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Supporting the European Interoperability
Strategy Elaboration

Preliminary Report Phase II – 15/10/2009

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Table 1: Document Control Table

DISCLAIMER

The views and comments expressed in this text are the responsibility of Deloitte and do not necessarily reflect the opinion of the European Commission.

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Finally, the project team would like to thank the many Commission officials who have been helpful and cooperative in providing information and feedback during the course of the assignment.

TARGET AUDIENCE OF THIS FINAL REPORT

The primary audience for this report are decision makers, such as Chief Information Officers (CIOs), strategy experts and project officers of the European Union Member States or the European Union Institutions who are involved in the establishment of European Public Services. This document is also more generally targeted at all stakeholders involved in European Public Services: managers, suppliers, and policy analysts.

GUIDE FOR THE READER

This document is the final report of the European Interoperability Strategy elaboration, phase II. The report should be of interest to a variety of stakeholders.

The executive summary provides the context and the outcomes of the study, and is thus adequate as an overview of the main elements for those readers with limited time.

For those interested in having more details on the study results, chapter 3 will be of interest.

Full results of the study can be found in chapters 3 (and subsequently in chapter 4). For those interested in the methodology, we recommend reading chapter 2 in more detail.

Finally, the Annexes (added subsequently) provide additional details supporting the conclusions and outcomes of the study.

A Glossary will help those for whom this is a new field.

USEFUL DEFINITIONS

European Public Services

In this document, European Public Services mean "a cross-border public sector service supplied by public administrations¹, either to one another, or to European businesses and citizens by means of cooperation between those administrations." ²

Interoperability

The definition of interoperability endorsed in this document takes into account the fact that interoperability is much more than the exchange of data between ICT systems and also includes the ability of disparate organisations to *work together*. Interoperability is defined as follows:

*"Interoperability within the context of European Public Services is the ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations, via the business processes they support, by means of the exchange of data between their respective information and communication technology (ICT) systems."*³

¹ Refers to either national public administrations (at any level), or bodies acting on their behalf, and/or EU public administrations

² A definition taken from the *Draft European Interoperability Framework v.2.0* (work in progress).

³ *Idem*.

Scenario

A scenario is a focused set of concrete actions presented in a chronological order which aims at achieving a given objective. All scenarios can be assessed in the light of risk and value criteria.

Scenario evaluation criteria: risk and value criteria

Risk criteria

Organisational Complexity: Evaluates the organisational complexity of the actions in terms of planning, execution and control. This relates to the various governance processes (internal structures and processes, scope, time, cost, quality, resource, skills and communication).

Technical Complexity: Evaluates the technical complexity of realising the actions. It covers aspects such as technical issues of linking computer systems and services, interconnection services, data integration, middleware, exchange, accessibility, security and novelty.

Dependencies: Evaluates the risk associated with the interdependencies and inter-relationships with other actions and/or external parties (e.g. other departments, other organisations...etc). For example, an action under study may see its success dependant on the success of another action.

Lack of Stakeholders' Buy-in: Evaluates any perceived risks associated with the misalignment of stakeholders, of objectives, of working styles, of political opinions, etc

Value criteria

Efficiency: Evaluates the ability of a scenario to carry out actions quickly and to produce results with little wasted efforts. This criterion is used to evaluate the time to market in comparison to the required efforts.

Effectiveness: The effectiveness evaluates the potential of the scenario to make an impact on its objectives, its potential to create powerful results and high added value for the users of the solution, regardless of the time and efforts required.

Necessity: This criterion is used to evaluate the value of a scenario in the light of the estimated cost of status quo.

Visibility & Reusability: This criterion is used to evaluate how well the scenario is positioned to be visible and reused at European Union level.

Strategic Driver

Drivers are major forces or trends that could positively or negatively shape or influence the future of a focus area. Drivers have a complex relationship with each other; some drivers are an outcome of other drivers. Some are reasonably predictable, others are more uncertain.

Different types of strategic drivers were identified. Here are some of these: political drivers such as processes, policies, local decision making (i.e. elections, the EU agenda, declaration X, ...), economic drivers such as economic downturn, procurement practice and housing; societal drivers such as ethical and cultural diversity, trust in charities, global population movements; technological drivers such as online communities, interactive websites, attitudes to data use; and environmental drivers such as climate change, corporate responsibility and green taxation.

The drivers are typically on the background while doing the strategy elaboration. They impact the definition of the strategy and related actions.

EXECUTIVE SUMMARY

1. This report provides an overview of the work Deloitte performed for the Commission's IDABC unit at the Directorate General for Informatics within the European Interoperability Strategy (EIS) elaboration project. The EIS has the aim to provide direction and to prioritise the undertaking of actions to achieve improved interaction, exchange and cooperation among European Public Service administrations across borders and sectors. The IDABC programme and the ISA programme (the Interoperability Solutions for European Public Administrations) which was jointly adopted by the European Parliament and the Council on 16 September 2009, are driving towards increased cross border Public Services interoperability. This report presents an action plan towards this goal and contributes to strengthening the vision of future eGovernment services beyond 2010.

The goal of this report is to:

- Provide EIS recommendations to the Commission and to present courses of action supported by the Member States;
 - Support the development of the ISA programme and other related EU initiatives;
 - Present the methodologies used by Deloitte to capture Member State priorities;
 - Advise the Commission in the development of project based and horizontal activities and initiatives to improve cross border interoperability.
2. Interoperability between public administrations is crucial in achieving European integration and pertains to core aims of the European Union. The importance of interoperability is hard to overstate and the interests of the Member states and end users are high to overcome barriers to the easy delivery of services across borders and sectors. End users are the final recipients of these services; however, the prime partners in interoperability for the EIS are the Member States and public administrations. Increased cooperation and commitment of these actors is therefore essential in the development of the EIS.
 3. During phase I, a vision for the future of European Public Services was established. This vision has been approved by the Member State CIOs. The vision statement reads as follows:

In 2015, interoperability has significantly fostered European Public Services delivery through:

- Appropriate governance organisation and processes in line with European Union policies and objectives;
- Trusted information exchange enabled by commonly agreed, cohesive and coordinated interoperability initiatives, including completion of the legal environment, elaboration of interoperability frameworks and agreements on interoperability standards and rules.

It is important to emphasise that the Member State CIOs agreed not to pursue a horizontal legal basis for interoperability for the time being. As an immediate result, to achieve the goals set forth in the vision, it is necessary to work with the Member States towards goals which emphasise common concerns and address recurring issues to provide added value for Member States administrations.

4. This vision for European Public Service was refined in a set of objectives, divided into four clusters and nine focus areas. Based on the interoperability vision and objectives outlined, multiple approaches are possible based on technical, political, budgetary and time constraints. This report sought to identify the main strategic directions supported by the Member States in overcoming interoperability barriers in each of the four interoperability clusters and nine focus areas.

5. In addition, this report will argue for a major emphasis on increased cooperation between public services administrative personnel to support interoperability. Interoperability is more often than not significantly hampered by barriers which go beyond merely technical constraints. Core issues in making public services talk seamlessly to one another often depend on aligning business processes within administrations. This alignment of processes is often contingent on such factors as narrow interpretations of mandates, responsibilities and budgets. Business process managers within these public services might, for instance, perceive any alignment of process components with other services as a fundamental loss of control in the way they provide service to local constituents. Close cooperation combined with increased awareness and political commitment may provide incentives to encourage interoperability initiatives at the Member State public administration level.
6. While every policymaker recognises the need for interoperability, a compelling vision of the benefits of interoperability is a hard sell in the absence of tangible returns. During workshops Member States' representatives repeatedly emphasised the need for sector-specific initiatives as a way to achieve demonstrable benefits. Giving priority to a project-based approach to tackle a well-defined problem set is essential to achieving benefits within a particular domain or sector, with the aim at reusing the approaches and solutions in other sectors where possible.
7. The future of European Public Services is heavily dependent on the rapid evolution of information technology. The necessary infrastructure, whether it is supporting semantic interoperability, trusted information exchange or increased cooperation through collaboration platforms, is being built to enable this future, in order to allow the seamless delivery of European Public Services. The promise of these enabling technologies lies in overcoming the barriers to cross border interoperability.
8. This report presents for each objective an action plan organised in a set of scenarios, or concrete activities. The main principles and approaches to reach the stated objectives are summarised as follows.

Cluster: Trusted Information Exchange

Focus area: Semantic Interoperability

- Agreement on interoperability standards and rules;
- Content, format and means of info exchange are agreed;
- Work together with standardisation organisations;
- EC leadership.

Focus area: Information availability and usage

- Agreeing and gaining a political mandate for the activities;
- Respecting subsidiarity, finding the correct balance;
- Respecting the principle of availability;
- By reaching achievements step-by-step;
- Developing the SLAs by collecting best practices.

Focus area: Trust and privacy

- By respecting privacy: reliable and trustworthy;
- Via related focus areas: semantic interoperability, Information availability and usage and catalogue of services.

Focus area: Catalogue of services

- Centralised structure, decentralised feed;
- Complete and high quality information.

Cluster: Interoperability architecture

Focus area: Interoperability architecture

- Project based;
- Centralised structure, federated implementation.

Focus area: Expertise support and methodologies

- Building expertise groups;
- Making assessing standards available.

Cluster: ICT implications on the new legislations

Focus area: National and cross-border sector-specific legislations sustainability

- Implementation of an increased cooperation methodology.

Cluster: Accompanying measures

Focus area: Interoperability awareness

- Starting with direct marketing campaigns towards Decision makers;
- Indirect messaging via demonstrating benefits;
- Targeting different audiences with specific messages;
- Involving other stakeholders such as industry;
- Creating the sense of necessity and urgency.

Focus area: Sharing best practises (using collaboration platforms)

- By understanding the business, capability and technology issues of users;
- Through user outreach, standards organisation outreach and building communities centred around the sharing of specific content (best practices, lessons learnt);
- By using collaborative platforms.

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INTRODUCTION

The EIS elaboration project was divided into two phases. This final report covers the second phase of the study.

The final report of the first phase, issued in May 2009 and presented at the CIO meeting on 26 June, summarised the conclusions reached at the end of this first phase: a common vision, the problem statements, focus areas, priorities and objectives for interoperability, and a possible methodology for developing scenarios in anticipation of the second phase of the project.

The second phase dealt with the EIS itself and aimed at reaching an agreement on possible scenarios for achieving the agreed priorities, reaching an agreement on suitable EIS and ISA governance models, endorsing and implementing the EIS.

The overall objective of the European Interoperability Strategy (EIS) study is to develop and propose a common strategy – the European Interoperability Strategy (EIS) – which will contribute to achieving cross-border and cross-sector interoperability for better and more efficient delivery of electronic public services all around Europe, the so-called European Public Services.

After having agreed on the scenarios and a concrete set of actions, the governance model of the EIS (roles, processes and responsibilities for planning, implantation, monitoring, adaptation and control) have been agreed upon and put in place in order to steer the EIS and all associated actions. The EIS governance model also makes it possible to adapt the EIS and associated actions when deemed necessary.

A first draft of this final report was presented in October 2009 to the IDABC, the Pan-European eGovernment Services Committee (PEGSCO) and the European Commission's Internal Technology Committee (CTI) meetings. At the end of October a first version was submitted to the CIOs in preparation of the 4th Member State CIO meeting and in preparation of the Malmö eGovernment ministerial Conference.

At the end of November, the consolidated conclusion of the two phases of the project was then released for public consultation. This provided the opportunity for external stakeholders to provide their comments and input to the EIS. In January 2010 the final version of this report was submitted for acceptance by the Commission. This final report proposes the framework for the implementation of the EIS with the associated action plan, the governance model and all the instruments required to ensure its monitoring and sustainability.

The structure of this report reflects the successive steps undertaken during the second phase of the EIS elaboration project; it contains four different chapters:

- This introductory chapter to this final report presents the background and context of the EIS project, with special emphasis on the second phase of the project. This chapter also presents a brief introduction to the first phase of the EIS project;
- The first chapter establishes the institutional and organisational context of the EIS project;
- The second chapter describes how the Deloitte Strategic Framework was adapted to the specific requirements and challenges of the EIS assignment. This chapter also describes how, at the governance and operational levels, the Portfolio Management Methodology was split into three successive phases: the Portfolio Design Phase, the Portfolio Management phase and the Portfolio Execution and Monitoring phase. The approach used for the three workshops conducted during the second EIS phase is also described;

- The third chapter describes the results of the strategic reflections at the level of the EIS and also at the level of the clusters and the focus areas. It should be noted that the text sets out to present the strategic considerations for each level, without repeating the same items at several levels, and thus the reader should be able to arrive at a full picture by combining the reflections at various levels. These reflections are structured around the Deloitte Strategy Framework, addressing four strategic concerns at each strategic level:
 - **Where?** What is the landscape, what is the scope, where do these activities take place?
 - **Why?** What is the reason for these activities, why do we need to act, what are the drivers?
 - **What?** What are the expected results, end products?
 - **How?** How can we reach the expected results, what are the means to get to the desired target, what are the processes, organisation, governance? The strategy, leading to an action plan.
- The conclusion summarises the key findings and suggestions for the European Interoperability Strategy and the ISA Programme. The projected next steps for the European Interoperability Strategy and the ISA Programme are also presented here.

THE EIS ELABORATION PROJECT

1. BACKGROUND AND CONTEXT

1.1 Organisation Profile

IDABC stands for the Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens.

The IDABC programme aims to encourage and support the delivery of cross-border public-sector services to citizens and enterprises in Europe, to improve efficiency and collaboration between European public administrations and to contribute to making Europe an attractive place to live, work and invest.

To achieve its objectives, IDABC issues recommendations, develops solutions and provides services that enable Member States and European administrations to communicate electronically while offering modern public services to businesses and citizens in Europe.

1.2 Interoperability and the European Interoperability Strategy

As the European Commission has pointed out, today a strong drive is needed to mobilise commitment to transforming and modernising public services in Europe. This transformation should be achieved by avoiding creating barriers to the Internal Market. For this challenging transformation to be successful, the interoperability of cross-border European Public Services needs to be addressed at the European level.⁴

Interoperability can be defined as the ability of disparate and diverse organisations to interact in the pursuit of mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations via the business processes they support, by means of the exchange of data between their respective information and communication technology (ICT) systems⁵.

Support for the interoperability of European Public Services is a core task of the IDABC programme and is explicitly requested in the Decision to implement the programme⁶.

In June 2008, during the second annual meeting of the Member State Chief Information Officers (CIOs) and the European Commission representative, it was agreed that, within the framework of the IDABC programme, a **European Interoperability Strategy** (EIS) would be developed in order to address the drive needed for improving the interoperability of European Public Services.

The European Commission requested Deloitte to complete the following project: “Supporting the European Interoperability Strategy Elaboration”, through the specific Framework Contract on Enterprise Architecture services No. DI/06211.

The main interoperability activities of the IDABC programme include the design of the European Interoperability Framework (EIF), the European Interoperability Architecture Guidelines (EIAG) and the European Interoperability Infrastructure Services (EIS).

⁴ <http://ec.europa.eu/idabc/en/document/7772> for this and the following paragraphs.

⁵ European Interoperability Framework v.2.0 (draft for discussion).

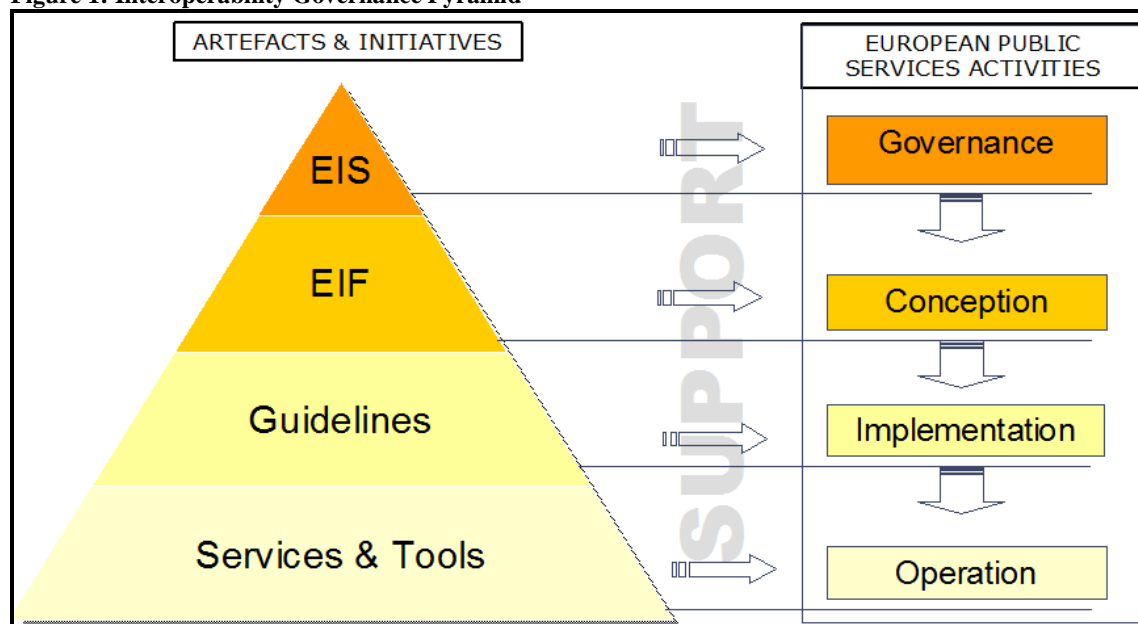
⁶ Decision 2004/387/EC “Decision of the European Parliament and of the Council on Interoperable Delivery of pan-European Services to Public Administrations, Businesses and Citizens (IDABC)”;

http://eur-lex.europa.eu/LexUriServ/site/en/oj/2004/l_181/l_18120040518en00250035.pdf

Supporting the European Interoperability Strategy Elaboration

The figure below illustrates the Interoperability Governance Pyramid. This figure shows the relationship between various interoperability initiatives which support the establishment of European Public Service activities:

Figure 1: Interoperability Governance Pyramid



Source: Draft European Interoperability Framework v.2.0 – Beta 01, p. 3.

The European Interoperability Strategy (EIS) will complement the EIF, EIAG and EIIS and steer the subsequent work on cross-border interoperability. The EIS is at the top of the governance pyramid and is directly steered by the CIOs of the Member States.

The implementation of the EIS can be defined as an action plan to address cross-border interoperability in order to facilitate the implementation of EU policies and initiatives. The goal of the EIS is to define, in cooperation and in agreement with the Member States, a vision, a problem statement and a set of focus areas comprising concrete actions with a view to improving the delivery of European Public Services through cross-border interoperability.

In order to establish a systematic approach to the governance of Interoperability at the EU level, the EIS will define the organisational, financial and operational framework for supporting cross-border and cross-sectoral interoperability as well as the exchange of information between European public administrations, taking into account existing and proposed EU programmes.

In addition, in terms of interoperability, the EIS will contribute to the future eGovernment vision beyond 2010.

The EIS, once adopted, will become a key input into the EU's new programme – 'ISA', the Interoperability Solutions for European Public Administrations⁷ – which has been proposed by the Commission. The ISA Programme will focus on those projects derived from the EIS that will contribute most to the interoperability of European Public Services.

⁷ Decision No 922/2009/EC of the European Parliament and of the Council of 16 September 2009 on interoperability solutions for European public administrations (ISA)

<http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2009:260:SOM:EN:HTML>

Supporting the European Interoperability Strategy Elaboration

2. PHASE II - APPROACH – METHODOLOGY – PROCESS

2.1 Introduction

The unique scale and complexity of the EIS project and the lack of precedents to draw on meant that Deloitte effectively started this assignment with a methodological challenge to take up.

Deloitte decided to adapt several complementary methodological approaches to the elaboration of the European Interoperability Strategy.

In this chapter, the successive methodological steps followed are presented phase per phase.

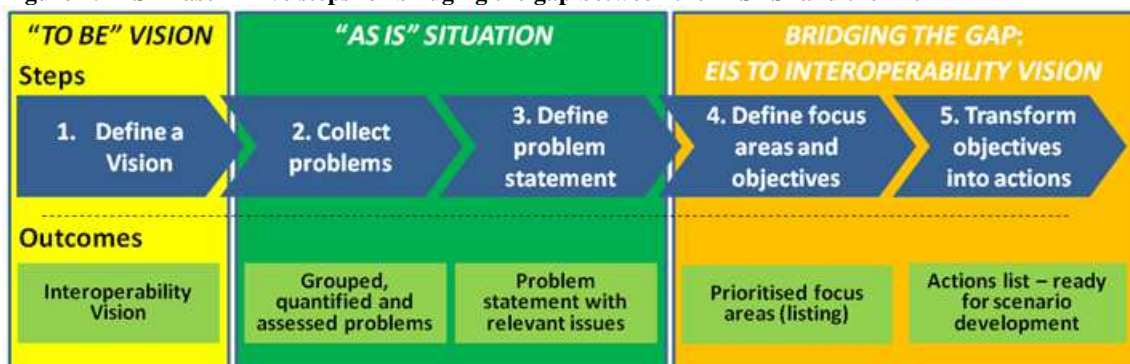
2.2 Phase I Approach

For the first phase of the project, both a top-down and a bottom-up approach were followed.

The top-down approach helped define the vision, or desired state, for European Public Services' interoperability. This vision was the first concrete outcome of the EIS project. Once the vision was defined, a bottom-up approach, supported by the interview and workshop processes⁸, facilitated the elaboration of a common view of the main interoperability-related problems between the Member States.

The Figure below illustrates the five successive steps of the first phase, as well as their related outcomes. These five steps are represented by five arrows. Firstly, the project defined a vision for interoperability. Secondly and thirdly, problem statements were defined based on interoperability problems collected during the Member State interviews. Fourthly, focus areas and objectives were identified and clustered. Lastly, a methodology for scenarios development, or how to transform the identified objectives into actions was developed.

Figure 2: EIS Phase I - five steps for bridging the gap between the 'AS-IS' and the 'TO-BE'



⁸ This common view was derived from the interviews conducted with the experts of 30 countries (of which 26 EU Member States, as well as Iceland, Liechtenstein, Norway and Turkey) and from the Problem Statement Workshop held in Brussels on March 4, 2009, with the Member States' and countries' experts present on that day. Experts from the following countries participated to the Problem Statement Workshop held on March 4, 2009 in Brussels: Austria, Estonia, Finland, Hungary, Lithuania, Norway, Slovakia, Spain, Poland, and the UK.

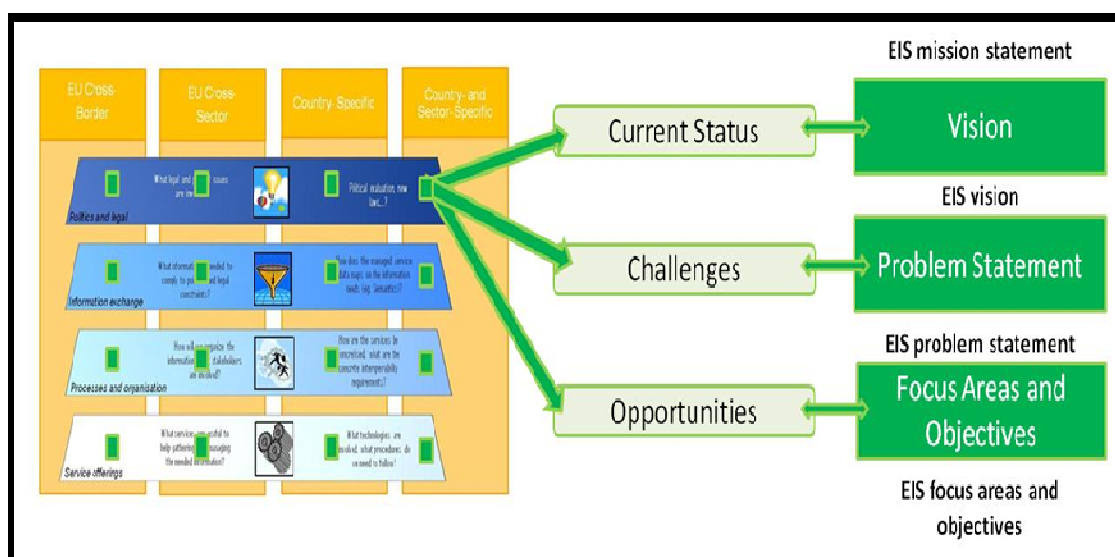
Source: Deloitte

During the first phase of the EIS project, over 40 interviews were conducted, involving both the Member States as well as several services of the European Commission.

By the end of the first phase, 26 EU Member States had been interviewed together with Iceland, Liechtenstein, Norway and Turkey. In addition, interviews took place with several members of the EIS Project Management Board and with representatives of the following Directorates-General: DIGIT, EMPL, INFSO and TAXUD. The interviews with EC representatives were tailored to the specific needs of these sector-specific stakeholders. Written feedback received from DGs COMP, EAC, and TRADE was also taken into consideration.

The Member States' and EC's current statuses (achievements, future ideas, ambition...) were used to fine-tune the vision and define what the European Interoperability Strategy should focus on.

Figure 3: EIS Interview Process



In addition to the interviews, three workshops brought together Member State representatives, and provided necessary information and feedback on the work in progress. The three Workshops were a “vision” workshop, a “problem statement” workshop and an “objectives” workshop. They provided important insights related to the associated phases of the EIS Strategy Framework.

During phase I, Deloitte tailored its Target Operating Model (or TOM), which helps communicating how strategic priorities and principles translate down to lower, more operational levels. As shown on the left side of the Figure above, this generic model has been tailored to the four layers that most influence ‘interoperability’. The ‘Politics and Legal’ layer can be found at the top of the TOM. This layer describes which political priorities and legal issues enable and support interoperability. The second layer is called the ‘Information Exchange’ layer and focuses on the data exchanged and related semantic requirements. How interoperability is organised and concretely implemented through collaboration between several stakeholders is the subject of the third layer, ‘Process and Organisation’. The concrete services delivered for cross-border interoperability and the related supporting technologies are analysed in the ‘Service Offering’ layer.

The reason for adjusting these categories of interoperability to the EIS project was, firstly, the need to apprehend the provision of European Public Services in a dynamic way. In this sense, this model made it possible to address the relationships, dependencies and underlying processes between layers.

Secondly, the TOM was used to support the consultation of the Member States experts with interviews. Thirdly, it was used to structure the approach, methodology and outcomes of the study.

2.3 Link between Phase 1 and Phase II: the clustered focus areas, and their objectives

At the end of phase I, Member States had the opportunity to comment on the EIS study Phase 1 Final Report (v.4) which presented the preliminary results of the study.

On the basis of these comments, the IDABC unit proposed a reorganised set of priorities which was presented to the Member States at the third CIO meeting held in Brussels on June 26, 2009. In this proposal, the 11 focus areas, as defined in the report, were classified into three clusters:

- **1st Priority cluster - Trusted information exchange**

This cluster covers topics such as semantic interoperability (project-based semantic interoperability, dictionaries, core components and taxonomies), information availability and usage, trust and privacy and catalogue of services.

- **2nd Priority cluster - Interoperability architecture**

This cluster includes interoperability architecture building blocks and related expertise and support as well as methodologies and guidelines.

- **3rd Priority cluster - ICT implications of the implementation of new legislations**

This cluster covers support and verification activities, assessment of ICT implications of cross-border initiatives and related legislation, and support to European public administrations in relation to the implementation of EU legislation.

In addition to the three clusters, the Commission proposed two accompanying measures. These were:

- **1st accompanying measure: Raising interoperability awareness**

- **2nd accompanying measure: Sharing of best practices using collaboration platforms**

2.4 Phase II Approach

Building on the outcomes of phase I, Deloitte opted to leverage on two specific methodologies: the Deloitte Strategy Framework and the Deloitte Portfolio Management Methodology.

As for the first phase of the project, the choice of these two methodologies reflects the need to adopt both a top-down and a bottom-up approach for elaborating the EIS.

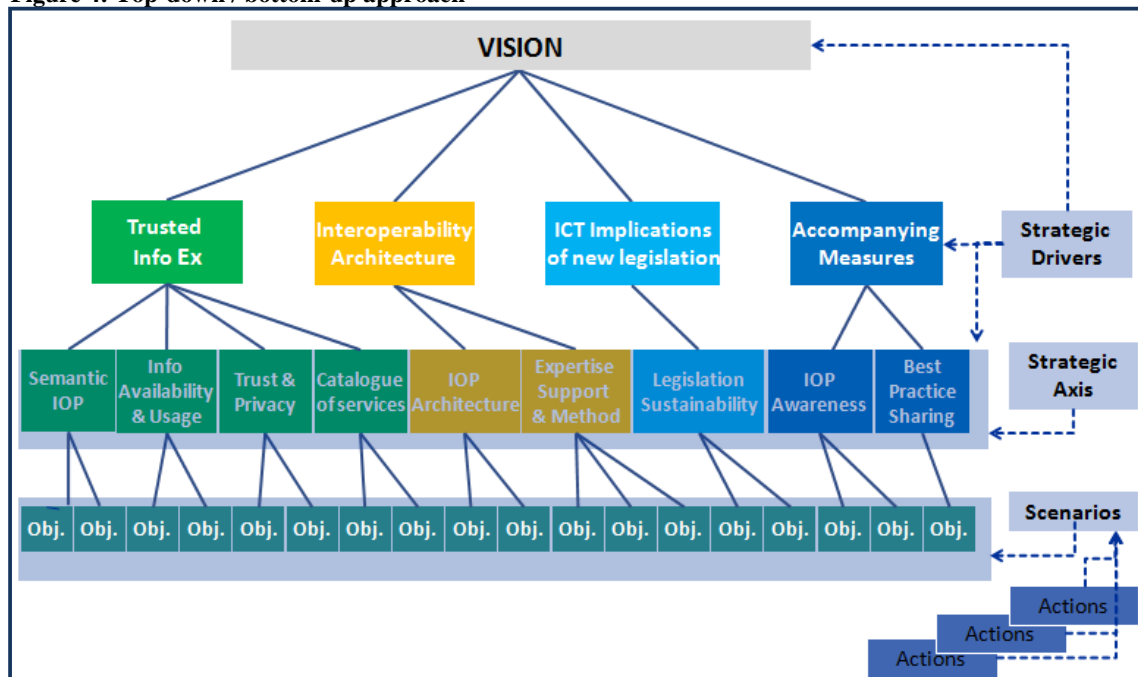
The top-down approach, supported by the Deloitte Strategy Framework, helped identify the high level strategic drivers and define high level strategic axes. Methodologically speaking, the EIS Strategy Framework applied an incremental, staged and iterative approach, taking into account the following strategic perspectives: the Growth and Innovation perspective, the Strategic Resource Management perspective, and the Managing Uncertainty and Changing Environment perspective. Alongside these three strategic perspectives, four key areas of strategic concern also provided a common lexicon to

apprehend interoperability-related issues, challenges and opportunities. These four key areas of strategic concern are summarised by the following questions: “when”, “why”, “what”, and “how”.

As for the bottom-up approach to the EIS elaboration, the Portfolio Management Methodology was split into three successive phases: the Portfolio Design phase, the Portfolio Management phase and the Portfolio Execution and Monitoring phase. This approach was leveraged at the operations and governance levels when elaborating alternative scenarios, or logical suites of actions, in the view of reaching the objectives agreed upon at a previous stage. Similarly to a portfolio of projects, the scenarios and their related actions were structured in a logical and interconnected way.

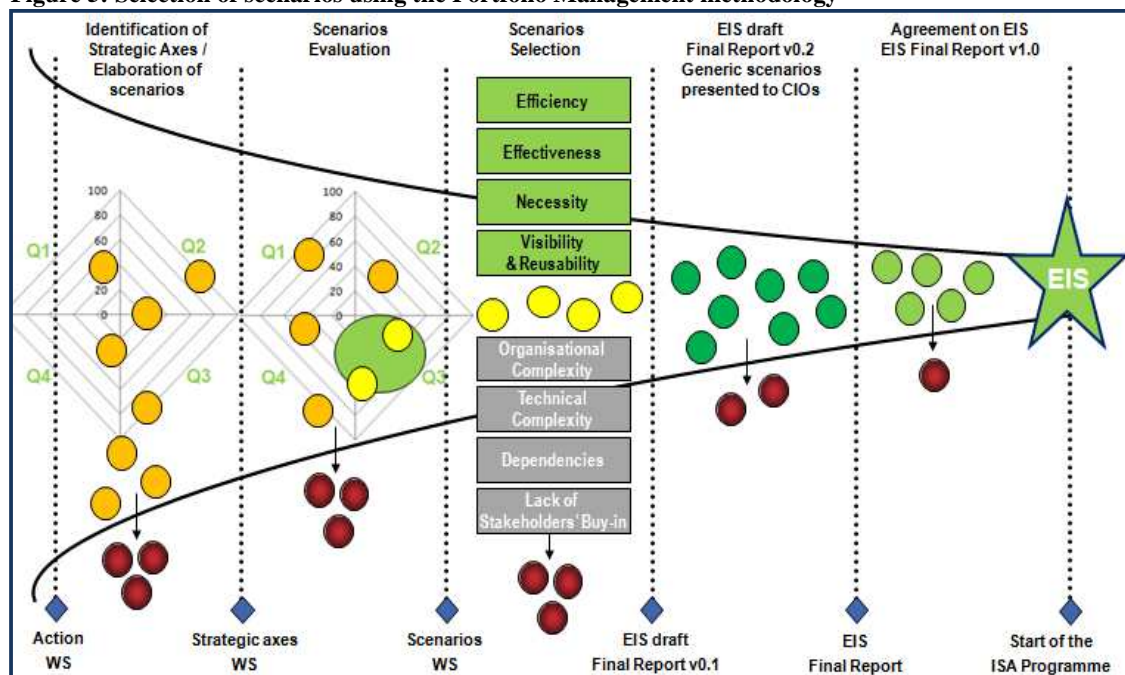
The Figure below illustrates the top-down (strategic drivers and axes at cluster and focus area levels) and the bottom-up approaches (scenarios and actions at objective level).

Figure 4: Top-down / bottom-up approach



The Figure below provides an overview of the different successive steps of the Portfolio Management methodology (see next section for further details), which helped refining the portfolio of scenarios through the funnelling of the various possible opportunities.

Figure 5: Selection of scenarios using the Portfolio Management methodology



The selection of these scenarios has been conducted on the basis of the risks and values perceived for each scenario. Potential risks include organisational and technical complexity, dependencies and lack of stakeholder buy-in, whereas value opportunities include efficiency, effectiveness, necessity, visibility and reuse.

Once the portfolio of scenario was refined after several iterative evaluations, the Portfolio Management Methodology addressed management challenges at the level of the EIS by focusing on governance, prioritisation and portfolio management questions.

The following two sections explain these two approaches and their related methodologies in more details.

2.4.1 Deloitte Strategy Framework

Through a period of research, review and consultation corresponding to the first phase of the EIS project, Deloitte developed a deep understanding of interoperability-related problems, requirements and objectives by bringing together Member States and European Commission Expert Groups.

The second phase focused on elaborating the European Interoperability Strategy together with key stakeholders. This strategy constitutes an important guide to the further development of the interoperability of cross-border European Public Services in the European Union.

For elaborating the EIS during this second phase, the Deloitte Strategy Framework served as one of the foundations for our methodological approach.

The Deloitte Strategy Framework was therefore adapted to the EIS project in order to address interoperability-related challenges in a comprehensive and systematic manner. This strategy framework provided a set of analytical perspectives and approaches that leverage Deloitte intellectual property (IP) and seminal research.

The EIS strategy framework applies an incremental, phased and iterative approach to developing interoperability capabilities, taking into account the following strategic perspectives:

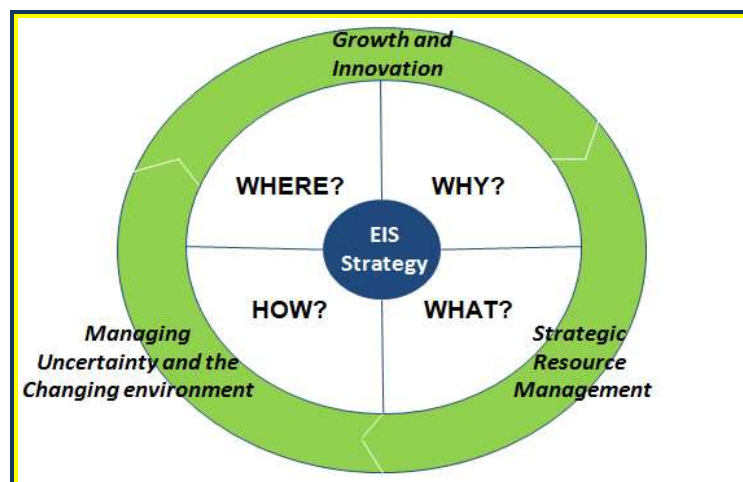
- **Growth and innovation perspective:** allows scope for change as new opportunities and innovations arise, as interoperability awareness, maturity and intellectual capital evolve, and as lessons are learned and technology is developed further;
- **Strategic resource management perspective:** manages financial as well as human resource capacities constraints.
- **Managing uncertainty and changing environment perspective:** manages underlying political, economic and legal uncertainties and variations across Member States and sectors;

The Deloitte Strategy Framework also provided a common lexicon for adopting a comprehensive way of understanding interoperability-related issues, challenges and opportunities. This mindset was structured around four key areas of strategic concern, which were summarised in the following questions:

- **When?** What is the landscape, what is the scope, where will the activities take place?
- **Why?** What is the reason for these activities, why do we need to act, what are the drivers?
- **What?** What are the expected results, end products of these activities?
- **How?** How can we reach the expected results, what are the means to get to the desired target, what are the processes, organisation, governance? Defining the strategy and related actions.

Methodologically, for the EIS to be comprehensive and balanced, these four strategic concerns had to be clearly answered. The figure below illustrates the four areas of strategic concerns at the centre. At its periphery, the three arrows reflect the three strategic perspectives adopted during the elaboration of the EIS.

Figure 6: The Deloitte Strategy Framework



The EIS strategy framework also seeks to provide sufficient flexibility for individual Member States, local authorities, and specific sectors, to determine how they go about interoperability implementation within a common framework and set of strategic objectives in order to maximise benefits and efficiencies.

2.4.2 Deloitte Portfolio Management Methodology

For the EIS, it is the top layer of the management pyramid (see Figure below), the Portfolio Management methodology, which helped translating the vision and focus areas' objectives into a fully fledged Strategy for Interoperability in Europe. It is also the Portfolio Management methodology which helped establishing the governance model for the EIS. It is this Portfolio Management methodology which will be most useful for the implementation of the EIS.

The intermediate level of the management pyramid, Program Management and its methodology, help to manage the execution of large organisational and trans-European programmes such as the ISA Programme. This includes the vision, policy, governance structure, integrated work planning, scope, and quality of such programmes. It also assesses and plans for risks, identifies and resolves issues, and monitors and communicates on progress achieved. The Program Management methodology could be a useful tool for the future governance of the ISA Programme, as well as other programmes.

At the bottom level of the management pyramid; Project Management helps to plan, execute, and monitor individual projects (potentially in the context of programs) within set time and budgetary constraints. It measures performance and escalates issues, risks, etc, where and when necessary. The Project Management methodology is also a potential useful tool for the management of projects related to the future implementation of the EIS.

It is the top-level Portfolio Management Methodology tailored to the EIS project that is further developed in the section below.

Figure 7: The EIS / ISA Management Pyramid



The strengths of Deloitte Strategic Portfolio Management Methodology is its flexibility, as it allows through an iterative process the continuous alignment of projects and initiatives with the scenarios chosen for reaching the strategic objectives set out in the EIS.

From this generic framework, the EIS study particularly elaborated on three successive steps which are consistently reflected in the three phases of the portfolio cycle applied to the second phase of the project:

- **The Portfolio Design Phase**, during which various scenarios for achieving the objectives were elaborated. This first phase was supported by the scenario methodology developed during the first phase of the project;
- **The Portfolio Management Phase**, during which scenarios were evaluated in the light of previously agreed risk and value criteria and which refined the portfolio of scenarios by funnelling possible scenarios. This phase also saw the elaboration of the EIS and ISA governance models for managing these scenarios: at the level of the EIS itself, portfolio management came into play, whereas at the level of the ISA Programme, both programme management and project management came into play.
- **The Portfolio Execution and Monitoring Phase**, during which the basis for monitoring the realisation of the chosen scenarios was established, was supported by the Balanced ScoreCards methodology. During this phase, key performance indicators (KPIs) were identified. These will be used later to reflect on the tactical execution of the scenarios in tangible actions and results evaluated in terms of the agreed EIS.

This Portfolio Management methodology was applied to the second phase of the EIS project. The added value of this methodology is the progressive refinement of the scenario portfolio through the funnelling of the different opportunities, or scenarios.

To that extent, the three successive workshops conducted during the second phase of the project were centred on the elaboration of scenarios for the EIS and their selection based on value and risk criteria.

Deloitte applied a combination of both a top-down and a bottom-up approach for the elaboration of scenarios. The top-down approach to the elaboration of scenarios focused on the identification of strategic drivers and strategic axes at cluster and focus area levels. From a bottom-up perspective, the elaboration of scenarios was conducted by means of scenarios (or logical suites of and actions aimed to achieve a specific objective).

The elaboration of scenarios for achieving results on the priorities identified during phase I included the following:

- Identifying strategic drivers for each focus area and related objectives by identifying the major factors and trends which could shape or influence the future of a focus area and its objectives;
- Identifying strategic areas along the strategic axes and drivers;
- Elaborating scenarios, or focused sets of concrete actions aimed at reaching given objectives, combining both top-down and bottom-up approaches;

3. OUTCOMES PHASE II: STRATEGIC DIRECTIONS

3.1 Introduction

This chapter describes the strategic directions for the European interoperability efforts, based on the strategic objective of reaching the vision for interoperability.

In 2015, interoperability has significantly fostered European Public Services delivery through:

- *Appropriate governance organisation and processes in line with European Union policies and objectives;*
- *Trusted information exchange enabled by commonly agreed, cohesive and coordinated interoperability initiatives, including completion of the legal environment, elaboration of interoperability frameworks and agreements on interoperability standards and rules.*

The strategy for interoperability in Europe has to reflect the actions needed to reach the desired end state, the vision set out above. In order to ensure the alignment between the vision and the various levels of the strategy, a strategy framework was used. All the reflections on the highest level, the EIS level, are designed with this vision in mind.

As described in the previous chapter (Chapter 2: Approach – Methodology - Process) the scope of interoperability is large. In order to manage this scope, Deloitte worked at various levels: at EIS level, at cluster level and at focus area level.

The following chapter describes the results of the strategic exercises at these three levels. It should be noted that the texts aims to present the strategic considerations for each level, without repeating the same items at several levels, the reader should thus be able to get an understanding of the full picture by combining the considerations made at various levels. These considerations are structured around the Deloitte Strategy Framework, which addresses, at each level, four questions:

- **Where?** What is the landscape, what is the scope, where do these activities take place?
- **Why?** What is the reason for these activities, why do we need to act, what are the drivers?
- **What?** What are the expected results, actions, end products?
- **How?** How can we reach the expected results, what are the means to get to the desired target, what are the processes, organisation, governance?

In addition to these elements, some external drivers are reflected at the level of the EIS, such as **growth and innovation, strategic resource management and managing uncertainty and the changing environment.**

3.2 Strategic directions at the EIS level

3.2.1 Introduction

With the help of the EIS, a plan of action is being designed in order to improve interoperability within the European Union (and other participating countries such as candidate countries and EFTA countries). Interoperability is defined as the ability of diverse systems and organisations to work together (inter-operate). This strategy will only focus on interoperability in cross-border services delivered between public administrations.

3.2.2 Today's interoperability drivers

On the political level, interoperability is needed to foster the enhancement of the common market via the four freedoms and, in particular, mobility in Europe. Interoperability supports the economic integration of the countries and well as the consolidation of the internal market. Other European legislative frameworks also require interoperability between administrations at all levels. Interoperability thus indirectly impacts the realisation of several European policies and initiatives.

Today, the challenge facing public services in the EU is to answer the needs of mobile citizens and businesses in a seamless manner and across borders. Services need to be fast, reliable and accurate, and at the same time reachable via various distribution channels. Interoperability will support the provision of European Public Services to citizens, to business, and between administrations, with the aim of having more efficient, increased and seamless service provision.

Today, several organisations are under pressure for cost cutting and increased efficiency. This has put interoperability under the spotlight. There needs to be concrete coordination between the EC and the Member States on interoperability activities in order to deliver greater impact and focus. At the same time, administrations should be able to concentrate their efforts and not avoid spending resources on the same developments many times over. This approach results in a cohesive and consolidated approach, in the respect of green values.

3.2.3 Tomorrow's challenges

Today we are in the driving seat of defining a strategy for interoperability based on the information we have collected. As the world around us is rapidly changing, we also need to consider external factors impacting the future of this strategy. The strategy is as valuable as we make it and above all it is not a static paper. It needs to be reviewed and updated on a regular basis taking the environment and external challenges into account.

Here are three EIS external challenges to be considered:

Growth and innovation: new opportunities and possibilities are offered by developing technology and innovation. There is a need to stay compatible with new technologies and emerging concepts. Interoperability activities could even facilitate innovation by anticipating the future needs of the public sector. In addition, the level of maturity, awareness and intellectual capital outside and inside the organisation is growing, offering opportunities for improvement.

Strategic resource management: today, as organisations struggle with reduced resources, resource management and prioritising are crucial. Changes in priorities require resource reallocation. In addition, periodic changes sometimes require extra resources. This might also have an impact on the resources available for the EIS implementation.

Managing uncertainty and the changing environment: in times of economic crisis, uncertainty adds a bitter flavour to all activities. Moreover, issues like climate change and environmental concerns drive us to search for new ways of working. Political decisions and legal requirements affect and change priorities in organisations. No doubt this will all have an impact on the implementation of the EIS.

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3.2.4 Outcome of the EIS

The expected outcome of the EIS is to achieve the vision and the related objectives as defined at the CIO meeting of June 26, 2009 and to implement the EIS action plan. The objectives will be achieved through the clusters and their focus areas and, and further, via a set of activities (scenarios).

The ultimate outcome is greater interoperability, enabling the improved provision of European Public Services and thus supporting the political and strategic goals of the European Union.

3.2.5 EIS principles

EIS activities will follow a defined set of principles: green, transparent activities based on openness and innovation, continuous improvement, community of shared interest and trust. (See details in the table below).

Principle	Explanation
Green	The EIS activities will be reusable, based on sustainable approaches.
Transparent	The EIS activities are transparent and offer the possibility of traceability.
Openness and innovation	EIS activities are open, conforming to standards, allowing further developments and improvements and are vendor-independent. EIS activities follow the latest developments and welcome innovation.
Continuous improvement	EIS activities are based on continuous assessment and improvement.
Community of shared interest	EIS activities serve a community of shared interest. This can be on various levels: interoperability expert's community, European Public Services community or even the larger European community.
Trust	EIS activities are based on mutual trust. Public administrations should be assured that all transactions are secure, reliable and trustworthy.

Table 2: EIS Principles

3.2.6 Clear Commitment is necessary

Most probably even more important than the set scenarios and principles, a joint commitment from both the European Commission and the Member States is necessary. This means defining the roles and the responsibilities of all parties for all the proposed activities.

An appropriate governance model with supporting processes will support the carrying out of the EIS. This includes regular revision and updates to the EIS, in order to respond to changing external challenges.

3.2.7 Moving from EIS to Clusters

This strategy will be set out in greater detail in the following sections of this chapter, which present each cluster and their focus areas. Four clusters were identified - Interoperability is all about:

The trusted information exchange cluster, which defines how information needs to be treated to be able to achieve interoperability;

The interoperability architecture cluster, which defines how the infrastructure needs to be organised to obtain interoperability;

The ICT implications of the new legislation cluster, which defines what the legal framework is in which interoperability can operate;

The accompanying measures cluster: which defines the cross-cluster and cross-focus-area measures needed to achieve the objectives of the EIS.

3.3 Strategic directions at the Cluster and focus area levels

This chapter presents the four clusters mentioned previously and their related focus areas in the context of the strategic framework.

First the strategic considerations at the cluster level are presented. After the cluster specific considerations, each trusted information exchange related focus area is presented, with the help of the strategic framework. In addition, following the same strategic approach and the four questions, mapping per question links the clusters and focus areas.

3.3.1 Cluster: Trusted Information Exchange

3.3.1.1 INTRODUCTION

Trusted information exchange deals with information that is exchanged **cross-border**. These activities typically take place in **sector specific** projects and will be conducted in collaboration with the outside world.

This cluster deals more specifically with topics such as semantics, information availability and usage, trust and privacy and the catalogue of services.

3.3.1.2 BACKGROUND

Seamless data exchange is becoming ever more important in Europe. It is necessary to overcome some very concrete problems that are preventing trusted information exchange. It is understood that countries have different administrative, technical and linguistic backgrounds. Therefore, solutions for the technical, semantic and organisational dimensions of interoperability are needed.

By achieving the **trusted** information exchange environment we can ensure information exchange between the stakeholders involved. There is a need for agreements and guidance on information exchange related topics – both at the EC and in the Member States.

3.3.1.3 GOALS / KEY DELIVERABLES

In this cluster, the key deliverables and results will relate to agreements and alignments on specific topics.

The EC will have a strong mandate for guidance and for leadership, whereas the management of the information remains with the Member States. In order to achieve this, clear agreements have been reached on the roles of the EC and the Member States – both having an important role to play.

3.3.1.4 STRATEGY

The goals in this cluster will be achieved by applying a **progressive approach**, via commonly agreed and cohesive interoperability initiatives. This will be supported by agreeing on rules and guidelines.

The activities will be following a **project-based** approach, respecting privacy and thus making possible reliable and trustworthy information exchange.

The detailed strategy for this cluster will be presented under the focus areas below. Each focus area covers a specific topic:

- Semantic interoperability: covers how the meaning and syntax of information should be addressed;
- Information availability and usage: addresses the question of where and which information is available and what can be done with this information;
- Trust and privacy: defines how information can be accessed in a secure and trustworthy way;
- Catalogue of services: points to the services that are available to access information.

3.3.1.5 LINKING THE CLUSTER ‘TRUSTED INFORMATION EXCHANGE’ TO THE FOCUS AREAS

In this chapter we have taken the strategic framework questions - where, why, what and how - and linked them to the cluster and its focus areas. By doing this it is possible to see the complete picture at the cluster level, from a more generic to a more detailed level.

Where do we operate in the trusted information exchange cluster and its focus areas?			
Cluster: Trusted Information Exchange			
<ul style="list-style-type: none"> • In the interoperability landscape, these activities focus on cross-border information exchange; • These activities typically take place in sector specific projects; • Trusted information exchange activities will be conducted in collaboration with the outside world. 			
Focus area: Semantic Interoperability	Focus area: Information availability and usage	Focus area: Trust and privacy	Focus area: Catalogue of services
• Semantics of	• Most activities at MS	• Across EU	• Business services

information; <ul style="list-style-type: none"> • Multilingual environment. 	level, some at EC level; <ul style="list-style-type: none"> • In coordination and collaboration with the outside world. 	borders, but also at local and Member State levels; <ul style="list-style-type: none"> • In EPS, human and business transactions. 	which provide access to information.
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Why do we operate in the trusted information exchange cluster and its focus areas?

Cluster: Trusted Information Exchange

- We need to overcome concrete problems that are preventing trusted information exchange, such as legislative, technological or semantic issues;
- By achieving a trusted information exchange environment we can ensure information exchange between the stakeholders involved;
- There is a need for **agreements and guidance** on information exchange-related topics – both at the EC and in the Member States.

Focus area: Semantic interoperability	Focus area: Information availability and usage	Focus area: Trust and privacy	Focus area: Catalogue of services
<ul style="list-style-type: none"> • To overcome divergent data interpretations; • To overcome divergent data formats and models; • To overcome problems of meaning within a multilingual environments. 	<ul style="list-style-type: none"> • To overcome challenges – neither subsidiarity nor legislation should prevent us from exchanging information; • Access to high-quality information is critical for service provision; • Harmonised service levels make possible development of reliable European Public Services. 	<ul style="list-style-type: none"> • Lack of trust • Need for legal harmonisation of personal data protection, rules and security levels; • Need for data security and protection for cross-border information exchange; • Overcome the cultural divide. 	<ul style="list-style-type: none"> • To find and build your own service using existing services; • To share best practices; • To share sustainable solutions; • To share interoperability knowledge.

What are the expected results in the trusted information exchange cluster and its focus areas?

Cluster: Trusted Information Exchange

- **Agreements and alignments** on specific topics will have been achieved facilitating information exchange;
- **The EC will have a strong mandate** for guidance and leadership, whereas the management of the information still remains with the Member States;
- **Clear agreements** have been reached on the roles of the EC and the Member States – both having an important **role** to play.

Focus area: Semantic interoperability	Focus area: Information availability and usage	Focus area: Trust and privacy	Focus area: Catalogue of services
<ul style="list-style-type: none"> • Concrete 	<ul style="list-style-type: none"> • Meaningful 	<ul style="list-style-type: none"> • A strategy for trust and 	<ul style="list-style-type: none"> • A Catalogue

semantic assets; <ul style="list-style-type: none"> • Expectations management with standardisation organisations. 	information is available; <ul style="list-style-type: none"> • Various elements have been developed: good practice observatory, EU framework, a pilot for federated information management; • Information access is facilitated by metadata; • Service level agreements have been established to support the above. 	privacy is elaborated; <ul style="list-style-type: none"> • The levels of trust and privacy are significantly enhanced; • Authentication solutions are provided alongside the Stork project; • Authentication/ Security levels are mapped; • A common security classification methodology is in place; • Existing regulatory instruments are customised for reuse (i.e. IMI). 	of services: in the form of a database or structured document; <ul style="list-style-type: none"> • Search engine for MS catalogues; • Information on the service.
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How will we reach the expected results in the trusted information exchange cluster and its focus areas?

Cluster: Trusted Information Exchange

- The results will be reached by applying a **progressive approach**, via commonly agreed and cohesive interoperability initiatives. This will be supported by agreeing on rules and guidelines;
- The activities will follow a **project-based approach**, respecting privacy and thus leading to reliable and trustworthy information exchange.

Focus area: Semantic interoperability	Focus area: Information availability and usage	Focus area: Trust and privacy	Focus area: Catalogue of services
<ul style="list-style-type: none"> • Agreement on interoperability standards and rules; • Content, format and means of info exchange are agreed; • Working together with standardisation organisations; • EC leadership. 	<ul style="list-style-type: none"> • Agreeing and gaining a political mandate for the activities; • Respecting subsidiarity, finding the correct balance; • Respecting the principle of availability; • By reaching achievements step-by-step; • Developing the SLAs by collecting best practices. 	<ul style="list-style-type: none"> • By respecting privacy: reliable and trustworthy • Via related focus areas: semantic IOP, Information availability and usage and catalogue of services 	<ul style="list-style-type: none"> • Through a catalogue of services • Centralised structure, decentralised feed • Complete and high quality information • Win-win approach

Table 3: Trusted information exchange

3.3.1.6 FOCUS AREAS

3.3.1.6.1 Focus area: Semantic interoperability

The objectives for this focus area, as defined at the CIO meeting, are:

- *Agree on data formats for both sector-specific or cross-sector information (including multilingualism as support when relevant);*
- *Agree on dictionaries, core components and taxonomies (including multilingualism as support when relevant).*

In order to achieve the objectives set out above, the four strategic questions have also been addressed on the focus area level and further elaborated.

Where is the semantic interoperability domain?

According to the **Institute of Electrical and Electronics Engineers** (*IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries*. New York, NY, 1990.), interoperability is defined as: 'The ability of two or more systems or components to exchange information and to use the information that has been exchanged.'

According to **ISO/IEC 2382-01, Information Technology Vocabulary, Fundamental Terms**, interoperability is defined as follows: 'The capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units'.⁹

Semantic interoperability then means *the ability of any communicating entities to share unambiguous meaning. The sender must be able to reliably transmit all necessary information; the receiving entity must be able to correctly interpret its interlocutor; and both must be aware of, and agree upon, each other's behaviour for given interactions*¹⁰. Within semantic interoperability, the goal is to agree on data formats, dictionaries, core components and taxonomies. Agreement on the data format means that the structure of the data needs to be decided upon. A data dictionary is a centralised repository of information about data covering for example, meaning, relationships to other data, origin, usage and format¹¹. The core components are the syntax-neutral and technology-independent building blocks that can be used for data modelling¹². Taxonomy means the practice and science of classification.¹³

A level of multilingual support needs to be added to semantic interoperability. Multilingualism needs to be added from the beginning of the strategy. It must not be overlooked in an EU environment and it would be more difficult to add this requirement later than to take it into account from the beginning.

⁹ Source: Semic.eu

¹⁰ Source: Wikipedia

¹¹ Source: Wikipedia

¹² Source: Wikipedia

¹³ Source: Wikipedia

Why do we need a semantic interoperability?

Semantic interoperability is together with the interoperability architecture the technical cornerstone of interoperability. A strategy on semantic interoperability is thus necessary to make sure that data interpretations can converge on the same interpretation. Data format and models need to be aligned and the meaning needs to be clear within a multilingual environment. Without this strategy, only a strategy on Member State level would be pursued. This Member State strategy would not imply that interoperability between Member States would be possible. That is why a common approach is needed.

What are the expected results in semantic interoperability?

Concrete semantic (interoperability) assets are the output of this focus area. Semantic (interoperability) assets are *resources that support the exchange of data in distributed information systems*. SEMIC.EU provides syntactic and semantic interoperability assets to its users. Syntactic assets define common data structures, e.g. XMLS schema. Semantic assets, on the other hand, deliver a central terminology to ensure that data elements are interpreted in the same way by communicating parties. Semantic interoperability assets, e.g. taxonomies or code lists, are particularly relevant in the multilingual context of the European Union¹⁴. These assets don't have to be created by the EC/MS but can be adopted from international standardisation organisations where the EU agrees to implement those external assets.

How are we going to reach the expected result?

Within the EC there is already the SEMIC initiative which *supports meaningful data exchange for eGovernment projects*. Its core feature is a repository that provides reusable interoperability assets, e.g. XML Schema or taxonomies, for pan-European eGovernment projects. It aims to facilitate data exchange within the European Community¹⁵. As this initiative has proven its worth, it should be continued with certain adjustments to its goals. It should drive the harmonisation and convergence process and have a stronger mandate to spread common methodologies, frameworks and tools. It should also monitor the adoption of semantic assets and facilitate continuous improvement.

The Semic initiative has already matured in its modus operandi. New resources in the domain of semantic interoperability need to be deployed to collaborate with standardisation organizations for semantic asset creation. The result of this collaboration should be international assets where the European Commission should pursue a stronger mandate to drive the adoption of international assets within EU public administrations, including the possibility of mandating their use when appropriate. This scenario will take time. Within the correct scope there is a basis of support from the Member States for this approach when it has perceived advantages. The focus on asset creation should be on cross-border needs identified in concrete projects.

Along with asset creation the quality assurance of these assets need to grow. There should be convergence within the EU on the same assets. The mandate of the EC QA process should be reinforced.

While creating new semantic assets, the notion of multilingualism should already be incorporated. The EC should reach out to existing standardisation organizations to stimulate the development of multilanguage solutions. The solution to multilingualism should not be an EC specific solution.

¹⁴ Source: Semic.eu

¹⁵ Source: Semic.eu

All of this of course, requires adequate support and coaching. Common methodologies need to be created. Through enhanced integration into existing standardisation organisations, this support can also come from outside. Knowledge and expertise should be fostered inside the EU.

Later on, the EC will stimulate various member states to collaborate in asset creation and in extending the market share of Member State initiatives. The EC will provide guidelines, platforms and repositories to facilitate the collaboration process.

Table 4: Semantic interoperability

3.3.1.6.2 Focus Area: Information availability and usage

The objectives for this focus area, as defined at the CIO meeting, are:

- *Achieve significant improvement on the respect of the ‘single entry of data’ principle;*
- *Achieve data consistency and high quality;*
- *Agree on metadata to support the access to data;*
- *Ease the use and exchange of data and agree on who can access data when and how;*
- *Use SLAs in the provision of basic services for enabling European Public Services delivery.*

In order to achieve the objectives set out above, the four strategic questions have also been addressed on the focus area level and further elaborated.

Where is the information availability and usage domain?

Information availability and usage covers the actions related to the access of information leaving to one side specific notion of trust or privacy, which is discussed under the next focus area. It focuses only on the availability of information for cross-border exchange. Following the Subsidiarity principle, the information resides and is managed within the Member States.

Why do we need information availability and usage?

Semantics tackles the problem of the meaning of data within the interoperability story. The architecture structures the building blocks (and services) which are the technology to access data. But these two focus areas alone do not solve the problem of finding the data and providing a framework to access the information itself. This cluster focuses thus on the availability of information, and is accordingly, an essential element in the construction of the European Public Services.

What are the expected results in terms of information availability and usage?

As this focus area is all about the availability of information, the logical result is that meaningful information is available. As the information is owned and managed at the Member State (or lower) level, the solution has been implemented in the Member States themselves. Concrete projects driving information availability have been created with the support of a strong political mandate.

This mandate is the most important driver of this focus area. The services themselves, which make this technically possible, are part of the interoperable architecture focus area.

Meta data guides the access to data. In addition, a central library of metadata is available to the Member States.

How are we going to reach the expected result?

Achieving a strong political mandate to act in this area is important and should thus be considered a priority.

In addition to this political mandate it is important that Member States agree which service levels can be agreed upon. Here the EC should steer a common approach on the SLAs, which would be acceptable to all Member States. It would be difficult to manage the services if every Member State had different service levels in one sector. These service levels can differ from sector to sector or have specificities.

As the notion of Subsidiarity is important in this focus area, the role of the EC is only to coordinate efforts. The EC should guide the Member States and establish a repository of best practices. The Member States remain the data owners and in charge of managing the service and information. This calls for a federated approach.

The EC should take the lead in creating a central library of metadata. This should be a joint exercise with the Member States collecting all available meta-data and structuring it into a library. This meta data library can in turn be reused in the future for other data sources.

Table 5: Information availability and usage

3.3.1.6.3 Focus area: Trust and privacy

The objectives for this focus area, as defined at the CIO meeting, are:

- *Agree on data protection, confidentiality and security levels;*
- *Trust and rely in data collection and exchange;*
- *Improve transparency and traceability of the use of EU citizens businesses and administrations' information.*

In order to achieve the objectives set out above, the four strategic questions have also been addressed at the focus area level and further elaborated.

Where is the Trust and Privacy domain?

Trust is an essential pre-requisite for connecting public administrations with people and businesses in effective human and business transactions. In our society it builds on the rule of law and stable democratic institutions, as well as on elements like security, privacy, transparency, accountability and reputation.

Trust is a broad and subjective concept. Furthermore, in the electronic realm, trust is a discretionary decision, with one party voluntarily extending it to another.

Service providers and end-users interacting electronically face the challenge of measuring the trustworthiness of parties and systems at the other end of an information exchange. People currently

have few means of assessing and evaluating potential interactions and are often unable to make informed decisions about the relative risk of engaging.

Today the main sources of trust are past experience, reputation, knowledge of the technology used in delivering a service and possibly the involvement of a trusted agent. Though useful, these sources do not yet adequately equip people to distinguish relative risk levels in different contexts.

Why do we need Trust and Privacy?

The time is now ripe to transpose social expertise and related assets so as to bring accountability, transparency, security and the rule of law generally into the electronic realm. Governments, technology companies, citizens and other stakeholders can work together to develop these trustworthy ICT-related services.

However, with ICT increasingly pervading all human activity we also see worrying developments with respect to crime and the erosion of privacy. It is essential to safeguard the European social 'acquis' in a future world where many human and business activities are served by complex eServices and technology infrastructures.

The privacy and security of European citizens and their trust in the stability of European society stem from laws and institutions that have been constructed to guarantee justice, liberty and democracy. These fundamentals are supported with a democratically acceptable mix of mechanisms for accountability, transparency, security and the enforcement of the rule of law. Citizens follow democratically crafted rules, and violators can, in principle, be identified and held accountable.

The identified reasons for such actions are the following:

- The lack of trust often prevents cross-border information exchanges;
- There is a need for legal harmonisation of personal data protection rules and security levels;
- There is a need for data security and protection for cross-border information exchange;
- There is a need to overcome the cultural divide in the trust and privacy field.

What are the expected results in terms of Trust and Privacy?

The expected results of trust and privacy for cross border information exchange are the following:

- A strategy for trust and privacy is elaborated;
- The levels of trust and privacy are significantly enhanced;
- Authentication solutions are provided alongside the Stork project;
- Authentication/Security levels are mapped across the EU;
- A common security classification methodology is in place;
- Existing regulatory instruments are customised for reuse (i.e. IMD);
- As trust and privacy rely totally on transparency and traceability, a study should be carried out to trace where data comes from and where data is going to.

How are we going to reach the expected result?

Rather than focusing on trust per se, the EIS should focus on trustworthiness – working to promote trustworthy ICT-related services and products that can amplify creativity, growth and investment based on satisfactory levels of trust and privacy.

The European Interoperability Strategy could aim at producing innovative services and solutions which bring new attractive ways of living, working and travelling for the citizens of the EU. This will be achieved by stressing the importance of trust and privacy in the exchange of information. In order for these services and solutions to be accepted by citizens, Member States, the EU and businesses must be perceived as trustworthy; they must ensure a trustworthy experience of sense and simplicity for businesses and citizens.

The EU and the Member States should be liable and accountable for the use of citizens' personal data. They should place particular emphasis on openness, transparency and traceability.

Central to this vision shall be recognition of the importance of the rule of law, security and privacy and other core democratic freedoms in contributing to trustworthiness.

The EIS should translate this vision into a trust and privacy agenda for research and innovation, develop concrete use cases and coordinate with other initiatives for a broader dialogue on Trust and Privacy.

The means of reaching these objectives are the following:

- The provision of support to existing initiatives (i.e. Stork and the mapping of authentication levels);
- The mapping of authentication levels onto each other in a distributed manner and using a Proxi and/or a Middleware approach;
- The customisation, update and reuse of legal instruments, such as the IMI and the Data Protection Directive.

Table 6: Trust and privacy

3.3.1.6.4 Focus Area: Catalogue of services

The objectives for this focus area, as defined at the CIO meeting, are:

- *Establish an EU catalogue of services at EU and Member States levels;*
- *Ensure public administrations' knowledge of available services and business processes.*

In order to reach the objectives set out above, the four strategic questions have also been addressed on the focus area level and further elaborated.

Where are the actions related to the catalogue of services located?

A catalogue of service is a list of services that an organization provides to its users.

The objective to be achieved in the 'catalogue of services' focus area is to implement a catalogue of services at EU and Member State levels and to ensure that public administrations' know about available services and business processes.

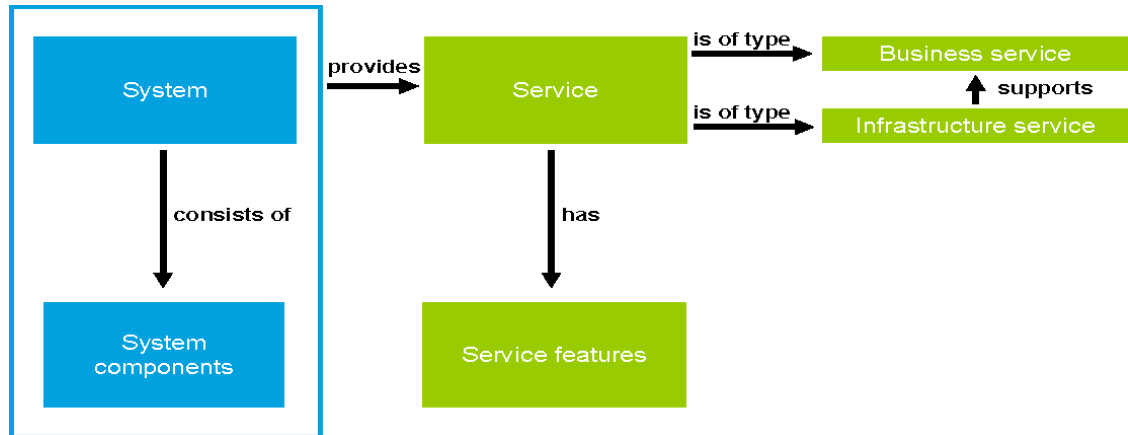
Services need to be stored in this catalogue. The term 'service' refers to a *discretely defined set of contiguous and autonomous business or technical functionality*¹⁶, making it important to distinguish business services from infrastructure services.

¹⁶ Source: Wikipedia
Supporting the European Interoperability
Strategy Elaboration

A business service is a 'business functionality' provided by a system to support one or more business processes and which is tangible for end-users. An infrastructure service is a generic 'technical functionality' of a system that supports the delivery of one or multiple business services and which is not directly accessible to end-users.

A service, whether of business or infrastructural nature, has one or more service features. A feature is a distinctive characteristic of a service.

The terms introduced above and their relationships are illustrated in the figure below:



The catalogue of services will only include business services.

Why do we need actions under this focus area?

The reason for creating such a catalogue is that there is a problem with organisation and processes. During the course of the project, the problems together with their root causes were identified. It was observed that there is a lack of sharing of best practices; a lack of reuse of sustainable solutions; a lack of skills and resources; a lack of integrated business processes; etc. In order to overcome this problem and its root causes, a platform to communicate and share best practices, sustainable solutions and resources, needs to be developed. A catalogue of services would be this platform. The catalogue would collect all information on business services in order to share the best practices, sharing reusable services, sharing knowledge (hence skills) and provide transparency on all available service so that business processes can be aligned and integrated.

The catalogue of service would be the central resource of all service information. Through the catalogue, everybody in the organisation would have the services in view which are supplied to users, be aware how they are delivered, how these services have to be used, for what purpose and which quality level may be expected by the client¹⁷. Only active and approved services would be included in this catalogue. It would contain policies, guidelines and responsibilities, as well as prices, service level arrangements and delivery conditions. When this catalogue is operational, incidents and request for change can also be linked to a service.

What are the expected results of the catalogue of services focus area?

A catalogue of services provides information on which services are available, how to use them, what their current status is and where they are located physically. Each entry in the service catalogue is

¹⁷ Foundations of IT Service Management Based on ITIL V3
Supporting the European Interoperability
Strategy Elaboration

described by:

- a unique service name;
- a service description;
- service attributes such as inputs, outputs and usage guidelines;
- service location(s) that provides the technical address of centralised and decentralised services;
- a service versioning that makes it possible to simultaneously operate different versions of services. It means that systems do not necessarily have to update their configuration each time a new version of a service becomes available;
- a service 'Request for change (RFC)' which allows users to request changes to the provided services. It makes sure that new requirements can be taken into account.

How are we going to reach the expected result?

Creating a catalogue of services should be steered by the EC, but the content should come from the Member States. A progressive approach should be applied with the catalogue starting small; through good guidance and prioritisation, it can grow to become a catalogue of all services.

First a template needs to be created that is used in all Member States. This template has all necessary information that needs to be put into the catalogue. As this template is the basis for the data collection in the Member States, awareness of this template needs to be created. Member States can use this template in their local initiatives for a catalogue of service. This template should have all necessary information, because we want the Member States to use this template. If too much information has to be provided, the chance of losing buy-in is real.

After the template has been installed, a prioritisation of its deployment in Member States and sectors needs to be defined. A progressive approach is the way forward, so this catalogue should be created on an EC level, starting small with a concrete project. This initial implementation should also ensure that the other Member States can see the use of this catalogue and will want to cooperate in its further implementation.

As these catalogues of services are implemented at Member State level, a search engine that is able to search through all the Member State catalogues will have to be created. This search engine will ensure that not only local services can be searched for, but all available services in the EC.

As information changes regularly in the field, it is possible that changes might not be reflected in the catalogue. The success of the catalogue is however related to its accuracy and thus, on a regular basis, studies will have to be carried out to check its accuracy. These studies should identify where information is lacking (the template could have gone through some versioning and old information might not be available in the new template, leaving out important information on these services).

While the success of the catalogue grows, implementation should continue in other countries and in other sectors, making it a total catalogue of services. Over time the concept of a search engine could change to more new technologies which are also used in Net 2.0 and cloud computing where a service-oriented architecture is used.

Table 7: Catalogue of services

3.3.2 Cluster: Interoperability Architecture

3.3.2.1 INTRODUCTION

At the cluster level, interoperability architecture deals with the activities aiming at creating some structure in the cross-border and cross-sector infrastructures that are already available. These activities range from creating the architecture itself to supporting this architecture. The strategic considerations at cluster level are presented below. Following cluster level considerations, the two focus areas related to interoperability architecture are presented in the light of the Deloitte Strategic Framework.

3.3.2.2 BACKGROUND

Creating an interoperability architecture cannot be done overnight. It requires good planning and communication in order to reach its objectives. Resources that take into account the impacts involved in transactions between systems are needed. When taking into consideration cross-border information exchanges, these resources need awareness of the cross-border impact of such transactions as well, which involves duplicating the knowledge on both sides of the border. When such building blocks are created at Member State level, they can potentially be reused in other Member States. This would achieve synergies from common efforts and avoid duplicating work. A common approach would also facilitate finding what is actually already available; with coordinated quality control, different parties could rely on the quality of what is shared.

As efficiency is a key driver for this cluster, it is worth noting that the approach described above also caters for coherency and consistency between stakeholders.

3.3.2.3 GOALS / KEY DELIVERABLES

The interoperable architecture that will have been implemented and supported will be described in more detail in the section describing the goals and key deliverables of the interoperable architecture focus area.

3.3.2.4 STRATEGY

The strategy for this cluster concentrates on issuing guidelines and providing expertise support and methodologies. Through sharing, results have been achieved. The architecture will be created in collaboration with the outside world. The focus area is detailed below. Every focus area covers two topics:

- Interoperability architecture: this focuses on the architecture (structure) itself.
- Expertise support and methodologies: this focuses on the support required to create and maintain this architecture.

3.3.2.5 THE CLUSTER 'INTEROPERABILITY ARCHITECTURE' LINKED TO THE FOCUS AREAS

In this chapter, we have answered the four questions raised by the Strategic Framework (where, why what and how), at the cluster and focus area levels. By following this approach, it has been possible to apprehend the big picture at cluster level as well as greater details at focus area level.

Where do we operate in the interoperability architecture cluster and its focus areas?

Cluster: Interoperability architecture

- Cross border & cross-sector infrastructures in the interoperability landscape.

Focus area: Interoperability architecture	Focus area: Expertise support and methodologies
<ul style="list-style-type: none"> • Building blocks management 	<ul style="list-style-type: none"> • Expertise and support provision

Why do we operate in the interoperability architecture cluster and its focus area

Cluster: Interoperability architecture

- Because of the waste of resources due to duplication;
- To increase efficiency;
- To increase the visibility of available infrastructures.

Focus area: Interoperability architecture	Focus area: Expertise support and methodologies
<ul style="list-style-type: none"> • To interconnect the MS infrastructures easily; • To share a common approach. 	<ul style="list-style-type: none"> • To overcome the lack of interoperability support; • To overcome the lack of coordination and guidance; • To maximise internal expertise.

What are the expected results in the interoperability architecture cluster and its focus areas?

Cluster: Interoperability architecture

- Supported architecture

Focus area: Interoperability architecture	Focus area: Expertise support and methodologies
<ul style="list-style-type: none"> • Architectural building blocks; • Provision of Guidelines; • Better interfaces. 	<ul style="list-style-type: none"> • Automated platform providing expertise support and methodologies; • Extended CAMSS (Common Assessment Method for Standards and Specifications).

How will we achieve the expected results in the interoperability architecture cluster and its focus areas?

Cluster: Interoperability architecture	
<ul style="list-style-type: none"> • By sharing; • By interfacing; • By basing ourselves on standards; • By collaborating with the external world when relevant. 	
Focus area: Interoperability architecture	Focus area: Expertise support and methodologies
<ul style="list-style-type: none"> • Through a project based approach; • Through a centralised structure and federated implementation. 	<ul style="list-style-type: none"> • By building expertise group; • By making assessing standards available.

Table 8: Interoperability architecture (at cluster level)

3.3.2.6 FOCUS AREAS

3.3.2.6.1 Focus area: Interoperability architecture

The objective for this focus area, as defined at the last CIO meeting, is to:

- *Identify the most needed architectural building blocks for cross-border/cross-sector interoperability of national eService/interoperability architectures by collecting the best solutions (e.g. from CIP pilots), form a consistent architecture by adding missing building blocks and providing concrete guidelines on how to comply with this architecture.*

In order to achieve the objectives set out above, the four strategic questions have been addressed and further elaborated.

Where does the interoperability architecture domain operates?

The architecture within the EIS focuses only on systems involved in providing cross-border services. An interoperability infrastructure represents a set of ICT systems which delivers European Public Services to administrations, citizens and businesses. These ICT systems can be further broken down into various interacting system building blocks, which can be seen as the parts of an entire system. A systemic building block can be of technical nature (e.g. workflow engine, service register, single-sign-on module) and/or it can also be of a functional nature (e.g. a pattern, a methodology).

Systems and their building blocks, as integral parts of the interoperability infrastructure, provide services. The term service refers to a discretely defined set of contiguous and autonomous business or technical functionalities, which makes it important to distinguish business services from infrastructure services. A business service is a 'business functionality' provided by a system to support one or more business processes and which is tangible for end-users. An infrastructure service is a generic 'technical functionality' of a system that supports the delivery of one or multiple business services and which is not directly accessible to end-users.

An interoperable architecture is fundamental to achieving progress in interoperability in Europe. It will define the interfaces between all systems involved in supplying pan-European services. Together with semantics, it constitutes the technical cornerstones of this programme. Many other

initiatives will therefore build on the architecture and semantics. Semantics entails the representation of data whereas the architecture for interoperability is more involved in the interaction between systems. It is the architecture which will answer the question of how multiple systems can interact with each other on a technical level. All these interactions have to comply with the relevant legal framework.

Why do we need an interoperability architecture?

With all Member States providing services within the European Union landscape it is necessary to align as much as possible all interaction points. Furthermore, with all these services falling under the same legal framework, they could adopt the same technical logic. Cooperation between Member States is thus central here.

An architecture will provide an overview of all the necessary interfaces between all systems involved in providing pan-European services. For this architecture, a common approach is needed as common goals need to be achieved. The architecture ensures that Member State infrastructures can easily be integrated and cross-border services can easily be provided to their end-users. To achieve this level of interoperability, the building blocks created will be shared, progressively reducing the amount of resources involved in creating these building blocks. Also, the support of experts for creating these building blocks could be centralised.

An interoperable architecture will help to clarify how disparate systems can interact and it will avoid a one-to-one spider's web of interfaces between all Member States systems. Creating an architecture will result in a greener IT infrastructure.

What are the expected results from the interoperability architecture?

An interoperable architecture creates a structure for the already existing building blocks. This structure can be achieved by following a top-down or bottom-up approach. The bottom-up approach builds on the already existing building blocks creating a new architecture. This exercise is being conducted in the EIIS programme. This approach has been completed with a top-down approach which provides the To-Be situation. The missing link between the two situations has been identified for certain areas and some projects are already underway.

A prioritisation scheme has been developed in order to roll-out the architecture in the most needed and highly visible areas first. By focussing on these two domains, buy-in for interoperability within the EU can be achieved.

How are we going to achieve the expected result?

The results of the EIIS project, which followed a bottom-up approach, should be reused. The EIIS study focused on the identification of all potentially reusable building blocks. In addition, a feasibility study on reusing those building blocks needs to be conducted. In this feasibility project, we need to look at how these building blocks fit in with the overall architecture.

After the bottom-up approach (as followed in the EIIS project), a top-down approach needs to be followed. In a top-down approach, the To-Be situation is the starting point. The To-Be situation defines everything that is required from the interoperable architecture. This should not be aligned with the EIIS project but should be much broader in scope than the EIIS project. For example, the EIIS project identified nine interoperable infrastructure services, a number which could be broadened with the top-down approach.

Once the bottom-up and top-down approaches have been achieved, the gap between the To-Be and As-Is situations needs to be identified. As this gap might be too broad to bridge in a single leap,

intermediate steps should be identified and a priority model should be created.

Table 9: Interoperability architecture (at focus area level)

3.3.2.6.2 Focus Area: Expertise support and methodologies

The objectives for this focus area, as defined at the CIO meeting, are to:

- *Provide expertise and support to public administration on interoperability matters;*
- *Make methodology for assessing standards available and promote its use.*

In order to achieve the objectives set out above, the four strategic questions have been addressed and further elaborated.

Where is the expertise support and methodologies domain?

The focus area Expertise Support and Methodologies aims at finding ways to provide support and methodologies to European public administrations in their interoperability endeavours.

Why do we need expertise support and methodologies?

During phase I of the EIS project, it appeared that interoperability-related expertise support was lacking, for the Member States, but also for the different DGs confronted with cross-border interoperability issues.

Member States and sectors at EU level have identified the lack of coordination and guidance (how to develop eServices and how to exchange information from an IT architecture point of view) on cross-border interoperability as a major issue for cross-border information exchanges and service offerings.

The reasons for providing expertise support and methodologies are the following:

- Lack of organisational interoperability at Member State level has been identified;
- Lack of collaboration from different organisations such as public administrations in different Member States in order to achieve mutually agreed service-related goals;
- Lack of integration and alignment of business processes;
- Lack of external interfaces and synchronisation points within and between administrations;
- Lack of agreement between service providers on the why and the when of exchanging information, as well as on common rules;
- Lack of interoperability expertise support has been identified as a problem during the first phase of the EIS project.

What are the expected results on expertise support and methodologies?

The expected results of such actions should, on the one hand, be an automated platform where support can be easily found and which would be available to all MS and EU business and IT architects. The knowledge to be found on this platform should be mapped into a knowledge database which could provide automatic support so the experts can focus on other areas where

manual/personal support is needed. On the other hand, the CAMSS (Common Assessment Method for Standards and Specifications) should be further elaborated.

How are we going to achieve the expected result?

As cross-border interoperability between European public administrations is only starting up, personal guidance and support is necessary. Close follow-up of problems and issues is necessary. That is why in the beginning there should be a focus on building up expert groups. These expert groups should consist of people within the EC. The knowledge should not be outsourced to people outside the European Union.

The CAMSS initiative should in this regard be further elaborated because it was identified as being of considerable assistance. The approach to work in this domain should be a sector-based, project approach.

As the domain becomes more mature, it would be necessary to capture the knowledge in knowledge bases capable of supporting automatic expertise systems.

Table 10: Expertise support and methodologies

3.3.3 Cluster: ICT implications on the new legislation

3.3.3.1 INTRODUCTION

Within the legislative process it is crucial to engage policy makers, who have a clear view on the business processes involved, ICT experts and implementers. Setting up stronger cooperation between these groups is needed to determine the manner in which ICT implications are considered. This stronger cooperation can take place at the level of Commission and at the level of the Member States.

3.3.3.2 BACKGROUND

Before the European Commission proposes new initiatives, it assesses the potential economic, social and environmental consequences that they may have. After the impact assessment stage, but within the legislative process, the commission proposes specific mechanisms to achieve policy objectives, which can have varying ICT implications. Depending on the technical implications, the timeline of the proposed legislation, budgetary constraints and other factors, ICT implications must be considered earlier or later in the legislative process. A process is needed that determines the manner in which to start considering ICT implications, answering 'how', 'when' and 'who' to include in the process. Additionally, it must be determined how to ensure strong participation. It is crucial to decide, for legislative efforts that have important ICT implications at the Member State level, to involve Member States at a suitable time in order to achieve the overall objective of ensuring a smooth and effective implementation of the necessary underlying ICT components, to achieve policy objectives.

Timeliness is of the essence and it is important that these implications can be identified, commented and anticipated. Early reaction and a proactive approach allow each stakeholder to take the appropriate measures to reduce possible risks that new legislation might bring within a Member State and to ensure alignment between Member States. There is a need for guidance on this field, both at the EC and the Member States levels.

3.3.3.3 GOALS / KEY DELIVERABLES

A methodology should be developed, which seeks increased cooperation through a consultation structure, both at Commission and Member State level, consisting of policy makers, legal experts and ICT experts. The aim of the consultation is to ensure that policy makers, ICT experts and legal experts have a full understanding of the business processes that result from proposed legislation. Cooperation is essential to ensure mutual understanding of issues and requirements. Through cooperation on the issues and requirements, at a later stage, and possibly outside the consultation structure, potential impacts on interoperability could then be identified, depending on the specific implementation of business processes, both at Commission level and at Member State level.

The methodology to increase cooperation between policy makers, ICT experts and legal experts, both at Commission level and at Member State level could lead to authoritative recommendations in dealing with the ICT implication of legislation. For instance, categories of legislation or types of legislative subject matters could be identified, based on practical experience in understanding business process requirements, to warn, align and guide stakeholders in the successful implementation of the ICT implications of legislation.

The goal is for a methodology for the ICT implications assessments to be defined and in use. Clear agreements need to be made on the roles of the EC and the Member States within this methodology. Authoritative recommendations could lead down the road, over the long term, to increased interoperability awareness within legislative initiatives and towards a situation where ICT implications assessments are not just an afterthought, but an imperative or possibly obligatory step in the legislative process. The ICT implications assessments are conducted systematically and assessment results are shared.

3.3.3.4 STRATEGY

The results in this cluster will be reached by providing timely guidance and when stakeholders consistently take proactive action as early as feasible in the course of the legislative process. This will be done by setting up a common methodology and a systematic approach. There will be in time a shift from pure sector-specific ICT implications assessments to a more generic, cross-sector approach within consultation structures.

As a result of a consultation structure's work and output, it should provide guidelines and best practices to the policy assessment and evaluation units of the Directorate Generals, as well as to Member State policymakers and ICT experts. These guidelines and best practices on the ICT implications of legislation should stem from expertise acquired through the workings of the consultation structure, as members of the consultation structure gain a more thorough understanding of recurring issues, through increased cooperation on business processes and resulting ICT requirements.

A significant challenge that must be overcome is to ensure the engagement of key people within the increased cooperation methodology. As DIGIT's mandate does not include compelling Member States and other Directorate Generals to cooperate, this scenario could entail obtaining a mandate, by decision of the Commission, to set interoperability as a priority for the Directorate Generals and ensure the cooperation of the Directorate Generals. Cooperation from Member States should be voluntary, based on the quality, added value and authoritativeness of guidance and recommendations.

As there is only one focus area under this cluster, implementation of the cluster is equivalent to implementation of the focus area. Below this focus area is considered in light of the strategic framework.

3.3.3.5 FOCUS AREA: NATIONAL AND CROSS-BORDER SECTOR-SPECIFIC LEGISLATIONS SUSTAINABILITY

The objectives of the focus area were defined as follows:

- *Systematically conduct pre-studies on ICT implications of the implementation of new legislations. Agree on methodology for these studies;*
- *Provide guidance to public administrations on interoperability-related issues when implementing EU legislation.*

In order to achieve these objectives and to respond to the problems and needs identified earlier in the project the following points need to be cleared up:

Where do these activities take place?

- Cross-border legislation impacting ICT;
- Competencies: legislation and ICT expertise together;
- Both EC and MSs levels;
- Sector-specific and cross-sector.

Why are the actions necessary in the focus area?

- Pro-activeness: avoid surprises and allow early feedback;
- Allow risk mitigation and readiness for new legislation;
- Efficiency;
- MSs request for guidance and support.

What are the expected results in the focus area?

- Guidance on ICT implications assessments;
- Methodology for ICT implications assessments has been defined;
- Systematic approach for conducting these assessments has been defined;
- Systematic implementation of ICT implications assessments takes place;
- Assessment results are available.

How are the expected results reached in the focus area?

- Start by proving guidance: guidelines and best practices to the policy assessment and evaluation units of the Directorate General of the EC and also to Member State policy makers and ICT experts;
- From sector-specific to cross-sector – as a second step, identify two or three legislative initiatives and use them as test cases to establish cooperation in legislative matters, involving both legislative and ICT experts;

- As early as feasible pre-studies;
- Following a common methodology;
- Following a systematic approach – taking place whenever changes occur in the legislation (modifications, additions);
- Implementation of the increased cooperation methodology to support the goals in this area.

Table 11: ICT implications on the new legislation

3.3.4 Cluster: Accompanying Measures

3.3.4.1 INTRODUCTION

The accompanying measures will take place in the entire interoperability landscape as they support all the other clusters and focus areas. These measures also reach outside the public sector.

3.3.4.2 BACKGROUND

In order to support the success of the other cluster and focus area actions, accompanying measures are needed. Typically, these are horizontal measures, aimed at identifying reusable solutions and communicating on them. Raising and ensuring awareness is one of the key tasks, as well as ensuring the recognition of interoperability as a cornerstone for building public services. The accompanying measures need to ensure collaboration and communication amongst the stakeholders.

3.3.4.3 GOALS / KEY DELIVERABLES

The goals and key deliverables are related, on one hand, to the sharing of best practise and supporting communities and, on the other hand, awareness actions. The necessary tools and vehicles will be in place as a result of these activities. Furthermore, this activity is a constant, recurring activity, with results that are in some cases intangible.

3.3.4.4 STRATEGY

The EC will play an important role in leading activities in this cluster. Results in this cluster will be achieved by providing the necessary tools and vehicles; campaigns and platforms and support to communities. Content-centred communities will support progress.

There are two focus areas under this cluster. Below, a mapping of the cluster and the focus areas is presented in the light of the strategic framework.

3.3.4.5 LINKING THE CLUSTER ‘ACCOMPANYING MEASURES’ TO THE FOCUS AREAS

In this chapter we have taken the strategic framework questions: where, why, what and how -, and linked them to the cluster and its focus areas. By doing this it has been possible to identify at the cluster level the complete picture, from the more generic to the more detailed level.

Where do we operate in the accompanying measures cluster and its focus areas?

Cluster: Accompanying measures	
<ul style="list-style-type: none"> • Cross-border, complete IOP landscape, supporting all other clusters and focus areas; • Also reaching outside the public sector. 	
Focus area: Interoperability awareness	Focus area: Sharing best practice (using collaborative platforms)
<ul style="list-style-type: none"> • As on the cluster level above. 	<ul style="list-style-type: none"> • In and between content-oriented communities of practice; • Also reaching also outside the EU and the public sector.

Why do we operate in the accompanying measures cluster and its focus areas?

Cluster: Accompanying measures	
<ul style="list-style-type: none"> • Supporting the success of all the other activities; • Ensuring awareness and recognition of IOP as a key factor in the success European Public Services; • Ensuring collaboration and communication. 	
Focus area: Interoperability awareness	Focus area: Sharing best practice (using collaborative platforms)
<ul style="list-style-type: none"> • Increase awareness and share knowledge; • Gain commitment from EC and MSs; • Link interoperability to decision making. 	<ul style="list-style-type: none"> • Lack of sharing of best practices and lessons learnt; • Lack of reuse of sustainable solutions; • Efficiency and effectiveness; • Need for content-oriented communities for exchanging knowledge and learning from each other's experiences.

What are the expected results in the accompanying measures cluster and its focus areas?

Cluster: Accompanying measures	
<ul style="list-style-type: none"> • Necessary tools and actions in place to support the activities in the other clusters and focus areas. 	
Focus area:	Focus area: Sharing best practice

Interoperability awareness	(using collaborative platforms)
<ul style="list-style-type: none"> • Interoperability Ambassadors have been nominated and are functioning; • Marketing campaigns have been launched. 	<ul style="list-style-type: none"> • Effective best practice sharing by content-oriented communities, through existing platforms at EU level and/or together with global communities.

How will we reach the expected results in the accompanying measures cluster and its focus areas?

Cluster: Accompanying measures

- Primarily EC-lead;
- Ensuring necessary tools and vehicles;
- Communicating, sharing knowledge and best practice;
- Developing content-centered communities.

Focus area: Interoperability awareness	Focus area: Sharing best practice (using collaborative platforms)
<ul style="list-style-type: none"> • Starting with direct marketing campaigns targeting decision-makers; • Indirect messaging via demonstrating benefits; • Targeting different audiences with specific messages; • Involving other stakeholders such as industry; • Creating a sense of necessity and urgency. 	<ul style="list-style-type: none"> • By understanding the business, capability and technology issues of users; • Through user outreach, standards organisation outreach and building communities centered on the sharing of specific content (best practice, lessons learnt); • By using collaborative platforms.

Table 12: Accompanying measures

In the following chapters the focus area specific strategic reflections are presented.

3.3.4.6 FOCUS AREAS

3.3.4.6.1 Focus area: Interoperability awareness

The objectives of this focus area are:

- *Recognise interoperability as an essential cornerstone of European Public Services;*

- *Cooperate and agree on an approach for linking interoperability to policy issues that are high on the political agenda.*

In order to achieve the objectives as set out above, the four strategic questions have been addressed and further elaborated.

Where is the interoperability awareness domain?

Interoperability awareness actions take place in the complete interoperability landscape and are typically linked to all other interoperability efforts, and further to pure interoperability campaigns themselves. Interoperability awareness actions are necessary both at European and Member State levels. Awareness actions should moreover involve actors outside the public sector – notably in industry.

Why do we need interoperability awareness actions?

Lack of awareness and knowledge on interoperability issues has been identified as one of the key issues, preventing the establishment of real European Public Services. As interoperability has not been recognised as important, it has not been taken into account in discussions at the higher political levels. Interoperability has been perceived as something very technical, with hardly any realization of the organisational, process and legislation aspects.

Now is the time to raise interoperability issues higher up the **political agenda** and recognise their importance.

It is equally important to **win a commitment** from all stakeholders on interoperability approaches. Without commitment, it is very difficult to achieve concrete results.

What are the expected results from the interoperability awareness actions?

Two major results are expected:

- Nomination of **interoperability ambassadors** in all Member States and the EC, and in addition having an established forum in place to share interoperability-related considerations and solutions between the ambassadors. These persons will act as the official channels in relation to any interoperability matters in their respective countries and organisations;
- **Marketing campaigns** are conducted to ensure proper communication and awareness. These campaigns are organised in a targeted and coordinated manner.

Both of the above mentioned results are ongoing activities, evolving over time and adapting to the needs at any given moment.

How are we going to achieve the expected result?

We should start with **direct** marketing campaigns **targeting** the higher levels in organisations and politicians. As already mentioned, commitment and support are necessary for the success of further actions.

Over time, there should be a clear shift from direct and high-level campaigns towards the more operational and technical level, basing the message on demonstrating the **benefits** of interoperability.

Stakeholders, such as industry, should be involved in these campaigns. Even though the campaigns

might at first be primarily EC-led, there is a role for the Member States to play too.

Table 13: Interoperability awareness

3.3.4.6.2 Focus area: Sharing Best Practices using Collaborative Platforms

The objectives of this focus area are:

- *Alignment with EU interoperability objectives;*
- *Leveraging existing project initiatives;*
- *Sharing best practice using collaboration platforms;*
- *Supporting all the objectives of the other focus areas.*

In order to achieve the objectives set out above, the four strategic questions have been addressed and further elaborated.

Where are these activities taking place?

When creating collaborative communities centred on the sharing of interoperability best practice, community builders should emphasis effective best practice sharing through content-oriented communities combined with an external focus, through existing platforms at EU level and/or together with global communities.

Sharing of best practice is thus taking place in and between the content-oriented communities of practices. These are typically cross-border, even cross-sector, and support all other activities. These actions thus also reach outside the European Union and the public sector.

Why do we need sharing of best practice?

The reasons for creating or elaboration upon communities sharing best practices are as follows:

- First of all, there exists an identified lack of sharing of best practices and lessons learnt;
- Secondly, sustainable solutions are not reused enough;
- Thirdly, sharing best practice is potentially highly efficient and effective;
- Finally, there is a need for content-oriented communities for exchanging knowledge and learning from each other's experiences in the field of interoperability.

What are the expected results from the sharing of best practices?

The expected results of effective best practice sharing through content-oriented communities, through existing platforms at EU level and/or together with global communities, is to effectively share best practice by means of content-oriented communities, through existing platforms at- EU level and/or together with global communities.

How are we going to achieve the expected results?

Within the EIS, the focus will be on building communities of practice organised around the sharing of best practice and a strong emphasis on the content to be shared rather than on the technology and supporting tools.

The means for reaching the objectives are the following:

- By understanding the business, capability and technology issues of users;
- By reaching out to users, standards organisation building and through existing communities centered on the sharing of specific interoperability content (best practice, lessons learnt).

Table 14: Sharing best practices using collaborative platforms

CONCLUSIONS AND RECOMMENDATIONS

1. Interoperability is a cornerstone for building European Public Services.
2. The progresses achieved in the field of interoperability support the realisation of the European Policy objectives, such as the four freedoms.
3. There should be a **clear and strong mandate** for EC to take on a leading role in the coordination of the proposed interoperability opportunities and projects. The management of these activities will depend on the focus area and type of activities in question.
4. In order to achieve significant progress and to reach the stated objectives, a strong **commitment** from all stakeholders, with clearly defined roles and responsibilities, is central.
5. Interoperability is not only a technical matter, but requires a coordinated **involvement of several types of expertise**: legal, organisational, content and technology experts will have to collaborate together.
6. A well-thought and balanced **governance model** is essential for the implementation of interoperability efforts.
7. **The strategy will cater for updates** on a regular basis – depending on the evolution of the interoperability landscape.
8. When estimating the costs of specific activities and projects, the cost of inaction should equally be considered. Just like quality assurance, early reflection on, and implementation of interoperability are often guarantees for a later return on investments. Interoperability from scratch significantly reduces risks and efforts associated with incompatible systems and interfaces
9. In most of the focus areas it is strongly recommended to **start with specific sectoral projects**, to seek replicable solutions and to duplicate them in other sectors.
10. We recommend conducting **activities under each focus area**, as the focus areas support one another. Trust and privacy is needed for achieving concrete results in information availability and usage area. Interoperability awareness and the sharing of best practices are all horizontal measures supporting the success of the activities in other focus areas.

11. Conclusions per cluster and per focus area:

a. Trusted information exchange

Within the trusted information exchange cluster, a progressive and project based approach towards the objectives should be followed.

i. *Semantic information exchange:*

Efforts in the field of semantic interoperability should focus on openness and standardisation (convergence), together with international standardisation organisations, as semantic assets are of high value for interoperability.

ii. *Information availability and usage:*

Achieving the objectives set-out for this focus area is very ambitious. A strong political willingness will be able to provide the necessary means for reaching a satisfactory level of information availability and usage.

iii. *Trust and privacy:*

Efforts under this focus area should focus on supporting the STORK project, especially in the field of cross-border e-Authentication for e-Id. At a higher level, initiatives should concentrate on the customisation of existing regulatory instruments available at EU level.

iv. *Catalogue of services:*

The catalogue of services should be achieved in three steps: a short EC-driven structuring exercise, followed by a roll-out at Member States level, secured by the consolidation or the linking of all catalogues available in the Member States.

b. Interoperability architecture:

Interoperability architecture together with the semantic interoperability are the cornerstones of interoperability. A sound basis is needed in this cluster.

i. *Interoperability architecture:*

After finishing the bottom-up approach used in the EIIS project, a complementary top-down approach leading to the elaboration of the “To-Be situation” should be followed. By doing this, the gap between the two studies will indicate the missing building blocks, which should be obtained or created.

ii. *Expertise support and methodologies:*

The focus should be put on building internal expertise which should support and enhance the CAMSS initiative.

c. ICT implications on the new legislations

i. National and cross-border sector-specific legislations sustainability:

Increased collaboration between EC and Member States ICT and legislation experts will help achieve a systematic and well defined ICT implications assessments process. A methodology will be established, assessments will take place and the results will be available.

d. Accompanying measures

This is a horizontal activity supporting all other clusters and focus areas.

i. *Interoperability awareness:*

Interoperability awareness endeavours will take place on two levels: at Member States via the future interoperability ambassadors and at EU level via carefully targeted marketing campaigns. The aim is to include interoperability on the political agenda and further into the technical level discussions.

ii. *Sharing best practices (using collaboration platforms):*

The sharing of best practices will be driven by content and community focussed activities, by relying on existing platforms at EU level and where possible at a broader, more global level.

12. To achieve efficient European Public Services, interoperability efforts are mandatory.

GLOSSARY

Access: in general, the right to enter or make use of. In a computer context, entry granted to a software path that establishes the right to use a system and its resources; to read, write, modify, or delete data; and/or to use software processes with various capabilities to achieve the status of having access.

Access control: the granting or denying to a subject of certain permissions to access a resource (e.g., to view a certain file, to run a certain programme).

Administration: a public authority in charge of delivering a public service.

Authentication (of identity): an adjunct step to identification that confirms an asserted identity with a specified, or understood, level of confidence. Authentication can be used to provide high assurance that the purported identity is, in fact, the correct identity associated with the entity that provides it. The authentication mechanism can be based on something that the entity knows, has, or is (e.g. a password, smart card that uses some encryption or random number for a challenge-response scheme, or a fingerprint).

Authentication (of a message): the process of adding one or more additional data elements to communications traffic (or files) to ensure the integrity of the traffic (or files). Such additional elements are often called 'message authenticator(s)' and would be an example of an integrity lock.

Authenticity: a security service that provides a user with a means of verifying the identity of the sender of a message, a file, a computer system, a software process, or even a database or individual software component.

Authorisation: determining whether a subject (a user or system) is trusted to act for a given purpose, for example, allowed reading a particular file.

Availability: the property that a given resource will be useable during a given time period, for example, that an encrypted file can be decrypted when necessary.

Benchmarking: a detailed analysis of an electronic reporting program to determine whether it can be used in whole or in part in another state or agency.

Best Practices: methodologies that provide beneficial results. Some best practices are general in nature and can be applied to almost every industry; other best practices are industry-specific.

Community: a constantly changing group of people collaborating and sharing their ideas over an electronic network (e.g., the Internet). Communities optimize their collective power by affiliation around a common interest, by the compression of the time between member interactions (i.e., communicating in real time), and by asynchronous "postings" which potentially reach more participants and allow for more reflection time than real-time interactions.

Confidentiality: the protection of information against interception or receipt by unauthorised third parties.

Database: Information maintained in a computer storage system.

European Public Services: According to latest version of the draft EIF, in this document European Public Service means '*a cross-border public sector service supplied by public administrations¹⁸ by means of cooperation between those administrations, either to one another, or to European businesses and citizens.*'

¹⁸ Refers to either national public administrations (at any level), or bodies acting on their behalf, and/or EU public administrations.

Focus Area: in order to identify various groups of similar thematic reach (i.e. problems, interest, goals and objectives), focus areas are addressed in order to structure the future efforts in interoperability and to further define a set of vision-oriented objectives.

Information system: a discrete set of information resources organized for the collection, processing, maintenance, transmission, and dissemination of information in accordance with defined procedures, whether automated or manual.

Interoperability is a property referring to the ability of diverse systems and organisations to work together (inter-operate).

- **Organisational interoperability** is about being able to identify the players and organisational processes involved in the delivery of a specific eGovernment service and achieving agreement among them on how to structure their interactions, i.e. defining their 'business interfaces'.
- **Technical interoperability** is about knitting together IT systems and software, and defining and using open interfaces, standards and protocols in order to build reliable, effective and efficient information systems.
- **Semantic interoperability** is about ensuring that the meaning of the information exchanged is not lost in the process that it is retained and understood by the people using it, and applications and institutions involved.
- **Political and legal interoperability:** corresponding to the compatibility among Member States' legal frameworks.

Monitoring: recording of relevant information about each operation by a subject on an object, maintained in an audit trail for subsequent analysis.

Network: a group of computers and peripherals connected to share files and devices.

Objective: an objective is a projected state of affairs that a person or a system plans or intends to achieve - a desired strategic development towards a vision.

PKI: Public Key Infrastructure.

Portal: any well-used gateway to the Internet, especially those sites designed to serve as a 'front door' and thus the first page that users see when accessing the Web. Portals typically provide large catalogues of other sites, powerful search engines for locating information, and e-mail facilities or other attractive Web services.

Problem: a problem is an obstacle, barrier, challenge or issue which makes it difficult to achieve a desired goal, objective or purpose. It refers to a situation, condition, or issue that is yet unresolved. In a broad sense, a problem exists when an individual becomes aware of a significant difference between what actually is and what is desired.

Problem Statement: a problem statement is a clear and concise description of the issues that needs to be addressed and which should be defined before any attempt to solve problems. A good problem statement should answer these questions:

- What is the problem, the probability it will occur and the risks it entails?
- Who has the problem or who is the client/customer? This should explain who needs the solution and who will decide the problem has been solved.
- What form can the resolution take? What are the scope and limitations (in time, money, resources and technologies) that can be used to solve the problem?

Reliability: the ability of a computer or an information or telecommunications system to perform consistently and precisely according to its specifications and design requirements and to do so with high confidence.

Root Cause: a root cause is an initiating cause of a causal chain which leads to an outcome or to a problem. Commonly, root causes are used to describe the depth in the causal chain where an

intervention could reasonably be implemented to change performance and prevent an undesirable outcome.

Risk: the likelihood that vulnerability may be exploited, or that a threat may become harmful.

Security: the collection of safeguards that ensures the confidentiality of information, protects the system(s) or network(s) used to process it and controls access to it. Hence, security safeguards impose appropriate access rules for computer information.

TESTA I and II: Trans-European Services for Telematics between Administrations. The IDA TESTA project started in 1996 and entered its second phase (TESTA II) early in 2000. It responds to the growing need for the exchange of information between European administrations. It envisages a European inter-administrative IP network, similar to the Internet in its reach and universality, but dedicated to inter-administrative requirements and providing guaranteed performance levels. Implementation of this vision requires a broad coverage, including:

- All EU Member States;
- EFTA countries; and
- EU accession candidates, once they have joined IDABC.

Third party access: eavesdropping on or entry to data communications, telephony or stored computer data by an unauthorised party.

Trust: the concept that a system will provide its intended functionality with a stated level of confidence. The term is also used for other entities; e.g. trusted software, trusted network, trusted individual. Sometimes the confidence - also called assurance - can be measured but sometimes it is inferred on the basis of testing and other information.

Trustworthiness: assurance that a system deserves to be trusted.

For other definitions, please refer to the IDABC glossary:
<http://ec.europa.eu/idabc/en/document/649/5892>.