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PART 1/3

COMMISSION STAFF WORKING DOCUMENT

on assessment of costs of implementation of the once-only technical system for Member States

Accompanying the document

COMMISSION IMPLEMENTING REGULATION (EU) .../... of XXX

setting out technical and operational specifications of the technical system for the crossborder automated exchange of evidence and application of the "once-only" principle in accordance with Regulation (EU) 2018/1724 of the European Parliament and of the Council

 $\{C(2022) 5628 \text{ final}\} - \{SWD(2022) 211 \text{ final}\}$

1. INTRODUCTION

The Single Market is one of the EU's greatest accomplishments, promoting growth and improving the daily lives of businesses and citizens alike through its guarantee of the free movement of goods and services. However, barriers to cross-border activity still persist, with administrative burdens placed on both organisations and individuals as they interact with public administrations in other EU Member States.

Regulation (EU) 2018/1724¹ establishing a single digital gateway (Single digital gateway Regulation, or SDGR) aims at facilitating online access to information, administrative procedures and assistance services that citizens and businesses need to get active in another Member State. It sets out an obligation on the Commission to establish, in cooperation with Member States, a technical system allowing a cross-border automated exchange of evidence and application of the 'once-only' principle (the once-only technical system or OOTS). This system will substantially facilitate the use of online procedures as the citizens and businesses will not have to supply cross-border evidence which is already kept by the relevant competent authorities of any Member State.

Article 14(9) of the SDGR contains an empowerment for the Commission to lay down technical and operational specifications of the OOTS in an implementing act. This technical system will provide considerable help for users of online procedures, falling under the scope of Article 14, by facilitating and speeding up their interactions with competent authorities. However, the system will also have a significant resource impact on the competent authorities who will need to implement it.

The aim of this Staff Working Document is to provide an overview of costs of implementation of those parts of the OOTS for which Member States will be responsible. The document is based on the results of the Member States Readiness Study² which thoroughly assesses the current situation in the EU Member States. The SWD presents, in its Annex, the high level roadmap describing different implementation options that Member States could choose to implement the OOTS and the costs estimation developped for each Member State, which were prepared as part of the Study.

2. THE ONCE-ONLY TECHNICAL SYSTEM

The architecture of the technical system is shown below (Figure 1).

The left side of the scheme shows the main architectural components managed by Member State A (MS A) - the evidence requester - while the right side displays the components managed by Member State B (MS B) - the evidence provider. The EU components are shown in the centre of the figure and provide information on how and where the evidence requested by Member State A can be retrieved from Member State B. To realise the cross-border interaction that enables evidence to be exchanged over the public internet in a secure way, Member States need to develop on both sides: the requester and and provider, functional components and the related connections with the

¹ OJ L 295, 21.11.2018, p. 1.

² Study and Analysis on the Expected Cost of Member States to Connect to and Exchange Data in accordance with Article 14 of the Single Digital Gateway Regulation and the Once-Only Technical Infrastructure, SMART 2019/0045 [FORTHCOMING]

common/core services hosted and operated by the European Commission (using specific application programming interfaces- APIs).



Figure 1: High-level Architecture of the OOTS

To summarise, the Member States are responsible for the development or upgrade of the following components of the OOTS:

- 1. Online procedure portal and its back-end, including a preview area;
- 2. Cross-border evidence exchange infrastructure (eDelivery Access Points);
- 3. Data services and
- 4. Data sources.

Additionally:

- The eIDAS node should be used as the cross-border authentication system, implemented under the eIDAS Regulation;
- New or existing data exchange infrastructures (also known as intermediary services) can be used to retrieve the evidences from the respective data sources within a country's borders (accessing national base registries or local databases).

The EC common components are the following (represented in blue in the figure):

- 1. Evidence Broker;
- 2. Data Service Directory;
- 3. eDelivery Common Services and
- 4. Semantic repository.

3. IMPLEMENTATION ROADMAP

Overall, the following general high-level implementation roadmap of the OOTS functional components is generally common to each Member State, structured in five main phases and related steps. Figure 2 presents the overall approach that Member States could adopt:



Figure 2: High-level SDG roadmap for Member States

4. IMPLEMENTATION OPTIONS

The table below summarises the main implementation options for each OOTS functional component under the responsibility of Member States.

SDG Component in charge of MSs	Imp	plementation strategies – title and description
	• Option 1 - Create or readapt a single national portal	Develop or reuse one National Portal as single point of contact in which all the procedures are available. The Portal backend will be developed or readapted, according to the case, in order to provide all the functionalities required for the integration with the SDG technical system.
Procedure Portals &	• Option 2 - Readapt existing portals - readapt frontends and develop one backend	Reuse multiple existing portals at different government levels (regional, universities, national, etc.). Readapting the individual portals could require a high cost, which may be reduced using different strategies. For instance, by
	 Option 3 - Readapt existing portals - readapt frontends and backends 	publishing the technical specification and the main source code for one general eGov portal to be then readapted at all level or MSs may use a Service Oriented Approach (SOA) approach developing the main functionalities as reusable services for all the portals. Two possibilities are available:
		• Option 2: develop from scratch a single backend and readapt each

SDG Component in charge of MSs	Implementation strategies – title and description							
		frontend of the existing portals;Option 3: readapt frontend and backend of all the existing Portals.						
Cross-border data	 Option 1 - Develop a specific eDelivery AP(s) for cross border interaction 	Develop one eDelivery Access Point dedicated to the exchange of evidence through the OOTS. The Access Point will allow the cross-border exchange of evidence both in the evidence requester side (forwarding the request of evidence to the eDelivery AP of another MS and receiving the evidence) and evidence provider side (receiving the request and then forwarding the evidence to the eDelivery AP of the requesting side).						
exchange infrastructure (eDelivery)	• Option 2 - Reuse existing eDelivery AP(s) for cross border interaction	Readapt one or more existing eDelivery Access Points to allow the cross- border interaction of evidence.						
	• Option 3 - Develop new and reuse existing eDelivery AP(s) for cross border interactions	Develop and readapt different eDelivery Access Point (s) dedicated to the exchange of evidence through the OOTS						
Dete survive	• Option 1 - Develop one Data service connected to a data exchange infrastructure	Develop one central Data Service managing all the SDGR requests of evidence and connect the data service to a national data exchange infrastructure. The data exchange infrastructure will retrieve the requested evidence from the specific data source / base registry of the country.						
Data service	Option 2 - Develop one Data service directly connected to evidence providers	Develop one central Data Service managing all the requests forevidence that is directly connected to the evidence providers' base registries and data sources in which the evidence is stored. This solution does not make use of any national data exchange infrastructure.						
	• Option 1 - Develop a new national data exchange infrastructure	Develop from scratch a national data exchange infrastructure that can simplify the retrieval of evidence within the country borders (located in the country base registries or local data sources).						
National data exchange infrastructure	• Option 2 - Reuse an existing national data exchange infrastructure	Reuse an existing national data exchange infrastructure to retrieve the evidences within the country borders (located in the country base registries or local data sources).						
	• Option 3 - do not use a national data exchange infrastructure	This option foresees not to use a data exchange infrastructure to retrieve the evidences within the country borders. The data service will be connected directly to base registries and data sources.						

Table 1: Implementation options for each OOTS national component

5. KEY DETERMINANTS FOR THE COST CALCULATION

A key factor affecting the scale of the challenge that Member States face is the number of *endpoints* (e.g. individual organizations' data sources, national base registries, national web portals etc.) that must be connected to this new infrastructure. As detailed information on this number of endpoints is not available, the number of *organisations* that it is estimated should connect to the OOTS is used as a proxy for the number of endpoints. These organisations may connect as either "evidence requesters" (data consumers; organisations that request and receive evidence from other public organisations) or "evidence providers" (data providers; organisations that share evidence and data with other public organisations). According to estimates, there are *14570 evidence requesters* and

23120 evidence providers that must connect to the OOTS across the EU27³. However, there are considerable uncertainties (see Figure 3) around these estimates due to continued lack of clarity about the organisations responsible for procedures under the scope of Article 14 SDGR and evidences in some Member States.



Figure 3: Total estimated number of data consumers and providers across the EU-27

The large estimates of the number of evidence requesters and evidence providers are driven by just a few Member States (e.g. Italy, Germany, Spain) for which some of the procedures and evidences are handled at a local level involving hundreds or thousands of organisations. They are also driven by a few procedures (e.g. notification of business activity) and evidences (e.g. birth/marriage certificates or university diplomas) which are most likely to be managed at a local level across a number of Member States.

On the other hand, key infrastructures exist in Member States which can facilitate their efforts to connect their data providers to the OOTS. In 20 Member States, national data exchange infrastructures have been identified which are used within the Member State to share data between public administrations. These infrastructures can potentially be used as a central hub for data exchange between public authorities within a Member State and the OOTS.

6. IMPLEMENTATION ASSUMPTIONS FOR THE COST ASSESSMENT

Certain assumptions about the choices that Member States will make in relation to the key components of this architecture are built into the costs. These components are the procedure portal and back-end, data service and national data infrastructure, and eDelivery access point. Where possible, these assumptions are based on stated Member State preferences. However, when these preferences are not known, options were selected based on the below recommendations:

³ This is based on the 16 Procedures under the SDGR and 27 evidence types used for these procedures, analysed in this study. See the Member States Readiness Study for a full list.

• *Procedure Portal & Backend*: The least costly option is to use a single national portal for all procedures. This option may not be feasible for all Member States due to organisational or legal barriers. However, if there are a large number of evidence requesters, the rationale to pursue this approach is very strong.

Table 2 shows how the one-off costs associated with this component are expected to increase for an "average"⁴ EU Member State as the number of portals to adapt increases. For all Member States with a large number of evidence requesters (above 250), it has been assumed the single national portal strategy.

If a Member State cannot use a single national government portal and must readapt numerous existing portals, the re-engineering will lead to high investment costs and complexity. The recommendation, if following this strategy, is therefore to coordinate the work of the local public administrations, providing them with guidelines, technical specifications, and reference software so that they can develop one single back-end and integrate it with the existing front-end portals. The rationale for this approach also becomes stronger (compared to a multiple back-end approach) if the Member State has a high number of evidence requesters that must connect to the OOTS.

One-off cost	One-off cost estimated (considering only the 1,0x value)							
Portals to be reused	Option 1 - Create or readapt a	Option 2 - readapt frontends and	Option 3 - readapt					
Fortais to be reused	single national portal	develop one backend	frontends and backends					
1	914.617€	N/A	N/A					
10	N/A	3.097.659€	5.958.197€					
100	N/A	13.413.343€	29.790.984€					
1.000	N/A	86.482.771€	198.606.558€					
10.000	N/A	645.248.983€	1.489.549.186€					

Table 2: Procedure Portal costs across different implementation options

• *National data exchange infrastructure and data service*: Costs are reduced if a national data exchange infrastructures as a single hub between the data service component and the data sources is used to connect to the OOTS. If a Member State does not have an existing data exchange infrastructure at national level, designing and implementing one should be considered, as such an infrastructure is one of the most important enablers to retrieve evidence within Member State borders. Member States will benefit from this implementation (no matter the number of data sources to be integrated) since the experience from several Member States suggests that a national data exchange infrastructure provides a more uniform way to manage the exchange of data in a Member State.

⁴ Using the average development daily rate in the EU government sector to estimate the costs.

• Table 3 shows the costs for an "average"⁵ EU Member State with different numbers of data sources⁶ of using a data exchange infrastructure (whether a new one or an existing one) compared to directly connecting the data sources to the data service component.

The data service and/or data exchange infrastructure must be integrated with the individual evidence providers. To reduce integration and maintenance costs, Member States should consider, when possible, to centralise evidence in national (or sectorial / regional) base registries.

One-off		•		•					
cost	Option A: De	evelop a new r	national data	Option B: Reus	se an existing	data exchange	Option C: Do not	use a data exchan	ge infrastructure.
030	exchange infi	rastructure; Co	onnect to one	infrastructure;	Connect to or	ne data service	Directly connect	data providers to	one data service
	data s	service compo	nent.		component.			component.	
N. of Data source	Data exchange infrastructure	Data service	Total	Data exchange infrastructure	Data service	Total	Data exchange infrastructure	Data service	Total
20	381.304€	2.771.153€	3.152.457€	190.652€	2.771.153€	2.961.805€	- €	3.655.214€	3.655.214€
50	729.984€	2.771.153€	3.501.137€	364.992€	2.771.153€	3.136.145€	- €	4.488.600€	4.488.600€
100	1.240.221€	2.771.153€	4.011.374€	620.110€	2.771.153€	3.391.263€	- €	5.708.128€	5.708.128€
500	4.595.163€	2.771.153€	7.366.316€	2.297.582€	2.771.153€	5.068.735€	- €	13.726.844€	13.726.844€
1.000	8.268.139€	2.771.153€	11.039.292€	4.134.069€	2.771.153€	6.905.222€	- €	22.505.698€	22.505.698€
5.000	33.528.815€	2.771.153€	36.299.968€	16.764.408€	2.771.153€	19.535.561€	- €	82.881.754€	82.881.754€
10.000	62.011.041€	2.771.153€	64.782.194€	31.005.521€	2.771.153€	33.776.674€	- €	150.957.700€	150.957.700€
25.000	141.000.198€	2.771.153€	143.771.351€	70.500.099€	2.771.153€	73.271.252€	- €	339.751.289€	339.751.289€
50.000	263.934.611€	2.771.153€	266.705.764€	131.967.306€	2.771.153€	134.738.459€	- €	633.579.328€	633.579.328€
100.000	496.088.328€	2.771.153€	498.859.481€	248.044.164€	2.771.153€	250.815.317€	- €	1.188.454.645€	1.188.454.645€

 Table 3: Data exchange infrastructure and data service costs across different implementation options

• eDelivery Access Point: The costs of deploying and maintaining this component are relatively marginal compared to the costs related to the other components. However, the eDelivery Access Point is a crucial enabler for the cross-border interaction among Member States. A centralised approach, using a single access point, could be the best option to reduce system complexity and the overall costs of maintaining and operating the access point.

⁵ Using the average development daily rate in the EU government sector to estimate the costs.

⁶ Note that for this cost simulation, for the option of "reusing an existing data exchange infrastructure", it is assumed that half of the necessary data sources are already available over this infrastructure.

7. TOTAL ESTIMATED COST FOR MEMBER STATES

Based on these factors and the identified implementation options, the total cost⁷ for Member States to connect to the OOTS has been estimated. The cost estimations provide a preliminary understanding of the rough budget needed for the implementation of the OOTS components for which Member States are responsible. For all cost estimates provided, there is a range (from half the estimated cost to double the estimated cost) within which the true cost is expected to fall. To have an accurate and detailed cost estimation, each Member State would need to proceed with a thorough feasibility study in order to consider the options and specificities at national/regional/local level.

The cost estimates can be broken down into one-off costs and yearly running costs. The high-level cost estimates differ considerably across Member States. The estimated one-off costs for Member States range from a low of $\notin 2,9$ million⁸ for Greece (with a yearly running cost of 0,9 million), to a high of $\notin 92$ million⁹ for Germany (with a yearly running cost of $\notin 24,3$ million). The mean one-off cost for a Member State is $\notin 14,6$ million, with a mean yearly running cost of $\notin 4,2$ million. However, as can be seen in the graph below, most of the cost across the EU is attributable to just a few Member States, in particular Germany, Italy, and Sweden. For all of these cases, this is caused by the relatively high number of evidence requesters evidence providers that, according to the evidence collected, will need to connect in these Member States¹⁰. These Member States manage at least some of the procedures or evidences in the scope of Article 14 SDGR, at a local or decentralised level, meaning that a high number of organisations would need to connect to the SDG OOP technical system.

⁷ Note that this total cost refers strictly to the cost of connecting to the SDG OO technical system as required by Article 14 of the SDGR. It does not cover other obligations within the SDGR such as the digitalization of procedures.

⁸ In line with the previous paragraph, the cost range for this one-off cost for Greece is between €1,5 million to €5,9 million.

⁹ In line with the previous paragraph, the cost range for this one-off cost for Germany is between €46 million to €184 million.

¹⁰ In the Swedish case, the high costs also reflect the intention to pursue a decentralised model for the "eProcedure portal and back-end" component, connecting multiple individual portals for different procedures instead of one central portal.

Figure 4: Implementation of the OOTS - total cost estimate



Table 4 illustrates both the estimated cost and cost range¹¹ per Member State. The cost estimates are based on point estimates and assumptions about the number of evidence requesters and evidence providers in each Member State, where the full information on these numbers is not available.

In the table below, the overall investment for each of the EU27 Member States is presented, also referring to their specific national ICT spending and highlighting cost ranges:

¹¹ The cost range for each Member State extends from as high as two times the estimated cost, to as little as half the estimated cost

	High-level Cost estimates											
Country (EU Member State)		TOTAL One-	off costs			TOTAL Yearly ongoing costs						
	0,5x	1,0x	% of ICT spending 2020	2,0x		0,5x	1,0x	2,0x				
Austria	7,9 mln €	15,8 mln €	0,1%	31,5 mln €		2,4 mln €	4,7 mln €	9,4 mln €				
Belgium	4 mln €	8 mln €	0,1%	16,1 mln €		1,2 mln €	2,3 mln €	4,6 mln €				
Bulgaria	1,8 mln €	3,6 mln €	0,2%	7,2 mln €		0,5 mln €	1 mln €	2,1 mln €				
Croatia	7,5 mln €	15,1 mln €	0,64%	30,1 mln €		2,2 mln €	4,5 mln €	9 mln €				
Cyprus	2,4 mln €	4,8 mln €	0,58%	9,6 mln €		0,7 mln €	1,5 mln €	2,9 mln €				
Czech Republic	2 mln €	4 mln €	0,05%	8,1 mln €		0,6 mln €	1,2 mln €	2,4 mln €				
Denmark	7,5 mln €	15 mln €	0,10%	30 mln €		2,2 mln €	4,5 mln €	9 mln €				
Estonia	7,3 mln €	14,7 mln €	1,83%	29,3 mln €		2,2 mln €	4,4 mln €	8,8 mln €				
Finland	4 mln €	8 mln €	0,07%	16 mln €		1,1 mln €	2,3 mln €	4,6 mln €				
France	3,7 mln €	7,4 mln €	0,01%	14,8 mln €		1,1 mln €	2,1 mln €	4,2 mln €				
Germany	46 mln €	92 mln €	0,07%	184 mln €		12,2 mln €	24,4 mln €	48,7 mln €				
Greece	1,5 mln €	2,9 mln €	0,07%	5,9 mln €		0,4 mln €	0,9 mln €	1,8 mln €				
Hungary	4 mln €	8 mln €	0,15%	16 mln €		1,2 mln €	2,4 mln €	4,8 mln €				
Ireland	7,1 mln €	14,2 mln €	0,18%	28,5 mln €		2,1 mln €	4,2 mln €	8,5 mln €				
Italy	32,4 mln €	64,7 mln €	0,12%	129,4 mln €		8,8 mln €	17,6 mln €	35,2 mln €				
Latvia	3,3 mln €	6,6 mln €	0,76%	13,3 mln €		1 mln €	2 mln €	4 mln €				
Lithuania	1,6 mln €	3,3 mln €	0,24%	6,5 mln €		0,5 mln €	1 mln €	2 mln €				
Luxembourg	6,7 mln €	13,4 mln €	0,58%	26,8 mln €		2 mln €	3,9 mln €	7,9 mln €				
Malta	2,3 mln €	4,7 mln €	1,10%	9,4 mln €		0,7 mln €	1,4 mln €	2,9 mln €				
Netherlands	3 mln €	6,1 mln €	0,02%	12,1 mln €		0,9 mln €	1,8 mln €	3,6 mln €				
Poland	1,7 mln €	3,3 mln €	0,02%	6,7 mln €		0,5 mln €	1 mln €	2 mln €				
Portugal	1,7 mln €	3,4 mln €	0,04%	6,7 mln €		0,5 mln €	1 mln €	2,1 mln €				
Romania	7,2 mln €	14,4 mln €	0,27%	28,8 mln €		2,2 mln €	4,3 mln €	8,6 mln €				
Slovakia	1,6 mln €	3,2 mln €	0,10%	6,4 mln €		0,5 mln €	1 mln €	1,9 mln €				
Slovenia	1,9 mln €	3,7 mln €	0,23%	7,4 mln €		0,6 mln €	1,1 mln €	2,2 mln €				
Spain	2,2 mln €	4,3 mln €	0,01%	8,7 mln €		0,6 mln €	1,3 mln €	2,6 mln €				
Sweden	24,5 mln €	49 mln €	0,20%	98,1 mln €		7,3 mln €	14,6 mln €	29,1 mln €				
totals	196,8 mln €	393,6 mln €	0,08%	787,2 mln €		56,2 mln €	112,4 mln €	224,8 mln €				

Table 4: SDG OOP total cost per Member State

8. CONCLUSION

According to the Study, the total one-off cost for the EU27 Member States to connect to the onceonly technical system in line with the requirements set out in the Commission Implementing Regulation [COM/2021/xxxx] are in the order of magnitude of EUR 400 million. Yearly maintenance will amount to a total of around 112 million.

ANNEX : Cost estimation per Member State

This Annex provides a one-page factsheet for each Member State detailing the high-level implementation roadmap and related cost estimates for the OOTS. The costs reported in each factsheet are based on the calculations and formulas reported in the Study.

PART 1/3 (this part) <u>Factsheets for</u>: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France (*pages 12 to 21*)

PART 2/3 <u>Factsheets for</u>: Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta (*pages 23 to 31*)

PART 3/3 <u>Factsheets for</u>: Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden (*pages 32 to 38*)





Summary

Roadmap

Austria could choose to readapt its existing front-end portals and develop one back-end to allow the request of evidence by EU citizens. For the cross-border data exchange Austria will evaluate whether to deploy a specific access point for SDG also leveraging on its past experience. For the cross-border authentication, it will reuse its eIDAS Node already connected to some of its existing portals. Austria will also reuse its existing national data exchange infrastructure, which it could connect to one data service component.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 15,6 million \in (cost range from 7,9 to 31,3 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 4,6 million \in (cost range from 2,25 to 9,3 million \in).



SDG component	Implementation option	One-off cost	Yearly ongoing cost		
eProcedure Portal & backend	Opt 2 - Readapt existing portals - readapt 55 frontends and develop one backend	Up: 22,1 mln€ Avg: 11,0 mln€ Low: 5,5 mln€	Up: 6,6mln € Avg: 3,3 mln € Low: 1,6 mln €		
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,2 mln€ Avg: 0,1 mln€ Low: 0,05 mln€	Up: 0,1 mln € Avg: 0,05 mln € Low: 0,02 mln €		
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 7,0 mln€ Avg: 3,5 mln € Low: 1,7 mln€	Up: 2,1 mln € Avg: 1mln C Low: 0,5 mln €		
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 56 data sources	Up: 2 mln € Avg: 1 mln € Low: 0,5 mln €	Up: 0,5 mln € Avg: 0,25 mln € Low: 0,125 mln €		
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 31,52 mln€ Avg: 15,76 mln € Low: 7,88 mln€	Up: 9,4 mln € Avg: 4,7 mln € Low: 2,35 mln €		

Cost ranges for each SDG component







Summary

Roadmap

Belgium is considering the implementation of a central, but distributed model of a eProcedure portal, but it could also consider the creation of a single portal acting as a single point of contact, reducing the overall complexity and expenditure. The country already has in place 22 eDelivery Access Points but could potentially develop a new one for SDG OOP. It will reuse its eIDAS Node for cross-border authentication. Belgium already has in place a National data exchange infrastructure, the "Federal service bus", that it plans to reuse for the cross-border exchange of evidence. A single data service could be connected to the existing National data exchange infrastructure.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 8.02 million € (cost range from 4.01 to 16.04 million €). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 2,31 million € (cost range from 1,16 to 4,62 million €).



High-level cost estimates

SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 1 - Create or readapt a single national portal	Up: 2,25 mln € Avg: 1,12 mln € Low: 0,56 mln €	Up: 0,67 mln € Avg: 0,33 mln € Low: 0,17 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,2 mln€ Avg: 0,1 mln€ Low: 0,05 mln€	Up: 0,1 mln € Avg: 0,05 mln € Low: 0,02 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 6,8 mln€ Avg: 3,4 mln € Low: 1,7 mln€	Up: 2,0 mln € Avg: 1,0 mln € Low: 0,5 mln €
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 275 data sources	Up: 6,8 mln € Avg: 3,4 mln € Low: 1,7 mln €	Up: 1,8 mln€ Avg: 0,9 mln€ Low: 0,45 mln€
Legend Up: Upperbound cost Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 16,04 mln € Avg: 8,02 mln € Low: 4,01 mln €	Up: 4,62 mln € Avg: 2,31 mln € Low: 1,16 mln €





Cost ranges for each SDG component

Bulgaria

SDG high-level Roadmap and cost estimates



Summary

Roadmap

Bulgaria could choose to create or re-adapt a single portal as a first and unique point of contact for citizens and businesses to request the cross-border once-only procedures in scope of the SDG OOP. Bulgaria plans to both develop a new eDelivery Access Points and reuse one of the 5 already existing. Bulgaria already has an operating eIDAS Node enabling cross-border authentication. It plans to reuse its existing data exchange infrastructures (RegiX, government service bus) to share the necessary evidence types with the SDG OOP system. A single data service could be developed and connected to these national data exchange systems.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 3,6 million \in (cost range from 1,8 to 7,2 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 1,05 million \in (cost range from 0,52 to 2,09 million \in).



High-level cost estimates

SDG component	Implementation option	One-off cost	Yearly ongoing cost		
eProcedure Portal & backend	Opt 1 - Create or readapt a single national portal	Up: 0,96 mln € Avg: 0,48 mln € Low: 0,24 mln €	Up: 0,29 mln € Avg: 0,145 mln € Low: 0,72 mln €		
eDelivery AP(s)	Opt 3 - Develop 1 new and reuse 1 existing eDelivery AP	Up: 0,1 mln€ Avg: 0,05 mln€ Low: 0,02 mln€	Up: 0,05 mln € Avg: 0,02 mln € Low: 0,01 mln €		
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 3,0 mln € Avg: 1,5 mln € Low: 0,75 mln €	Up: 0,88 mln € Avg: 0,44 mln € Low: 0,22 mln €		
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 301 data sources	Up: 3,2 mln € Avg: 1,6 mln € Low: 0,8 mln €	Up: 0,8 mln € Avg: 0,4 mln € Low: 0,2 mln €		
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 7,2 mln € Avg: 3,6 mln € Low: 1,8 mln €	Up: 2,09 mln € Avg: 1,05 mln € Low: 0,52 mln €		



Cost ranges for each SDG component

Data service

eDelivery

eProcedure Portal

& Backend

Data exchange

Infrastructure





Summary

Roadmap

Croatia plans to reuse existing multiple portals for its eProcedure portal front-end, connecting them to one single back-end. The country has past experience with eDelivery Access Point (4 APs currently in use) and could develop a further one for the purposes of the SDG OOP technical system. It also has an operating eIDAS Node enabling cross-border authentication. Croatia could potentially reuse its existing national data exchange infrastructure, the "Government Service Bus" to make available its evidence types over the SDG OOP technical system. Croatia could develop a single data service component to connect to this national data exchange infrastructure.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 15,02 million € (cost range from 7,51 to 30,04 million €). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 4,52 million € (cost range from 2,26 to 9,04 million €).

<u>Roadmap</u>				Legend	In scope estim	e of cos ation	it	Out of scope of cost estimation		
SDG component		Design		Implement Development, integration	itation	y		Maintenance		
eProcedure Portal & backend	Technical design		Technical design Readapt existing portals - readapt frontends and develop one backend		Technical design Readapt existing p readapt frontends develop one back		Readapt existing portals - readapt frontends and develop one backend			Component maintenance & monitoring
eDelivery AP(s)	Apn	Technical design		Develop a eDelivery Access Point (s) Reuse/Create eIDAS Node				Component maintenance & monitoring		
eIDAS Node	sibility st	Technical design				st& deplo		Component maintenance & monitoring		
Data Services	Fea	Technical		Develop a Data Serv connected to the da exchange infrastruc	rice ta ture	Те		Component maintenance & monitoring		
Data Exchange infrastructure		design		Reuse a National da exchange infrastruc	ta ture			Component maintenance & monitoring		
Other suggested				Program mana	gement					
activities		Change m	an	agement	Trai	ning (Be c	communication		

SDG component	Implementation option	One-off cost	Yearly ongoing cost		
eProcedure Portal & backend	Opt 2 - Readapt existing portals - readapt 153 frontends and develop one backend	Up: 24,2 mln € Avg: 12,1 mln € Low: 6,0 mln €	Up: 7,2 mln€ Avg: 3,6 mln € Low: 1,8 mln€		
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,1 mln€ Avg: 0,05 mln € Low: 0,025 mln€	Up: 0,05 mln € Avg: 0,02 mln € Low: 0,01 mln €		
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 3,6 mln€ Avg: 1,8 mln € Low: 0,9 mln€	Up: 1,1 mln€ Avg: 0,54 mln € Low: 0,27 mln €		
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 175 data sources	Up: 2,2 mln € Avg: 1,1 mln € Low: 0,55 mln €	Up: 0,66 mln € Avg: 0,33 mln € Low: 0,15 mln €		
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 30,04 mln € Avg: 15,02 mln € Low: 7,51 mln €	Up: 9,04 mln € Avg: 4,52 mln C Low: 2,26 mln €		

Cost ranges for each SDG component





Cyprus

SDG high-level Roadmap and cost estimates



Summary

Roadmap

Cyprus provides the portal "Ariadni", via which citizens can access eGovernment services. It could potentially readapt this single portal for its eProcedure portal and back-end. The country has in place 3 eDelivery Access Point but plans to develop multiple additional access points **specifically for the SDG OOP system**. Cyprus is currently developing an eIDAS Node. Cyprus will not leverage an existing national data exchange infrastructure to make available its evidence types, but could instead develop one single data service component to be connected to all of its data providers.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 4,8 million \in (cost range from 2,4 to 9,6 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 1,47 million \in (cost range from 0,74 to 2,95 million \in).



SDG component	Implementation option	One-off cost	Yearly ongoing cost		Cost	ranges for eacl	n SDG componen	t
eProcedure Portal & backend	Opt 1 - Create or readapt a single national portal	Up: 1,6 mln€ Avg: 0,8 mln € Low: 0,4 mln€	Up: 0,48 mln € Avg: 0,24 mln € Low: 0,12 mln €	Aillion EUR 6				
eDelivery AP(s)	Opt 1 - Develop 2 eDelivery AP	Up: 0,28 mln € Avg: 0,14 mln € Low: 0,07 mln €	Up: 0,14 mln € Avg: 0,07 mln € Low: 0,035 mln €	6 5				
Data Services	Option 2 - Develop one Data service directly connected to 44 data providers	Up: 7,7 mln€ Avg: 3,85 mln€ Low: 1,92 mln€	Up: 2,31 mln € Avg: 1,16 mln € Low: 0,58 mln €	4 3				
Data Exchange infrastructure	Opt 3 - Do not use a data exchange infrastructure			2				
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 9,6 mln € Avg: 4,8 mln € Low: 2,4 mln €	Up: 2,95 mln € Avg: 1,47 mln € Low: 0,74 mln €	0	eProcedure Portal & Backend	eDelivery One-off cost	Data service	Data exchange Infrastructure



Czech Republic

SDG high-level Roadmap and cost estimates



Summary

Roadmap

Czech Republic could create or readapt a single existing portal to allow the cross-border request and exchange of evidence by EU citizens (the eProcedure portal and backend. The country can count on 10 existing eDelivery Access Points but plans to develop a single additional access point for the SDG OOP technical system. It can use its existing eIDAS node to enable cross-border authentication. Czech Republic has in place its interconnected data pool as a national data exchange infrastructure through which it plans to make available all the necessary evidence types to the SDG OOP technical system. This data exchange infrastructure could be connected to one single data service component.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 4,0 million \in (cost range from 2,0 to 8,0 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 1,21 million \in (cost range from 0,60 to 2,42 million \in).

<u>Roadmap</u>				Legend	In scope estim	e of cost ation	Out of scope of cost estimation
SDG component		Design		Implemen Development, integratio	Implementation Development, integration, test & deploy		Maintenance
eProcedure Portal & backend		Technical design	Technical Create or Readapt one Cor design single national Portal mo		ate or Readapt one gle national Portal		Component maintenance & monitoring
eDelivery AP(s)	Apn	Technical design		Develop a eDelivery Point (s)	Develop a eDelivery Access Point (s) Reuse/Create eIDAS Node		Component maintenance & monitoring
eIDAS Node	sibility st	Technical design		Reuse/Create eIDA			Component maintenance & monitoring
Data Services	Fea	Technical		Develop a Data Serv connected to the dat exchange infrastruct	ice ta ture	ц. Ч	Component maintenance & monitoring
Data Exchange infrastructure		design		Reuse a National dat exchange infrastruct	ta ture		Component maintenance & monitoring
Other suggested	ed Program management						
activities Change		Change m	ar	agement	Trai	ining &	communication

High-level cost estimates

SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 1 - Create or readapt a single national portal	Up: 1,68 mln € Avg: 0,84 mln € Low: 0,42 mln €	Up: 0,5 mln € Avg: 0,25 mln € Low: 0,125 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,14 mln € Avg: 0,07 mln € Low: 0,035 mln €	Up: 0,07 mln € Avg: 0,03 mln € Low: 0,015 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 5,0 mln € Avg: 2,5 mln € Low: 1,25 mln €	Up: 1,52 mln € Avg: 0,76 mln € Low: 0,38 mln €
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 49 data sources	Up: 1,1 mln € Avg: 0,57 mln € Low: 0,25 mln €	Up: 0,30 mln € Avg: 0,15 mln € Low: 0,07 mln €
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up:8,0 mln € Avg: 4,0 mln € Low: 2,0 mln €	Up: 2,42 mln € Avg: 1,21 mln € Low: 0,60 mln €



Cost ranges for each SDG component



Denmark

SDG high-level Roadmap and cost estimates



Summary

Roadmap

Denmark could readapt multiple existing portals for the purposes of the SDG OOP technical system. The country has in place 15 eDelivery Access Points but could develop an additional dedicated one for the SDG OOP system. There is an eIDAS Node already developed and connected several MS to enable cross-border authentication. The country plans to readapt its national data exchange infrastructure to share its evidence types over the SDG OOP technical system. This could be connected to one single data service component.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 15,0 million \in (cost range from 7,5 to 30,0 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 4,54 million \in (cost range from 2,21 to 9,08 million \in).



SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 2 - Readapt existing portals – readapt 51 frontends and develop one backend	Up: 21,21 mln € Avg: 10,6 mln € Low: 5,3 mln €	Up: 6,36 mln € Avg: 3,18 mln € Low: 1,59 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,2 mln€ Avg: 0,1 mln € Low: 0,05 mln€	Up: 0,1 mln € Avg: 0,05 mln € Low: 0,025 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 7,15 mln € Avg: 3,57 mln € Low: 1,79 mln €	Up: 2,2 mln € Avg: 1,1 mln € Low: 0,5 mln €
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 135 data sources	Up: 1,4 mln € Avg: 0,7 mln € Low: 0,35 mln €	Up: 0,4 mln € Avg: 0,2 mln € Low: 0,1 mln €
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 30,0 mln € Avg: 15,0 mln € Low: 7,5 mln €	Up: 9,08 mln € Avg: 4,54 mln € Low: 2,21 mln €

Cost ranges for each SDG component







Summary

Roadmap

Estonia is a very digitalised country with multiple existing online portals for different procedures. It could re-adapt these multiple portals for the SDG OOP technical system, connecting them to one single back-end. The country has already implemented 5 eDelivery Access Point but could deploy multiple additional access points for the SDG OOP technical system. It has an existing eIDAS Node, which is connected to several MSs, to enable cross-border authentication. Estonia will probably reuse the existing national data exchange infrastructure, X-Tee, to enable data exchanges with the SDG infrastructure. The integration details between the two technical systems are not fully defined yet. It could develop and connect a single data service component to X-Road. **Cost estimates**

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 14,67 million \in (cost range from 7,34 to 29,35 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 4,37 million \in (cost range from 2,18 to 8,74 million \in).



SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 2 - Readapt existing portals - readapt 110 frontends and develop one backend	Up: 24,2 mln € Avg: 12,1 mln € Low: 6,05 mln €	Up: 7,2 mln € Avg: 3,6 mln € Low: 1,8 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,13 mln € Avg: 0,06 mln € Low: 0,03 mln €	Up: 0,07 mln € Avg: 0,035 mln € Low: 0,017 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 4,6 mln€ Avg: 2,3 mln € Low: 1,15 mln€	Up: 1,4 mln € Avg: 0,7 mln € Low: 0,35 mln €
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 18 data sources	Up: 0,34 mln € Avg: 0,17 mln € Low: 0,08 mln€	Up: 0,08 mln € Avg: 0,04 mln € Low: 0,02 mln €
Legend Up: Upperbound cos Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 29,35 mln € Avg: 14,67 mln € Low: 7,34 mln €	Up: 8,74 mln € Avg: 4,37 mln € Low: 2,18 mln €







Finland

SDG high-level Roadmap and cost estimates



Summary

Roadmap

Finland plans to re-engineer an existing single central portal to embed the SDG OOP functionalities. The country has in place 7 eDelivery Access Points, but plans to deploy an additional one for data exchange over the SDG OOP technical system. It can count on an operating eIDAS Node to enable cross-border authentication. The national data exchange infrastructure is called "Suomi.fi" and it is based on X-Road standards. Finland plans to reuse this infrastructure to make available its evidence types over the SDG infrastructure. It could develop and connect one single data service to Suomi.fi.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 7,99 million \in (cost range from 3,94 to 15,77 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 2,29 million \in (cost range from 1,14 to 4,58 million \in).



High-level cost estimates

SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 1 - Create or Readapt one single national Portal	Up: 2,0 mln€ Avg: 1,0 mln€ Low: 0,5 mln€	Up: 0,6 mln € Avg: 0,3 mln € Low: 0,15 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,17 mln € Avg: 0,08 mln € Low: 0,04 mln €	Up: 0,09 mln € Avg: 0,045 mln € Low: 0,0225 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 6,0 mln€ Avg: 3,0 mln € Low: 1,5 mln€	Up: 1,8 mln € Avg: 0,9 mln € Low: 0,45 mln €
Data Exchange infrastructure	Opt 2 - Reuse the existing data exchange infrastructure and connect 361 data sources	Up: 7,6 mln€ Avg: 3,8 mln € Low: 1,9 mln€	Up: 2,0 mln € Avg: 1,0 mln € Low: 0,5 mln €
Legend Up: Upperbound cost Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 15,77 mln€ Avg: 7,99 mln € Low: 3,94 mln€	Up: 4,58 mln € Avg: 2,29 mln € Low: 1,14 mln €



Cost ranges for each SDG component





Summary

Roadmap

France could chose to create a single national portal to allow the request of evidence by EU citizens for all the SDG procedures. For the cross-border data exchange, the country could develop one eDelivery access point. The eIDAS Node is currently under development and should be in production in early 2021 to enable cross-border authentication. France does not have an existing national data exchange infrastructure, but could potentially consider developing a new one to enable it to share the SDG evidence types. It could potentially connect this infrastructure to one single data service component.

Cost estimates

Based on the collected information and chosen Implementation strategies, the estimated one-off cost to design, develop, test and deploy the SDG components is approximately 7,38 million \in (cost range from 3,69 to 14,76 million \in). The estimated yearly ongoing cost to maintain the SDG components is estimated to be around 2,1 million \in (cost range from 1,05 to 4,2 million \in).



High-level cost estimates

SDG component	Implementation option	One-off cost	Yearly ongoing cost
eProcedure Portal & backend	Opt 1 - Create or Readapt one single national Portal	Up: 1,93 mln € Avg: 0,97 mln € Low: 0,48 mln €	Up: 0,58 mln € Avg: 0,29 mln € Low: 0,14 mln €
eDelivery AP(s)	Opt 1 - Develop 1 eDelivery AP	Up: 0,16 mln € Avg: 0,08 mln € Low: 0,04 mln €	Up: 0,05 mln € Avg: 0,02 mln € Low: 0,01 mln €
Data Services	Opt 1 - Develop one Data service connected to the National data exchange infrastructure	Up: 5,9 mln€ Avg: 2,9 mln € Low: 1,4 mln€	Up: 0,8 mln € Avg: 0,4 mln € Low: 0,2 mln €
Data Exchange infrastructure	Opt 1 - Develop a new National data exchange infrastructure and connect 324 data sources	Up: 6,78 mln € Avg: 3,39 mln € Low: 1,69 mln €	Up: 1,78 mln € Avg: 0,89 mln € Low: 0,44 mln €
Legend Up: Upperbound cost Avg: Estimated cost Low: Lowerbound co	t (2x) (1x) st (0,5x)	Up: 14,76 mln € Avg: 7,38 mln € Low: 3,69 mln €	Up: 4,2 mln € Avg: 2,1 mln € Low: 1,05 mln €



Cost ranges for each SDG component