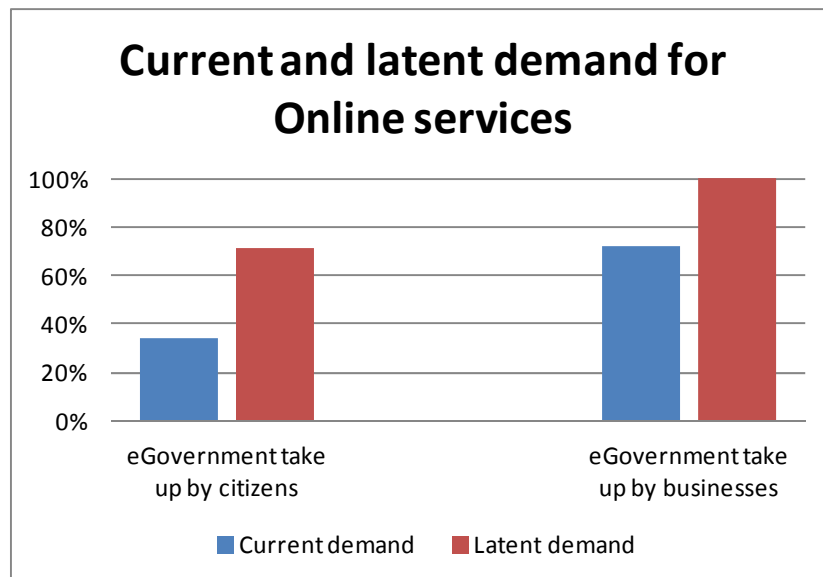
⁵³ The studies are referenced in the footnotes of section 2.2.1 Demand for cross-border services.

Citizens		
	<i>Current demand</i>	<i>Latent demand</i>
Cross-border activity (per annum)	1,790,000	2,185,683
eGovernment take up	34%	71%
Total demand of cross-border eGovernment users (per annum)	605,000	1,547,439
Businesses		
	<i>Current demand</i>	<i>Latent demand</i>
Cross-border activity (per annum)	140,000	314,021
eGovernment take up	72%	100%
Total demand of cross-border eGovernment users (per annum)	100,800	314,021

Table 10 Current and latent demand for Cross-border Services

The increase in using Online services will boost the demand for online cross-border services. The graphs below picture the current and latent demand for cross-border services in general and the latent demand for *online* cross-border services:





The final graph below presents a correlation of the demand for cross-border services, whatever the channel and the demand for online services.

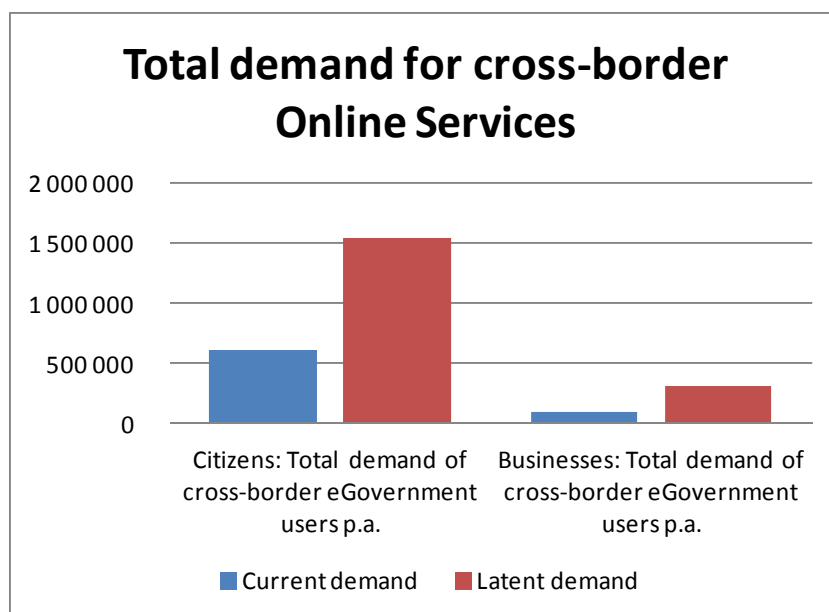


Figure 7 visualising the total demand for cross-border online services

When considering latent demand 1,547,400 citizens and 314,000 business are likely to use cross-border online services each year.

3.3 Results from the user survey

In the midst of the needs and demands phase of the study, 1,200 users were asked to say which services, out the eleven below, they had used during the past. Top three services used: income tax declaration, business tax declaration and request for eID documents.

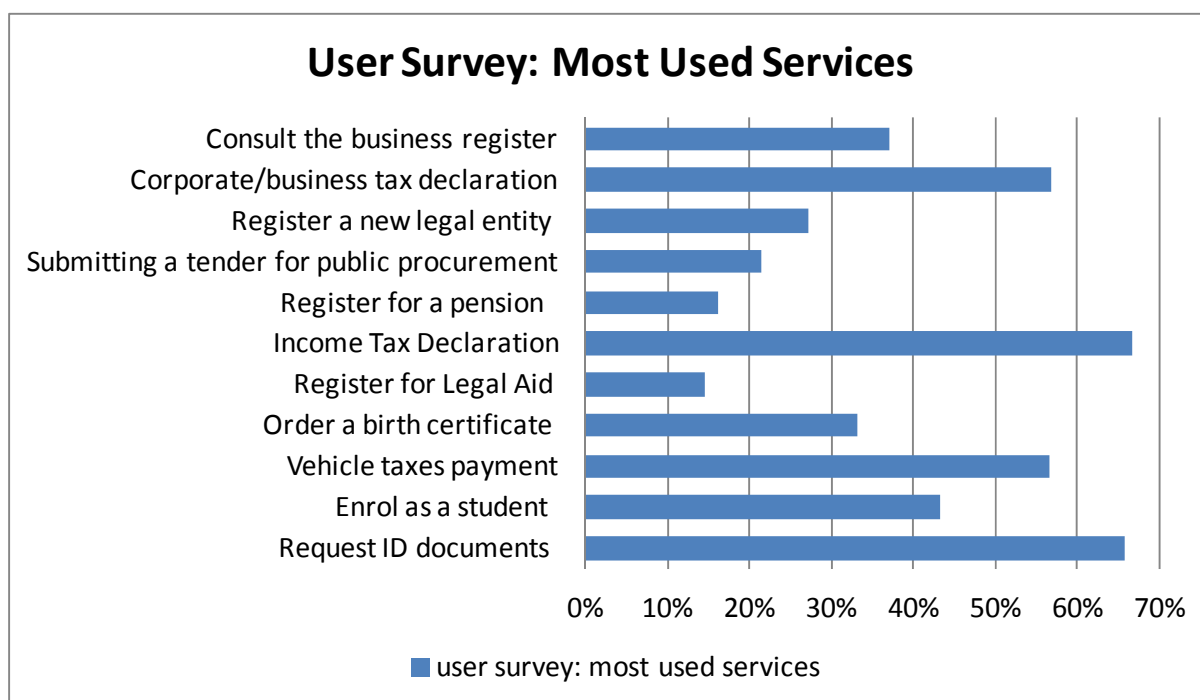


Figure 8 User survey most used services

Citizen services

The most used services across both past and future movers are requesting ID documents (resp. 67,6% and 57,2%), Income tax declaration (resp. 67,6% and 65,4%) and paying vehicle taxes (resp. 57,5% and 50,6%). The least used is registering for Legal Aid (resp. 13,8% and 14,2%).

As regards satisfaction, the perceptions of both past and future movers of the online procedures for the services are similar. Important motivating factors in the online use of these services for both groups are the satisfaction with the content on the website, the easy access to the website, the easy procedure and the fact that using an online procedure is quicker. Both groups would recommend using the websites for the services.

The complexity of the websites for the services was within both groups not perceived as a major barrier to satisfaction: only around one third of the respondents agreed with this statement, except for registering for Legal Aid and Registering for a pension. The websites for these services seem to be perceived slightly more complex although we have to note that the base sizes for these services are much smaller than for the other services.

The channel preference (online, offline or both) differs per service. When considering the services that ranked as most frequently used and least used, the recourse to the online channel has not been systematic.

The highest preference for the online channel was for paying vehicle taxes (49,9%), enrolling as a student (49,5%) and income tax declaration (48,3%). Requesting ID documents (23,6%) and registering for a pension (19,4%) are services for which the online channel was least used. Although the usage level for the last two mentioned services was high, the volume of the actual uptake of the online cross-border service might be smaller, because of the extent to which citizens will use the online channel for

this service.⁵⁴ The table below depicts the usage of services as indicated by the user and the percentage of online versus combination of both usage, namely online and offline.

Service	Usage %	Online usage%	Combination of both
Requesting ID documents	65,8 %	23,6%	17,8%
Declaring Income Tax	66,6%	48,3%	15,9%
Paying vehicle taxes	56,5%	49,9%	11,3%
Registering for legal aid	14,5%	31,5%	8,1%

Table 11 Comparison of online and offline use of most and least used citizen services

Thus extrapolating the figures collected during the user survey, by adding the percentage of online usage and combination of both, the immediate potential for online usage becomes much higher. Understanding further the barriers regarding the recourse to terrestrial channels will determine how to increase the take up of services more significantly.

Important inhibiting factors in the online use of citizen services among both past and future movers are confidentiality and security concerns and the lack of the availability of these services (the latter was less indicated for paying vehicle taxes and declaring income taxes).

For the services Paying vehicles taxes, Ordering a birth certificate and Registering for legal aid a higher proportion of the respondents indicates not to be aware of the availability of electronic procedures.

The least important factor seems to be the lack of available information and services in the language(s) the respondent speaks. Electronic procedures seem not too complicated and/or time consuming as this concern is also less expressed.

Business services

The service that is used the most in both groups of movers (past and future) is making a business tax declaration (resp. 52,6% and 57,3%). The other three services are considerably less used by the future movers. Second most used is consulting the business register (resp. 40,4% and 25,2%) followed by establishing a new legal entity (resp. 29,8% and 13,6%). The least used service in both groups is submitting a tender for public procurement (resp. 24,0% and 10,7%).

Between 70% and 90% of the respondents who already used the services online, indicated to agree with the following perceptions: satisfaction with the content on the website, easy access to the website, easy procedure and using an online procedure is quicker. They would also recommend using the websites for the services to others. However, the future movers agreed less with these perceptions for making a business tax declaration and submitting a tender for public procurement

In this group higher proportions of the respondents perceived the websites as complex when compared to the citizen group.

⁵⁴ Because of the nature of this survey (CAWI) the percentages of online usage can be higher than the average use of online services in EU countries.

The channel preference is similar for all business services, as shown in the table below. The service used online most is consulting a business register (37,1%). The only service for which a higher number of offline usage (46,8%) than online usage (45,2%) was measured, was establishing a new legal entity. However, as the base size for this group was small, the differences are not significant.

The most important inhibiting factors in the online use of these services are confidentiality and security concerns and the fact that electronic procedures still require exchange of paper mail or personal visits; the latter is indicated for establishing a new legal entity and making a business tax declaration and to a lesser extent for the other two services. The least important factor seems to be the lack of available information and services in the language(s) the respondent speaks.

Online service usage and perceived barriers: a conclusion

The user survey has provided the study team with additional insights on online service usage (where the demand for eGovernment services is most prominent) and on the role socio-demographic factors play in this. Moreover, it has provided insight in the barriers that are perceived by citizens and businesses and that could potentially influence the uptake of future cross-border eGovernment services. The barrier results can in turn be used in the barrier analysis that will be performed in a later stage of this study.

The table below summarises the main findings of the user survey, presenting the usage rates per service, the channel preference and the perceived barriers. The first table presents the results for the citizen services and the second for the business services. In both the services are ranked according to usage rates.

eGovernment services	Adoption barriers
E2 Income tax declaration (66,6%) • Online (48,3%) • Offline (35,8%) • Both (15,9%)	1- Security concerns (24%) 2- Complexity (24%) 3- Unawareness (14%)
M2 ID request (65,8%) • Online (23,6%) • Offline (58,6%) • Both (17,8%)	1- Unavailability (26%) 2- Security concerns (22%) 3- Need for further offline activities (17%)
M4 Vehicle tax (56,5%) • Online (49,9%) • Offline (38,8%) • Both (11,3%)	1- Security concerns (23%) 2- Unawareness (19%) 3- Unavailability (13%)
M3 Enrol as a student (43,2%) • Online (49,5%) • Offline (27,7%) • Both (22,7%)	1- Unavailability (26%) 2- Need for further offline activities (19%) 3- Complexity (14%)
M6 Ordering a birth certificate (33,2%) • Online (40,4%) • Offline (47,1%) • Both (12,5%)	1- Unavailability (18%) 2- Unawareness (17%) 3- Security concerns (17%)
E3 Register for a pension (16,2%) • Online (19,4%) • Offline (64,5%) • Both (16,1%)	1- Security concerns (25%) 2- Unavailability (23%) 3- Need for further offline activities (19%)

M9 Register for legal aid (14,5%) • Online (31,4%) • Offline (60,5%) • Both (8,1%)	1- Security concerns (25%) 2- Unawareness (18%) 3- Unavailability (16%)
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Table 12: eGovernment citizen services per usage level and their accompanying adoption barriers

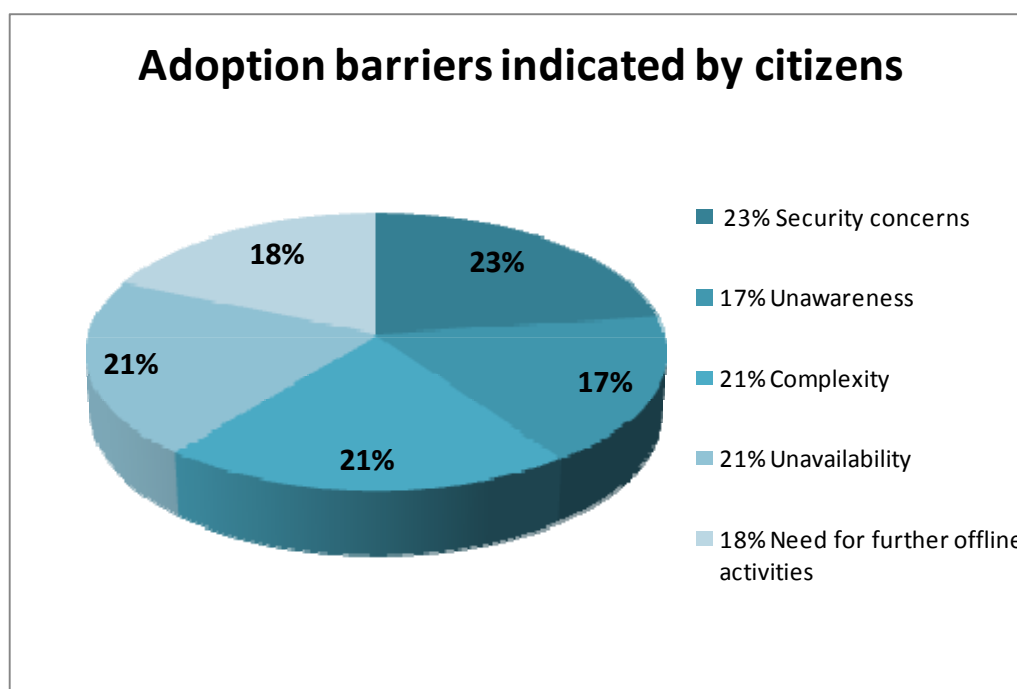


Figure 9 Adoption barriers indicated by citizens

The main adoption barriers indicated by citizens are security concerns, complexity and unavailability of online services. Top three adoption barriers by business are 24,7% for Security, 19% for need for further online activities, 18,25% for complexity.

eGovernment services	Adoption barriers
B2 Business tax declaration (56,8%) • Online (46,9%) • Offline (35,4%) • Both (17,7%)	1- Security concerns(27%) 2- Need for further offline activities (19%) 3- Complexity (18%)
B10 Consult a business register (37,1%) • Online (61,4%) • Offline (12,9%) • Both (22,4%)	1- Security concerns(30%) 2- Complexity (20%) 3- Need for further offline activities (10%)
B1 Establish a new legal entity (27,1%) • Online (45,2%) • Offline (46,8%) • Both (8,1%)	1- Security concerns(26%) 2- Need for further offline activities (26%) 3- Complexity (19%)

P1 Submitting a tender (21,4%) • Online (46,9%) • Offline (22,4%) • Both (28,6%) • Through an agency (2,0%)	1- Need for further offline activities (21%) 2- Complexity (16%) 3- Security concerns (16%)
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Table 13: eGovernment business services per usage level and their accompanying adoption barriers

3.4 Political, economic, social, technological, environmental and legal drivers for cross-border eGovernment service implementation

By conducting a PESTEL analysis the key drivers behind the need for the 25 cross-border services investigated were explored. Overall, the analysis does not show major differences between services: a clear need for all of the 25 cross-border eGovernment services can be identified. This confirms the assumptions that were made in selecting these 25 services.

However, whereas some impacts, such as the environmental impacts, are quite similar for each service (e.g. digitising services in general has an impact on the use of resources), others differ strongly per service, such as the economic impacts (e.g. investments already made in specific service areas can reduce development costs for Member States) and legal impacts.

The **political drivers** of the need for the 25 services were examined by looking at the dependence on political consensus between Member States (high dependence can impede service uptake), the link with sensitive moral, religious or socio-cultural issues (high sensitivity can impede service uptake) and the support through existing initiatives and investments (existing initiatives can accelerate service uptake). For few of the 25 services a clear link with sensitive moral, religious or socio-cultural issues was found. The support through existing initiatives - such as the inclusion in Large Scale Pilots, the embedding in general EU policies and existing obligations for services (e.g. tax) - was thus for a large part decisive for the determination of the political need for each of the 25 services. According to our analysis, citizen services with the highest political need are Registering as domicile, Income tax declaration en Registering for a Pension. High scoring business services are Registering a new legal entity and Consulting the business register. Registering for a pension and Consulting a business register are part of general Internal Market policies and of the free movement for persons. Registering as domicile and Registering a new legal entity are both use cases in Large Scale Pilots. For Income tax declarations, existing obligations have been identified at the EU level.⁵⁵

Economic factors can drive the need for cross-border eGovernment services in multiple ways. Although there have been major cuts in government spending some services, like ordering a birth certificate, registering a death and registering for legal aid, are needed regardless of the economic climate. They are thus little impacted by economic factors. Nonetheless, the digitisation of the service from a front-office perspective as well as from a case management perspective within the administration can generate important savings. This is generally referred to savings linked to the reduction of administrative burdens. As regards the overall landscape and comfort of operating business activities, more efficient services in procurement could stimulate more competitiveness from contractors. Likewise, a more competitive environment with efficient procedures for businesses, will develop the entrepreneurial spirit.

⁵⁵ See http://europa.eu/youreurope/citizens/work/abroad/taxes/index_en.htm; cross border tax evasion is a specific concern; see <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/1751>

Reduced investment spending and limited vacancy levels may cause people to seek employment in other countries and to move abroad. This effect thus increases the need for services such as Registering as domicile, Requesting ID documents and Work permit application. Declining national markets will also motivate businesses to look more widely for other markets, potentially increasing the need for a service as submitting a tender for public procurement. Furthermore, economic caution in a recession might cause businesses to seek more information before trading with new businesses, which in turn increases the need for cross-border business registers.

The impact of **social drivers** was examined by looking at the impact of the ageing population, the higher average age of working citizens, the higher citizen mobility of working citizens and the higher citizen mobility of retired citizens.

In general, a higher citizen mobility has a neutral to positive effect on all 25 services, as a higher mobility always increases the need for cross-border service provision. However, some services are more impacted than others. The need for registering as domicile, requesting ID documents, registering for legal aid, income tax declaration, consulting a business register and submitting a tender for public procurement will increase mostly because of higher citizen mobility. Most of those are also positively impacted by a higher average age of working citizens, as a longer working period increases the chances of going abroad during the working life-time.

Some services that are driven by an increase in citizen mobility, are impeded by the ageing population. As the population is ageing, there are fewer students. Also, less vehicles will be registered and less driver's licenses will be applied for. The ageing trend will reduce the workforce, reducing the number of work permit applications. Moreover, the percentage of businesses amongst older people (26% for 55-64 and 7% for people older than 64) is lower than the percentage of businesses amongst younger people (31% for 45-54 year olds). An ageing population thus negatively impacts the need for business services, such as registering a new legal entity, business tax declarations, registering for and submitting VAT declarations, registering a new employee, paying social contributions and reporting the termination of employees.

On the other hand, an ageing population can also increase the need for a service. As the age is increasing, the incidence of death is statistically higher, increasing the need for the service of registering a death. Furthermore, the elderly represent the highest pro capita incidence for prescription drugs and doctor visits (patient summaries). Naturally, more pensions will be registered as the elderly population leaves the workforce at an increased pace. As the population ages, the pressure is also stronger on health related services. Finally, the phenomenon of second home tourism is increasing amongst elderly, driving the need for registering a real estate purchase for citizens (for businesses, elderly are less likely to purchase real estate).

Furthermore, multiple services are driven by **enabling technologies**. For some services enabling technologies are already in place or piloted through Large Scale Pilots, such as registering as domicile (STORK), requesting ID documents (STORK), registering for legal aid (e-CODEX), registering a new legal entity (SPOCS), business tax declarations (STORK). For other services a clear movement towards online provision because of mature technologies, can be identified: registering for and submitting VAT declarations. For registering a new vehicle, registering a real estate purchase and registering a death, enabling technologies and standardisation are also key drivers of need.

Services can also be driven by the development of cloud computing technologies. These services mostly require data exchange and close cooperation between Member States, public bodies or businesses. The data exchange can be made easier and more efficient through cloud computing. Services that are specifically positively impacted by cloud computing are registering a real estate purchase for businesses, income tax declaration, registering a new employee, paying social contributions, reporting termination of employees, consulting business registers and submitting a tender for public procurement.

Determining the **legal drivers**, the study team examined legal requirements for the service, alignment with general EU laws and compatibility with fundamental rights. Legal drivers are also closely linked to the overall policy landscape within Europe.

A minority of the 25 services are required by law. Registering a new legal entity is the only cross-border service that is directly required by the Services Directive, which requires Member States to set up Points of Single Contact to provide this service. Moreover, this is the only directive that imposes upon Member States the need to ensure procedures are accessible at a distance and via electronic means. Electronic prescriptions and patient summaries are mentioned in the Directive 2011/24/EU of 9 March 2011 on the application of patients' rights in cross-border healthcare. Registering for pension, registering for VAT, submitting VAT declarations, consulting a business register and submitting a tender for public procurement are also taken up in EU Directives, although not that directly. In addition, the Commission has introduced proposals that gradually implement e-procurement in the EU (including the submission of tender) – to become mandatory by mid-2016⁵⁶. More importantly, the revision of the Signature Directive, 1999/93/EC and the adoption by the Commission of a proposal for a Regulation "on electronic identification and trusted services for electronic transactions in the internal market"⁵⁷ mark a growing trend to regulate more broadly and therefore enforce the implementation of online cross-border services. Other services are not required by law, but are aligned with general EU recommendations, like Registering as domicile or Enrolling as a student or compatible with fundamental EU rights, like Income tax declaration and Requesting ID documents.

3.5 Correlating the need and demand analysis results

Table 14 provides an overview of the data collected for the 25 services. The results of the need and demand analysis are complemented with the insights retrieved from the workshops conducted with EC and MS representatives. During the two workshops conducted during the course of April 2012, the stakeholders were requested to identify the most relevant services, on the basis of their subject matter expertise and the initial data sets underpinning the 25 cross-border services. Thus, a short list of services were identified as "to be further explored". The initial services recommended are marked with the number 1 in the table below.

Nb. The top ten citizen and top 5 business services in terms of volume are coloured in light orange.

⁵⁶ European Commission (2012), "Communication to Council et al.: A Strategy for e-Procurement", COM(2012)179, http://ec.europa.eu/internal_market/publicprocurement/docs/eprocurement/strategy/COM_2012_en.pdf

⁵⁷ See: http://ec.europa.eu/information_society/policy/esignature/eu_legislation/regulation/index_en.htm

	Estimate of EU27 cross-border users (per annum)	User survey: most used services	PESTEL Scores	Stakeholder input ⁵⁸
Moving and Residence				
M1 Register as domicile	1,205,000		4,18	
M2 Request ID documents	1,446,000	65,80%	3,99	1
M3 Enrol as a student	130,000	43,20%	3,68	1
M4 Vehicle taxes payment (special declaration)	622,000	56,50%	3,41	
M5 Applying for a driver's licence	104,000		3,43	
M6 Order a birth certificate	137,000	33,20%	3,23	
M7 Register a death	22n598		3,22	
M8 Register real estate purchase	66,000		3,43	
M9 Register for Legal Aid	279,000	14,50%	3,63	
Health				
H1 Electronic prescriptions	4,295,071		3,89	
H2 Access to patient summary	20,140,000		3,94	1
Employment				
E1 Work permit Application	1,000		3,87	
E2 Income Tax Declaration	235,000	66,60%	3,9	1
E3 Register for a pension	2,000	16,20%	3,88	
Procurement				
P1 Submitting a tender for public procurement	122,000	21,40%	3,82	1
Business and Start-up				
B1 Register a new legal entity	18,000	27,10%	3,96	1
B2 Corporate/business tax declaration	177,000	56,80%	3,23	
B3 Register for VAT	18,000		3,75	
B4 Submit VAT declarations	561,000		3,71	
B5 Register a new employee	84,000		3,54	
B6 Pay social contributions for employees	1,491,000		3,51	
B7 Report termination of employee(s)	55,000		3,4	

⁵⁸ The '1' indicates that this service was one of the seven services voted for most by Member States and the European Commission during the workshops as a preferred service to implement in the future.

B8 Register a new vehicle	3,000		3,45	
B9 Register a real estate purchase	1,000		3,34	
B10 Consult the business register	4,641,000	37,10%	3,93	1

Table 14 Overview of results Need and Demand Analysis

To correlate the data collected from the needs and demands analysis, a list of indicators was identified thanks to the involvement of the EC and MS representatives.

Indicator title	Indicator Description
Enabling aspect	"THE" big step, that will be required in many other services. The sequence of services and their capacity to enable access to additional services.
Ongoing Initiatives	To consider existing projects and initiatives. i.e. if the EC is already implementing for instance VAT registration, then the study around this potential new service is limited. (statement from DG TAXUD)
Volume & latent demand	Statistical usage of the service. However this should be weighed accordingly as there is a risk that low usage may illustrate poor online service quality!
Regularity / recurrence:	Applicable especially for businesses e.g pay VAT every quarter in most countries. More impactful that a service being used once in a lifetime

Table 15 Needs and Demands analysis indicator description

The combination of the different methodologies: statistical analysis, user survey, holistic qualitative assessment and stakeholder workshops were weighed in terms of priority and correlated. The results allowed the study team to down filter the list of 25 services to a list of seven services to further analyse. The outcome of the full assessment against the indicators has provided the following list of services

Moving and Residence
M1 Register a domicile
M2 Request ID documents
M9 Register for legal aid
Health
H2 Access to patient summary
Employment
E2 Income Tax Declaration
Business and Start-up
B1 Register a new legal entity
B10 Consult the business register

Table 16 Down-selected list of 7 services

Moving and Residence Cluster

As an introduction to the shortlisted services in this cluster, it is important to bear in mind the notion of a sequence of services. In other words, what services occur first when a given user moves abroad for fixed or indefinite duration? It does not come as a surprise to note that two services differentiate themselves and witness a comparatively very high level of volume.

M1 Register a domicile

Registering a domicile is one of the first actions when moving across borders in order to access additional generic public and private – ie banking – services. This applies to all citizens, whatever their socio-demographic background and activity. This includes, people who live, work, retire, study, etc. abroad. It also links to STORK LSP and represents the pilot number 5 on registering a change of address. Furthermore, when looking at the volume calculated in chapter 3, this service witnesses one of the highest levels of transactions in a cross-border context. Despite the fact that this service was not one identified during the workshops with the stakeholders, further exploration of this service should shed light on how to ease further cross border mobility.

M2 Request eID documents

This is one of the basic technical enablers that provides the means to technically access services. Indeed, authentication means are essential in order to register for public services, whether these are *demanded* or *needed* by regulations. It builds on the LSP STORK and STORK 2.0. The activities around eID and authentication are high on the political agenda and link closely the new regulation on eSignatures and authentication.

Requesting eID documents has a combined high volume of requests per annum and has also been requested by 65% of the respondents of the survey. However, only 23,6% of the respondents admit not using the online channel. This service has also been underlined during the workshops due to its key enabling aspect, as stated above. Despite the fact that the occurrence of this event may seem low, it matches the indicators as regards the enabling aspect, the link to ongoing initiatives as well as volume and latent demand.

Health Cluster

H2 Access to Patient Summary

Considering the high statistical relevance of the health related services (H1 and H2), these services were not introduced into the user survey. As statistically most relevant with a high potential occurrence, correlated to the increase in cross-border trends, the workshop with the MS and EC pointed to the need to maintain one of the two, namely access to patient summary (H2). Furthermore, the PESTEL analysis confirmed the initial recommendation elaborated upon during the workshops by providing an average score of 3.94 to this service. The PESTEL, when excluding the political factor, ranked H2 as the number 4 most relevant service. Thus, this service has been down-filtered.

Employment

E2 Income Tax Declaration

Out of the three services previously listed in this category, Income tax declaration was the one with the highest volume: 235,000 requests from the statistical analysis and indicated by two thirds of the respondents. Despite the fact that all PESTEL scores in this cluster are comparable, income tax declaration ties into EU initiatives as well as national optimisation of income tax collection and policy to mitigate potential cross-border tax evasion. Exploring this service further will facilitate cross-border work by enabling workers to file on line either in the home country or the country to which he/she has gravitated for work. This service, over time, can indirectly support additional services such as the cross-border claim of pensions.

Services for businesses

Businesses represent important – in terms of volume – as well as valuable – in terms of revenue – customers of public services. They are also more familiar with online services. Comparing the rankings of the business services, four potential services for downfiltering came out, namely P1 Submitting a tender for public procurement, B1 Register a new legal entity, B4 Submit VAT declarations and B10 Consult the business register. However, as multiple studies are already executed on P1 Submitting a tender for public procurement (commissioned by DG MARKT)⁵⁹ and B4 Submit VAT declarations (commissioned by DG TAXUD)⁶⁰, there is a considerable risk of overlap. It was thus decided to only down-filter two services for businesses, of which the needs and demands are described below.

B1 Register a legal entity.

This service witnesses lower demand (18,000)⁶¹ compared to Submit VAT declaration (561,000) or even Pay social contributions for employees (1,491,000). Despite these seemingly low figures, registering a legal entity is a high priority for the internal market, as it calls to the four freedoms at the foundation of Europe (i.e. the freedom of people, goods, services and capital). Moreover, it links to the Services Directive Members States are struggling to implement⁶². Deloitte and Tech4i2 point to the fact that 85% of the Points of Single Contacts within the MS have transactional services. Thus, further analysing a service that is said to have a high level of online maturity within the different countries can shed light on costs, benefits and barriers. As described in the context of procurement, registering a legal entity is the first step in the sequence of doing business. Underlined by the stakeholders and very much linked to interoperability topics thanks to the LSP SPOCS, enabling this service further has direct spill over effects to national and European growth and jobs. It may not occur as frequently as

⁵⁹ - PWC, (2012), Study on e-procurement measurement and benchmarking, 2012/S 25-039715, Lot 2 'Golden book'

- European Commission, (2011), Commission Staff Working Paper Impact Assessment accompanying the Proposal for a Directive on Public Procurement and the Proposal for a Directive on procurement by entities operating in the water, energy, transport and postal sectors

- European Commission (2012), Communication from the Commission: A strategy for e-procurement, COM(2012) 179 final

- Capgemini, IDC, (2012), Study on e-procurement measurement and benchmarking, 2011/S 142-235043

⁶⁰ PWC, (2011), Study on the feasibility and impact of a common EU standard VAT return, Specific Contract No. 9, TAXUD/2011/DE/329

⁶¹ Despite the strong reservations made with regard to this figure, it being very low.

⁶² Deloitte, Tech4i2, (21-01-2012), The functioning and usability of the Points of Single Contact under the Services Directive – State of Play and Way Forward, Final Report DG MARKT/2010/22/E (SMART 2007/035)

paying VAT or social contributions, nonetheless it is key to further understand the cost benefit and barriers related to the further use of this service.

B10 Consulting the business register

This service had initially not been considered in the list of 25 and was indicated by the stakeholders. It overlaps both services for business and justice – dependent on where its responsibility falls within the MS. Looking at the statistical relevance of this service, consulting the business register is the most frequently used service in a cross-border context with over 4,641,000 hits. It also benefits from high legal and political relevance thanks to growing EU attention. Furthermore, more than two thirds of the business representatives surveyed acknowledge having used this service. This atomic service also fulfils the needs for checking the legal existence of a given company as well as its financial status. It also responds to the growing need for interoperability in connecting national registers and ensuring synchronous communication from a technical point of view.

As the study initially planned for a down-filtered list of seven cross-border government services, of which three for businesses instead of the above presented two, the consortium and the European Commission decided to consider an additional service for Citizens, namely M9 Register for legal aid.

M9 Register for legal aid

The service Registering for legal aid has an estimated 279,000 cross-border users per year. As indicated before, there is a growing need and interest in further working on e-Justice services. Cross-border access to legal aid is part of the European eJustice Portal and the e-CODEX Large Scale Pilot facilitates the exchange of legal information between voluntarily participating Member states, requiring a baseline of services to enable this functionality. The creation of cross-border eGovernment services is incentivised by the Council Directive 2002/8/EC of 27 January 2003 which aims to improve access to justice in cross-border disputes by establishing minimum common rules relating to legal aid for such disputes. This service makes cross-border justice systems less complex and inaccessible and therefore enables a safer environment for citizens and businesses to live and work cross-borders.

3.6 Persona and context for utilizing the seven cross-border services

M1 Register a new domicile

You are a 25 year old female and you were born and lived in Paris, France until June 2012. You now live in rented accommodation in the capital city of the country under investigation; having decided that you wish to remain there for an extended period of time, you need to register your domicile at your current address.

M2 Request ID documents

You are a 27 year old male and you were born and lived in the capital city of the country under investigation until June 2012. You now live in Dublin, Ireland and you have lost the ID documents from your country of birth (not your Irish ID documents). You need to request ID documents from the country under investigation.

M9 Register for legal aid

You are a 29 year old female who was born and lived in Italy until January 2009 when you moved to the country under investigation. You lived in rented accommodation in the capital city of the country under investigation until June 2012. You now live in Rome,

Italy. After returning to Italy you have been corresponding with your former landlord about damage he alleges you caused to the flat you used to live in. He is now suing you for the damage. You thus require legal aid in the country under investigation and need to approach a legal aid body to register for help with this problem.

H2 Access to patient summary

You are a 31 year old male and you were born and lived in the capital city of the country under investigation until June 2012. You now live in Vienna, Austria. You have become unwell with a stomach complaint that appears to be an allergy to wheat. Your Austrian doctor wants you to undergo a test for gluten intolerance but first wants to access patient summary documents from your country of birth (not your Austrian medical documents) to examine your medical record.

E2 Income tax declaration

You are a 33 year old female and you were born and lived in Finland until 2009. You worked as a self-employed sculptor in the capital city of the country under investigation until June 2012. You have now returned 'home' and live and work in Helsinki, Finland.

When you were in the country under investigation you possessed all the required working documents and permits (e.g. employee and social insurance numbers). During the last tax year of employment in the country under investigation your net earnings are 34,000 euros. You are now required to submit a tax declaration for this amount in the country under investigation. You have to make contact with the relevant authorities to do this from Helsinki.

B1 Register a new legal entity

You are a 35 year old male and you were born and still live in Stockholm, Sweden. You want to move to the country under investigation in October 2012 and start working for yourself selling jewellery in local craft markets. You will make the jewellery yourself and you wish to register a business so that you can start making the items from your new home in the capital city (there is no conflict in the deeds of the house or with local planning regulations in working from home). You will meet all additional regulatory requirements (register as a domicile etc.) and obtain the relevant documentation when you move to the country concerned in October 2012.

You envisage that the business will have a turnover of about 35,000 euros in the first year of trading. You are resident in Stockholm and have to register the new business in the country under investigation.

B10 Consult the business register

You are a 37 year old female and you were born and still live in Brussels, Belgium. You are considering signing a contract with a company registered and established in the country under investigation. However, you have only communicated remotely (via e-mail and phone) with the company – FKC Limited - and want to find out more before closing the agreement.

You therefore want to consult the business register of the country under investigation to discover any relevant information that might be available through the business register (this might include items such as official address, legal form of the business, any financial data, local branches, VAT registration, etc) about the company.

4 Cross border eGovernment services provision: the state of play

It is natural to think of any service, which is available through Internet, as a cross border service. The fact that you can access a web page or a web service from any location apparently implies that it can be used across geographical (spatial) borders. However this is not true in all cases. Ubiquity of physical access is not the only factor determining whether a service can be effectively used across borders. Other factors such as legal and regulatory requirements, measures to ensure security of the information service, the need to certify the identification of the user, language limitations, the level of completeness of the service or requirements for hand delivery of auxiliary documentation all enable or hinder the true availability of an online service across national boundaries. This section examines the online availability and maturity of the seven cross-border services under investigation.

4.1 Availability and maturity of cross-border eGovernment services across Europe

Using the concept of service availability framed in the Service Directive⁶³ and the definition described in previous sections, cross-border services are those services that can be accessed by the persons and businesses residing or living in a country other than in the country providing the service in question. A cross-border service is deemed 'online available' if one or more process steps of the service can be performed online (transactional or non-transactional). Besides availability, we also examine the maturity of online services. The maturity classification is based on the four levels of online service sophistication defined in the European Commission⁶⁴ and OECD⁶⁵ eGovernment maturity model, i.e. Information, One-way interaction (downloadable forms), Two-way interaction (electronic forms) and Full case handling. This maturity classification allows subjective comparison of functionally similar services across different service providers in different countries without having to identify and assess a number of different technical features like availability of payment or browsing from mobile devices, which may or may not be required for service delivery. The maturity and availability of the seven cross-border services are measured through Customer Journey Mapping.

Table 17 provides an overview of the availability of the seven services in the seven Member States. Of 49 possible services (7 services x 7 Member States) 38 (78 per cent) are available online⁶⁶. This is slightly lower than the average availability on the European level. Across Europe, of the 20 services examined by Eurostat⁶⁷ 85 per cent is available online. However, not all services examined in our study are part of the basket of 20 European services.

Of all seven services examined, Requesting ID documents⁶⁸, Registering a new legal entity and Consulting the business register are the only three services available in all seven Member States studied. Since requesting ID documents was one of the most utilised services in our user survey (65.8 per cent of respondents had used this service online) this should be very beneficial. Interestingly, in the user survey (which mainly focused on respondents from Germany, Poland, Spain, Sweden and UK) the main barrier

⁶³ Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market.

⁶⁴ http://ec.europa.eu/information_society/eeurope/i2010/benchmarking/

⁶⁵ E-Government service maturity FROM www.oecd-ilibrary.org/sites/9789264075061 available online nationally but only 38 cross-border

⁶⁷ Eurostat data taken from ec.europa.eu/eurostat/product?code=tsdgo320&language=en&mode=view

⁶⁸ In the UK a request for a passport was used to substitute for an ID document

(26 per cent of respondents) for not using the service online was that respondents perceived that the service was not available online. Since this study and preceding work has shown that there is a relatively high level of online service provision the user perception that 'services are not available' suggests that there is probably a need for online cross border services to be easier for users to find and/or better advertised. Another possibility is that users only perceive services as being available or being useful if full case handling is possible.

		# MS in whic h avail able ⁶⁹	Informat ion only	One way interact ion	Two way interact ion	Full case handlin g	Avera ge maturi ty
M1	Register as domicile	6		3	1	2	61%
M2	Request ID documents	7	2	4	1		46%
M9	Register for legal aid	6	1	3	1	1	50%
H2	Access patient summary	0					14%
E2	Income tax declaration	5		1	1	3	61%
B1	Register new legal entity	7		2		5	86%
B1 0	Consult business register	7			1	6	96%
	Total	38	8%	33%	13%	45%	59%

Table 17 Availability of services for cross border scenarios

Table 17 shows that two of the services are available in six Member States. One of those services, Registering as domicile, is not required in one Member State, Register for cross-border legal aid is not available online in another. In two Member States, it is not possible to make a cross border online tax declaration. The unavailability of this service is a little concerning because it was the most used online service in the cross border user survey (66.6 per cent of respondents had used this service online).

Access to patient summaries is largely a service that would be utilised by an intermediary (a doctor or other medical practitioner). Contact with the representatives of the epSOS Large Scale Pilot revealed that this online service is still in its infancy and is undergoing pilot testing in a small number of Member States. In three Member States there are regional or national initiatives that provide national citizens access to their patient summary. If one excluded 'access to patient records' (H2) 42 services (6 services x 7 Member States) should have been available. 38 or 91 per cent were found and assessed online in the study.

⁶⁹ The number of MS of the 7 studies in which this service was available for cross-border use. The following rows highlight the level of maturity at which that service is available in the 7 countries.

Table 17 also provides details on the maturity of the services using a four category sophistication scale. For three services (8 per cent) only information about how to obtain the services terrestrially is available. 33 per cent of services (13 services) enabled users to download documents or forms (one way interaction). Five services (13 per cent) enabled documents and forms to be downloaded and returned online (two-way interaction). Nearly half of the services (17 or 45 per cent) enabled users to undertake all the interaction and transactions (including payment in some cases) online; these provided 'full case handling' and enabled users to obtain the cross border services. Overall, the business services are most sophisticated, with 96 per cent of sophistication for Consulting the business register and 86 per cent for Registering a new legal entity. Of the citizen services, Income tax declaration and Register as domicile are most sophisticated with 61 per cent. On the lower side of the index we see Access to patient summary, Requesting ID documents and Registering for legal aid.

4.2 Explaining the differences in availability and maturity between services

The differences in availability and maturity between the seven services investigated might be explained by the potential volume of service users. However, when comparing the maturity level with the cross-border user volume estimated in previous stages of this study (see Table 18), there is no apparent correlation. As an example Access to Patient Summary has the highest estimated user volume, it has the lowest level of sophistication, while on the other side of the spectrum, registering a new legal entity has the lowest estimated cross-border user volume and the second highest level of sophistication. Hence other considerations such as the nature of the service (informational or transactional) and the complexity of the service (legal-, privacy-, security-, and semantic issues for example) influence the level of implementation of the service.

	Services	Average maturity	Estimated cross-border user volume
M1	Register as domicile	61%	1.205.000
M2	Request ID documents	46%	1.446.000
M9	Register for legal aid	50%	279.000
H2	Access patient summary	14%	20.140.000
E2	Income tax declaration	61%	235.000
B1	Register new legal entity	86%	18.000
B10	Consult business register	96%	4.641.000

Table 18
Maturity level in comparison

with estimated cross-border user volume

This suggests that countries prioritise services in other ways than based on demand. This does not imply that demand should be the key driver of the deployment of a service. Political, social and other factors play a role. Furthermore, lack of availability can influence lack of demand and not implementing a service can lead to a circular reasoning

paradox. Countries do however anticipate an increase of demand once the service is made available online. Based on previous experiences, service providers believed that usage of their particular service was growing at an average rate of nearly 24 per cent yearly, falling back to slower rates as saturation is reached.

The ability to access cross-border services online is important to enable easier cross border movement of citizens and businesses.

The Customer Journey Mapping exercise has shown that the cross-border services are relatively widely available online in the seven Member States (78 per cent), except for access to patient records which is still at the pilot stage of development as part of the epSOS Large Scale Pilot initiative. The availability is expected to increase in the coming years as according to Eurostat figures⁷⁰, there has been a constant yearly rate of growth (in the period of 2007-2010) of over 13% in the provision of online services by European Public Administrations.

All the services examined can be accessed relatively easily online, although there are big differences in the level of online sophistication of services. The business services have the highest level of sophistication, followed by income tax declaration. Request ID documents and access to patient summary are the least sophisticated services.

The availability figures do not match the results of the previously performed user survey, in which the key barrier indicated to using online services was that the service was not available online. Online cross-border services thus need to be easier for users to find with better signposting. Aggregating them together (or providing clear links) in a section devoted to cross-border services might help to raise awareness of the variety of services available. Providing the service in multiple foreign languages will also increase usage of services.

There is no evident correlation between the availability and maturity of services and the estimated user volumes per service. This suggests that, whether or not governments decide to implement cross-border services has in the past not primarily depended on the potential demand for a particular service.

⁷⁰ Eurostat data taken from ec.europa.eu/eurostat/product?code=tsdgo320&language=en&mode=view

5 Costs and benefits of making cross-border services available

The question that is often asked before deciding to implement cross-border services is what the rationale is behind doing so. This section provides deeper insight in what factors may drive the implementation of online cross-border services and more specifically what different kinds of quantitative and qualitative costs and benefits governments should consider during their decision making process.

What will be shown is that the answer is not as clear-cut as might be expected. The business case for one service or one key enabler might be challenging but when combining it with others, the financial viability can increase. Other elements to consider are that cross-border enablement depends strongly on national/local pre-existing services which is not always the case. Several of these considerations will be outlined and dealt with in this chapter.

The costs and benefits are presented according to the PESTELO categories, i.e. political, economic, social, technological, environmental, legal and organisational drivers; where the PESTEL has been enlarged to carry an organisational factor as well.

5.1 Current rationale for service implementation

The previous section already showed that the demand for services is currently not the main driver for service implementation. So how do governments prioritise services for implementation? Our hypothesis in this report is twofold, namely that making existing services cross-border is determined by a synthesis of political and economic rationale and that the incremental costs for cross-border enabling a service is marginal and is best addressed immediately when implementing or updating a national service. In Table 19 the sophistication level of the seven services is compared to the results from the PESTEL analysis performed in previous stages of this study. The PESTEL approach examined motivations by assessing Political, Economic, Social, Technological, Environmental and Legal drivers. For each of the factors the potential impact on the implementation need for the service was assessed on a 5 point scale. The highest scorers contributed to the down filtering and selection of the shortlist of services examined in this study.

Service	Political	Economic	Social	Technological	Legal	Average PESTEL score	Sophistication
Register as domicile	93%	92%	85%	68%	73%	82%	61%
Request ID documents	73%	92%	85%	85%	53%	78%	46%
Register for Legal Aid	73%	60%	76%	76%	80%	73%	50%
Access to patient summary	67%	64%	96%	80%	87%	79%	14%
Income Tax Declaration	87%	60%	85%	76%	60%	74%	61%
Register a new legal entity	93%	44%	60%	88%	73%	72%	86%
Consult the business register	87%	72%	65%	84%	73%	76%	96%

Table 19 Service sophistication compared to PESTEL results

Table 19 presents the PESTEL scores in percentages per service, as well as the sophistication levels. The highest scores per PESTEL category are highlighted in red and the highest sophistication levels are highlighted in green. When comparing the average PESTEL scores with the sophistication levels, little correlation can be found. However, when looking at the single PESTEL categories, results show that all services with the highest political impact have the highest sophistication level. This suggests *political considerations* currently have most impact on government prioritisation (more than economic, social, technological, environmental or legal considerations). There are of course many factors that can drive or complicate full online delivery of services. Below sections therefore outline the costs and benefits that might be considered for each of the PESTELO factors.

5.2 Political drivers

Political drivers can be understood as both the ambition – goals, targets – and the actions that are taken at different levels – in other words, the means set into motion to achieve the goals. From a cost benefit perspective both levels represent costs and opportunities. These can be measured at a quantitative level, such as via budget allocations, or at a qualitative level. The qualitative costs and benefits can be illustrated by e.g. loss of political autonomy, flexibility, benefits can be driven by top-down support that drive realization of cross-border services.

Europe benefits at large from wide political support to the implementation of cross-border services. This has been depicted throughout the different eGovernment action plans and more broadly the Digital Agenda for Europe. Such an approach plays in tune with the ambition of the Single Market. The *raison d'être* of cross-border services stems from the over fifty year long European project. The Four freedoms⁷¹ that have set the basis for the European Union. "The internal market shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties."⁷² More and more citizens and businesses are making use of the European single market's freedoms, extending their work or leisure activities beyond the borders of their respective countries.⁷³

Already in 2010, the *Study on eGovernment scenarios for 2020 and the preparation of the 2015 Action Plan*⁷⁴ summarises the political ambition of using cross-border services as means to realize specific policy targets⁷⁵. Such a statement therefore extends the understanding of the Four freedoms depicted above by adding the aspiration to facilitate increasing mobility with the necessary welfare state support required to travel, live, work and receive healthcare and pensions anywhere in the European Union. This was successfully transposed in the Digital Agenda for Europe via the milestone to define "a common list of key cross-border public services that correspond to well defined needs – enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the European Union. These key services should be available online by 2015".⁷⁶

⁷¹ Consolidated version of the treaty on the functioning of the European Union, C 115/49, 9.5.2008, art. 26.

⁷² Consolidated version of the treaty on the functioning of the European Union, C 115/49, 9.5.2008, art. 26.

⁷³ Towards interoperability for European public services, COM(2010) 744 final 16.12.2010

⁷⁴ Study on eGovernment scenarios for 2020 and the preparation of the 2015 Action Plan , Final report (D5), Rand Europe for the European Commission, June 2010

http://ec.europa.eu/information_society/activities/egovernment/studies/completed_studies/docs/smart_2009_0069/d5.pdf

⁷⁵ Ibid. p17 "There seems to be less need to emphasise on creating Pan-European GovernmentServices in general but focus on cross-border services to address specific policy targets."

⁷⁶ A Digital Agenda for Europe, COM(2010) 245 final/2 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF>

Political benefits of the roll out of services covering a range of life events as those assessed in our present study also encompass broader cooperation across government agencies. From a quantitative perspective this translates into gains realised in the implementation and delivery of services. The aforementioned Study on the eGovernment scenarios for 2020 relates to this by underlining that "Mobility (exercise of the Four Freedoms) also requires cooperation among dispersed organisations in different countries, with different cultures, jurisdictions, legal traditions, incentives and concerns; the complexity of different, non-transparent and/or incompatible arrangements obviously makes this cross-border cooperation hard."⁷⁷ In further characterising the implementation of cross-border services it is also stated that "cross-border activity is rarely budgeted for within national public agencies, and the project-management skills of qualified IT personnel to run multinational, multi-stakeholder initiatives are a scarce resource. At the same time, the benefits of cooperation are not always evident in the short term, whereas the risks of failure are high."⁷⁸ Risk of failure thus becomes a political risk.

The most frequently referred to political challenge in respect to cross-border services is the overall sensitivity of promoting public services for non-nationals and the cross-border pendent of seeing one's own national incentives to settle abroad. This has been underlined in the interviews undertaken, especially in the context of the Large Scale Pilots (LSPs) where communication and promotion has been initiated. The political costs of such an approach evidently differ across countries and culture. A conclusion that can be drawn, is that the national interests prime over the ambition of realized mobility.

5.3 Economic drivers

Implementing a service always takes time and money from a governmental organisation. For decades, citizens and businesses were served by paper at a governmental desk. It was not uncommon that people had to travel several times to a governmental desk to get the request handled properly. Nowadays, more and more services are (partially) handled online. Appointments or request can be made online, necessary information and documents needed are shown online and sometimes the complete handling can be done online. The offline transaction is redundant in these situations. On the long term, this is advantageous for both governments, citizens and businesses. Citizens and businesses enjoy the comfort of place and time independent possibilities of making a request. Also, waiting time and travel time is reduced significantly. In most cases, administrative burdens are reduced and sometimes there exists a possibility of following the cases on a real time basis. For the service Income Tax declaration for example, a service with a high sophistication level according to our research, the traditional terrestrial manner of declaring tax puts a high administrative burden on citizens and businesses. Examining records and choosing the correct regimes for calculating and applying withholdings can be challenging, while for an information system this is simply a question of applying the correct algorithm. Implementing Income tax declaration online thus has a high time savings potential for users, as well as a potential of mitigating human errors in tax declarations.

From the government's point of view, the effect on the national balance sheets by cutting costs, increasing collected revenues or bringing increased economic activity to the region through a better business climate, can be decisive for the implementation of services. Again taking the example of Income tax declaration, this service is attractive for administrations as it makes it easier for people to pay in cross border situations rather than try to recover unpaid taxes. In 2010 tax revenues accounted for an average of 91 per cent of total revenues⁷⁹ of European governments.⁸⁰ With the pressure to avoid

⁷⁷ StudyStudy on eGovernment scenarios for 2020 and the preparation of the 2015 Action Plan, Final report (D5), Rand Europe for the European Commission, June 2010

⁷⁸ Ibid

⁷⁹ http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Tax_revenue_statistics

⁸⁰ 1995-2010 Eurostat 2011 (gov_a_tax_ag)

running deficit budgets in times of recession and financial crisis services like this that make it easier to pay taxes can become a priority for governments.

Highly sophisticated services as registering a new legal entity and consulting the business registry can increase the attractiveness of national communities for international investment. Increased investment will lead to increased business and economic activity and thus will have a positive effect on the economy.

However, before being able to grasp financial or time benefits, additional costs have to be made by governments. These so called 'implementation costs' of the online service are made to make the service available online, such as preparatory activities and, costs related to making the service virtually available (tendering costs, buying the system, implementation costs, training costs and communication costs). Offering the service to cross-border users requires incremental investments, such as translation costs, costs of recognizing a foreign eID and foreign electronic signature (when applicable). In addition, there are so-called 'operating costs' of a service. The operating costs are yearly reoccurring costs for governments, to offer the service to businesses and/or citizens. Operating costs consist of handling and processing time, handling of complaints, answering of questions and IT-costs of the system.

The most significant perceived economic barrier for the increased uptake of cross-border services seems to be the expected high upfront investment costs, especially in the case of the technically more complex systems. This issue is often compounded by the expectation of high operational costs, though they are more difficult to quantify as these costs are often "hidden" in general operational support costs (whether as internal time effort or external expenditure). As will be shown further on however, the incremental costs for cross-border enabling a service can be limited once key enablers (eID validation, eSignature validation, Document standards, transportation protocols and gateways, etc.) such as those provided by the Large Scale Pilots are available and are used

For this reason, it can often be difficult to justify the initial relatively high costs associated with (cross-border) service enablers such as eID systems, especially given the budget constraints that public expenditure is under. An obvious means to address this economic barrier is to argue for the increased efficiency (cross-border) service enablers bring about (e.g. eID as an enabler of the Digital Economy), the re-use of enablers across different services and the fact that many enablers are now available for re-use from the LSP's.. However, quite often the economic benefits resulting from the efficiency gains are not quantified.

An additional problem is that often the organisation paying for the deployment and operation of the service is not the same one that reaps the benefits (in many cases, of course, it is the citizen who benefits). A typical example of such services can be found in the healthcare sector: often, there are a number of different stakeholders with different budgetary responsibilities, and the benefits derived and costs incurred do not always coincide in one. Moreover, costs often are made for multiple services at once and thus hard to trace back for a specific service, which in turn makes it difficult to see what the business case for a specific service is.

The scattered way in which services are organised, paid for and gained from made data gathering during this study highly challenging. Data about costs and (potential) benefits per service seems difficult for Member States to provide nor is it available in existing public (financial) documents, especially when services were implemented several years ago. In the data collection phase and the service provider interviews we noticed an apparent scarcity of analysis of economic nature related to the impact of the services. Most often, financial gains seem to be discussed as a consequence or by-product of increased efficiency, and not analysed directly.

The data gathered does however enable us to perform an overall assessment at the macro level for potential economic costs and benefits for the implementation of cross-

border services. As depicted in the figure below, we will therefore elaborate on the implementation costs and operating costs for the national service, as well as for the cross-border enablement.

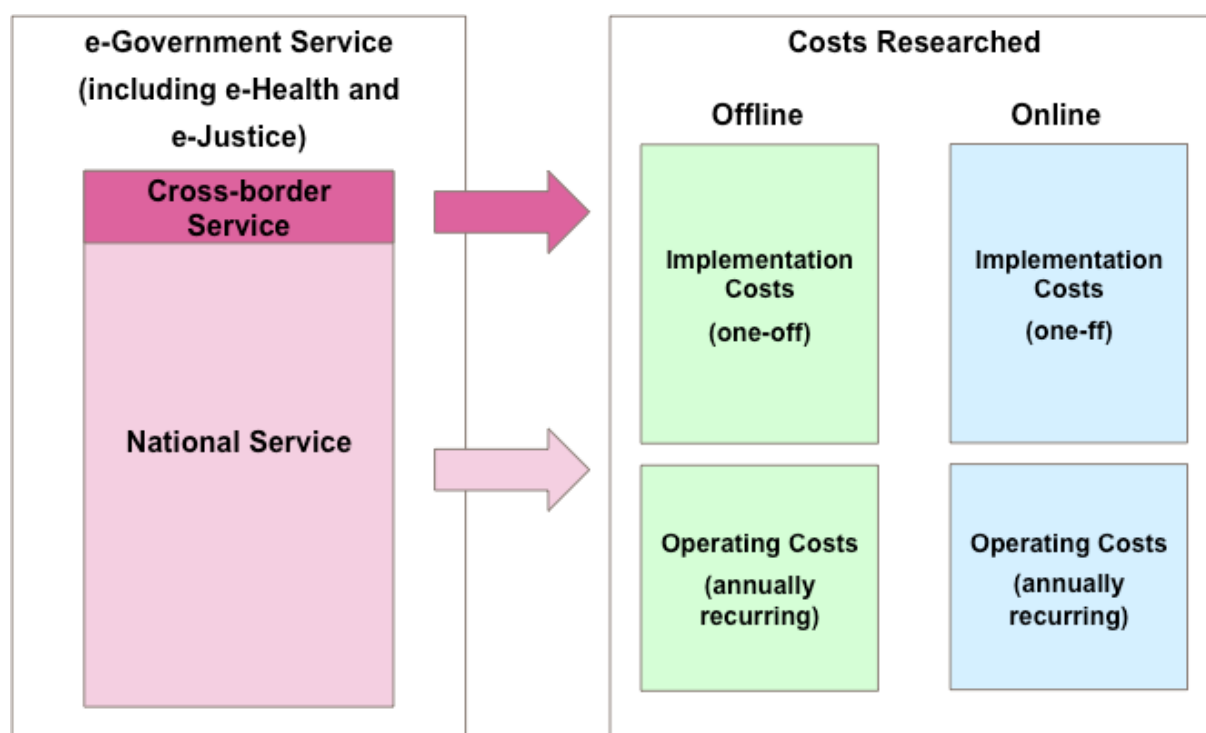


Figure 10 Costs researched

Under operating costs we investigate the costs of the offline service. As a third quantitative factor, we will use the potential cross-border population (Q) for the seven services, coming from the needs and demand analysis conducted for this study (deliverable 2.1)⁸¹. Indeed, the number of users defines the impact of the cross-border service and thus the extent to which benefits can be retrieved.

5.3.1 Cross-border implementation costs

When looking at the implementation costs for cross-border services, the focus was on the cross-border enablement of the specific services. It is thus *not* the time spent on implementing the national service itself *nor* the time of creating the cross-border building blocks (as done in the Large Scale Pilots). It is about the incremental costs of cross-border enabling of a specific service (for example the implementation of existing LSP building blocks). In spite of the earlier explained difficulties to trace costs back to a specific service, we were able to gather the following data points for the different services:

Service	Number of data points collected
M1 Register as domicile	3
M2 Request ID documents	2
M9 Register for legal aid	1

⁸¹ This also considers an extrapolated latent need up to 2020.

H2 Access to patient summary	2
E2 Income tax declaration	4
B1 Register a new legal entity	4
B10 Consult the business register	2
Total	18

Table 20 Data sources per service

With regard to the implementation costs of the specific cross-border elements of a certain service, there are numerous data points to consider. When looking at it as a percentage of total implementation costs and discounting specific outliers⁸², on average the cross-border enablement of national services were 4.9% of the total implementation costs with a standard deviation of 3.2%.

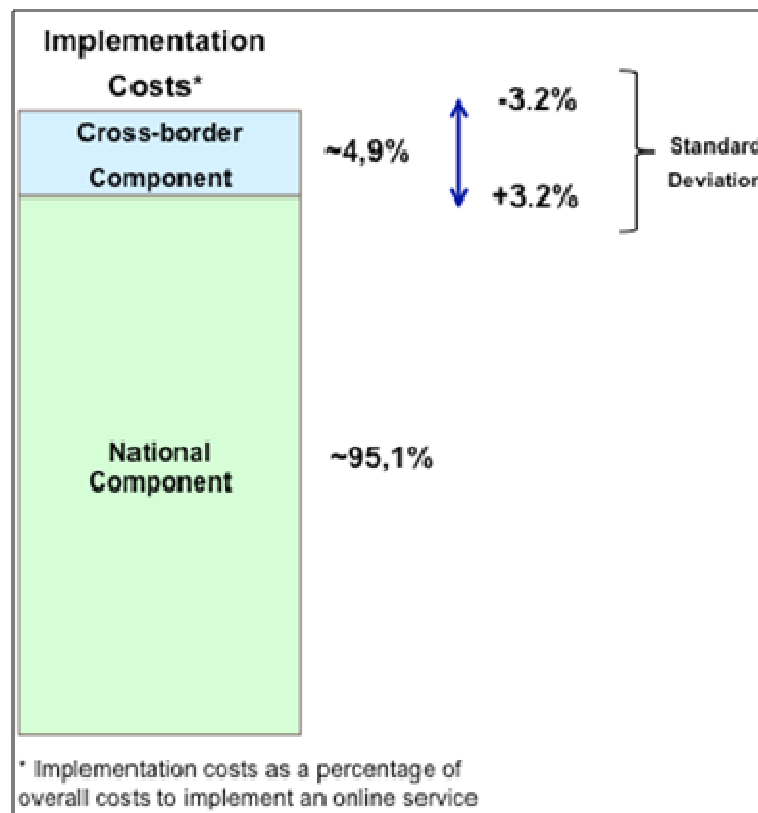


Figure 11 Implementation costs cross-border versus national

Nevertheless, considering that the data about implementation costs of online public services in general is fragmented showing large differences and data gaps, using a percentage of implementation costs does not seem the most reliable approach. It relies

⁸² Two cases where only certain elements of the national implementation costs of a certain service were known and the main implementation costs were considered “sunk costs”.

strongly on the pre-existing infrastructure in countries, the overall maturity of services and the extent to which certain IT enablers are used across different service domains or not.

Of the total implementation costs collected from the service providers, around 40% of the costs consist of internal costs. Respondents indicate that these costs are made for the orientation of the system, putting together requirements for the system and tendering costs. Besides internal costs, external implementation costs are made. These costs represent around 60% of the total implementation costs and are costs for development and implementation of the system. We can conclude that for the implementation costs most costs are external costs for consultants to develop and implement the online system.

Assessing the absolute implementation costs of cross-border services seems to give somewhat robust data albeit with large ranges in the figures. In those cases where implementation costs of online public services were available at all, 36% of the cases (6) had absolute figures on the costs of cross-border enabling the service. Without discounting outliers, the average implementation cost across the various services studied was 95,000 Euro with a standard deviation of 106,000. This range is extremely large however it is caused by existence of two categories of countries: ones with an average implementation cost for cross-border services of 22,000 Euro and another group with an average cost of 200,000 Euro. This distinction in the groups of countries seems to be caused by the overall level of maturity of the existing systems and the pre-existing capabilities to enable foreign users to use the system. To arrive at a more cautious number that also allows for situations of less-developed existing systems to benefit from, the lower figure outliers were discounted. This led to an average cost for cross-border enabling online services of 204,334 Euro. Furthermore, in order to see whether insights can be drawn from the data on the total (national + cross-border) implementation costs of online services, these costs were categorized into various groupings, giving the following figures::

	Implementation costs
Implementation before 2007	€ 827,600
Implementation after 2007	€ 193,459
	Implementation costs
National service	€ 442,200
Regional / local service	€ 2,640,381
	Implementation costs
1-2 authorities involved	€ 400,540
>2 authorities involved	€ 1,613,458
	Implementation costs
Involved in Large Scale Pilot	€ 2,296,727
Not involved in Large Scale Pilot	€ 502,600
	Implementation costs
Semi-online	€ 2,500,000
Fully online	€ 888,000
	Implementation costs
Citizens services	€ 1,653,226

Business services	€ 287,734
	Implementation costs
Informational services	€ 2,602,770
Transaction services	€ 888,000

Table 21 Implementation costs per service group

The above groupings do not however provide worthwhile insights because of the limited number of data points. One could hypothesize that:

- Implementation costs before 2007 were higher because the overall IT maturity was lower and more investment needed to be done;
- National services benefit more from pre-existing infrastructure that is re-used across domains and hence require lower implementation costs;
- When more authorities are involved in delivering a service, IT and organisational costs are oftentimes (partly) duplicated across these agencies resulting in higher costs;
- As the figures show overall implementation costs (national + cross-border), many services were in place prior to pilots having commenced in the Large Scale Pilots, hence no direct relation should be assumed between the two for the services (national + cross-border) studied.
- When services are semi-online, implementation costs are higher as more online-enablement effort is needed than when it is already fully online;
- As shown by the EC's annual e-Government benchmark, business services are generally speaking already more mature and fully online than citizen services. Hence more implementation costs are needed for citizen services to bridge this gap;
- Informational services are not fully enabled for transactional activity and hence implementation costs are higher than with transaction services that are already more electronically enabled and in place.

These hypotheses cannot however be confirmed or rejected by the data and are merely based on an expert opinion as opposed to being grounded in empirical evidence. To find a more robust base for assessing costs for cross-border enablement of a service, a comparison was made with implementation figures of cross-border enablers from the Large Scale Pilots. Specifically the pilot implementation costs were looked at, the development costs of "building blocks" in the LSP's is not considered, only the pilot implementation. This shows the actual effort to cross-border enable a service once building blocks are available. When comparing the absolute finding of cross-border service enablement of the service provider interviews to experiences from the Large Scale Pilots, we do find a strong degree of similarity with regard to the higher average implementation costs. Specifically, the average LSP implementation costs for cross-border services are about 284 mandays or 183,000 Euro when normalised for European averages. The time effort thereby ranges significantly, from a high of 420 days total to a low of 148 days effort total. It is worthwhile elaborating on the breakdown of this absolute calculation. The average implementation cost of the set of main LSP building blocks per Member State consists of two groups of costs:

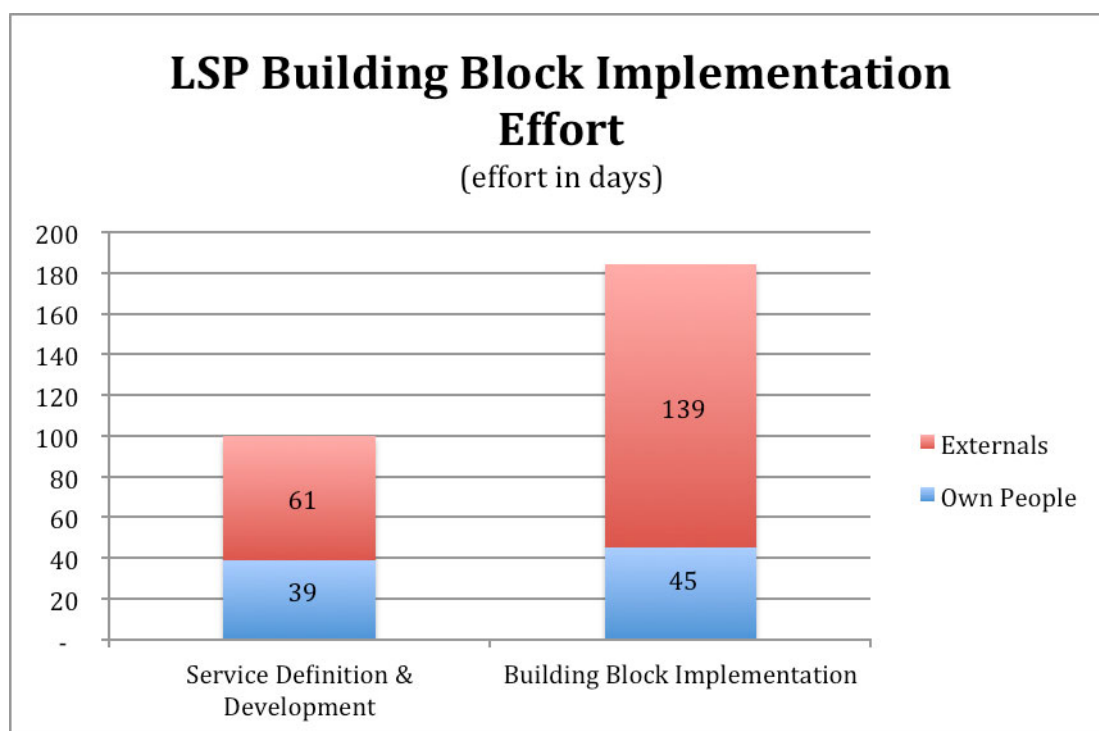


Figure 12 Average implementation costs for LSP building blocks

There are the time efforts related to service definition and development (such as process work, semantic and service alignment, organisational work, etc.) and to the actual technical building block implementation. For each of these efforts a differentiation is made between what has been done by public officials working for the Member State authorities involved in the LSP's and external contractors. To translate this into a monetary value, the average effort in days for public officials has been multiplied by the average civil servant wages for the EU (based on figures used in the Standard Cost Method approach whereby the baseline figures of 2009⁸³ have been extrapolated with the annual inflation figures to achieve 2012 figures⁸⁴). This led to an EU average rate per hour of 17.74 Euro (including 25% overhead costs so no additional indirect cost mark-up has been applied) although actual figures per specific country were used as given below:

Member State	Average Public Official Rate Per Hour in Euro 2012
Austria	26.96
Belgium	27.58
Bulgaria	1.88
Cyprus	15.36
Czech Republic	6.02
Denmark	35.96

⁸³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009DC0016:EN:NOT>

⁸⁴ Eurostat HICP - inflation rate figures of 2009, 2010 and 2011:

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=TEC0011

Estonia	5.27
Finland	27.26
France	28.60
Germany	28.28
Greece	15.80
Hungary	6.46
Ireland	28.55
Italy	28.44
Latvia	4.34
Lithuania	4.49
Luxembourg	30.52
Malta	10.55
Netherlands	25.97
Poland	6.75
Portugal	12.13
Romania	4.88
Slovakia	4.17
Slovenia	11.11
Spain	17.59
Sweden	30.46
United Kingdom	33.53

Table 22 Average costs per hour per Member State based on Standard Cost Model Rates

In order to make the average rate per hour for Member State officials' effort more representative of the cross-border volume per country, we weighted the abovementioned hourly salary cost according to the estimated EU cross-border service users per annum as analysed and reported in deliverable 2.1 of this study, specifically table 22 in paragraph 4.2.1:

	Estimated EU cross-border service users (per annum)	eGovt Users(% of population)	Interested (% of population)	Estimated eGovt cross-border users (per annum)	Users per 1,000 pop	Users and interested estimate (per annum)
Austria	96,967	35	21	33,938	4.1	54,302
Belgium	109,583	22	34	24,108	2.2	61,366
Bulgaria	721	29	40	209	0.0	497
Cyprus	7,843	11	62	863	1.1	5,725
Czech Republic	48,051	14	32	6,727	0.6	22,103
Denmark	43,064	57	16	24,546	4.5	31,437
Estonia	3,474	35*	37*	1,216	0.9	2,501

Finland	38,044	25	44	9,511	1.8	26,250
France	106,586	40	37*	42,634	0.7	82,071
Germany	265,740	49	36	130,213	1.6	225,879
Greece	60,117	35*	37*	21,041	1.9	43,284
Hungary	31,941	18	45	5,749	0.6	20,123
Ireland	42,527	37	55	15,735	3.5	39,125
Italy	165,593	21	41	34,775	0.6	102,668
Latvia	2,612	12	26	313	0.1	993
Lithuania	4,640	32	24	1,485	0.4	2,598
Luxembourg	159,448	25	43	39,862	80.8	108,425
Malta	4,515	35*	37*	1,580	3.8	3,251
Netherlands	131,834	53	16	69,872	4.2	90,965
Poland	34,527	14	42	4,834	0.1	19,335
Portugal	22,411	41	22	9,189	0.9	14,119
Romania	4,316	9	40	388	0.0	2,115
Slovakia	8,455	18	44	1,522	0.3	5,242
Slovenia	4,451	45	23	2,003	1.0	3,027
Spain	135,064	35*	37*	47,272	1.0	97,246
Sweden	42,491	32	19	13,597	1.5	21,670
UK	215,327	29	53	62,445	1.0	176,568
Total	1,790,342	35	37	605,628	1.2	1,262,887

Table 23 An estimate of eGovernment services users amongst immigrants and commuters to EU Member States in 2010

This leads to the following calculation of the weighted part of the average rate:

Member State	Average Public Official Rate Per Hour in Euro 2012	Estimated EU cross-border service users (per annum)	% of total number of cross-border service users	Weighted Part of Average Rate
Austria	26.96	96,967	0.05	1.46
Belgium	27.58	109,583	0.06	1.69
Bulgaria	1.88	721	0.00	0.00
Cyprus	15.36	7,843	0.00	0.07
Czech Republic	6.02	48,051	0.03	0.16
Denmark	35.96	43,064	0.02	0.87
Estonia	5.27	3,474	0.00	0.01
Finland	27.26	38,044	0.02	0.58
France	28.60	106,586	0.06	1.70
Germany	28.28	265,740	0.15	4.20
Greece	15.80	60,117	0.03	0.53

Hungary	6.46	31,941	0.02	0.12
Ireland	28.55	42,527	0.02	0.68
Italy	28.44	165,593	0.09	2.63
Latvia	4.34	2,612	0.00	0.01
Lithuania	4.49	4,640	0.00	0.01
Luxembourg	30.52	159,448	0.09	2.72
Malta	10.55	4,515	0.00	0.03
Netherlands	25.97	131,834	0.07	1.91
Poland	6.75	34,527	0.02	0.13
Portugal	12.13	22,411	0.01	0.15
Romania	4.88	4,316	0.00	0.01
Slovakia	4.17	8,455	0.00	0.02
Slovenia	11.11	4,451	0.00	0.03
Spain	17.59	135,064	0.08	1.33
Sweden	30.46	42,491	0.02	0.72
United Kingdom	33.53	215,327	0.12	4.03

Table 24 Average costs per hour per Member State weighted by cross-border volume

The percentage of total number of cross-border service users is multiplied by the average rate hourly cost for that country. These rates are then all added up, leading to a weighted average hourly rate of 25.78 Euro per hour (including 25% overhead). We will use this rate weighted according to cross-border usage for the average EU rate for public official costs.

For the costs of external support for the implementation of building blocks, here too large differences existed per country albeit less variable than for the costs of civil servants. Furthermore, structures existed where LSP partners subcontracted to another branch/entity related to their organisation, diffusing the results somewhat. In light of this we looked at an external proprietary benchmark data for IT consulting fees which had as EU average 800 Euro per day for both private and public sector clients. This deviates from the average subcontracting fees of different LSP's which averages to 655 Euro per day. In light of the target group of the study (Member States implementing the building blocks) we have adopted the lower rate of 655 Euro per day as this is the average of the large percentage of Member States involved in the LSP's.

The breakdown of average LSP building block implementation costs⁸⁵ based on the experience of a number of countries engaged in LSP's are:

Public agency staff (non-technical)	
Activities	Average (in days)
Service definition	22
Service deployment	18
Subtotals	39

⁸⁵ Note: This only concerns the effort for the pilot implementation of the building blocks, the efforts to develop the building blocks have been excluded. Also these figures are based on total costs, so the fact that LSP Member States received co-funding from the European Commission

eServices ⁸⁶	20
eDelivery	11
eDocuments	8
eSafe	6
Subtotals	45
TOTALS (days)	84
% of total days	30%
Technical (IT) staff 3rd parties	
Activities	Average (in days)
Service definition	23
Service deployment	37
Subtotals	61
eServices ⁸⁷	53
eDelivery	44
eDocuments	28
eSafe	14
Subtotals	139
TOTALS (days)	200
% of total days	70%
TOTAL Public Agency Staff and Technical 3rd Party Staff (days)	284

Table 25 Breakdown of average LSP building block implementation costs

The building block categorisation is based on a high level categorisation according to the main LSP building blocks as presented during the technical alignment meeting of the LSP's during the CeBIT in Hannover early 2012. The standard deviation of the implementation effort for the cross-border building blocks was 18 months, of which 5.3 months for internal support and 12.7 months for external support. As illustrated below, this means that in terms of Euro value, there is a standard deviation of 190,000 Euro on an average implementation cost of LSP building blocks of 148,140 Euro.

⁸⁶ Including eID and eSignatures

⁸⁷ Including eID and eSignatures

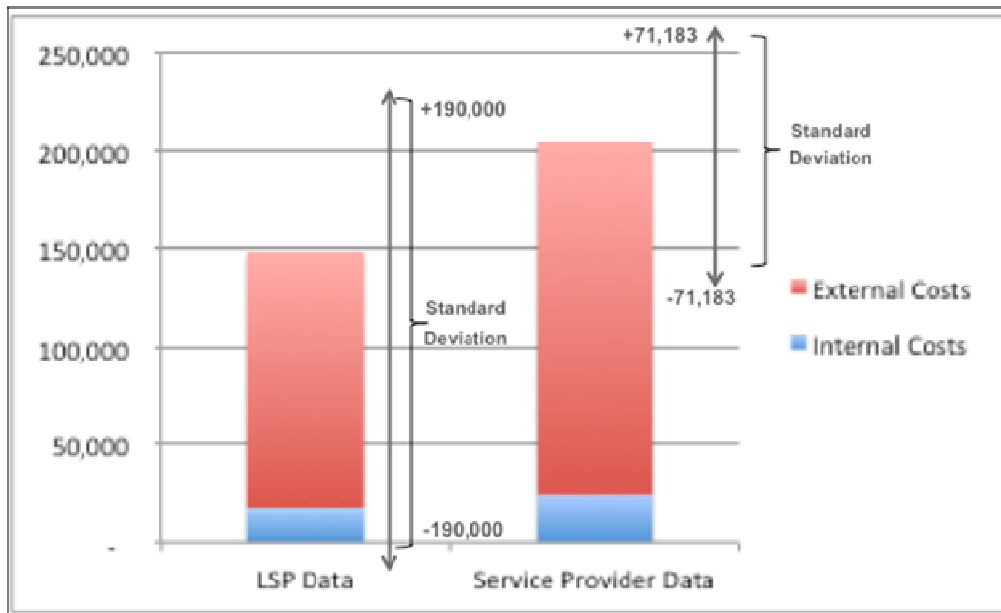


Figure 13 Cross-border implementation costs LSPs versus service providers

This large deviation is similar to the absolute cross-border enablement figure discussed earlier. However discounting for the outliers, it can be seen that the majority of the LSP countries assessed do indeed regress to the mean implementation effort with about 20% of the Member States deviating from this. In light of the fact that the average of the higher implementation cost derived from the service provider interviews was 204,334 Euro and the average implementation cost from the LSP pilot assessment was 148,140 Euro, we will use the average of the both combined, this being **176,237 Euro** as a proxy cost for the cross-border enablement of a public service.



Figure 14 Average cross-border implementation

5.3.2 Operating costs

As with implementation costs, the operating costs were also challenging to determine for the services studied. The operating costs concern the annual costs to keep a service running and can include IT costs (servers, licenses, support) and personnel costs (support services). Most of these costs are made for more than one specific service and therefore part of a broader range of costs. This is something of a “grouping invisibility syndrome”: costs are invisible because they are consolidated in a broad group of operating costs. Furthermore little or no distinction can be made to identify the specific cross-border components. We were able to gather the following data points on operating expenditures for the different services:

Service	Number of data points
M1 Register as domicile	3
M2 Request ID documents	3
M9 Register for legal aid	3
H2 Access to patient summary	1
E2 Income tax declaration	4
B1 Register a new legal entity	2
B10 Consult the business register	1
Total	17

Table 26 Data point on operating costs

The results presented below should be seen in light of this difficult data gathering. For the implementation costs discussed earlier we determined an average based on a combination of service provider data and LSP data. For the operating costs, because of the low number of data points and lack of alternative sources to compare with, we picked the median instead of the average, to exclude outliers from the quantitative data. Results should be seen as indication of possible costs, given all uncertainty because of the low number of data points and differences between countries.

The table below provides an overview per service of the yearly operating costs. The operating costs show a somewhat different division between internal and external costs than implementation costs. For the operating costs, only 10% consist of external costs and 90% are internal costs. External operating costs are in general costs made for external consultants to provide IT support for the online system in place. The internal operating costs are costs (calculated as time spent multiplied with an applicable wage rate for the civil servant) of internal employees for handling and processing a request. Also, time for answering questions and report back after a request is included in the internal operating costs.

	Operating costs
M1 Register as domicile	€ 1,992,596
M2 Request ID documents	€ 6,307,909
M9 Register for legal aid	€ 2,963,765
H2 Access to patient summary	€ 5,690,000

E2 Income tax declaration	€ 20,280,553
B1 Register a new legal entity	€ 1,123,010
B10 Consult the business register	€ 336,383

Table 27 Total operating costs per service

The standard deviation of the operating costs across all services is almost 9.8 Million Euro which is extremely high and caused by several outliers, specifically for the service on income tax declaration.

	Operating costs
Implementation before 2007	€ 3,020,293
Implementation after 2007	€ 859,780
	Operating costs
National service	€ 1,982,739
Regional / local service	€ 4,355,147
	Operating costs
1-2 authorities involved	€ 1,992,596
>2 authorities involved	€ 2,651,083
	Operating costs
Involved in Large Scale Pilot	€ 1,599,090
Not involved in Large Scale Pilot	€ 950,330
	Operating costs
Semi-online	€ 1,992,596
Fully online	€ 2,963,765
	Operating costs
Citizens services	€ 2,992,029
Business services	€ 336,383
	Operating costs
Informational services	€ 5,690,000
Transaction services	€ 2,165,498

Table 28 Operating costs per service group

These are however the operating costs in general for the systems providing the services as only in a single case is a distinction made between the operating costs for the cross-border element of the service being provided. Annual operating costs are relevant for analysis of the *national* business case for putting a service online however the incremental operating costs for cross-border services should be disregarded from the cost benefit analysis. This is because, in those cases where both cross-border volume and national volume of the use of a service are available (7 cases), the median cross-border transactional volume as a percentage of overall volume (national + cross-border) is 1.3% which makes its relative impact on overall operating costs negligible.

5.3.3 Time savings service providers

The majority of the expected financial benefits of putting services online, be it for national services or cross-border services, are the expected time saving of processing the

service request. From the service provider interviews we obtained 9 data points on the processing time of the service request. Sometimes this was data where processing time for an offline cross-border request could be compared to an online cross-border request. In other cases the offline processing time was not available but was equated by the service provider to the processing time for an online national request. In other cases only online processing time was available without being able to compare it to offline processing time. The cases where an exact comparison can be made between online and offline processing time gives the following data:

	Time saving (in hours)
<i>Without extrapolation</i>	
Average time savings	0.28
Median time savings	0.07
Standard deviation	0.48

Table 29 Time savings service providers per transaction (without extrapolation)

To maximize the amount of data points, we have attempted to extrapolate the results to fill certain gaps. The extrapolation is done by looking at the offline or online time (whichever is available) for the countries where one data point is lacking and using the ratio of offline to online time savings for their peers from other countries for that service. As an example, within a service the average time for an offline request is 5 minutes and for an online request 2,5 minutes. Then in a case where we know an online time to process a request is 1 minute, we will multiply this by $(5/2.5)$ to get the offline time. The results we obtain from this are as follows:

	Time saving (in hours)
<i>With extrapolation</i>	
Average time savings	0.02
Median time savings	0.03
Standard deviation	0.04

Table 30 Time savings service providers per transaction (with extrapolation)

The extrapolated time savings show a similar standard deviation as the non-extrapolated figures, however they also demonstrate a much lower average. The median is more in range with the non-extrapolated figures although still a little lower. Given the limited number of data points and the high standard deviation, this means that the large differences in results are amplified by the extrapolation. Because of this amplification effect, we propose to not use extrapolated data but instead work with the *median* of the non-extrapolated figures. By using the median we also reduce the effect of outliers.

Hence the average time saving for public authorities for cross-border services we will use is 0.07 hours or 4.1 minutes per case. This represents a ratio of offline to online time need for processing between 0.75 and 0.85 with an average of 0.8 (so an online request takes only 80% of the time needed for handling a request compared to an offline case).

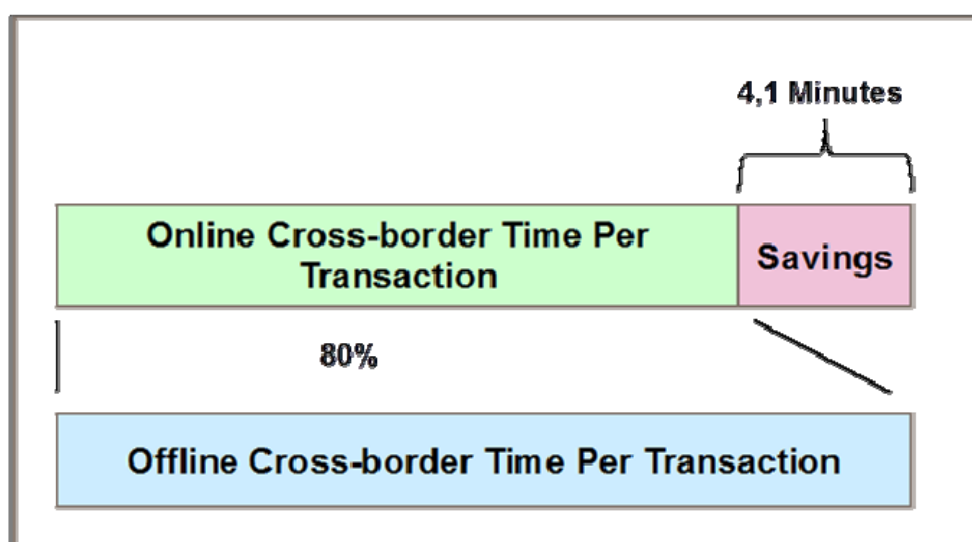


Figure 15 Time savings service providers per transaction

We will use the figure of 4.1 minutes time saving or 0.8 cost ratio as a proxy for all services for the final comparison of costs of public authorities and benefits. This solely focuses on transaction time savings and does not include possible other savings such as cost avoidance (for example the avoidance of medical examination procedures because of access to a patient summary). We do however note that this savings figures seems to be very much on the cautious side and may understate the savings potential. When looking at time savings data from other studies, we find other results in the benchlearning study on the administrative burden for the business start-up service. In this study for DG Information Society and Media (now DG Connect), some of the time data points found are given below.

Administrative burden per country/year for governments (SCM based): per company (expressed in time)		
<i>Greece- Scenario one (offline registration – preliminary results)</i>	<i>Slovenia- Scenario one (simple limited liability company with one associate registering at the VEM entry point)</i>	<i>Belgium- Scenario one ('standard' registration case for a natural person)</i>
17,52 hours (population of 3000 companies)	1,71 hours (population of 2738 companies)	1,14 hours (population of 28741 companies)
<i>Greece- Scenario two (online registration – preliminary results)</i>	<i>Slovenia- Scenario two (simple limited liability companies with more than one associate registering at the VEM entry point)</i>	<i>Belgium- Scenario two (natural person starting multiple activities)</i>
7,75 hours (population of 3000 companies)	1, 88 hours (population of 1222 companies)	1,25 hours (population of 28741 companies)
	<i>Slovenia- Scenario three (simple limited liability company registering through the e-portal e-VEM applications, e-TRR for bank account)</i>	

	0,25 hours (population of 2738 companies)	
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Table 31 Administrative burden per country/year for governments

Source: Policy Recommendations D2.8 EC Benchlearning Study, 2010.⁸⁸

Although the countries studied are different than in this study, it can provide insight into comparative ratios. It shows the time burden for governments and gives absolute time savings of anywhere between 10 hours and 1.5 hours and ratios of 2.25 and 7.5 or ratios between 0.44 and 0.13. Also, data from specific EU Member States also highlight the potential savings that can be obtained. The Danish Agency for digitisation has published a comparison of costs between different channels of service provision⁸⁹:

Channel	Cost per transaction
Counter service	€ 14
Letter (physical)	€ 11,70
E-mail	€ 11
Telephone	€ 7,80
e-Services/Self Services	€ 4,20

Nevertheless, for the comparison of costs and benefits we will use the more cautious ratio and data as obtained from the public authorities for this cost benefit analysis.

5.3.4 Comparing costs to possible benefits

To assess the costs of cross-border enabling a services we obtained two types of data from two different sources. On the one hand the implementation costs obtained in the service provider interviews show an absolute cost for cross-border enabling a specific service (how much money they say it cost them to cross-border enable the service). The data from Member States that participated in LSP's shows the effort (in man days of civil servants and external consultants) for implementing the technical solutions (the so-called LSP "building blocks") to cross-border enabling an existing service. From an organisational and technical approach perspective these two data sources for the cost of cross-border enabling a service are not exactly the same. We have however compared both approaches and from an effort (days) and financial (Euro's) perspective shown what the average cost (time and money) needed is and what the ranges of effort are.

When we use the proxy to cross-border enable the e-Government services (including e-Health and e-Justice) studied by taking 176,237 implementation cost and multiplying it by 27 EU countries we obtain a cost of 4,684,500 Euro per service. In comparing this to the estimated cross-border usage as benefit of the service, this would lead to the following insight:

⁸⁸ Carried out by Capgemini with RSO under the supply of services for the further development, reinforcement and promotion of Benchlearning under Contract Nr 30-CE-0121765/00-57.

⁸⁹ Digitaliseringsstyrelsen, 2012

	Estimate Cross Border users	Average time saving per case in hours	Weight ed average EU rate per hour	Savings per case (Euro)	Cross- border implement a-tion cost proxy (per country)	Savings per case* Cases	Implement ing BB in all countri es	EU Pay- back time in years
M1 Register as domicile	1,205,000	0.07	25.78	1.80	176,237	2,174,543	4,758,402	2.2
M2 Request ID documents	1,446,000	0.07	25.78	1.80	176,237	2,609,452	4,758,402	1.8
M9 Register for legal aid	279,000	0.07	25.78	1.80	176,237	503,483	4,758,402	9.5
H2 Access to patient summary	20,140,000	0.07	25.78	1.80	176,237	36,344,644	4,758,402	0.1
E2 Income tax declaration	235,000	0.07	25.78	1.80	176,237	424,081	4,758,402	11.2
B1 Register a new legal entity	18,000	0.07	25.78	1.80	176,237	32,483	4,758,402	146.5
B10 Consult the business register	4,641,000	0.07	25.78	1.80	176,237	8,375,149	4,758,402	0.6

Table 32 Comparison of implementation costs to possible benefits

This shows a payback time in years calculated by dividing the overall implementation cost by the total savings (monetized savings per case * the estimated number of cross-border users). However there can be a different business case per service per country. Not every country has the same number of cross-border cases per service however as shown in the figure below, based on EU totals, 4 out of the 7 services have a pay-back time within 2.2 years. Nevertheless, the prioritization of what service can bring the biggest financial gains should be decided per country based on specific national volumes per service.

We have shown the pay-back time per service in the figure below, highlighting in the green box the four services that have a return on investment within a period of up to 2,2 years.

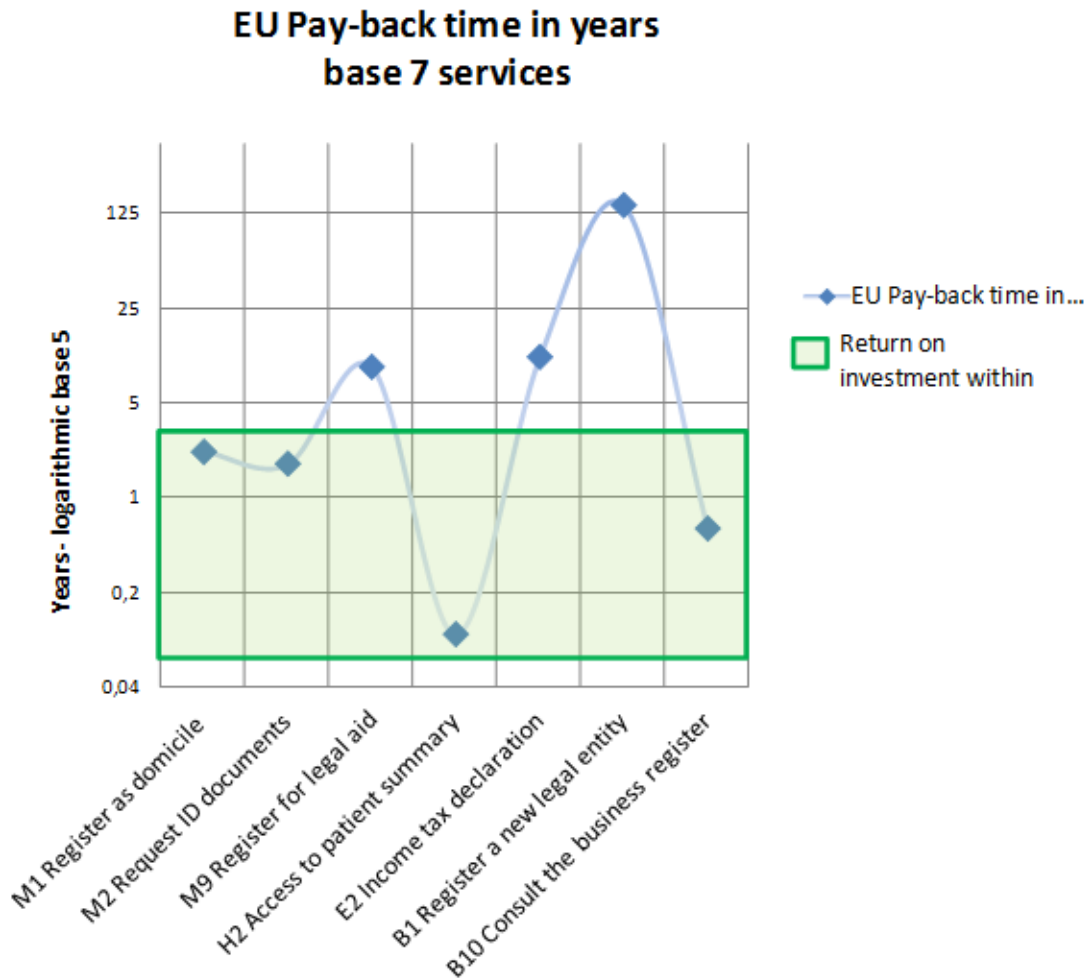


Figure 16 Pay back time per services

The figures above also have in them the assumption that the implementation cost for cross-border enabling a service have to be repeated for each service. Although this currently is de facto the practice in most cases, feedback from service providers, expert interviews and lessons from the LSP's highlight that this does not necessarily need to be the case. The key enablers for making an existing national service cross-border can be re-used across other services and domains. Certain countries participating in large scale pilots are already following this approach with standards for transport and documents. Some countries are also implementing certain building blocks (e.g. e-Signature validation) and making them available as a government cloud-based service for re-use across different domains. An example is the provision of an e-Signature validation service. An agency in the Netherlands is considering making this available as a generic service across government agencies. Other departments wishing to use the service will only need to "call" the functionality remotely by using an application programming interface (API) and not need to implement the whole service, hence avoiding the related costs. There will remain a need for organisational effort to adapt certain processes where applicable to make this possible and in some instances to map documents, equivalences, etc. to make a service cross-border enabled. However with increasingly negligible technical costs, this will then become a choice per country and per service based purely on country-specific cross-border volumes per service.

Clustering of services into different groups

In the tables below we clustered groups of services, to get more insight in indicators or types of services which could be of interest to implement for Member States. Are there common characteristics of services Member States can focus on? Because cross-border costs are only a fraction of the total implementation and operating costs of services, we focus on the implementation and operating costs of the different groups of services. These costs indicate whether it would be costly or less costly for Member States to focus on specific (groups of) services in light of cross border implementation costs.

Comparing business to citizen services

	Implementation costs (EUR)	Operating costs (EUR)
Citizen services	1,653,226	2,992,029
Business services	287,734	481,063

Table 33 Comparison of operating and implementation costs (per service) for business and citizen services

The table above shows that services for citizens are more costly than services for business. This is both for the implementation as for the operating costs. In deciding which services to implement, this would indicate that services targeted at businesses are less costly and thus more profitable to implement. A conclusion which is underlined by the 'Study on "eGovernment scenarios for 2020 and the preparation of the 2015 Action Plan"' (Rand Europe, June 2012). This study concludes that business (80%) interact more often with governments via online tools than citizens (30%). Business services have a higher reach which make the potential benefits of these services more widespread than services targeted at citizens. Furthermore, this study concludes that both businesses and citizens are satisfied with the basic eGovernment services and that respondents would like governments to do more online, because respondents see value in the development of new services online.

The European Commission's annual e-Government Benchmark provides insight that also contributes to explaining the above data. In general for the whole EU, business services are generally more available (i.e. in place) as well as more sophisticated (providing a higher level of automation / online enablement). Furthermore, the benchmark also correlates these findings with Eurostat data on uptake, showing that for business services there is more uptake, leading to a greater possibility of realizing benefits of providing services online.

This all indicates that focusing on business services is potentially more beneficial and less costly for governments. Nevertheless, this does not imply that *only* business services should be considered as there can be other political or social considerations that plead for the implementation of specific citizen services.

Sophistication of online service

In the previous chapter we described the level of online implementation of services. Our hypothesis with the grouping below is that fully online services are more costly than semi-online services. Semi-online services are defined as information only and one way interaction, fully automated services are defined as two way interaction and full case handling. The seven services for different countries have been clustered in two groups, semi online and fully online following the definition of these groups.

	Implementation costs (EUR)	Operating costs (EUR)
Semi-online services	2.500.000	1.992.596
Fully online services	888.000	2.963.765

Table 34 Comparison of implementation and operating costs (per service) according to online sophistication

The hypothesis that fully online services are more costly than semi-online services is partly true. For the operating, yearly reoccurring cost we found high operating costs for fully online services compared to semi-online services. For the implementation costs the opposite is the case, semi-online services are more expensive to implement for Member States than fully online services. A reason for this could be that fully online services consist in most cases of a large and less complex database (e.g. consult the business register). The implementation costs of making this service fully online available are relatively low because the structure was already in place, the additional costs of making the database fully online available are not that high. On the other hand, the operating costs of these services are higher because more often changes are made and these changes are more government demanding than semi-online services.

Year of implementation

The next table groups services implemented before 2007 and after 2007. The hypothesis is that services which are implemented in an early stage (e.g. before 2007) are more costly than service which are implemented in a later stage. Services implemented in a later stage can learn from other countries who have already implemented the service. Furthermore, more and more experience in the e-government field is gathered when more services are implemented which makes the implementation of services in a later stage less costly.

	Implementation costs (EUR)	Operating costs (EUR)
Implementation before 2007	827,600	3,020,293
Implementation after 2007	193,459	859,780

Table 35 Comparison of implementation and operating costs (per service) according to year of implementation

These figures underlie the hypothesis that services which are implemented in an early stage are more costly than services implemented in a later stage. Also the operating costs of services implemented in an early stage are higher than the operating costs of services implemented in later stage. Good practices and gathered experience have a decreasing effect on the cost levels for countries. This can be caused by decreasing costs of IT systems over time and the improvement of systems and their functionalities also leading to lower overall costs. Simply put, looking to past experience in the public and private sector, an IT system today is often cheaper tomorrow or offers more services and functionalities for the same price

Level of government involvement

The hypothesis for this grouping is that more complex services are more costly than less complex services. Complexity of services is defined by the number of authorities involved and by the governmental level of implementation (central versus decentralised implementation).

	Implementation costs (EUR)	Operating costs (EUR)
National service	442,200	1,982,739
Regional/local service	2,640,381	4,355,147

Table 36 Comparison of implementation and operating costs (per service) according to government level

Some services are offered by governments on a national level, for example the income tax declaration. Other services are offered on a regional or local level, such as register as a domicile and request ID-documents. When services are offered on a regional or local level, there are often more authorities involved and implementation costs are made multiple times for a specific country. The table above shows that services implemented on a more decentralized level are in general more costly than services which are implemented on a national level. This is the case for both implementation and operating costs.

	Implementation costs (EUR)	Operating costs (EUR)
1-2 authorities involved	400,540	1,992,596
> 2 authorities involved	1,613,458	2,651,083

Table 37 Comparison of implementation and operating costs (per service) according to number of authorities involved

The table above shows a similar conclusion as Table 36. As more authorities are involved in performing a particular service, and thus the implementation of the service is more complex, in general the implementation and operating costs will be higher. Also certain implementation costs (e.g. IT enablement) will be duplicated across organisations. Simplification of a service process and how it is organised (including how many authorities are involved) can thus help reduce the overall implementation and operating costs.

5.3.5 Qualitative cost benefit feedback from service provider interviews

In collecting the quantitative data from service providers, they were also asked their views on the drivers and barriers of cross-border enabling online public services, also comparing their experience in implementing cross-border services versus national services.

As might be expected the most commonly cited benefits voiced by public administrations of using online services are the cost savings generated from having the system online. All of the respondents in the countries surveyed have indicated cost reduction as a major benefit. Nevertheless the reasons they believe the service will reduce costs differs from

country to country and from one service to another. This ranged from respondents who identify reduced cost for personnel to manage and maintain the service and to provide information to users, to reduce cost for paper and consumables, to reduce cost associated with the required space to store paper records and supplies.

Other cost reductions are expected in eliminated postal charges for communicating with the user base regarding the status of their requests or of changes in the law that might affect them. Many of the respondents point to saving due to the fact that employees perform fewer activities to manually push workflow forward. For example where an employee previously spent time checking to see that a stamp tax had been paid the time can be freed up as the algorithm can autonomously verify payment.

Widely available updated information is mentioned as another of the chief advantages to providing a service online. Even the services with the lowest level of sophistication have information, help sections and frequently asked question sections. In the traditional service delivery system there will be printed materials, posters, official and informal information sources on the web, service desk operators giving information, among others. Every time there is an update the information needs to be amended. These various channels are difficult to manage and update. An online service however acts as an information hub and collects all required information in one place. Updates are automatic and any new information automatically supersedes the previous information. Other informal web sources can be linked directly to the information sources in the online service and be automatically updated as the service information is updated. Information can also be pushed through the service to the service users informing them of the status of their applications and requests or legislative or normative changes to the codes or operational procedures affecting their service.

Time saving, which shares many attributes with cost saving, is also quite important for a number of respondents and present in most replies. As services are sophisticated and automated the cycle is closed more quickly there is, of course, a lower required staff time and associated costs as explored above, but it also has the effect of speeding up the internal bureaucracy and payment cycle. In some services where a traditional payment via cheque, money orders or other payment might have taken several days to be accredited, with the online service this is automatic. This has a very big impact in those areas like Income tax collection, where the government can greatly improve operational margins by shortening the payment cycle. Furthermore online systems automatically detect errors in the forms and statements submitted. In services like online payment of income taxes this can save personnel time and costs previously dedicated to manually checking returns. Requests that require authorisation, notification and monitoring from more than one office or department are automatically moved forward to all stakeholders at the same moment rather than proceeding incrementally from one office to another waiting for an asynchronous action on those offices behalf which can result in large percentages of process improvement.

Increased transparency and impartiality of the service distribution are mentioned as most important features of online service provision. An algorithm has no possibility to practice nepotism or favouritism. It cannot perform unfair or preferential treatment unless the software is corrupt. Software systems are auditable and records and activity logs are usually maintained for several years. Thus they can be checked and wrongdoers can be found. For example one country providing the register legal aid reported that the online service cleared up questions of how the lawyer allocation to eligible defendants process works as there was an accountable distribution of caseloads to all of the lawyers after the system was put in place and the polemics disappeared.

Survey respondents consider control and security to also be an important benefit to using online services. In a traditional manual service delivery the single operators can make mistakes and can voluntarily or involuntarily introduce security holes into the process. Online provision of services however goes through a single gateway and although no IT

system is completely secure central online delivery does imply much greater a control over process and increased security.

Back end integration and integration with central data bases is considered by many to be another fundamental benefit touching cost, efficiency, time savings and security elements described above. The data on an online service can be stored centrally, facilitating communication and monitoring across government departments and across different levels of government. For example registering a change in domicile in a traditional manner will automatically update a central citizen database in two different departments of government. The first in the office that is responsible for the particular citizens domicile at a local level and the second at the central registry usually in the ministry of the interior. Beyond the time to physically carry out the replication and update both archives there is the constant access to the central database by other requesting services as in the case of a request for a marriage license. This would in return require updating all peripheral copies of the data and ensuring that copies like the one in the domicile registry are updated. In an online process it is sufficient to keep one copy of the data (and backups). This greatly reduces the possibility of error and reduces the notification and reporting burden on the administration. Monitoring and reporting can be carried out with increased confidence.

5.4 Social drivers

Society should be the main beneficiary of cross-border services. From a user perspective, this may mean better, more reliable access to public services as well as high levels of responsiveness. From a government perspective, less costs and thus less pressure on tax, higher appreciation of services by users and further satisfaction of users with governments as a whole. The values of society are therefore critically interlinked with the quality of service, of which costs and willingness to accept pertaining expenditure are vital.

As society has evolved to a 2.0 environment, expectations from users of online services have risen. The interviews have shown that users expect almost synchronous communication with administrations in a secure and reliable manner. This can be seen in certain countries via the equipment of a growing number of users with trust certificates. This innovative and secure way forward may also be seen as opposed to the inclusive nature of society. Cross-border eGovernment services may then be perceived as growing the Digital Divide, by rendering the electronic process more swift but only accessible by the digital native. Requirements for using the service like physical certification or possessing a security mechanism like a security token to generate a unique "one-time" authentication key is sometimes a barrier for using the service in a cross border context. However an interesting option is available in one country, where they have a method to help if a user requests the service from a location within Europe but outside of the providing country the service. If he/she does not have the requirements to use the service there are lists of offices in his vicinity where a civil servant having the right requirements can perform the service for him/her.

From an emotional standpoint, the lack of *understanding* of the online process, as opposed to the seemingly simple paper process, creates an initial resistance. When interviewed, and addressed with questions around take-up of services, service providers underline the challenge to further increase take of their services. Interestingly some users mention the conviction that users are "doing the right thing" as an advantage and some mention it as a drawback. It is a drawback in the sense that there are a number of users that are not used to information systems and do not understand that there are sophisticated form checking tools running behind the scenes. They are afraid that if they put the wrong information in a field they will not receive the service, or will get the wrong result (which of course is in some cases true). These users do use the online service but also require significant "coaching" via telephone help-desk or in the walk in channel.

5.5 Technological drivers

The use of cross-border services can in some instances lead to increased harmonization of systems and procedures across Member States. For some services, the interoperability may be a legal requirement set by the EU to its Member States; for others, more efficient ways of operation or economic imperatives can make it attractive for public organisations to revise their systems. These kinds of initiatives may result in increased cooperation between various stakeholders and thus contribute to the creation of a single market. For this to happen it is important that Member States remove existing barriers in addition to setting up technically and organisationally interoperable systems⁹⁰.

As the availability of services in cross-border contexts increases, it also enables citizens and businesses to exercise their rights and to take action when needed. An interesting comment was reported in the service provider interviews which highlights the need to have technological enablers in place. It was pointed out that as the growth for requests for provision of digital signatures grew, the request for all online business services grew proportionally and consequentially, thus when the number of entrepreneurs receiving electronic signatures rises, so does the use of the various online business system that can use this technology.

It should also be mentioned that in more than one service in more than one country there is the "obligation" to use the online service. For example in one country there is no longer the possibility to consult the business registry at a walk in desk as the service is available online. This is also the case for registering a business in one country and doing portions of requesting domicile in another.

Some users mention (lack of) interoperability of data as a drawback. In many services the data that is in central databases is not interoperable with databases in other layers of government or even in other departments within the same organisation as the service provider. Creating data transformations and mapping tables in the applications is a possibility but it is difficult and often dilutes the value of the receiving systems data. For example if there are two fields that are present in a data base for every record like "name" and "age" and the online service provides only "name" after a while the receiver database will have a large number of records with "N/A" in the age field. In a subsequent search for all names starting with letter "X" and an age inferior to 18 years, for example, a large number of pertinent records will not be found. So not only transformations are important but also completeness of information being supplied to constituent systems. This requires that both the online services and receiving services be examined and have contemporaneous development where required. This is a 1 ton barrier as there may be several systems using the data from an online service (or vice versa).

The Large Scale Pilots have substantially contributed to the availability of technological enablers. From a cost/benefit perspective, the cumulative budget of the 5 Large scale pilots is of 130 million Euro. The benefits arise from a successful pooling of resources across different nations in reaching the necessary critical mass to develop solutions to which public administrations can connect to. Bearing in mind the fact that the exact expenditure per enabler is confidential, it can be estimated that the total costs dedicated to cross-border eDelivery ranges between 8-12 million Euros⁹¹ in total, for all countries involved in the LSP's for the provision of secure and reliable exchanges. Likewise, additional key enablers have been developed such as eDocuments, Semantics, eSignature and eID. The latter represents a cumulative investment of approximately 40-45 million Euros. This being said, no single Member State would have had the budgetary means to realise such cross-border technological enablers.

⁹⁰ Electronic Identity Socio-Economic Assessment (eID SEA), Deliverable 4, JRC European Commission, April 2011

⁹¹ This is an estimate based on confidential SPOCS, e-CODEX and PEPPOL data.

This success story structurally comes with a series of interrogations as to how to leverage the technical achievements. The consolidation may be planned for, however, as the consensus arose during the interviews, technology as a whole was not the sole concern. Interviewees referred to lack of trust and limited awareness at national levels of the availability and replicability of the technical solutions developed.

5.6 Legal drivers

In a European context, there is a need to assess which means should be envisaged in order to structure and streamline certain services across Europe. The distinction then needs to be made between a purely legal approach and the recourse to soft law via incentives as opposed to a compliance-based model.

Legal requirements determine the need for services, i.e. the regulatory obligation underpinning the very existence of the service. This is both beneficial from the standpoint of normalizing procedures and ensuring consistency across a given country or set of countries. Nonetheless, the cost of regulation can also be high, as there is then a need to monitor the implementation and overall compliance across the territory. Means need to be identified to address non-compliance. The cost of non-compliance can also be very high and may result in a heterogeneous coverage of Europe. This is notably the case with regard to the implementation of the "Services Directive" 2006/123/EC, where recent reports point to the noncompliance of most Member States⁹². In such a context, the visibility of the business case becomes hard to decipher.

Regulation implies the creation and involvement of regulatory authorities, as well as specific privacy and transparency measures necessary to the implementation of the service. These represent an opportunity as keepers of the process and individual rights, nonetheless they also represent a heavy cost and limit the flexibility when it comes to changing the regulation.

Regulation is also seen as an evolutionary process where new requirements arise and old ones evolve. Again here, there is an opportunity, but also a substantial cost to implement change. Going against legal *acquis* thus becomes a cumbersome procedure. Finally, resistance to new regulation provokes a similar pattern of resistance to change and fear of the use of new technologies, new services etc. Studies have demonstrated that the resistance to change is lower for businesses, who see direct business related benefits of complying, rather than for citizens where the uptake of services is increasing at a slower pace.⁹³

The service provider interviews also show that legislation can restraint the digitization of services. For example in the 'Request ID documents' case and to a lesser extent in the 'Register as Domicile' case law often requires that the recipient must physically appear before a public official to certify the identity of the requester or examine "original" copies of documentation like leaseholds or rental agreements. Obviously this excludes automated case handling or increases the costs of implementation. Another example of a service that is restrained by legislation is Access to Patient summary, for which privacy and security laws strongly influence the extent to which personal data can be stored or transmitted. Barriers to cross-border service implementation are further discussed in deliverable D4.1: Analysis of organisational, legal, technical and semantic barriers for cross-border services.

⁹² The functioning and usability of the Points of Single Contact under the Services Directive – State of Play and Way Forward, 21-01-2012 Final Report DG MARKT/2010/22/E (SMART 2007/035)

⁹³ eGovernment benchmark

5.7 Organisational drivers

The complexity of some processes seems to inhibit some service providers from attempting to offer or add increased sophistication to a service. Many services have a complex workflow behind the scenes requiring authorisations and payment at several levels of government and the manual intervention in different offices. For example the request for domicile we studied is often available through a local office like the town hall, but in many cases can require monitoring, notification and/or approval by the internal ministry, the ministry of finance, central registry, housing department, land registry (cadastre) and other departments.

The workflow passes through many different IT systems and can present quite expensive development tied to the interoperability questions raised above. The process is also optimised for a traditional workflow from a institutional and legal viewpoint. For example in many processes there is a physical person who will be responsible to authorise the distribution of a particular service like an ID card. This person may have delegated the process to a group of people who work for him/her, but there is still this need for a physical person to “authorise” each request. This can be done through a software process but remains asynchronous and creates a dependency for the rest of the workflow in the process. Data used can be stored in various formats in various departments and require updating as that changes from one department to another. The complexity of some services like issuing building permits is the reason that they are very rare.

Cross-border service costs and governance

The national governance structure of a given country can differ from its neighbouring countries. A federal approach therefore implies devolution of power and pertaining public services. In turn, this would imply that each state or region has to duplicate what is done by its neighbours. When aggregating costs at a national level, the question is therefore to assess whether the duplication of services – organisational, technical, legal, etc. aspects – at these intra-state level actually represent more or equivalent costs compared to the implementation of the same service at a national level. In other words the understanding of the benefits and costs of duplicating service investments across regions as opposed to centralised services.

Again, not all public services are fully centralised, even in centralised countries. Regions, departments have also seen their field of competency increase in most domains. Services such as taxation remain widely national, whereas most services are now delivered at local levels.

The cost and benefits of subsidiarity could be of interest to determine the net gains realised in bringing the service closer to the user. Then again, in a digital context, the location of the service is not seen to matter that much as the full process should be accessible via electronic means.

		Duration (minutes)	Usability (SUS avg)	Satisfaction (AWARE avg)
M1	Register as domicile	4	3.5	3.3
M2	Request ID documents	6	3.2	3.2
M9	Register for legal aid	5	3.7	3.6
H2	Access patient summary	2	2.6	2
E2	Income tax declaration	9	3.3	3.4
B1	Register new legal entity	17	3.6	3.6
B10	Consult business register	3	3.7	3.7
	Average	6.6	3.4	3.3

6 Cross-border eGovernment services: User perspective

As previous sections show, the implementation of cross-border eGovernment services can on the long term save public administrations time and money, while increasing the quality of their information management and the availability of their services independent of time and place. This section focuses on the other side of services, examining the effect of cross-border eGovernment service implementation on the usability of and the user satisfaction with these services.

6.1 Usability and satisfaction of online cross-border services

The usability and satisfaction of the available cross-border eGovernment services are examined through Customer Journey Mapping and measured on a five point Lickert scale⁹⁴ to record agreement or disagreement with statements concerning the ease of obtaining the services. The statements are based on SUS (usability) and AWARE (user satisfaction) methodologies. The results of the satisfaction and usability measurement, as well as the measurement of average duration for obtaining a service are presented in Table 38.

Table 38 Satisfaction and usability of services

The average level of satisfaction for all 38 services provided is 3.4 for SUS and 3.3 for the AWARE method. Thus services with average SUS or AWARE scores above 3.4 are better than average. Registering for legal aid (SUS 3.7 and AWARE 3.6), Registering a new legal entity (3.6 and 3.6) and Consulting the business register (3.7 and 3.7) are the services that provide the highest levels of usability and user satisfaction. Reasons given for high scores are for example the availability of an instructional video and clear supporting instructions, as well as the provision of services in multiple foreign languages and the easy access to information.

⁹⁴ The five point Lickert scale recorded 5 for 'strong agreement' and 1 for 'strong disagreement'

The services with greatest room for improvement in service provision are Access to patient summaries⁹⁵ (SUS 2.6 and AWARE 2.0) and Requesting ID documents (3.2 and 3.2). Also, the service Consulting a business register was criticised in three Member States, for providing very little information for free and charging for many elements of company information.

The primary areas for improvement mentioned by the customer journey mappers are the provision of information in English and other foreign languages, the ability to submit forms in languages other than the 'home country' language and the ability to log into a service area with a foreign eID. A distinction should be made here between general information (on the service or process) that has little or no legal nature and specific forms and requirements that are rooted in legal or domain-specific complexities (e.g. prescriptions or afflictions in a patient dossier). Regarding the general information, as most of the online websites could be accessed using Google and other translation tools, it would be beneficial if the use of these tools was highlighted on the website. Currently only one country under investigation provided details about online translation tools to aid in the use of the web site. For the latter type of specific information more elaborate and formal translation and mapping is required

The results from the SUS and AWARE survey of online services do not correspond with the results from the user survey, performed in earlier stages of this study. Whereas as the customer journey mapping found that the two business services have the highest levels of usability and user satisfaction, 19 per cent of the respondents of the user survey⁹⁶ found that the online business services are too complex. The key barriers they identified to online business service use were security concerns (27 per cent of users). The customer journey mapping did not examine security concerns or re-assurances on web sites about the security of online services. However, it was evident from interviews with service providers that security was a major concern when developing the sites. To provide a service governments often use personal data and therefore need to be able to guarantee privacy. The systems that house government services are known to be a favourite target for cyber criminals. Security mechanisms however are considered difficult to implement and maintain for providers of services and difficult to use for users of the service. To offer online services secure access for clients has to be established to enable exchange of confidential documents and personal information. Security mechanisms like Hypertext Transfer Protocol Secure (HTTPS) and valid recognised certificates management and certification authorities complicate system architectures for deployers and in cases like opening a business, paying taxes, requesting duplicate documents digital signatures are often required to use the service, complicating an online portal and its use. As a quick win, reassuring words on the web sites about the security of the site could help to address the security concerns of the 27 per cent of respondents from the user survey that thought this was a barrier to the use of online business services.

⁹⁵ As noted earlier only one country was pilot testing the Access to patient summary service.

⁹⁶ The user survey found that 23 per cent of 997 respondents (229 respondents) were either self-employed or employers and thus users of business services. More than 45 per cent of these respondents had accessed business services online.. They answered questions on usability and satisfaction for 3 business services: Register a new legal entity, Consulting the Business Register and Business Tax declaration

6.1.1 Usability, Duration and maturity level of online services

The Customer Journey Mapping results do not show correlation between the usability and satisfaction rates and the time it takes to obtain⁹⁷ the online service. The average length of time to obtain the online services is 6.6 minutes. Registering a new legal entity (17 minutes) and Income tax declaration (9 minutes) are the services that take most time to obtain. Access to patient summary (2 minutes) and consulting the business register (3 minutes) take least time. This could be explained by the nature of the service. Whereas Registering a new legal entity and Income tax declaration often require the citizen or entrepreneur to provide a considerable amount of data ('push principle'), Access to Patient summary and Consulting the business register are based on the 'pull principle', only requiring the citizen or entrepreneur to pull information from an existing database (it provides an information service as opposed to requiring numerous interactions to provide, verify and transmit documents).

When comparing the duration with the maturity level of the 38 cross-border services⁹⁸ a relatively high difference in the time required to complete the online elements and obtain services is revealed. To ensure comparison between services researchers were told to only record the time taken to complete online activities. The figures in Table 38 thus omit time taken to complete (offline) forms and documents that might have been downloaded. This (information provision) time is included for full case handling services since all form completion and information is provided online. This explains the longer time for completing full case handling services. The second longest time period is spend on 'information only' services. This can be explained by the nature of informational services online. Whereas, transactional services are focused on the specific handling needed to obtain a service, often consisting of a clear 'fill-attach-send-' process, informational services require the user to search, read and process information that often is less focused on the service he is actually looking for. Making services transactional thus not only increases the efficiency for public administrations, but also increases user friendliness by only providing what the user truly needs in a simplified process. For full case handling the time is more which can be explained by this being a multiple-step interactive process which also requires time for administrative management tasks (e.g. registration in the case handling system to handle multiple access) as well it requiring more information for the overall case handling interaction.

As might be expected more sophisticated communication methods are required to undertake the activities required to obtain the seven cross border services. One way interaction (downloading forms and documents) and then completing and returning downloaded forms enabled seven of the 12 services (58 per cent) provided by one way interaction to be obtained without the need for further terrestrial contact with government authorities. Two way interaction enabled four of the six services (67%) provided in this manner to be obtained. Full case handling enabled 88 per cent (14 of 16 services) of services to be obtained online. The two exceptions, where the procedure could not be obtained online, required the provision of ID documents.

Interestingly, the highest levels of usability and user satisfaction were obtained from the more sophisticated services (two way interaction and full case handling). Information only services were frequently criticised for the difficulty of finding relevant information and the fact that relevant information was often located in different 'parts' of the web site.

⁹⁷ 'Obtain' in this context means to complete the activities required to obtain the service as far the online web site allows (e.g. to get all information for information only sites, to download files and forms for one-way interaction).

⁹⁸ For this analysis the one instance of providing 'patient summaries' was omitted.

		Duration (minutes)	Usability (SUS avg)	Satisfaction (AWARE avg)
M1	Register as domicile	150	3.7	3.7
M2	Request ID documents	145	3.8	3.8
M9	Register for legal aid	62	1.8	2.1
E2	Income tax declaration	50	3.0	3.2
B1	Register new legal entity	131	3.9	4.1
B10	Consult business register	23	3.7	4.5

	Information only	One way interaction	Two way interaction	Full case handling
Number of services analysed	3	12	6	16
Average time (minutes)	10	5	3	12
Services obtained	0	7	4	14
Percentage of services obtained⁹⁹	0	58%	67%	88%
Usability (SUS avg.)	2.8	3.4	3.9	3.6
User satisfaction (AWARE avg.)	2.5	3.4	3.9	3.7

Table 39 Maturity level of service provision and user satisfaction

6.1.2 Usability and satisfaction of terrestrial services

Terrestrial journey mapping was also undertaken to analyse the seven cross border services. A similar questionnaire was used to record information about the terrestrial customer journey, see Annex II.

The terrestrial study was not as extensive as online testing but interesting results have nevertheless been obtained (see Table 40). The table immediately reveals the far longer times that are required to obtain terrestrial services. On average the time to complete terrestrial journeys was 93 minutes. The most difficult to obtain service was registering for legal aid, income tax declarations were also relatively difficult. The easiest to obtain were the two business related services - registering a new legal entity and consulting the business register.

Table 40 Use and usability of services¹⁰⁰

One country under investigation provides an interesting model for the terrestrial provision of public services with a one-stop solution to the delivery of services. The 36

⁹⁹ The number of services where it was actually possible to complete the service without a physical visit or interaction.

¹⁰⁰ Patient summaries are omitted from this table. Data for Spain, the only State to provide this service in our study was not available.

		Online duration (minutes)	Terrestrial duration (minutes)
M1	Register as domicile	3	150
M2	Request ID documents	9	130
M9	Register for legal aid	10	62
E2	Income tax declaration	20	50
B1	Register new legal entity	22	131
B10	Consult business register	3	23
	Average	12	91

citizen shops provide, in one place, access to a wide range of public and private services, from social security to tax services, electricity or water supply companies, or Citizen Card emission services. Each Citizen Shop concentrates a wide variety of public and private services, based on a continuous effort to enhance collaboration and partnerships between public and private entities.

Interestingly, usability and user satisfactions scores from the use of terrestrial services in this country are generally far higher than for each of the five equivalents services offered online. These higher ratings are achieved despite the fact that in this country on average it takes 94 minutes longer to obtain the services terrestrially than it does online. This suggests that one-stop citizen shops are providing a high level of customer service and satisfaction.

6.2 A comparison of online and terrestrial service provision

The preceding section provided an introduction to the comparison of online and terrestrial service provision for cross border services. Since, by definition, cross border service users are not resident in the Member State from whom they are requesting the service the existence of online services should generally provide cross border users with an easier route to accessing the service than by phone or having to re-visit the country concerned.

If online services can be shown to offer the same level of service or user satisfaction as terrestrial services and/or they offer time savings to users this could provide a significant marketing message for those promoting online cross border services. Benchmarking (overtime and between Member States) using the robust methodology developed for this study could help to ensure that constantly better services continues to be offered online and that services improve for cross border users over time.

Table 39 provides an overview of the time it takes to obtain the cross border services online¹⁰¹ and via terrestrial routes. For all services online services can be obtained far faster than terrestrial services. The average time to obtain online services is 12 minutes. The equivalent for terrestrial services is 91 minutes.

Table 41 Comparison of the time taken to obtain online and terrestrial cross border services

¹⁰¹ Table 28 only includes online services that can be completely obtained online. It omits those that only provide information or forms. Access to patient summary excluded as it is not available online for cross-border users

To also translate this time saving into a monetary value, we will use Eurostat data on the average labour costs per hour in the EU27.¹⁰² The latest available value is for 2011 which gives an EU average hourly labour cost of 23.10 Euro for the EU27. Combining this with the estimated number of cross border users as highlighted in the table below shows that the annual monetized value of the time savings for users is about 180 million Euro.

		Online duration (minutes)	Terrestrial duration (minutes)	Possible Time Saving	Hourly Labor Rate	Monetary Value of Time Saving Per Case	Estimated Cross Border users	Total possible savings per annum
M1	Register as domicile	3	150	147	23.1	56.60	1,205,000	68,196,975
M2	Request ID documents	9	130	121	23.1	46.59	1,446,000	67,361,910
M9	Register for legal aid	10	62	52	23.1	20.02	279,000	5,585,580
E2	Income tax declaration	20	50	30	23.1	11.55	235,000	2,714,250
B1	Register new legal entity	22	131	109	23.1	41.97	18,000	755,370
B1 0	Consult business register	3	23	20	23.1	7.70	4,641,000	35,735,700
Total								180,349,785

Table 42 Euro value of time saving for users

The table below provides an insight to the usability and user-satisfaction from obtaining online and terrestrial cross border services. On average online services are slightly easier to access than their terrestrial counterparts. However, differences are discernible. Registering for legal aid is significantly easier online and declaring income tax is a little easier online. Registering as domicile is easier to complete as a terrestrial service.

¹⁰²

[http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Labour_cost_per_hour_in_euros_\(for_enterprises_with_10_or_more_employees\),_2008-2011.png&filetimestamp=20120424085138](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php?title=File:Labour_cost_per_hour_in_euros_(for_enterprises_with_10_or_more_employees),_2008-2011.png&filetimestamp=20120424085138)

Table 43 Use and usability of online and terrestrial services

		Terrestrial usability	Online usability	Terrestrial user-satisfaction	Online user-satisfaction
M1	Register as domicile	3.7	3.6	3.7	3.3
M2	Request ID documents	3.8	3.8	3.8	4.0
M9	Register for legal aid	2.2	3.4	2.1	3.9
E2	Income tax declaration	3.1	3.3	3.1	3.3
B1	Register new legal entity	3.9	3.7	4.1	4.0
B10	Consult business register	3.7	3.6	4.5	3.6
	Average	3.4	3.6	3.5	3.7

On average it only takes 12 minutes to obtain the required service online. This length of time should not be a major deterrent to cross border movement. Interestingly, the time taken to obtain the service online is significantly faster than via terrestrial methods, more than one hour fifteen minutes faster on average. When monetized with the EU's average wage costs per hour, this leads to an annual potential time saving for users worth 180 million Euro for the six services studied in the Customer Journey Mapping using the total expected annual volume for all EU countries.¹⁰³

It is also notable that those using the online cross border services receive a similar quality of service (in terms of usability and user-satisfaction) as terrestrial service users. Cross border users do not appear to be disadvantaged in comparison with terrestrial users.

27 per cent of respondents from the user survey gave security concerns as a major barrier to the use of online business services. Web site developers confirmed that security was a major concern when developing the sites. It is evident that sites are secure but greater reassurance needs to be provided to web sites users about the security of online services

Major areas for improvement in online services generally concern the provision of web pages and forms in a wider range of languages. Even on some sites where multiple languages are provided for communication forms can only be completed in the 'home country' language. Greater range in language provision and flexibility in languages in which replies will be accepted would enhance services in some Member States. A suitable, but not perfect solution, would be for web sites to highlight that Google and other translation tools can be used for translation.

¹⁰³ Access to patient summary not studied as it was not available as an online cross-border service.

7 Boosting online cross-border services

*"Most public online services do not work across borders or involve cumbersome procedures to be accessible."*¹⁰⁴

Having assessed the needs and demands for 25 cross border services and then focused on seven specific services in seven EU countries, the study will seek to further correlate the data collected in order to reach conclusions necessary for the roll out of these services. The conclusions will also provide insight as to how Member States and the EC can further reap the benefits of their efforts as they implement national eGovernment, eHealth and e-Justice services and strive to offer online services to cross-border populations both civilian and business.

The previous chapter has depicted a first series of costs and benefits, both qualitative and quantitative. With this chapter, the study team seeks to present the overall conclusions of this study. It will bring together the findings from the different phases and offer an outlook for the future roll out of services.

7.1 Barriers analysis: similar challenges across sub-sets of cross-border services

When examining the barriers identified across the seven services in the preceding sections, there are clearly a number of recurring barriers, shared by each of these services, which could benefit from a common approach at the EU level. Indeed, as will be discussed in the next section, a common approach is already being implemented for some of them via the LSPs or via EU level legal initiatives.

Firstly, three major barriers are shared by all services, or indeed by any service requiring bilateral interaction: eID, eSignatures and linguistic/ semantic issues. The service operators consistently indicate that, while partial solutions are available to them, there are no comprehensive building blocks that would allow them to easily develop comprehensive solutions, i.e. services which are available to all EU citizens and businesses.

Secondly, a major challenge for many services is readiness of local infrastructures, stakeholders and legislation. The services described above always require a number of prerequisites to be met, which are not available in all countries. To access a patient summary, an electronic summary must first exist. To register a new company, registry holders must be ready and willing to connect to a central service. To request ID documents electronically, legislation must allow remote procedures. There is a great deal of legacy still to be cleaned up at the national level: deployment of cross border services is as much a product of local e-readiness as it is of international cooperation.

Thirdly, all of the services above require stable governance mechanisms to ensure sustainability. In any situation where national administrations need to interconnect in a decentralised or federated model – which applies to each of the seven services above to some extent – there is a need for a governance mechanism to set relevant standards, protocols and policies, and (if necessary) to enforce these. This is a transversal issue which affects issues such as data protection, security, semantic alignment, availability and reliability assurances, liability and so forth. It applies to the three key building blocks above (eID, eSignatures and language barriers), but also has more specific applications in each of the services above: the eHealth network piloted in patient summary access, the European central platform to interconnect business registers, the federated network within e-CODEX, etc.

¹⁰⁴ The European eGovernment Action Plan 2011-2015, Harnessing ICT to promote smart, sustainable & innovative Government, COM(2010) 743

It is worth noting that these issues were also reported in the end user surveys conducted in prior stages of the study, particularly issues one (eID, eSignatures and linguistics) and two (local readiness). Indeed, the need to combine electronic processes with paper communication (pointing to the influence of legacy systems) and the unavailability of systems in one's own language were consistently among the top-3 complaints highlighted by end users for the examined services, both for citizen services and for business services. The third major barrier described above – governance – is not reported by the end users in these services, likely because this is a 'back office' issue from their perspective, which is not seen as an issue that impacts them.

Looking at the seven individual services, the number of barriers and maturity of service availability were analysed as follows:

Service	Number of reported barriers by service operators and stakeholders	Service availability
Registering a new domicile	11 barriers (3 organisational, 3 legal, 2 technical, 3 semantic)	Average
Requesting ID documents	4 barriers (2 organisational, 1 legal, 1 technical, 0 semantic)	Average
Registering for legal aid	4 barriers (1 organisational, 1 legal, 1 technical, 1 semantic)	Low
Accessing a patient summary	10 barriers (3 organisational, 3 legal, 2 technical, 2 semantic)	Very low
Declaring income taxes	5 barriers (2 organisational, 1 legal, 1 technical, 1 semantic)	Average
Registering a new legal entity	12 barriers (6 organisational, 3 legal, 2 technical, 1 semantic)	Above average
Consulting the business register	6 barriers (1 organisational, 1 legal, 3 technical, 1 semantic)	High

Table 44 Number of barriers and maturity of service availability

There does not appear to be a strong correlation between the number or nature of the reported barriers and the availability of services. This can be explained largely by lower response rates for some services (such as e.g. legal aid, which only has 4 reported barriers, yet ranks as a low availability services), which result in underreporting of barriers for those services. Other factors can also explain the disparity between barrier numbers and availability: a single highly complex barrier could be enough to reduce service availability to near-zero, and lack of policy attention – which can constitute a barrier in its own right – might limit the availability of services even when its barriers are relatively easy to overcome. Thus, the number of barriers may be of lesser interest to this study than the availability of service as such.

Looking at the higher availability services (i.e. those scoring above average and high), the two highest scoring services are Registering a new legal entity and Consulting the business register. The common element between these two services is not a low amount of barriers, but rather the existence of an EU level obligation to develop the services (via the Services Directive and the Interconnectivity Directive), the existence of EU level initiatives to establish the services at a cross border level (via SPOCS and the EBR), and the lack of dependence on intermediaries (i.e. users of the services generally interact directly with the competent administration).

In comparison, the lowest availability services (Registering for legal aid and Accessing a patient summary) do not have a similarly extensive EU level framework, and while EU level LSPs have been implemented to support their functionalities to some extent (via e-CODEX and epSOS), these were both initiated more recently than the efforts for the higher availability services. Finally, the dependence on intermediaries (such as hospitals, health care professionals, lawyers, judges etc.) also implies a greater complexity, as it is not only necessary to support the involvement of end users and administrations, but also to enable the identification and authorisation of these intermediaries, including at the cross border level. One could expect that the contrary is the case and intermediaries would lower the barriers. However, for the eHealth and eJustice cases, professional organisations likely know well who their members are and what they need, but they may lack the technical expertise to implement the necessary infrastructure to identify/authenticate/authorize their members, or to develop the necessary services.

Initiatives exist to address these major barriers, as piloted through the LSPs and/or addressed by legislative initiatives; however, much of these are still to come to full fruition. This will be examined in the next section.

The overview of services, barriers and service availability in this section also shows that some services are closer to full deployment than others:

- The higher availability services (Registering a new legal entity and Consulting the business register) seem to have the smallest remaining number of barriers to overcome. While eID/eSignatures/eDocument interoperability are a barrier to be overcome (in particular for the registration of new legal entities), the two other barriers mentioned in the overview above are less crucial:
 - Governance is less critical, because these services are largely managed at the national level, and require less alignment of national infrastructures. Insofar as alignment is necessary (e.g. with respect to semantics or communication standards), a legal framework is largely available to address these points via the two respective Directives (Services Directive and Interconnectivity Directive).
 - National readiness is already at a higher level, due to the legislative push provided by these Directives, and also likely through prior investments made by the Member States even prior to these initiatives (although the collected data provides no information on this topic).
- The average availability services (Registering a new domicile, Requesting ID documents and Declaring Income Taxes) have a higher number of barriers to overcome. They face the same challenges with respect to eID/eSignatures/eDocuments as the higher availability services above, but national readiness in particular is more problematic. These are policy areas which have been less harmonised at the EU level, meaning that there are more divergences (indeed, services such as Registering a domicile do not exist in some countries such as the UK, rendering the availability question moot). While governance is still not a high barrier (given the less important role of EU level alignment and lack of intermediaries for these services), the national readiness barrier – which includes the question of desirability of a service – plays a much larger role.
- Finally, the low availability services (Registering for legal aid and Accessing a patient summary) face all three barriers:
 - With respect to eID/eSignatures/eDocuments, there is not only a need to address end users, but also the respective intermediaries. This means that both the identity and authorisations of relevant professionals (doctors, nurses, judges, lawyers) have to be able to be determined for each of these processes.

- National readiness is a significant barrier: Member States need to implement the required services at the national level, including such elements as eJustice portals, patient summaries, and databases of service providers and their authorisations, before these can be mapped to similar resources in other Member States. Existing legislation and administrative procedures need to be revised at the national level to ensure that the services can indeed be provided electronically. These elements have not been harmonised at the EU level (unlike e.g. the higher availability services mentioned above).
- Governance will become a much greater concern. While even the average availability services mentioned above require limited direct interactions between national administrations, the low availability services both require intensive collaboration between Member States on semantics, standards, communication protocols, trust between administrations, service quality levels and guarantees, before the services can be offered. E.g. a Member State will need to ensure towards hospitals in other countries that a specific individual is indeed a licensed health care professional, and therefore authorised to assist in accessing a patient summary. This issue of appropriate governance is also particularly important to ensuring compliance with applicable rules, such as notably data protection compliance: both eHealth and eJustice require the processing of sensitive personal data, and thus imply the need for a stringent data protection framework. There is thus a much greater need for a common governance framework for these two services, which is still largely missing. While inputs on these points are being developed within the relevant LSPs (e-CODEX and epSOS), these will still need to be formalised and made sustainability before the services can achieve full maturity.

As this overview shows, the seriousness and impact of these barriers is cumulative:

- All services require the eID/eSignatures/eDocuments barrier to be overcome. Therefore, this barrier has the highest negative impact, and completion of the relevant framework should therefore be the highest priority.
- The local readiness barrier exists mainly for the medium and low availability services, but is less of an issue for the high availability services, for which readiness already appears to reach acceptable levels. Thus, taking action on this point to ensure that maturity of local infrastructure is relatively even across the EU is a lower priority barrier than eID/eSignatures/eDocuments, which is a ubiquitous barrier.
- Finally, the governance barrier is most crucial for the current low availability services, which cannot be implemented without strong eGovernment and/or sector specific coordination at the EU level. These are the most complex services, and this barrier should therefore be examined and addressed through a well-targeted approach, with governance mechanisms tailored to the specific needs of each service. Steps to overcome these barriers should thus be taken gradually as consensus on their implementation grows.

It should be emphasised that this summary should not be taken to mean that governance barriers and local readiness are not relevant for the higher availability services – no service can exist without appropriate local infrastructure and without appropriate governance of the relevant systems – but rather that they appear to already be addressed at a satisfactory level within the examined Member States.

Given this assessment of barriers and their impact:

- The higher availability services (Registering a new legal entity and Consulting the business register) should be easiest to deploy in the shorter term, requiring only a finalised framework for eID/eSignatures/eDocuments.

- The average availability services (Registering a new domicile, Requesting ID documents and Declaring Income Taxes) are more complex, and require investments that go beyond eID/eSignatures/eDocuments. These are thus only achievable in the medium term with reasonable combined endeavour on the European level.

Finally, the lower availability services (Registering for legal aid and Accessing a patient summary) require comprehensive solutions for all of the three barrier categories identified above, and therefore seem to be achievable in all Member States only in the longer term with strong political commitment and great effort on the European level. However, it should not be overlooked that not all Member States participate in all LSPs, and that the developed solutions are therefore not yet universally adopted. Furthermore, the LSPs currently operate on an ad-hoc legal basis which create limited circles of trust, such as e.g. framework agreements which govern the rights and obligations of the participants¹⁰⁵. To ensure that these solutions can be used equally across the entire EU – including in Member States which do not participate in some of the LSPs, and thus do not benefit from such ad hoc solutions – and that the entire framework can be kept up to date in a scalable manner, a more stable legal framework is required. The proposed Regulation aims to fill this gap:-

7.2 Correlation of findings and main trends

When assessing the costs and benefits of cross-border services, the economic costs and benefits can be quantified whereas the political, social, organisational and technological costs and benefits are mostly qualitative and in line with the PESTEL assessment conducted earlier in this study. From the economic perspective it has been shown that there is a rationale for cross-border enabling existing national services. Relative to the overall implementation- and operating costs of existing national online services, the incremental effort and costs of cross-border enabling these services are marginal. From this perspective it seems worthwhile to already cross-border enable national services when implementing or significantly updating them.

The implementation of services, whatever they are, is driven by a variety of reasons which can be motivated by a need or a demand. In the context of cross-border services, the *raison d'être* for these services may appear more complex than traditional national services delivered in a specific country. As seen in the qualitative approach provided in the qualitative approach to costs and benefits in [Chapter 5](#), the drivers to move forward are multifaceted.

To better apprehend the motives underpinning the roll-out of cross-border services, it is valuable to correlate the information gathered during this qualitative analysis and the desk research conducted for the PESTEL analysis in the needs and demands phase. Through different phases of the study, data has been collected which points to the overall business case of developing services of general interest online. The PESTEL analysis has provided a strong basis in approaching the services from a qualitative perspective in determining the need for cross-border services. By need, one should understand the drivers, from the government/ administration perspective, determining the service offering

The conclusion reached by performing this correlation is that it seems that the roll out of cross-border services is largely driven by political motives. The results of the PESTEL analysis confirm the hypothesis made at the beginning of the cost benefit analysis by stating that the political drive was the strongest. The graph below represents the overall weighting of each PESTEL factor for the seven services assessed. The ecological factor remains high in all cases it represents the savings in terms of paper and staff in processing paper requests. This is not dealt with in the context of this study.

¹⁰⁵ See e.g. the epSOS Framework Agreement, <http://www.epsos.eu/legal-background/the-national-contact-point-and-framework-agreement.html>

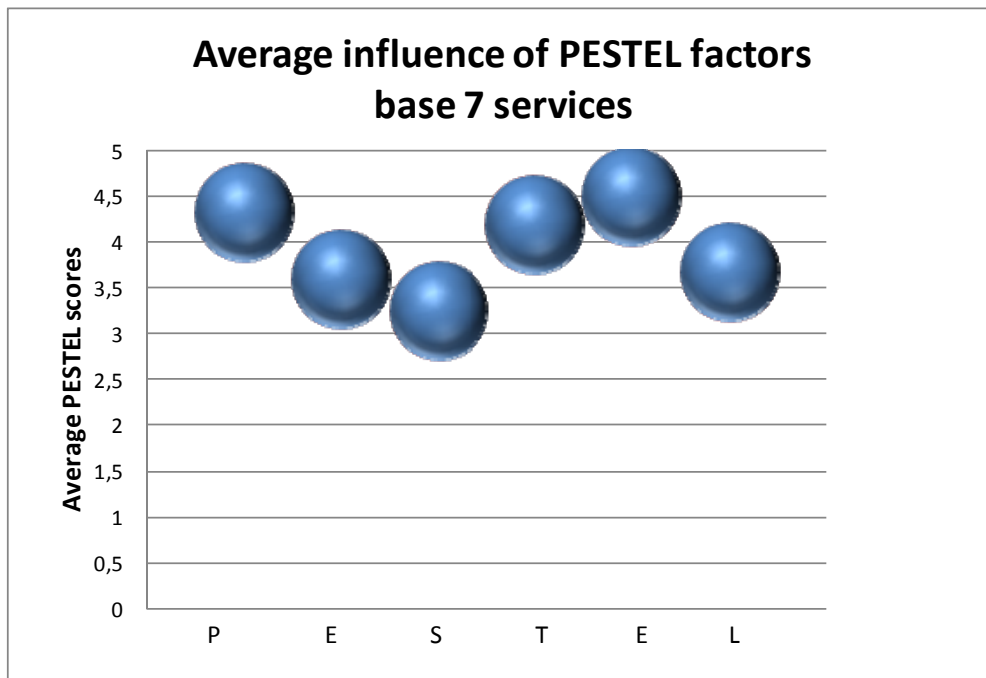


Figure 17 Average scores per PESTEL factor for the seven down-filtered services

Going beyond the seven services down-filtered, when considering the 25 services assessed in depth during the analysis of needs and demands, this conclusion is once again confirmed. When comparing the average influence of PESTEL factors from the 25 services and then by separating the seven assessed during the study, the overall trend is confirmed yet again.

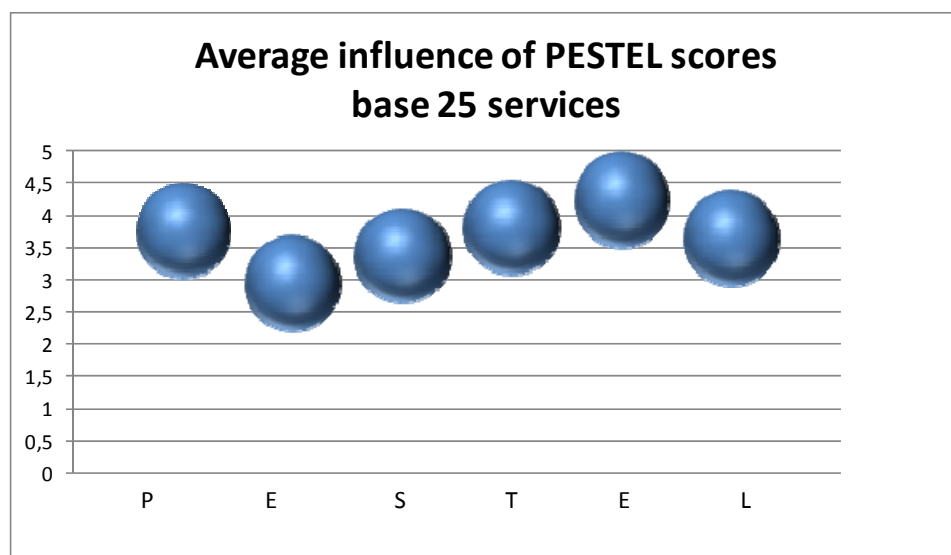


Figure 18 Average scores per PESTEL factor for the 25 services assessed in the needs and demands phase

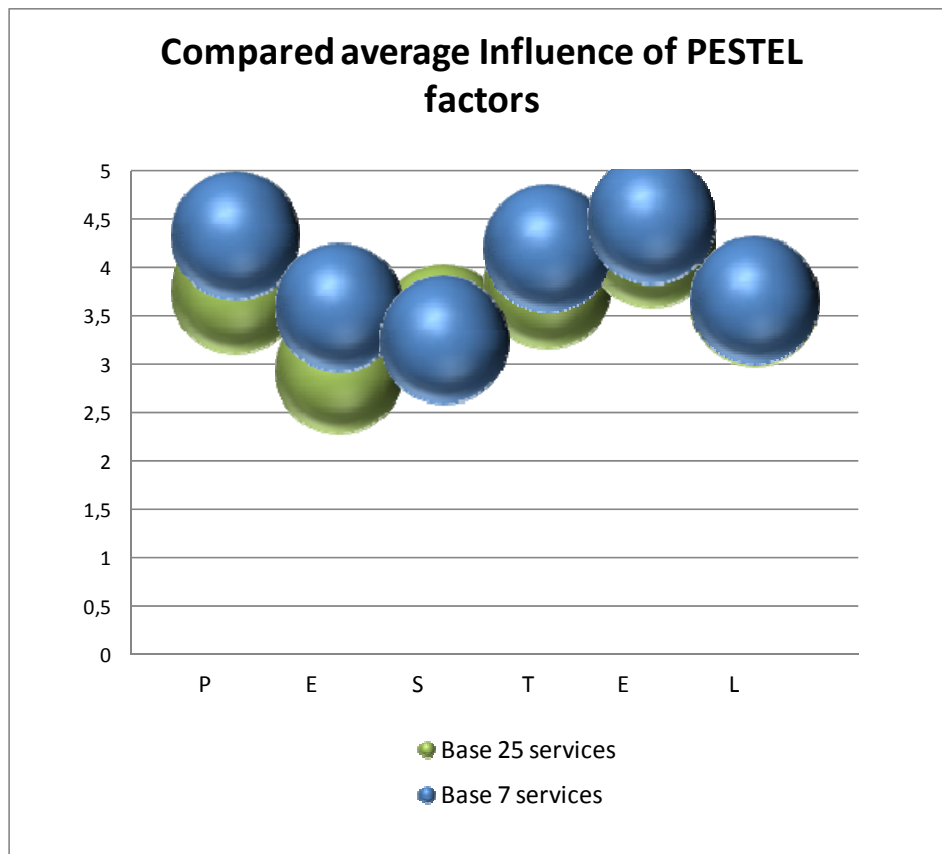


Figure 19 Compared average influence of PESTEL factors

Why is the political factor predominant?

The political drivers of the need for cross-border services can be characterised by three specific factors:

- The need for political consensus between Member States: Some services require consensus, despite the fact that Member States determine their own availability and administrative requirements. These services may require exchange of documentary evidence and procedural requirements that may create dependencies and foster the need for recognition of equivalences. These services are generally health related services, business services (starting up a business, corporate tax declaration and for example registering a real estate purchase (for citizens and businesses)).
- The link with sensitive moral, religious or socio-cultural issues: Very few services have a clear link with sensitive moral, religious or socio-cultural issues. The health related services seem to be the most sensitive as they may trigger “cherry picking attitudes”, whereby users would opt for States with more generous health case schemes. In addition, there is an overall fear of making commercial usage of data from patient records and distrust in data protection. Indeed, the latter is a strong concern from a user perspective when it comes to sensitive aspects such as health and judicial proceedings.
- The support through existing initiatives and investments: This is by far the predominant motive. Existing initiatives are thus for a large part decisive for the determination of the need for each of the 25 services. Several services are included in the Large Scale Pilots (LSPs) and many more could be further enabled. The table below summarises the services fully dealt with by LSPs.

LSP	Services
STORK	Registering as domicile Enrolling as student
epSOS STORK 2.0	Electronic prescriptions Access to a patient summary
SPOCS	Registering a new legal entity
PEPPOL	Submitting a tender for public procurement

In addition to existing initiatives such as Large Scale Pilots, certain services are embedded in general EU policies. Work permit application for example is embedded in one of the foundations of EU policy, i.e. free movement of EU nationals, which can in turn incentivize the creation of cross-border services to facilitate administrative processes. Services as registering for a pension and consulting a business register are part of general Internal Market policies and of the free movement for persons. Registering for VAT, submitting a VAT declaration and registering a new employee are supported by existing information exchange, Member State or social cooperation. This is also the case for the registration of a new legal entity if it falls under the requirements of the Services Directive (2006/123/EC) that aims at realising the free movement of services and entrepreneurs.

The link between the political drive and regulation therefore becomes more blurred. The barriers analysis shed further light on this point. As described in section 7.2 Barriers Analysis, this legal factor has played a decisive role in implementing cross-border services. Indeed, it seems that the services benefitting from a regulatory framework witness higher levels of availability and maturity across the different countries assessed.

Implementation challenges and return on investment

When considering the economic aspect, this did not appear in the PESTEL as the predominant driver for the implementation of cross-border services. One could set forward several hypotheses such as the little amount of data available and aggregated so as to apprehend the demand for cross-border services, the focus on national online services or even the perception that cross-border enablement would be over-complex and too costly.

The effort and costs to cross-border enable existing national services has been shown per service. Feedback from service provider interviews and LSP's has brought to light that the expectation exists that as the basic enablers for cross-border services are put in place, the incremental costs for cross-border enabling more services will increasingly diminish. Relative to the overall implementation- and operating costs of existing national online services, the incremental effort and costs of cross-border enabling these services are marginal. From this perspective it seems worthwhile to already cross-border enable national services when implementing or significantly updating them. There will always still be organisational effort required to cross-border enable the services but especially concerning technical costs for enablers such as eID, eSignatures, eDocuments and eDelivery these are expected to be less once they are already in place. This does however call for a cross-domain re-use of such enablers, requiring cooperation and re-use of solutions between domains and not repeating work already conducted for another

service. Time savings of the online service relative to the offline one were clearly demonstrated although in a cost benefit comparison the payback period primarily depends on the volume expected per country. In terms of assessing a return on investment, this shows similar results as macro-economic benefits of a specific service cannot be attributed to it being online enabled. The customer journey mapping has however shown that when implementing a specific service, it is economically advantageous as well as user-focused to ensure it allows for at least 2-way interaction to obtain the most benefits from it. In some cases the investments pays back in terms of administrative savings within months, in other cases this can be multiple years. This assumes that national services already exist.

Here, the cost benefit analysis has drawn conclusions from the data gathered and pointed out that the average technical costs are relatively low (176,237€ per service) for cross-border enablement and that the return on investment (ROI) can be achieved within an average time ranging from six weeks for Access to Patient Summary to 146,5 years for registering a new legal entity! To better understand the ROI period, the graph below shows the distribution of services against the forecasted ROI periods.

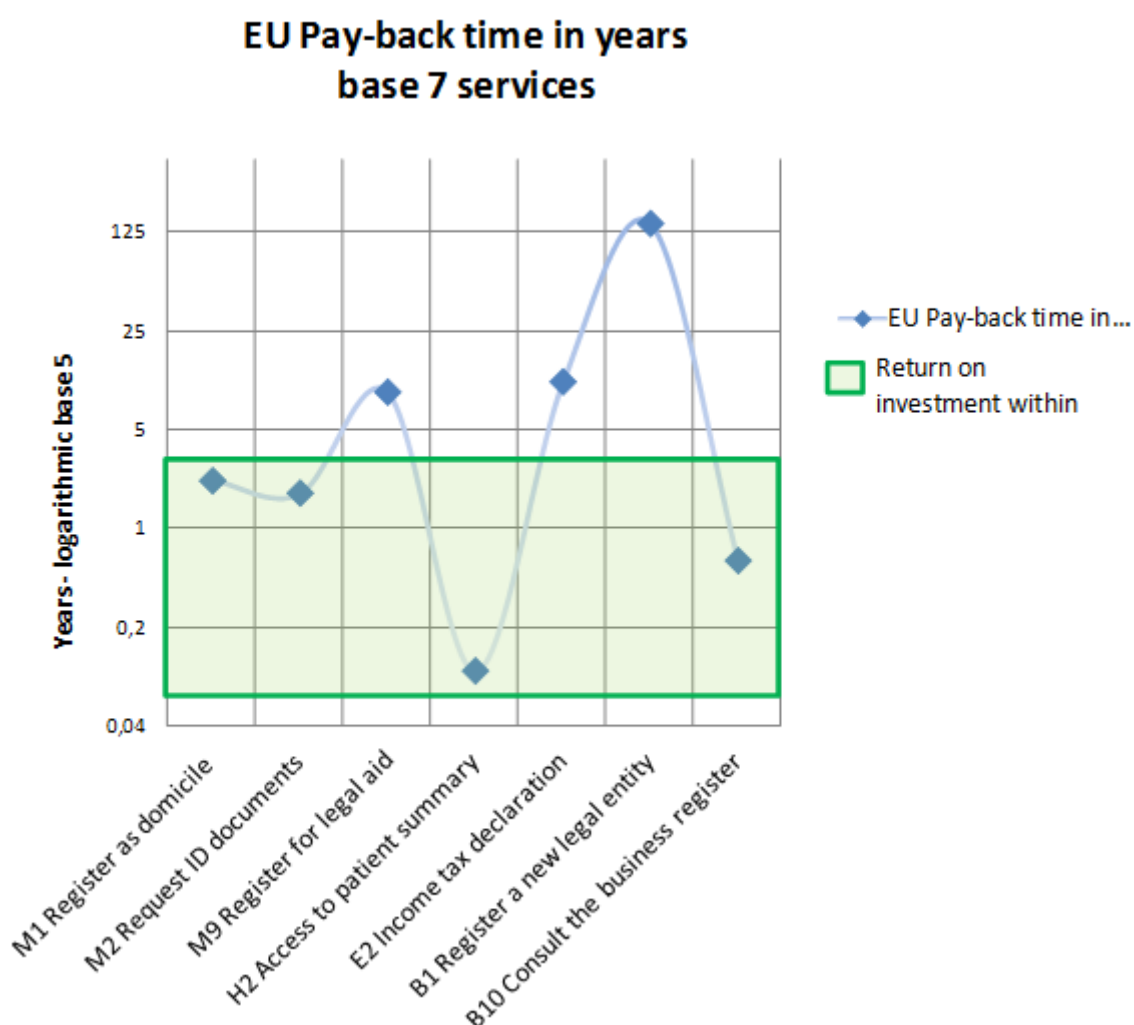


Figure 20 European pay-back time in years for the seven services assessed.

Interestingly, four out of the seven services assessed have a ROI period of up to 2,2 years. This is the case for register as domicile (2,2 years), request ID documents (1,8 years); access to patient summary (0,1 year) and consult the business register (0,6 year). More importantly, two of these services would break even within the first six months of their implementation.

When considering the services for which the ROI occurs after a period of 2,2 years, one can note that two services would break even after 9,5 years (Register for legal aid) and 11,2 years (Income tax declaration) and finally after 146,5 years for Register a new legal entity. As regards the latter, an immediate disclaimer must be made. During the course of the study, it appeared that registering a new legal entity was not necessarily considered being cross-border: aspects such as localization and residence undermined the statistical relevance of the cross-border nature of the transaction. Furthermore, we estimate that there are approximately 140,000 businesses that will require cross-border services and about 18,000 new businesses are created every year that will require cross-border services. The figure of 18,000 being proportionately low when compared to services with higher volumes thus mathematically creates a longer ROI period.

Correlating barriers, Return on Investment and demand for services

Now correlating this with the results of the barriers analysis, the services with the quickest ROI seem to be mostly the ones with the biggest number of remaining barriers. The barriers analysis, in categorizing the services, determined three different groupings:

- The higher availability services (Registering a new legal entity and Consulting the business register)
- The average availability services (Registering a new domicile, Requesting ID documents and Declaring Income Taxes)
- Finally, the low availability services (Registering for legal aid and Accessing a patient summary) face all three barriers

The table below offers an overview of the main data points for the seven services assessed in-depth during the course of the study.

Service	Estimate Cross Border users	PESTEL score	Savings per case multiplied by n° of Cases EURO	EU Pay-back time in years	Service availability	Barrier
Register as domicile	1,205,000	4,18	2,174,543	2.2	Average	11 barriers (3 organisational, 3 legal, 2 technical, 3 semantic)
Request ID documents	1,446,000	3,99	2,609,452	1.8	Average	4 barriers (2 organisational, 1 legal, 1 technical, 0 semantic)
Register for legal aid	279, 000	3,63	503,483	9.5	Low	4 barriers (1 organisational, 1 legal, 1 technical, 1 semantic)
Access to patient summary	20,140,000	3,94	36,344,644	0.1	very low	10 barriers (3 organisational, 3 legal, 2 technical, 2 semantic)
Income tax declaration	235, 000	3,9	424,081	11.2	Average	5 barriers (2 organisational, 1 legal, 1 technical, 1 semantic)

Register a new legal entity	18, 000	3,96	32,483	146,5	above average	12 barriers (6 organisational, 3 legal, 2 technical, 1 semantic)
Consult the business register	4,641,000	3,93	8,375,149	0.6	High	6 barriers (1 organisational, 1 legal, 3 technical, 1 semantic)

Table 45 Main data points collected for 7 services assessed

Building on the table above, when correlating the ROI and the level of availability of services one can plot the services within a matrix. This shows that the service with the quickest ROI, namely Access to patient summary, also faces the lowest level of availability. The second service with the highest ROI is Consult the business register. It also faces the lowest amount of barriers. The two remaining services are register a domicile and request ID documents, which an average level of availability. When analysing the next three services with the latest ROI, these are evenly distributed across the three categories. However, the availability of the services seems to be inversely proportionate to the ROI and therefore volume of usage they represent. The longest service to break even, Register a new legal entity has highest level of availability, Income tax declaration is average for a ROI of over 11,2 years and finally, Register for legal aid suffers from the lowest of level of availability.

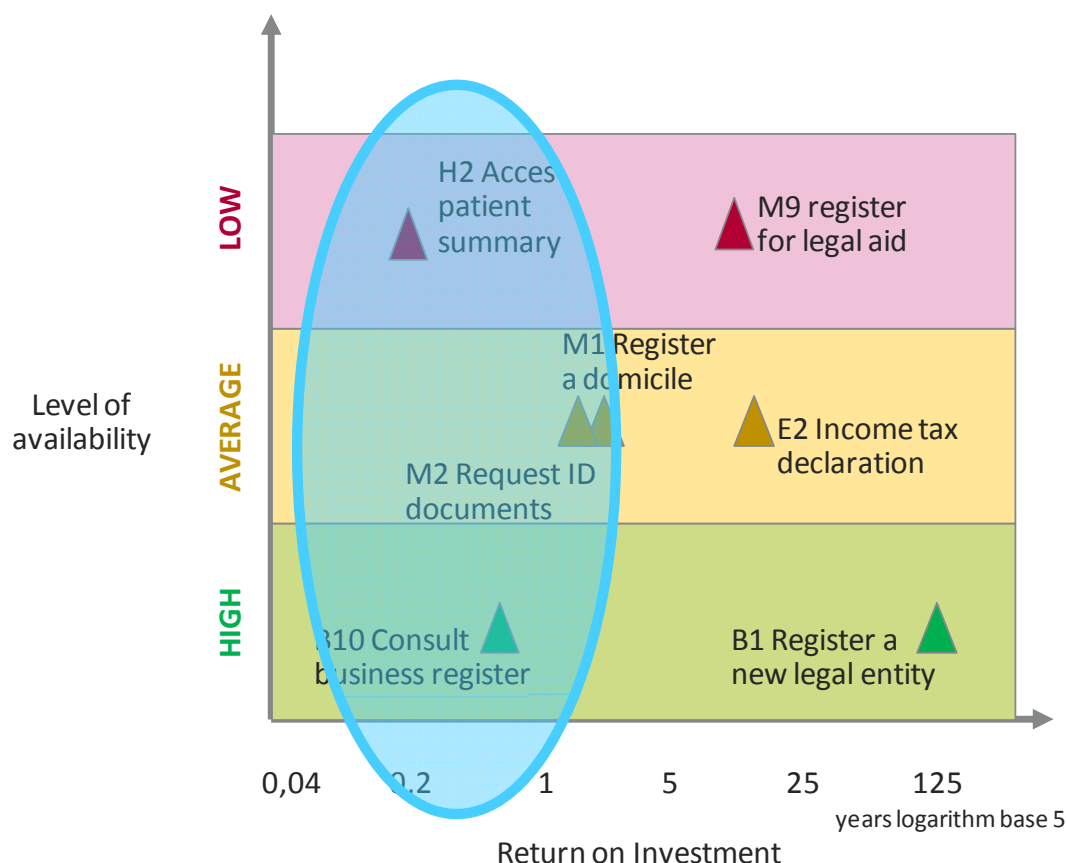


Figure 21 Matrix of availability of services and ROI for seven services

The blue oval figure on the graph above marks the rapid ROI services. However, based on the analysis of the barriers there are two distinct ways forward:

- Securing quick wins to increase the perception of ease of implementing cross-border services. This can be done for the case of consulting the business register. Or by developing policies which will foster the mobility of business in the EU and the better statistical recognition of the registration of new legal entities by non-nationals in different EU countries.
- Addressing the most difficult barriers that need to be tackled, namely authentication (eID, signatures), readiness of local infrastructures, stakeholders and legislation. Finally by developing stable governance mechanisms. Based on the data collected within this study, the domain of eHealth would largely benefit from additional actions. It represents the sector with the highest volume of transactions as well as the quickest ROI.

Additional reflections could be conducted around the correlation between the reduction of barriers and the increase in user volume. How important would the increase be? However, when considering the usage information extrapolated on the one hand, the growing number of cross-border users and finally the growing take up of the use of online services mathematically, the user volume of online cross-border services could only increase. Indeed, when considering the current number of estimated immigrants and commuters between EU Member States in 2009, the head count reveals 1,790,000 individuals. This figure, as revealed within the study is expected to rise by 22,7 percent, thus reaching the level of 2,196,035 users by 2020. Regardless of trends in the take up of eGovernment services, which would indicate a likelihood of 1,262,887 users of online cross-border services already now, when considering the uptake of eGovernment from 2010, one may assume that once services are more usable their actual take up would grow exponentially. The table below builds on the results from the user survey described in section 3.3. Results from this survey point to a quick win in terms of achieving additional volume. This would consist in digitally enabling the services from end to end and avoiding users to revert to the paper (physical) channel. The graph below illustrates data from the user survey in depicting the uptake in terms of full online usage, combination of online and offline channels and potential when adding online and the combination of offline and online usage.

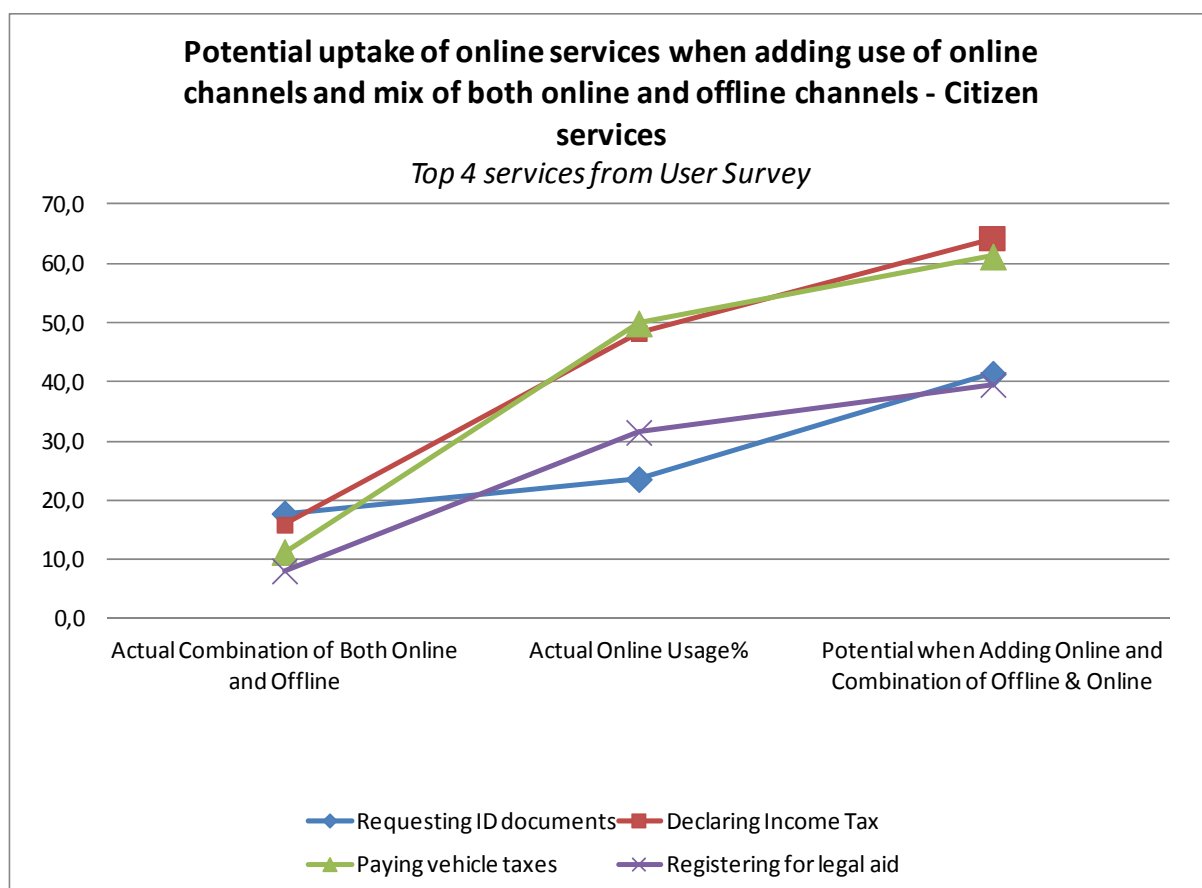


Figure 22 Potential uptake of online citizen services when adding use of online channels and mix of both online and offline channels

Analysing the figures from the graph above indicates that eEnabling a service from end to end can represent an increase in take up of up to 89,9 percent. The average uptake gained for the four services assessed in the user survey would however be of 55,2 percent and therefore double the number of online users. Achieving this result does not only imply bringing the services online. It rests upon the need to make services more user-friendly and accessible. This will in turn drive demand.

Service		Net potential increase in online take up
Requesting documents	ID	75,40%
Declaring Income Tax		32,90%
Paying vehicle taxes		22,64%
Registering for legal aid		89,90%

Table 46 Net potential increase in online take up - Citizens

Now moving to business related services, where the data collected has pointed to 140,000 branches and immigrant business start-ups between EU Member States occurring yearly. The graph below visualises the potential uptake of online services when adding the use of online channels and mix of both online and offline channels. The data is derived from the user survey.

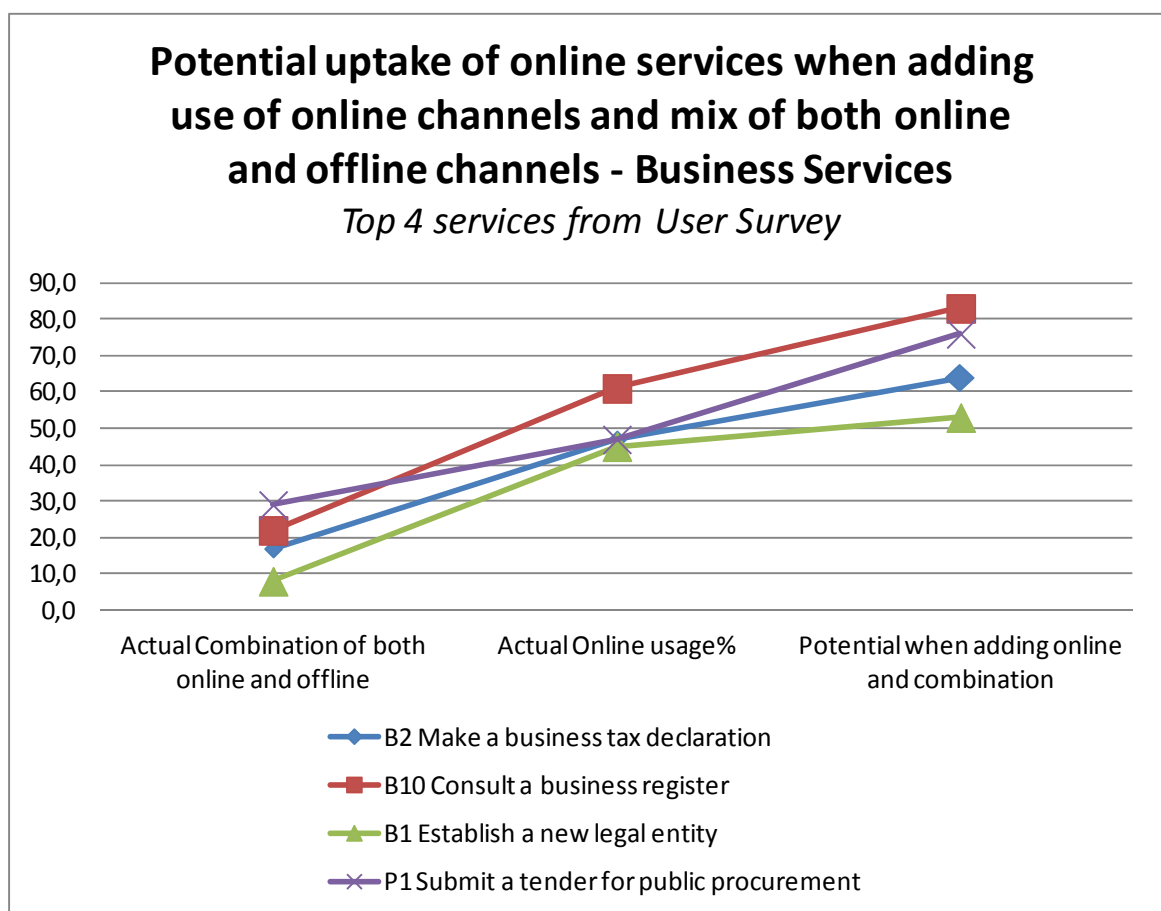


Figure 23 Potential uptake of online citizen services when adding use of online channels and mix of both online and offline channels

The net uptake may seem lessened in terms of percentage points when comparing it to the potential gain for citizen services. This can largely be explained by the fact that businesses are already far more using the online channel. Indeed on average 50% of business users conduct their operations online, as opposed to 38,3 percent for citizens. Nonetheless, by combining the online channel and the offline channel and bringing everything online from end to end, the use of eServices can sky rocket to 83 percent for consulting the business register and 76 percent for submitting a tender for public procurement. On average, online service usage would increase by 38%. The table below details the gains in terms of percentage per service.

Service	Net potential increase in online take up
B2 Make a business tax declaration	37,10%
B10 Consult a business register	36,00%
B1 Establish a new legal entity	18,00%
P1 Submit a tender for public procurement	60,98%

Table 47 Net potential increase in online take up - Businesses

What needs to be done now? As high impact services can differ from one country to another, how to reap the benefits of high impact cross-border services? Taking the example of the service "Register a new legal entity", several immediate next steps may possibly drive the volume and drastically reduce the payback time. The remaining sections of chapter 7 will provide recommendations as to the path(s) to be followed to achieve growth and implement the services with the highest impact.

Keys to overcoming the barriers: existing inputs and their impacts

The three major groups of barriers listed in the section on the barriers analysis (chapter 7.1) have already seen significant developments at the EU level over the last few years, some of which have also yielded practical results as seen in the analysis of the services. These can be briefly summarised as above.

With respect to eID and eSignatures, a basic legal framework for eSignatures was already implemented via the eSignatures Directive and a series of related Commission Decisions. Practical solutions aiming to achieve cross border interoperability have been developed and piloted through various EU level initiatives, most recently via the LSPs STORK 1 and STORK 2.0 (for eID), and PEPPOL and SPOCS (for eSignatures). This has resulted in a series of technical building blocks that public administrations (or private entities, if they choose) can take up and implement.

These basic building blocks are supported by specific legislation in a number of instances, aimed at facilitating the development of cross border interoperable services. These include the aforementioned eSignatures Directive, but also the Services Directive 2006/123/EC (including a series of follow-up decisions facilitating the use of eSignatures and eDocuments), the Legal Aid Directive 2002/8/EC, the Patients' Rights Directive 2011/24/EU, and most recently the Business Registers Directive 2012/17/EU. Member States can build upon these initiatives to develop and adjust their own legislations at the national level and to facilitate cross border interactions.

With respect to governance frameworks, basic governance infrastructures are piloted by the LSPs, which inherently require Member States to confer and agree on detailed issues such as technical standards, protocols, security, compliance assessment, etc. While still in an embryonic stage, much of the required inputs are thus already present.

Nonetheless, some gaps are still clearly present, some of which are already being addressed, and some of which still need more substantive efforts. While more detailed recommendations will be developed within the final deliverable of this project, a few early observations can already be made.

7.3 Taking a step back from the seven services down-selected services

Having assessed in detail seven services, one could question the relevance of these findings for a broader set of online services. Here at least two distinct categories of additional services should be identified.

- The first consist in services benefitting from several existing EU initiatives that are currently being rolled out. This is the case for eProcurement and services linked to the payment of VAT. For these services, it would seem that the actions undertaken to date are sufficient in rolling out the said services.
- Secondly the 'other' online services linked to moving, studying, working, retiring abroad as referred to in the Digital Agenda for Europe. Examples of these services have been assessed within the study already and others have been part of the initial working list of 25 services.

It is therefore interesting to consider the potential volume of the next top five¹⁰⁶ services that have not been part of the seven down-selected. The number of users for the additional top five online citizen services and business services are depicted in the bar charts below. The additional top five services for citizens represent a potential 993,000 additional users, plus 4,295,071 users for ePrescription and 2,490,000 for businesses.

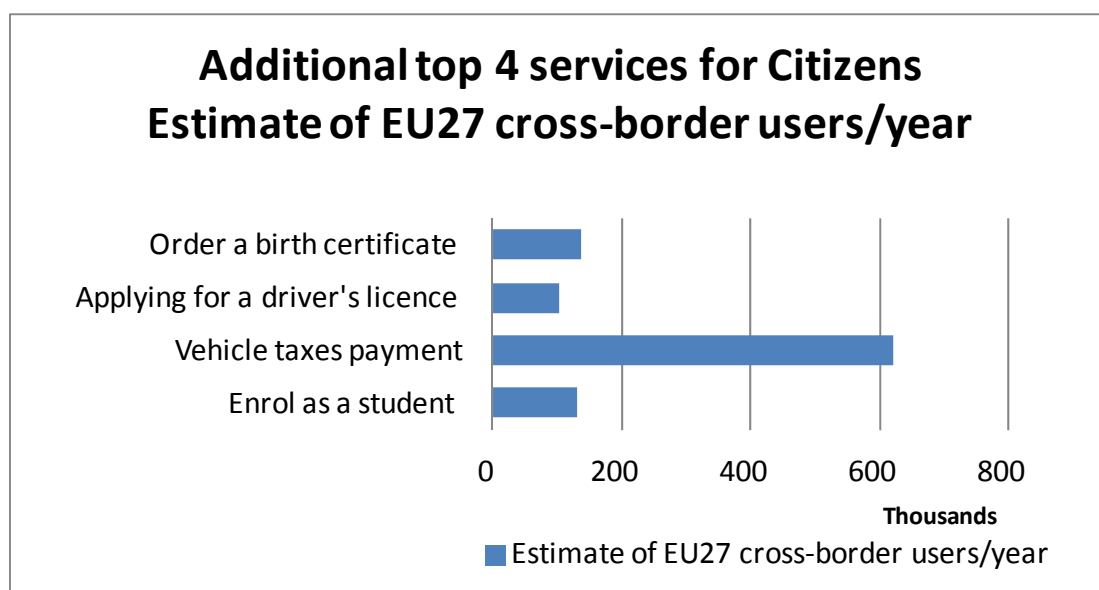


Figure 24 Additional top 4 services for Citizens

When considering ePrescription separately, this service represents a potential of above 4,250,000 users.

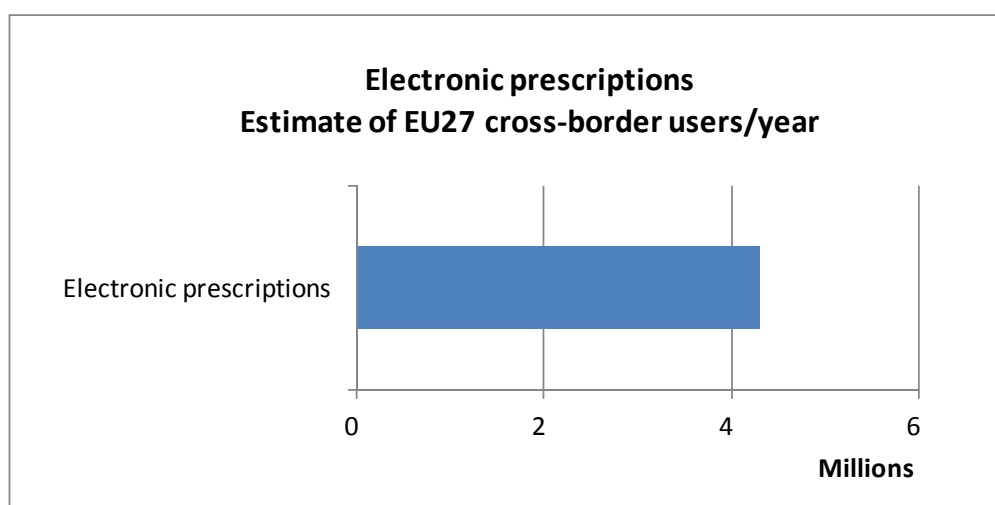


Figure 25 Potential volume electronic prescriptions

¹⁰⁶ Four services for citizens to which eHealth is added.

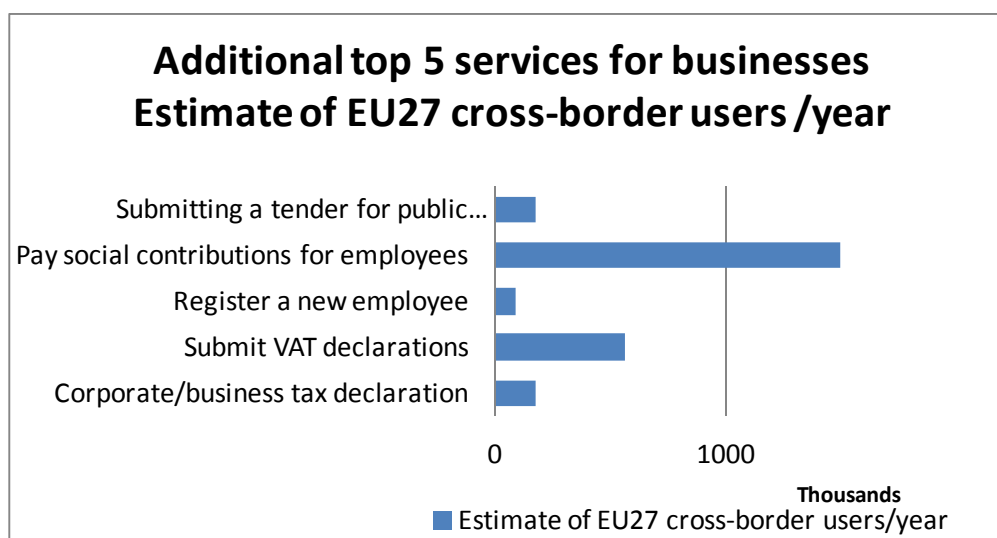


Figure 26 Additional top 5 services for businesses

Considering the potential volume of users for services that were part of the long-list of 25 services initially assessed in the needs and demands analysis, the business case to further enable cross-border services grows. Indeed, this would increase the overall benefits of cross-border enablement and reap positive spill-over effects from one domain to another. Furthermore, as services are often grouped in portals, for citizens and/ or businesses, one could make the hypothesis that the overall cross-enablement cost of an online service, which is part of a portal, would automatically benefit the other services hosted on the same portal. In other words, eSignature, authentication, delivery, service of documents etc are enabled via the portal, these would benefit a wider catalogue of services instead of one isolated service.

This being said, the cost benefit analysis has shed light on the average implementation cost of cross-border technical building blocks. This proxy of 176,237 € applies whatever the service. Likewise, the barriers analysis has underlined the need to address key enablers such as eID and overall authentication. These two topics cross-cut through all categories of services, whether they have been short listed or not for the in-depth analysis conducted within the Study. Here again, a key working hypothesis of the study has been to validate whether there are fundamental differences across the services and specific barriers requiring a differentiated approach. The conclusion lies in the fact that one should not differentiate the services per se but their level of availability as described in the barriers analysis.

The conclusion would therefore be to untap the potential growth of cross-border services by looking at a combination of factors. These factors are combined potential high usage, low level maturity and swift return on investment. This is the basis for the business case in rolling out further online cross-border services. Building on the graphs and findings depicted in this chapter, the domain of eHealth represents the highest volume - close to 14,000,000 users per annum and 75% of the cross-border volume of services for citizens. Therefore additional effort should be done to address these services.

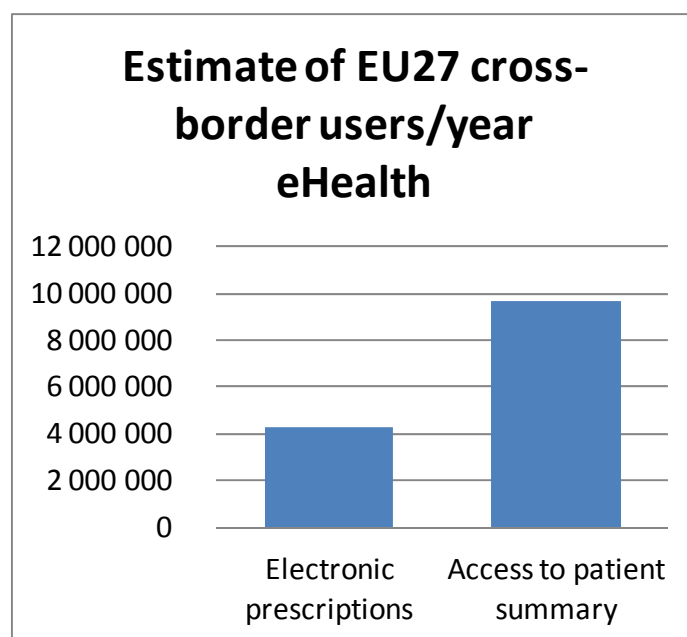


Figure 27 eHealth potential volume

Addressing the barriers for these services requires addressing horizontal barriers which will in turn untap the potential of additional services in the field of requesting ID, registering for legal aid, etc.

Nonetheless, additional services represent low-hanging fruit. That is to say, services with less barriers, but high potential in terms of volume and cost savings. Here the recommendation would be to further facilitate mobility. The initial step would be to raise awareness around the ease of being mobile and conducting business, or any daily activities from abroad. Here, further enabling services for businesses such as paying social contributions and employing people would be a first step.

The rationale for selecting what services make most economic sense can differ per country based on the cross-border volume for a specific service in that country. The “business case” for prioritising services will thus differ per country. Furthermore, there will not always be an alignment between political priorities and economic rationale. In some cases such as with registering a new legal entity, this is a clear political priority to stimulate the internal market which can also contribute to economic growth. Judging purely from the process efficiency savings it may not however be the first on the list. Hence a prioritisation of what services to cross-border enable first should always be a synthesis of political, social and economic rationale.

7.4 Next steps for the Member States and the European Commission

Building on the above correlation and categorisation of initial reflections and recommendations, this section will elaborate upon three levels of actionable recommendations. This section therefore aims at presenting a way forward for the Member States and the European Commission to tangibly boost cross-border online services. Thus, the MS and EC will be equipped to successfully address action 91 of the Digital Agenda for Europe: “By 2015, a number of key cross-border services will be available on line¹⁰⁷ – “enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work,

¹⁰⁷ Action 91: Member States to agree a common list of key cross-border public services, A Digital Agenda for Europe

reside and retire anywhere in the European Union.”¹⁰⁸ All findings collected during the different phases of the study were then aggregated and correlated so as to identify services with the highest impact

When considering the demand for usage, statistics have pointed out that 1,790 Million Europeans are currently cross-border movers, including one third of which are considered as commuters. Furthermore, research has shown that there are 140,000 branches and immigrant business start-ups between EU Member States per annum. These figures are likely to grow. Furthermore, when exploring the seven services down-filtered, certain services continue to witness lower levels of maturity, whereas their potential volume would exceed 20 million cases per annum. This is notably the case for Access to Patient Summary.

How to drive the enhancement of these services? When backed by regulation, services are developed more extensively. This has been the case for business services. Services for citizens, despite solid levels of maturity lack a national – let alone a European – drive to be further enhanced.

Building on the findings described in the previous chapters, the Study team therefore issues the following recommendations addressing the roll out of online cross-border services.

7.4.1 Member States should concentrate on the implementation of services representing the highest impact according to their national priorities.

The rationale for selecting which services make most sense to cross-border enable first (or at all) can differ per country based on the cross-border volume for a specific service in that country. The “business case” for prioritising services will thus differ per country. Furthermore, there will not always be an alignment between political priorities and the economic rationale. In some cases such as with registering a new legal entity, this is a clear political priority to stimulate the internal market which can also contribute to economic growth. Judging purely from the process efficiency savings it may not however be the first on the list. Hence a prioritisation of what services to cross-border enable first should always be a synthesis of country-specific political, social and economic rationale. In determining these five services Member States should focus on services with the highest relevance as shown in the PESTEL analysis and estimate volume of users. Quick wins for Member States can be achieved by re-using the building blocks from the LSPs in making their services interoperable and accessible across borders and if needed, in increasing the maturity of their national services.

From a legal standpoint, Member States should ensure that the necessary basic infrastructure to provide services is available, operational and reliable at the national level. The barriers analysis shows that some services cannot be offered at the cross border level because the infrastructure is not ready at the national level. This includes the elimination of legacy: when basic inputs to a service rely on paper documents, there is less incentive to switch to electronic processes later on. At the EU level, this process can be assisted by defining catalogues of services that Member States should be capable of supporting through electronic infrastructure, and by identifying inputs/reference implementations developed with EU support (i.e. standard software modules, policies or guidelines, e.g. developed and tested through the LSPs) or by Member States willing to share their efforts, which other Member States can adopt rather than developing their own solutions.

¹⁰⁸ The European eGovernment Action Plan 2011-2015 Harnessing ICT to promote smart, sustainable & innovative Government, European Commission COM/2010/0743 final, 15/12/2010

Reaping economic benefits from local and cross-border implementation from the start: as cross border costs are only a fraction of the total implementation costs, it would be advisable to immediately implement interoperable solutions when investing in making a service online available.

The study's cost benefit analysis showed that on average, the costs for enabling online cross-border usage of a government service represent only 4,9 per cent of the total implementation costs for an online government service. It can be assumed these costs will drop once interoperable key enablers (such as eID) are implemented.

Considering the relative low costs for enabling usage of online government services across borders, cross-border interoperability should be a condition for any newly implemented online government service.

This way, Member States can implement online government services according to their specific needs, generating instant national take-up, but at the same time open up opportunities for citizens from other Member States on the long term. Making national services easily available cross-border does however require clear international standards and could be stimulated in general by enabling active exchange of best practices between Member States.

Less priority, but valuable, would be the regular collection of data on usage of cross-border services. A distinction could be made between information request and full-fledged transactions. When gathering data on cross-border user volumes of specific services (for the Need and Demand and the Cost benefit analysis) the study team found there is hardly any information available. Statistics of cross-border movement do not seem to be recorded at the MS level in terms of cross-border delivery of public services. This could mean four things

- There is no distinction in the statistical collection of transactions for public services differentiating nationals/residents from cross-borders
- Individuals in a cross-border setting rely upon local intermediaries to liaise with local public services and are thus recorded as local. However, this has limitations in the registration and obtaining of services.
- Individuals in cross-border setting do not use local services. The probability here is questionable as well.
- The current lack of information could be explained by privacy legislation, i.e. public administrations often are not allowed to capture details on the country of origin of a service user. However, Public administrations might be able to count the number of foreign IP addresses from which services or information is requested, without linking the address to a specific user.

Collecting additional statistical data on volume would generate valuable information that enables governments to analyse the working of the single market, define the demand for specific services and calculate the benefits that could be retrieved when implementing a cross-border service. In turn it would enable a more focused approach to cross-border services.

From a governance perspective Member States should develop a "Digital-by-Default Policy". A digital-by-default policy should be introduced in Europe as a guiding principle for any new administrative initiatives, i.e. any new service should only be deployed at the national level (including regional/local level) if it can also be offered via fully electronic channels.

EU Member States increasingly adopt a 'digital-by-default' policy for their government services. Our cost benefit analysis shows that on average 71 per cent of all users use the online channel when a service is digital-by-default. When the service is not digital-by-default, only 22 per cent uses the online channel. Although these numbers are not based on a large amount of data points, it can be assumed that in general, making services digital-by-default increases the online usage of government services. Moreover, digital-

by-default can save governments time and money. This study's cost benefit analysis¹⁰⁹ shows that on average, for an online request a public administration needs only 80 per cent of the time it would need for an offline request. Depending on the number of requests per service, governments can thus save a considerable amount of money in terms of staff needed. A digital efficiency report published by the British Government Digital Service supports these findings in stating that British government can save between 1,7 and 1,8 billion pounds per year by making public services digital-by-default.¹¹⁰ When considering the user perspective, the calculations have pointed out to the fact that there is a time saving that can be monetised into a potential saving of 180 Million Euro if six¹¹¹ services were fully implemented across the EU. Introducing a Digital-by-Default policy in Europe would thus stimulate online service take-up, as well as make public administrations more efficient.

However, the service provider interviews performed under this study also show governments are afraid to exclude certain citizen groups by adopting a digital-by-default policy. Also, the results of this study's user survey show citizens are afraid to compromise on service quality when using the online channel. Therefore, online services should not only be of similar quality as offline services (e.g. by enabling personal contact through live chat sessions), but governments should also educate digitally illiterate citizens and offer free public internet access points for those without broadband at home. Adopting a digital-by-default policy should thus go hand in hand with digital inclusion activities.

In terms of eInclusion, countries such as Estonia have set up help desks and access points for citizens and business to seek support and use the online services developed. This is a good example of what Member States should seek to develop to avoid a digital-by-default policy to widen the gap that may be caused by the Digital Divide.

Cross-border workers are not evenly distributed throughout Europe or between EU27 Member States. The investment in and analysis of areas witnessing higher concentration of commuters and cross-border populations can be an excellent learning case for all countries. This could serve as an example of the benefits to be obtained to leverage the learning potential and best practices.

Eurostat¹¹²¹¹³, highlights that in many cases cross-border workers live near a border. Cross-border commuting is relatively common among the closely-linked countries in the centre-north of the EU (France, Germany and, especially, Belgium, Luxembourg and the Netherlands). Most notably, Luxembourg displays a very high rate of cross-border commuting. A large proportion of its work force (42 per cent, approximately 133,000 people in 2011¹¹⁴) resides abroad, mainly in neighbouring Germany, France and Belgium. Eurobarometer¹¹⁵ report that there are about one million cross-border workers within the EU, representing 0.4 per cent of the working population. They reside in one EU Member State and work in another. Furthermore, about 514,900 of these people were cross-border commuters to EU Member States in the year 2006/2007. The study found that commuting streams are condensed in the area of Central-Western Europe. In total, about five times as many people (roughly 1 per cent of EU's resident nationals) declare that they have been cross-border workers at some time during their life. Other significant

¹⁰⁹ D3 1 Report on quantitative and qualitative analysis of cross-border eGovernment Services, p. 42

¹¹⁰ United Kingdom, Government Digital Service, (November 2012), *The Digital Efficiency Report*, <http://digital.cabinetoffice.gov.uk/2012/11/06/the-digital-efficiency-report/#more-6808>

¹¹¹ Register as domicile, request ID documents, register for legal aid, income tax declaration, register a new legal entity and consult the business register

¹¹² Eurostat. 2011. Demography Report 2010: Older, more numerous and diverse Europeans. Commission Staff working Document. Eurostat

¹¹³ MKW. 2009. Scientific report on the mobility of cross-border workers within the EU-27/EEA/EFTA countries. *Estimate from EU average per 1,000 inhabitants

¹¹⁴ <http://www.luxembourgforbusiness.lu/workforce>

¹¹⁵ Eurobarometer, EBS 337, November 2009

geographical locations for cross-border workers concern the borders areas between the Czech Republic, Austria and Slovakia. 2.7 per cent of Slovakian workers (73,100 people in 2011) commute to the Czech Republic for work¹¹⁶. Other areas with a substantial proportion of cross border workers are the border areas between Denmark and Sweden and commuting for work between Ireland and Britain¹¹⁷. Finally, the study commissioned by the DG Employment and Social Affairs in 2012 on Information services for cross-border workers in European border regions pointed out additional regions with higher cross volume: North West Europe, Scandinavia and country specific borders e.g. between Estonia and Finland, Hungary and Austria or Slovenia and Italy.¹¹⁸ Additional attention could be paid here to learn more from these areas witnessing additional cross-border mobility.

7.4.2 The European Commission should Complete the legal framework for cross border eGovernment services

The European Commission should pursue its efforts in addressing barriers linked to the mutual recognition of authentication mechanisms such as eSignature and eID. This is partly addressed in the "Regulation on electronic identification and trusted services for electronic transactions in the internal market"¹¹⁹. However, the EC needs to closely monitor its practical implementation and support the MS in using it for cross-border services in particular.

While advances over the last few years have been substantial, there are still a number of key issues that need to be resolved.

With respect to eID and eSignatures, the existing legal framework (the eSignatures Directive and related Commission Decisions) only cover eSignatures in a substantive way. A more comprehensive approach is needed, covering both eID and eSignatures, as well as a series of other trust services such as time stamping and eDelivery, which are also piloted through the LSPs. A proposal to provide this framework has already been published through the draft "Regulation on electronic identification and trusted services for electronic transactions in the internal market"¹²⁰. It is imperative that this proposal is finalised and adopted, as it offers the basic framework needed for eID (and other building blocks) to operate in a cross border manner.

With respect to governance, the aforementioned legal initiatives (including the proposed eID and Trust Services Regulation) set up the basic framework that allows the establishment of governance mechanisms. However, there is no consensus yet on how these would operate in practice, and the existing legal initiatives commonly refer to secondary legislation to implement governance mechanisms in the future. A clear and homogeneous approach to the governance of general building blocks (eID, eSignatures, eDelivery) and of application specific building blocks (e-Justice, eHealth) is still to be developed. This is as urgent as the implementation of the basic legal framework, as this is the tool through which key inputs from the LSPs can be formalised and applied in practice.

Actions at the national level are required as well. The European Commission should support and monitor the work to be done by the Member States. With sufficient follow-through, it should be possible for all Member States to overcome the identified barriers

¹¹⁶ *ibid* 3 p95 and Eurostat *lfsa_agan*

¹¹⁷ *ibid* 3 p95

¹¹⁸ Information services for cross-border workers in European border regions, Association of European Border Regions DG Employment and Social Affairs, October 2012

¹¹⁹ See

http://ec.europa.eu/information_society/policy/esignature/eu_legislation/regulation/index_en.htm

¹²⁰ See

http://ec.europa.eu/information_society/policy/esignature/eu_legislation/regulation/index_en.htm

and to seamlessly offer basically each of the 7 services assessed in the study to all EU citizens and businesses according to their individual choice.

Building Blocks should be further consolidated and maintained at EU level so as to build trust in the sustainability of the solutions developed by LSPs and similar initiatives. Furthermore, the EC should promote the use of building blocks by all MS as a systematic approach to make national services accessible across borders. This would enable potential gains in ensuring that Member States develop services that are interoperable from the start.

7.4.3 Members States and the EC should determine innovative initiatives to combine the implementation of services around service platforms.

The concept of Points of Single Contacts (for business start up) and portals (e-Justice Portal) are good examples of grassroot initiatives to make services available across-borders in a centralised manner. Additional services should be added to complement the basic services rolled out: when considering the previous examples complementary services should be systematically offered such respectively business lifecycle operations and additional judicial procedures. The proxy cost for enabling an existing online service to be cross-border is of 176,237€. The expectation exists that as the basic enablers for cross-border services are put in place, the incremental costs for cross-border enabling more services will increasingly diminish. Further, the possibility of grouping services on a single portal may imply the portal bears the burden of the cross-border enablement for all the services. Nonetheless, there will always still be organisational effort required to cross-border enable the services but especially concerning technical costs for enablers such as eID, eSignatures, eDocuments and eDelivery these are expected to be less once they are already in place.

This does however call for a cross-domain re-use of building blocks, requiring cooperation and re-use of solutions between domains and not repeating work already conducted for another service. Some countries, thanks to their involvement in LSPs, are already moving in the direction of making certain cross-border solutions and standards national ones as well, among others: Austria, Estonia, Greece, Italy, Poland, etc. Of which, some are providing certain cross-border enablers such as e-Signature validation as a shared service to other public authorities and are even considering to do so for private organisations. Designing cross-border service implementation should thus not be done in isolation per service but should be looked at across domains to reap the biggest benefits and to carry the least possible costs. The LSPs have demonstrated that across domains such as procurement, business start-up, health and justice, the technical requirements – transport, authentication, eDocuments – are very much the same and solely privacy and security aspects may differ. Whether this is done via the consolidation of services on a single portal and the back office integration of the information flows of the services, the fundamental challenges tackled by the services are similar and require similar solutions.

A trend during the interviews and the desk research was the recurrence of language aspects. This has triggered a series of reflections around the need to offer services in a wider range of languages in order to be more user friendly.

Within our study, customer journey mappers have assessed seven cross-border services according to their usability and user friendliness. Two of the primary areas for improvement mentioned by the customer journey mappers are the provision of information in foreign languages and the ability to submit forms in languages other than the 'home country' language. An analysis performed by the European Commission on barriers to cross-border eCommerce shows 27 per cent of the respondents consider

language a barrier, making it the second biggest barrier to cross-border eCommerce.¹²¹ It can be assumed similar numbers would apply to eGovernment. Providing government services in other languages than the home language would thus be very beneficial for the uptake of cross-border services.

As English is a foreign language most citizens speak, it would be a logical choice for a second language to provide. Another option is to base the provision of foreign languages on the origin of immigrants (i.e. provide the language of the country where the majority of immigrants come from).

According to this study's cost benefit analysis the average costs for translation per service is 12104,32 euro, representing 5,4 per cent of the total implementation costs. Of course reoccurring costs should be taken into account when information is updated. Another, less costly option is to refer to online translation tools (e.g. Google translate) to aid use of the web site.

Alternate mechanisms such as equivalence mapping and semantics should be sought. The meaning of the word semantics here carries two specific but complementary definitions. A distinction should be made between objective semantics (issues with understanding of process information that can be solved through mapping given processes) and issues related to the understanding of legal/administrative/social constructs that can only be solved through harmonization or specifically the use of semantic technology to map equivalences. This constitutes the mapping of specific information, regulation and standards across different countries and the update of this information. In technical terms this could be called a Meta-Information DataBase. This would considerably ease the burden on foreigners in having to translate their supporting evidence and also the time spent by local administrations in processing translated documents. A good practice has been the mapping of equivalent information obligations in the context of cross-border business start-up by the LSP SPOCS. Similarly, the eHealth services suffer from the same challenges which are the mapping of equivalences across medical interventions.

The use of online cross-border services could be increased thanks to better awareness raising around mobility, the existence and overall reliability of online services. Centralising information about mobility is also key to attract users.

Further to this topic, a more general reflection can be initiated regarding the potential increase in volume if cross-border enablement was a reality. Technical enablement is one thing. If the political decision is done to move in this direction, communication efforts should also be made so as to reap the benefits of the investments made by attracting users. Lack of information around cross-border labour mobility has been underlined previously and could constitute a key driver to increasing mobility in Europe. Building on this reflection, during several phases of the study, it appeared clearly that there was a lack of information regarding the availability and functionalities of online services. This was underlined both in the user survey conducted (26% of the respondents) when analysing the needs and demands for 25 services and was reconfirmed during the Customer Journey Mapping. Finding the service is an initial barrier. Users either think and assume a service is not available or they indicate that online cross-border services need to be easier for users to find. An improvement here would be to increase their visibility thanks to sign-posting and cross-referencing. A suggestion made during the interviews was also to further develop portals in the likes of the e-Justice Portal, acting as a central hub that enables the user to be redirected to the competent local court – or authority – in the desired country. Examples of this can also be found on the EUGO portal of DG Internal Market providing the links to all national Points of Single Contact. Another approach would be to use more tag words on the websites so as to best referenced when searched for on the internet.

¹²¹ Commission Staff Working Document, (2009), *Report on cross-border e-commerce in the EU*, p.13, http://ec.europa.eu/consumers/strategy/docs/com_staff_wp2009_en.pdf

Portals combining different services could simplify the access to information such as labour conditions, taxation, health and pensions, which could also help reap more benefits from increased service awareness. This plays in tune with the overall concept of this recommendation to further centralize information and services in the countries, and if possible have an entry point at EU level then dispatching to the relevant countries.

Awareness raising can also be a means by which security concerns are addressed. Users (27%) have indicated they are suspicious regarding confidentiality, security and privacy of the information. They are unaware of the high level of security and the functioning of security protocols. Here, simple messages could address these concerns and build more trust in the services.

As indicated in the report from DG Employment and Social Affairs¹²², there is an overall lack of awareness in terms of rights and practicalities when choosing mobility.

"Accordingly, the number of cross-border workers could most probably be higher, if potential cross-border workers could receive better information about possible risks and particularities of working in another country" states the report. Thus, a basic understanding of different social security and taxation laws applicable in potential countries of destination would be needed. Information should cover different pension schemes, social security, education systems, etc.

Finally, a topic largely raised by the LSPs was the political challenge to promote cross-border services. This was described as a potential invitation to citizens and or business to leave their own country to go abroad or vice-versa a means to attract foreigners. A positive way forward would be to further profile the benefits of mobility for users and administrations.

8 Conclusion

The question that is often asked before deciding to implement cross-border services is what is the rationale behind doing so. Are all the services the same? Which ones to implement? During the course of the *Study on Analysis of the Needs for Cross-Border Services and Assessment of the Organisational, Legal, Technical and Semantic Barriers*, data has been gathered and analysed to answer these fundamental questions.

As regards the priority services to be implemented in the Member States, these should be selected by the countries themselves by learning from the statistical information collected, PESTEL, cost benefit and barriers analysis. This will ensure that the services selected by the countries are fully aligned with their national priorities.

The European Commission will continue its efforts to build the necessary legal framework and sustainable support to the building blocks developed by Large Scale Pilots and similar Initiatives.

Finally, Member States, together with the European Commission should identify innovative initiatives to combine the implementation of services around service platforms and ensure the re-use of the building blocks. To drive further usage volume mobility should be simplified by centralising information about mobility, rights and access to public services, eHealth and e-Justice.

¹²² Information services for cross-border workers in European border regions, Association of European Border Regions DG Employment and Social Affairs, October 2012

European Commission

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