

Annex 4: Complete mapping of problems, root causes, problem statements, focus areas, objectives and vision

Political and legal - layer

Root Causes	Political Problem	Problem Statement	Focus Areas	Objectives	Link between objectives	Vision
<ul style="list-style-type: none"> Lack of IOP awareness Shifting political agendas and priorities 	<p>Lack of Political will The lack of political will to support cross-border interoperability and information exchange between Member States, at state and local levels.</p>	<ul style="list-style-type: none"> There is insufficient awareness of the importance of interoperability for the delivery of European public services, and a resulting lack of political will to promote the necessary cross-border information exchange and interoperability, independently of shifting political agendas. 	<p>3 IOP awareness cross Europe</p>	3.2 Cooperate and agree on an approach for linking interoperability to policy issues that are high on the political agenda	3.1	<p>In line with EU policies and objectives = the IOP actions are in line with related initiatives and a coherent view is presented towards the member states (includes also the necessary alignment with the sectors). There is a global view on all IOP activities.</p>
<ul style="list-style-type: none"> Lack of a legal framework Lack of openness and communication Lack of mandatory use of key registers, reference architectures,...) 	<p>Lack of trust The lack of trust, which is regarded as a general principle of collaboration between MSs and an important interoperability enabler, prevents cross-border data exchange and cross-border access to registers.</p>			3.1 Recognise interoperability as an essential cornerstone of European Public Services	3.2	
<ul style="list-style-type: none"> Lack of legal basis EIF not binding Lack of communication Lack of promotion 	<p>Lack of IOP-awareness The lack of awareness, and thus commitment, of administrations to the importance of interoperability for the delivery of European Public Services prevents interoperability from being addressed early-on. The added-values of interoperability, as reuse, sharing, collaboration and process improvements, are not sufficiently promoted.</p>					
<ul style="list-style-type: none"> Too weak IDABC's mandate EC's organisational structure 	<p>IDABC's mandate is not strong enough IDABC's mandate is regarded as too weak for creating the necessary synergies and alignment required for cross-border interoperability, i.e. a legal framework for cross-border interoperability, a stronger legal status for EC interoperability documents, trust and standardisation.</p>					

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<ul style="list-style-type: none"> • Current economic and financial crisis 	<p>Shifting political agendas Priorities for cross-border and cross-sector interoperability are driven by shifting policies.</p>			3.2 Cooperate and agree on an approach for linking interoperability to policy issues that are high on the political agenda	3.1	
<ul style="list-style-type: none"> • Lack of focus on the objectives of the Lisbon Strategy • Lack of recognition of interoperability and ICT as growth and employment enablers 	<p>Current economic crisis Due to the current economic crisis and the resulting shift in government's priorities, public spending and projects in IOP and ICT in general have been reduced or delayed. Interoperability and ICT in general, are not enough recognised and promoted as enablers of economic growth and employment.</p>					

Root Causes	Legal Problems	Problem Statement	Focus Areas	Objectives	Link between objectives	Vision
<ul style="list-style-type: none"> • Lack of political will • Lack of IOP-awareness • Lack of communication • IDABC's mandate not strong enough 	<p>Lack of a legal basis for IOP at European level The lack of a horizontal EU legal framework for interoperability prevents effective information exchange across borders. This lack of rules regarding interoperability in the EU results in significant work duplication in the Member States as well as in different services models preventing interoperability.</p>	<ul style="list-style-type: none"> • The differences in national legal frameworks do not facilitate cross-border exchange information between public administrations. 	<p>1 European IOP cross-sector legal framework</p>	1.1 Agree on the format of the legal framework	1.2	<p>Completion of legal environment = there is an IOP legal basis, giving the necessary mandates and responsibilities for the organisations involved</p>
				1.2 Establish the legal framework	1.1	
<ul style="list-style-type: none"> • Specific background of the national legislations • National perception of data protection/privacy • Different interpretations and implementation of EU Directives • Too little guidance and support from EC in the implementation process 	<p>The differences in national legal frameworks The scattered legal landscape across the EU Member States, and the resulting lack of legal harmonisation, most often preventing cross-border exchanges of information between national administrations. Key interoperability inhibitors as eAuthentication, eAuthorisation, eID and personal data protection rules prevent cross-border information exchanges.</p>	<ul style="list-style-type: none"> • At European level, the lack of a horizontal EU legal framework for interoperability does not support an effective exchange of information cross-borders. 	<p>2 National and cross-border sector-specific legislations sustainability (IOP- related issues)</p>	2.1 Systematically conduct pre-studies on ICT implications of the implementation of new legislations. Agree on methodology for these studies;	2.3	
				2.3 Systematically conduct post-studies on ICT implications of the implementation of new legislations.	2.1	

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				Agree on methodology for these studies		
<ul style="list-style-type: none"> • Specificities of national legislations in data protection rules • Different interpretations and implementation of EU Directives • Political sensitivity 	<p>Personal data protection rules</p> <p>The lack of legal harmonisation of personal data protection rules is one of the key inhibitor of interoperability and cross-border information exchange.</p>			2.2 Provision of guidance to public administrations on interoperability-related issues when implementing EU legislation;	na	

Information Exchange – layer

Root Causes	Information exchange problems	Problem Statement	Focus Areas	Objectives	Link between objectives	Vision
<ul style="list-style-type: none"> • Divergent data interpretations • The richness of EU languages and cultures • Lack of coordination and harmonisation 	<p>Lack of agreement on semantics</p> <p>The problem of semantic interoperability¹ consists in divergent interpretations of the data exchanged between people, applications and institutions, within and between sectors.</p>	There is no common understanding between Member States. Lack of agreement and guidance on semantics and syntaxes, data format, data	4 Semantic IOP	4.3 Agree on dictionaries, semantic core components and taxonomies;	na	Trusted information exchange = the content, the formats and the means of information exchange are agreed, privacy respecting,
<ul style="list-style-type: none"> • Divergent data formats and models • Lack of common 	<p>Lack of agreement on syntax</p> <p>The problem of syntactic interoperability, a pre-requisite to semantic interoperability, lies in</p>			4.1 Agree on data formats for both sector-specific and	na	

¹ According to the *European Interoperability Framework for Pan-European eGovernment Services*, semantic interoperability is concerned with ensuring that the precise meaning of exchanged information is understandable by any other application that was not initially developed for this purpose. Semantic interoperability enables systems to combine received information with other information resources and to process it in a meaningful manner. Semantic interoperability is therefore a prerequisite for the front-end multilingual delivery of services to the user.. See <http://ec.europa.eu/idabc/servlets/Doc?id=19529>.

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standards and protocols • Lack of agreement on metadata • Lack of coordination and harmonisation	the lack of agreement on data formats and common protocols.	security, data access, data pricing, data storing and data archiving. The multilingualism does not facilitate the exchange of information.		cross-sector information		reliable and trustworthy
• Lack of trust • Lack of multilateral and bilateral agreements • Lack of coordination and harmonisation	Lack of security for cross-border information exchange The lack of appropriate security levels and agreements on those security levels in the field of cross-border information exchange prevents cross-border interoperability between systems, applications, business processes and actors producing or using eGovernment services.		6 Trust and Privacy	<ul style="list-style-type: none"> 6.2 Trust and rely in data collection and exchange 6.3 Improve transparency and traceability of the use of EU citizens, businesses and administrations' information 	na	
Lack of consideration for the multilingual dimension and related issues, particularly when designing new systems and applications The richness of EU languages and cultures	Multilingualism The multilingual environment of the EU make cross-border information exchange and the provision of European Public Services difficult as many public services are only available in national language(s), which makes it harder for foreign stakeholders to access these services.		4 Semantic IOP	4.2 Achieve significant improvements in the field of multilingualism;	na	
• Lack of an appropriate interoperability framework • Missing formal agreements, commitment	Lack of trust and privacy Data collection and sharing lacks trust and privacy		6 Trust and Privacy	<ul style="list-style-type: none"> 6.1 Agree on data protection, confidentiality and security levels 6.2 Trust and rely in data collection and exchange 	na	
• Personal data cannot be stored in one centralised database, for legal or technical reasons • Heterogeneous registers, also at national level • Lack of agreement on data storing and	Access to stored and/or archived data The access to data registers by other (national or non-national) administrations is a sensitive one. Both indirect access (the information is provided by the administration owning the data) or direct access (the data is accessible by third parties) poses serious issues.		5 Information availability and usage	<ul style="list-style-type: none"> 5.1 Achieve significant improvements on the respect of the "single entry of data" principle; 5.2 Achieve data consistency and high 	5.3, 5.4 and 5.5	

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archiving •Issues with data quality (copies of data not synchronised). •Problems of exchanging personal or sensitive information •Lack of meta-data register				quality •5.3 Agree on metadata to support the access to data •5.4 ease the use and exchange of data, and agree on: <ul style="list-style-type: none"> • who can access data, when and how • data pricing for data reuse 		

Organisation and processes – layer

Root Causes	Organisation and Processes related Problems	Problem Statement	Focus Areas	Objectives	Link between objectives	Vision
• Lack of a Interoperability Governance structure • Lack of maturity to establish the required governance structure • Lack of authority and too narrow mandate of the IDABC Programme • Lack of coordination • Scattered organisational and procedural landscape within EU MSs public services	Lack of coordination and guidance for interoperability in the EU. Member States and sectors at EU level have identified the lack of coordination and guidance (how to develop eServices and on how to exchange information from an IT architecture point of view) for cross-border interoperability as a main issue for cross-border information exchange and service offering.	There is a lack of leadership, coordination and guidance in the field of interoperability. It prevents from sharing and reusing sustainable solutions.	7 European IOP organisation	7.5 Encourage proactive discussions between public administrations on interoperability matters	na	Commonly agreed, cohesive and coordinated interoperability initiatives = IOP initiatives (in broad sense, including initiatives on reusable services) are aligned and agreed upon, there is a

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<ul style="list-style-type: none"> Lack of alignment of sectors Lack of an EU IOP Platform Lack of best practice sharing 						<p>commitment for these initiatives and they are coordinated (via the above mentioned governance structure)</p> <p>Appropriate Governance and processes = Suitable governance structure is put in place, and it is supported by necessary processes and these are also followed – with clear interfaces with the member states respective organisations and processes</p>
<ul style="list-style-type: none"> Various administrative organisation of the Member States Lack of appropriate legal framework Lack of binding national interoperability frameworks Lack of authority of interoperability organisations Lack of coordination between national & local level Lack of compatibility of IT Governance. 	<p>Lack of coordination and guidance for interoperability at MS level. Member States administrative internal structures and processes, be it centralised, decentralised or federal States, prevent optimal organisational interoperability².</p>			7.2 Agree on interfaces and methodologies between Member States’ public administration interoperability organisations and the European interoperability organisation	8.1	
				7.3 Align European Public Services business processes, based on their granularity	na	
<ul style="list-style-type: none"> Lack of communication Lack of a best practice identification and promotion Reluctance to learn from other Member States’ lessons, “better served by oneself” mindset 	<p>Lack of best practice sharing</p> <p>There is a lack of best practices and lessons learnt sharing. The most successful cross-border interoperability projects and achievements should be more pro-actively promoted and new initiatives should be based on these success stories.</p>			7.5 Encourage proactive discussions between public administrations on interoperability matters	na	
<ul style="list-style-type: none"> Lack of communication Lack of readiness to 	<p>Lack of reuse of sustainable solutions</p> <p>Interoperability solutions are not sufficiently</p>			7.4 Establish a consistent approach	na	

² According to the *European Interoperability Framework for Pan-European eGovernment Services*, organisational interoperability is concerned with defining business goals, modeling business processes and bringing about the collaboration of administrations that wish to exchange information and may have different internal structures and processes. Moreover, organisational interoperability aims at addressing the requirements of the user community by making services available, easily identifiable, accessible and user-oriented. See <http://ec.europa.eu/idabc/servlets/Doc?id=19529>.

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share solutions	promoted, fragmented picture of results and reusable information at the EU level.			to stimulate and support Member States' interoperability organisations		
<ul style="list-style-type: none"> • Lack of IOP awareness • Lack of political will • Insufficient knowledge of solutions and possibilities • Current economic crisis 	<p>Lack of skills and resources The lack of human and financial resources is two important issues when developing and implementing cross-border interoperability, i.e. the participation to Large Scale Pilot Projects.</p>		8 Supporting processes	7.1 Agree on the tasks, roles and responsibilities for the interoperability organisation	8.1	
<ul style="list-style-type: none"> • Lack of process modelling • Lack of alignment of business processes • Lack of integrated suites of solutions • Lack of an end to end service approach • Silo approach within the sectors 	<p>Lack of integrated business processes The poor level of integration of business processes makes difficult the interoperation of information and communication technology (ICT) systems when trying to exchange data and share information.</p>			<ul style="list-style-type: none"> • 8.1 Establish and follow work processes: <ul style="list-style-type: none"> • Communication • Execution • Planning • Control • 8.2 Define and follow decision-making processes' timeliness • 8.3 Establish common requirements and rules, supported by KPIs and reporting at EU and Member State levels • 8.4 Establish knowledge management processes • 8.5 Define and follow evaluation & improvement processes 	8.1 with 8.2, 8.3 and 8.5	

Services Offerings – layer

Root Causes	Service Offering Problems	Problem Statement	Focus Areas	Objectives	Link between objectives	Vision
<ul style="list-style-type: none"> Lack of concrete implementation guidelines Lack of best practice sharing No catalogue of available public services within MSs 	<p>Lack of architectural guidelines for cross-border Interoperability building blocks</p> <p>The lack of concrete and reusable, use-case based interoperability guidelines, rules and principles on standards, architecture, and specifications on how to develop information exchange between ICT systems.</p>	<p>Lack of ICT impact assessment and clear guidelines for the implementation of EU legislation in terms of interoperability. Lack of guidelines on services implementation. Lack of clear overview on available services in and between EU Member States</p>	<p>9 IOP Architecture – Building blocks</p>	<p>9.1 Identify integration enablers (i.e. technologies and capabilities which facilitate integration and which are designed to provide security, audit-ability, scalability, and performance)</p>	na	<p>Commonly agreed, cohesive and coordinated interoperability initiatives = IOP initiatives (in broad sense, including initiatives on reusable services) are aligned and agreed upon, there is a commitment for these initiatives and they are coordinated (via the above mentioned governance structure)</p> <p>Agreements on IOP standards = IOP is based on common agreements and standards – these enable the IOP between the administrations</p>
				<p>9.2 Identify the most needed architectural building blocks for cross-border/cross-sectoral interoperability of national eService/interoperability architectures by collecting best practise solutions (e.g. from CIP pilots), form a consistent architecture by adding missing building blocks and providing concrete guidelines on how to comply to this architecture</p>	9.3, 9.4 and 9.5	
				<p>9.3 Establish an EU</p>	9.2 and 9.4	

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				catalogue of services at EU and Member States levels		and they enjoy support and commitment
				9.4 Ensure public administrations' knowledge of available services and business processes	9.2 and 9.3	
				9.5 Reduce redundancy: more cost-effective and greener services	9.2	
				9.6 Use SLAs in the provision of basic services for enabling European Public Services delivery	na	
				9.7 Identify new opportunities, new technologies and supporting solutions; follow market trends	na	
<ul style="list-style-type: none"> • Lack of coordination and communication • Lack of cross-sectoral understanding and approach • Lack of support for an IOP Platform from MSs and from EC • Lack of funding • Lack of resources • Lack of Secure and Resilient Networks • Uncertain future of sTESTA 	<p>Lack of common infrastructures, i.e. EU IOP Platform</p> <p>Cross-border interoperability currently lacks common infrastructures (i.e. an IOP Platform or a European Enterprise Service Bus,) at EU level for providing generic and standardised services at EC level (i.e. PKI, eID, eAuthentication, eAuthorisation). A portal or a gateway for IOP could provide easy access towards IOP (re)usable solutions, knowledge, best practices, lessons learnt, and services themselves.</p>		10 European IOP Platform	10.1 Agree on the role of EU-wide secured networks (i.e. sTesta) and agree on the scope, the architecture, the functionalities and the interactions between the European Interoperability Platform and the Information Systems of the Member States	na	

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				10.2 Establish effective governance of European interoperability platform	na	
<ul style="list-style-type: none"> • Lack of Guidelines for Implementing EU Legislation • Lack of ICT Impact Assessment methods • Lack of Standards Assessment Methods • Lack of a Catalogue of Services in the EU 	<p>Lack of interoperability expertise support Expertise support is lacking, for the Member States, and certainly for the different DGs confronted with cross-border interoperability issues.</p>		<p>11 Expertise support and methodologies</p>	10.3 Make available interoperability implementation guidelines for services provision	na	
				11.1 Provide expertise and support to public administrations on interoperability matters	na	
				11.2 Coordinate integration efforts	na	
				<ul style="list-style-type: none"> • 11.3 Make methodology for assessing standards available and promote its use • 11.4 Make methodology for ICT impact assessment available and promote its use 	na	