



# **Annex to the European Interoperability Strategy document for public consultation**

## **The EIS elaboration approach**



European Commission  
Directorate-General for Informatics

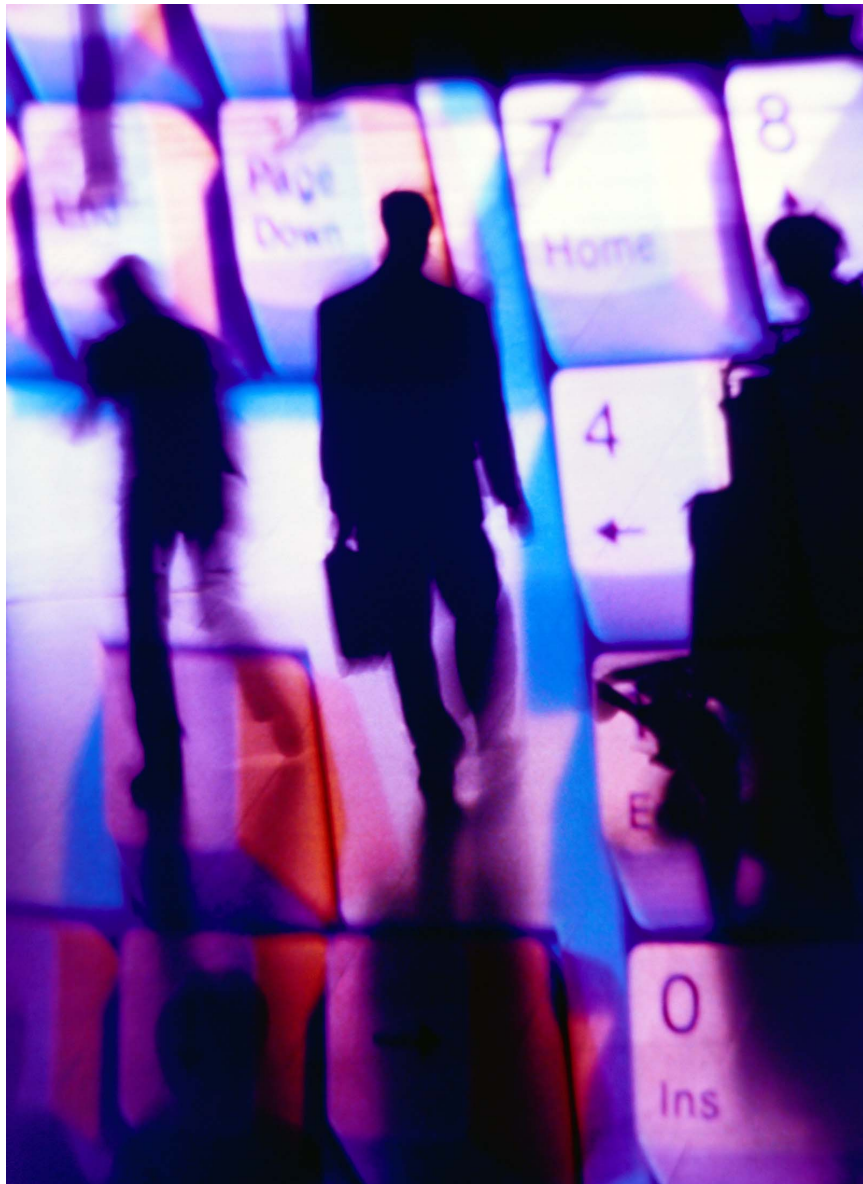
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## GUIDE FOR THE READER

This document is describing the approach by which the European Interoperability Strategy (EIS) has been elaborated and should be of interest to a variety of stakeholders.

The first chapter briefly presents the context of the EIS project.

The second and third chapters present the approach and the results obtained at the end of each of the 2 EIS elaboration phases, as well as the subsequent Commission proposals and the conclusions reached at the meetings of the Member State Chief Information Officers (CIO).

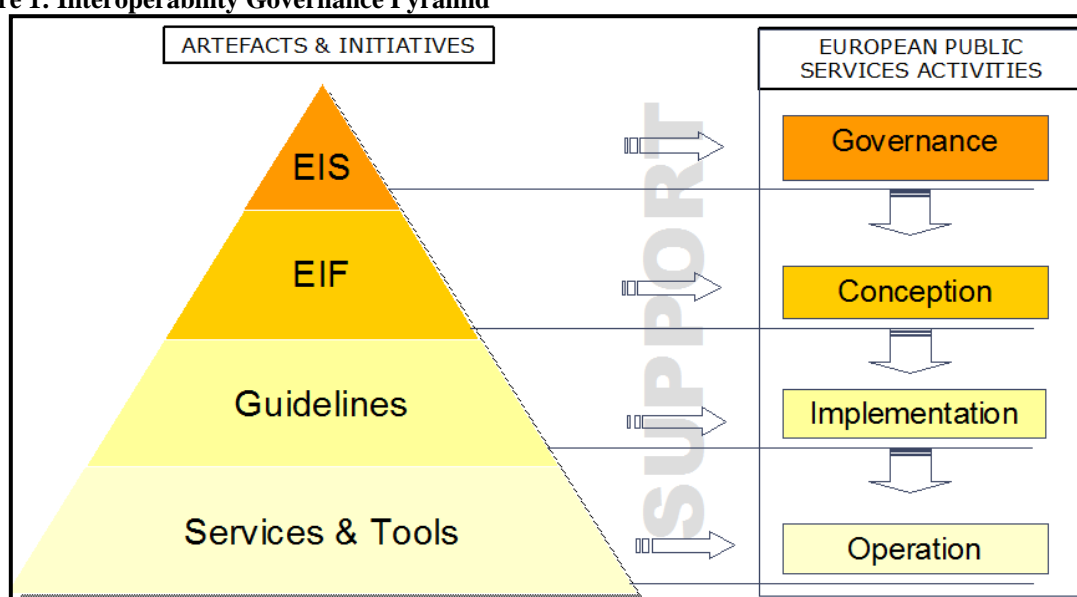
## CONTEXT

During the second annual meeting of the Member State Chief Information Officers (CIOs) and the European Commission representative in June 2008, 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 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 (EIIS).

Figure 1 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**



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.

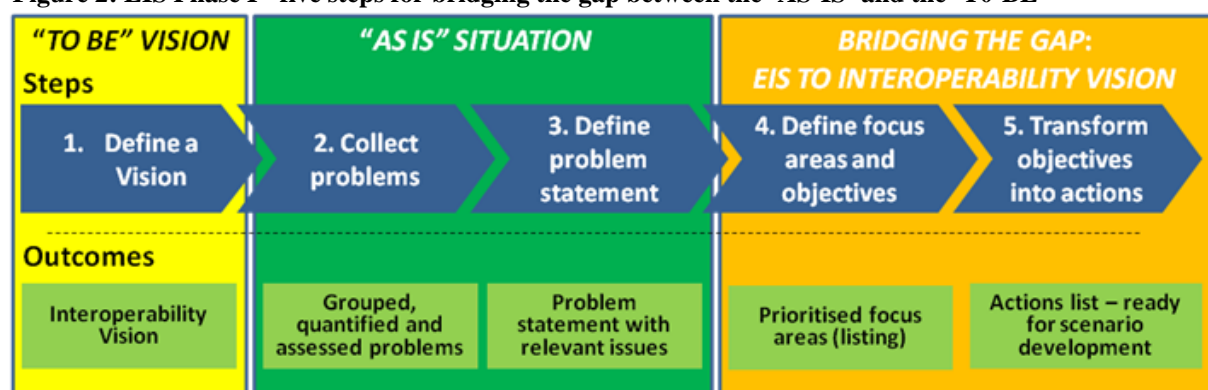
The recently proposed EIS is a key input to the EU's new programme: the Interoperability Solutions for European public Administrations (ISA). The ISA Programme will focus on actions derived from the EIS and offering the greatest potential to contribute to the interoperability of European Public Services.

## PHASE 1 OF THE EIS ELABORATION

### Phase 1: Approach

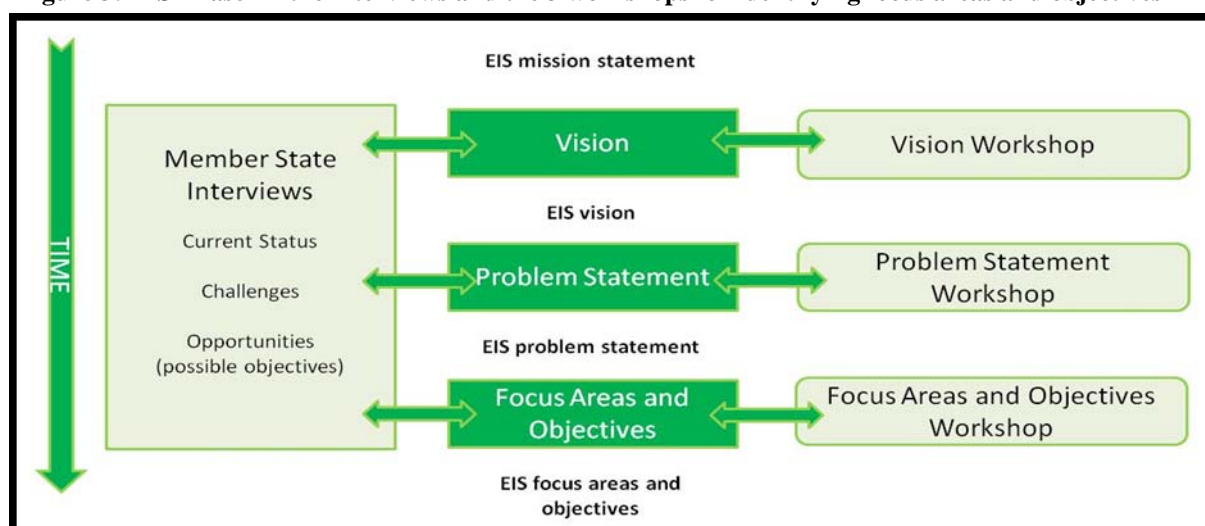
Figure 2 below illustrates the five successive steps of the first phase, as well as their related outcomes. Firstly, the project defined a common vision for European Public Services' interoperability. Secondly and thirdly, problem statements were defined based on interoperability problems collected during stakeholder interviews and workshops. Fourthly, in combining the requirements derived from the vision and the issues derived from the problem statements, focus areas and related 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'**



As illustrated in figure 3 below, through 40 interviews and 3 workshops the Member States' and EC's current status (achievements, challenges, opportunities ...) were used to fine-tune the vision and define what the European Interoperability Strategy should focus on.

**Figure 3: EIS Phase I – the interviews and the 3 workshops for identifying focus areas and objectives**



## Phase 1: Outcomes

The vision was drawn up with the Member States in the specific vision workshop. This vision was further refined during the subsequent workshops on the problem statement and objectives, and through discussions with Commission services and IDABC representatives.

The vision for European Public Services' interoperability has been defined as:

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

- **Appropriate governance organisation and processes inline with the 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.**

This vision statement has been further expanded with definitions of the main key words appearing in the vision:

- **Appropriate governance and processes:** a suitable governance structure is put in place, and supported by the necessary processes. These are followed – with clear interfaces with the Member States' respective organisations and processes;
- **In line with EU policies and objectives:** the interoperability actions are in line with the related initiatives and a coherent view is presented vis-à-vis the Member States (includes also the necessary alignment with the sectors). There is a global view of all interoperability activities;
- **Trusted information exchange:** the content, the formats and the means of information exchange are agreed, respect privacy, and are reliable and trustworthy;
- **Commonly agreed, cohesive and coordinated interoperability initiatives** (in the broadest sense, i.e. including initiatives on reusable services) are aligned and agreed upon, there is a commitment to these initiatives and they are coordinated (via the governance structure mentioned above).
- **Completion of legal environment:** there is an interoperability legal basis, providing the necessary mandates and responsibilities for the organisations involved;
- **Elaboration of interoperability frameworks:** general interoperability frameworks or more specific ones on specific topic such as security, semantic... identify barriers to trusted information exchange and provide guidance on what should be done and how to overcome them.
- **Agreements on interoperability standards and rules:** agreements on common standards and/or specifications and practical rules foster trusted information exchange at EU and Member States levels in specifying the interfaces between cooperating organisations and their respective ICT systems both necessary for delivering European Public Services.

The vision which guided the work underlying the EIS elaboration, should also contribute to the realisation of a more general vision for European Public Services, with the ambition of supporting European Public administrations' ability to deliver better services to citizens, businesses and other administrations, and in turn support the completion of the Single Market and mobility in general.

In addition to drawing up the vision, the current state of interoperability was analysed. This process identified the main barriers to cross-border interoperability in terms of problems to be solved. The problems were analysed, grouped, and their root causes were pinpointed. The main enablers of interoperability, such as best practices and critical success factors, were also collated and analysed. Then the EIS study Phase 1 final Report (v.4) presented a list of priorities and objectives.

## Phase 1: 3<sup>rd</sup> CIO meeting conclusions

Based on the EIS study Phase 1 final Report the Commission reorganised the priorities classifying them into **three clusters and two accompanying measures**.

During the 3<sup>rd</sup> CIO meeting in June 2009 this proposal was presented to the CIOs who endorsed it.

### 3<sup>rd</sup> CIO Meeting Conclusions

Cluster	Focus area	Objectives
<b>Trusted information exchange</b>	<b>A project based approach should be followed but each opportunity for sharing and re-use solutions should be investigated</b>	
	<b>Semantic interoperability</b>	-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).
	<b>Information availability and usage</b>	-Achieve significant improvements 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.
	<b>Trust and privacy</b>	-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.
	<b>Catalogue of services</b>	-Establish an EU catalogue of services at EU and Member States levels; -Ensure public administrations' knowledge of available services and business processes.
<b>Interoperability architecture</b>	<b>Interoperability architecture</b>	-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.
	<b>Expertise support and methodologies</b>	-Provide expertise and support to public administrations on interoperability matters; -Make methodology for assessing standards available and promote its use.
<b>ICT implications of the implementation of new legislations</b>	<b>National and cross-border sector-specific legislations sustainability (interoperability – related issues)</b>	-Systematically conduct pre-studies on ICT implications of the implementation of new legislations. Agree on methodology for these studies; -Provision of guidance to public administrations on interoperability related issues when implementing EU legislation -Systematically conduct post-studies on ICT implications of the implementation of new legislations. Agree on methodology for these studies.
<b>Accompanying measures</b>	<b>Focus Area</b>	<b>Objectives</b>
<b>Interoperability awareness</b>	<b>Interoperability awareness across Europe</b>	-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 political agenda.
<b>Sharing best practices using collaboration platforms</b>		-Support all the above.

The Member States' CIOs emphasised that the actions should be linked to and support political priorities. In addition, actions should support concrete sectoral projects (bottom-up approach).

None of the Member States' CIOs supported the establishment of a horizontal, European interoperability legal basis as a consequence of which the issue was not pursued.

Re-use and learning from each other, which require coordination and sharing, was considered as a key. Member States' CIOs also emphasised the need for coordination between the different Commission services when working on issues related to eGovernment and interoperability. A solid governance structure was identified as a requirement in this field.

## PHASE 2 OF THE EIS ELABORATION

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.

### Phase 2: Approach

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

The top-down approach helped identify the high level strategic drivers and define high level strategic axes at cluster and focus area levels.

As for the bottom-up approach, a Portfolio Management Methodology helped selecting actions grouped into scenarios and assessed them against a list of criteria (potential risks and expected value/impact).

Figure 4 below illustrates the top-down (strategic drivers and axes) and the bottom-up (scenarios and actions at objective level) approaches.

**Figure 4: Top-down / bottom-up approaches**

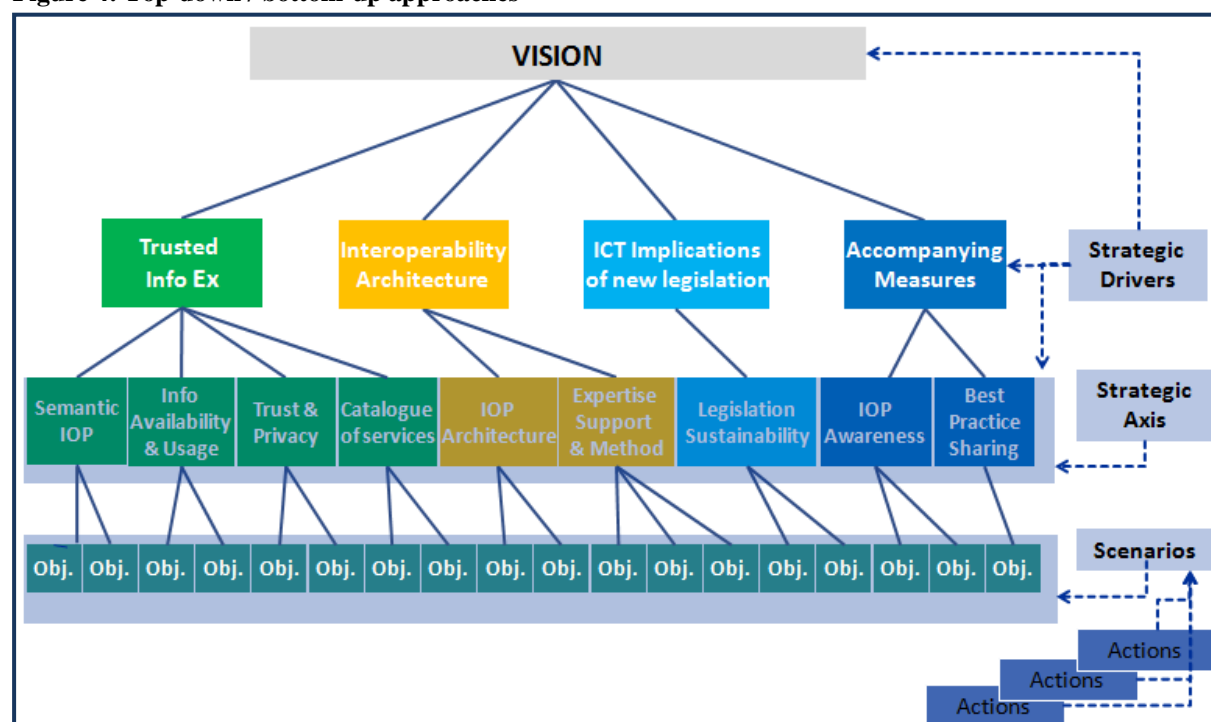
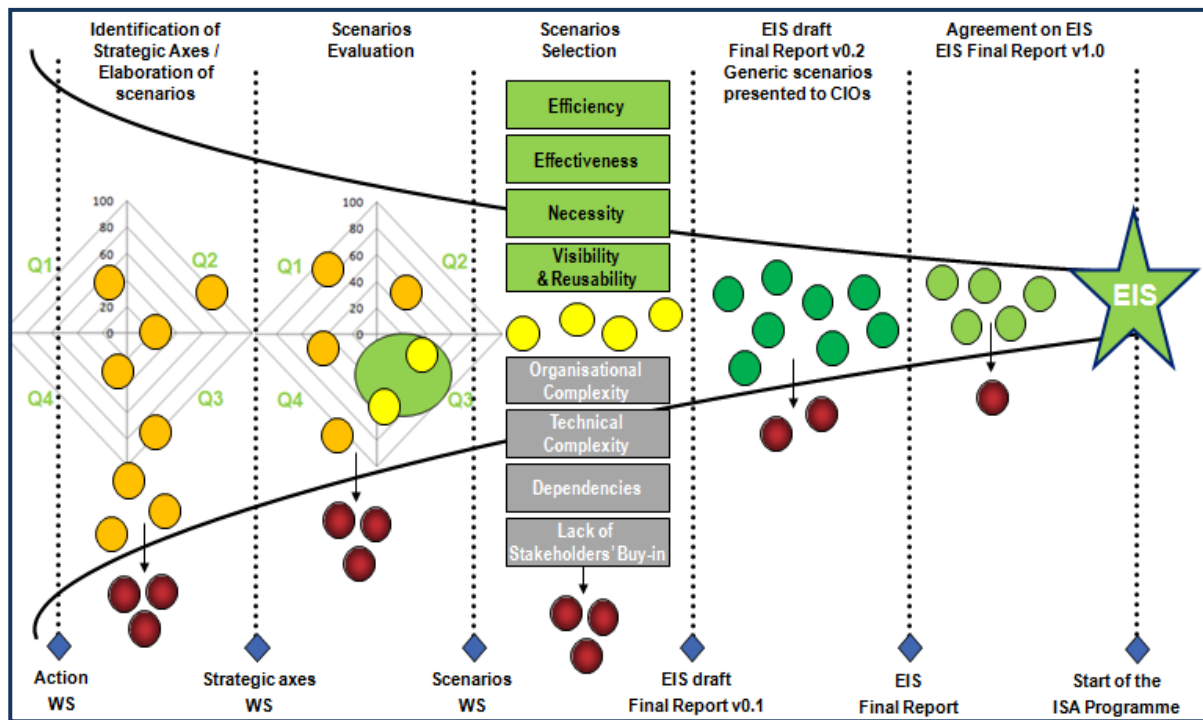


Figure 5 below provides an overview of the different successive steps of the EIS study phase 2 project which helped refining the portfolio of scenarios through the funnelling of the various possible opportunities.

The selection of 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 reusability.

**Figure 5: Selection of scenarios using a Portfolio Management methodology**



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.

### EIS Strategy Framework

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

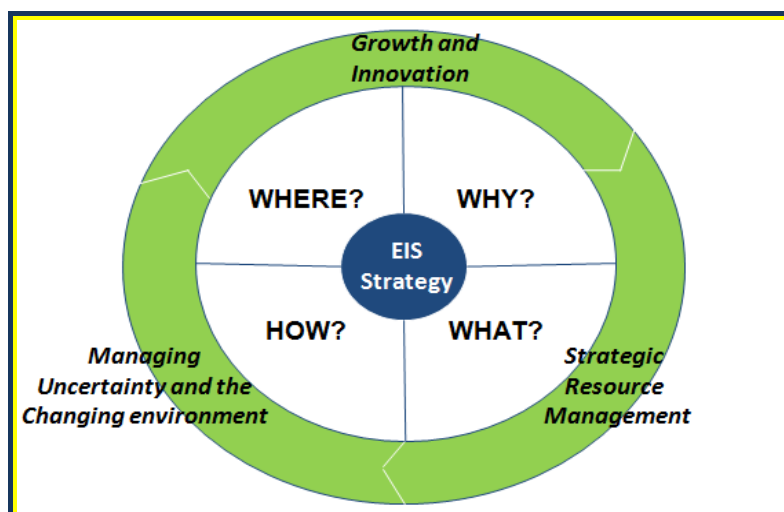
The EIS Strategy Framework also provided a common lexicon for adopting a comprehensive way of understanding interoperability-related issues, challenges and opportunities. This mindset was structured around four key areas of strategic concern, which were summarised in the following questions:

- **Where?** 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 6 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 EIS 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.

## Phase 2: Outcomes

Based on the conclusions and recommendation of the second phase final report, this chapter describes the strategic directions for the European interoperability efforts, based on the strategic objective of reaching the vision for interoperability.

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

As the scope of interoperability is large, in order to identify strategic directions and issue strategic recommendations, the exercise of answering the fourth strategic questions was conducted at the cluster and the focus area level.

For the sake of clarity and concision, main strategic directions were proposed:

- Interoperability is a cornerstone for building European Public Services.

- The progress achieved in the field of interoperability supports the realisation of the European Policy objectives, such as the four freedoms.
- 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.
- 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.
- 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.
- A well-thought and balanced **governance model** is essential for the implementation of interoperability efforts.
- **The strategy will cater for updates** on a regular basis – depending on the evolution of the interoperability landscape.
- 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.
- In most of the focus areas it is strongly recommended to **start with specific sectoral projects**, to seek replicable solutions and to reuse them in other sectors.
- **Activities should be conducted 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.
- **Proposals per cluster and per focus area:**

- **Trusted information exchange**

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

*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.

*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.

*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.

*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.

- **Interoperability architecture:**

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

*Interoperability architecture:*

After finishing the bottom-up approach used in the European Interoperability Infrastructure Service Study (EIIS) project, a complementary top-down approach study 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.

*Expertise support and methodologies:*

The focus should be put on building internal expertise which should support and enhance the Common Assessment Method for standards and Specifications (CAMSS) initiative.

- **ICT implications on the new legislations**

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.

- **Accompanying measures**

They are horizontal activities supporting all other clusters.

*Interoperability awareness:*

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

*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.

## **Phase 2: 4<sup>th</sup> CIO meeting conclusions**

Based on the preliminary EIS study Phase 2 final report, the Commission made a synthesis focusing on the main strategic directions to steer the clusters activities and the accompanying measures. Out of this synthesis, the Commission proposed an EIS overall strategic approach completed by specific strategic directions at cluster level.

During the fourth CIO meeting held in November 2009, this proposal was presented to the CIOs Member States CIOs who endorsed it.

The Commission proposed to combine top-down and bottom-up approaches, with the aim to generate cross-fertilisation between the two approaches by testing and continuously improving existing frameworks, guidelines, services and tools. The cross-fertilisation of the two approaches could also lead to the development of additional interoperability solutions based on precise needs.

**The top-down approach:**

- The political context and its evolution need to be taken into account: the post Lisbon strategy (eu2020), the post i2010 and the overall policy priorities of the Commission work programme that are currently being defined;
- The development of various frameworks such as the EIS, the EIF, architecture guidelines and other methodologies and guidelines;
- The assessment of ICT implications of new EU legislation proposed.

**The bottom-up approach:**

- To work via sectoral projects on relevant specific topics (i.e. semantic, trust and privacy, architecture ...) providing the opportunity to tackle real interoperability challenges. This approach will allow existing frameworks and guidelines to be tested against concrete needs and furthermore, ensure that new services and tools are developed based on clearly defined needs;
- When developing new services and tools in a specific sector, the potential for reusing such solutions in other sectors should be kept in mind.

After applying this combined approach to the objectives under each cluster, the Commission proposed to focus on the following activities:

**For the cluster "Trusted Information Exchange":**

- To work via a limited number of politically relevant and concrete sectoral projects at EU and Member State levels;
- To continue supporting at Community level the efforts on interoperability of key enablers such as: eID, eSignature, etc;
- To continue the SEMIC approach and its methodology;
- To work towards the opening up of base registers, taking into account the associated best practices, the possible related risks and opportunities, as well as the various needs and expectations of the main stakeholders;

Some challenges are related to the strategic directions identified for this cluster.

Firstly, how to involve the industry, the standardisation organisations and other stakeholders in the related activities?

Secondly, before taking any initiatives related to the development of a catalogue of services, the Commission proposes to assess the Member States readiness to engage in such direction and the extent to which such a catalogue would support increased interoperability between Member States. Furthermore existing best practices cases in this area needs to be identified and studied.

**For the cluster "Interoperability Architecture":**

- To elaborate a joint vision on interoperability architecture by defining in the first place its scope as well as the needs for common infrastructure services and common interface standards;
- To provide guidance on architecture domains where Member States share a common interest;
- To organise the systematic reuse of architectural building blocks by the Commission services when developing Member States oriented services. In this area, existing infrastructure service components (EIIIS<sup>1</sup>) as well as generic applications (IMI<sup>2</sup>, early alert systems, grant management ...) could be reused and rationalised. Additionally, a catalogue of architectural building blocks available for reuse by the Member States and the Commission services could be set up with EU and MS contributions.

**For the cluster "Assessment of ICT implications of EU legislation":**

- To develop guidelines and methodologies at EC level (and Member States level);
- To test the usefulness of these guidelines via their application on concrete cases involving policy makers as well as legislative and ICT experts;
- To ensure continuous improvement of the guidelines and methodologies with the lessons learnt from experience;
- To generalise the practice of assessing ICT implications towards a more systematic approach whenever changes occur in the legislation (e.g. modifications or additions to ICT-related pieces of legislations).

**For the accompanying measure "Raising Interoperability Awareness":**

- To develop an overall communication approach;
- To organise communication campaigns, in a first instance targeting decision-makers but then gradually shifting to more operational and technical levels;
- To develop an interoperability maturity level self-assessment tool/model for public administrations.

**For the accompanying measure "Sharing Best Practices":**

- To work towards the convergence of existing EU collaborative platforms and to ensure the sustainability of the platforms used;
- To maintain, where relevant, the communities existing at EU level around the sharing of best practices and the re-use of common solutions;
- To support the creation of potential new communities resulting from other interoperability activities;

One challenge associated to the strategic directions identified for this accompanying measure is: how to collaborate with similar initiatives elsewhere?

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<sup>1</sup> EIIIS stands for European Interoperability Infrastructure Services.

<sup>2</sup> IMI stands for Internal Market Information system.



Potential risks and opportunities identified so far are:

- The political context is not entirely defined yet, i.e. the post Lisbon agenda (EU2020) and the post i2010 agenda;
- Stakeholders' support, commitment and buy-in are essential when following a project-based approach to interoperability. In order to successfully realise the EIS, sectoral experts and interoperability experts will have to work together, both at EU and Member State level;
- Setting up a fruitful collaboration with the industry and other stakeholders;
- The effect of disruptive technologies (e.g. cloud computing ...) on the EIS and its implementation.

The main Member State comments were about:

- Taking into account the economic situation and its impact on public administrations confronted with a reduction of their fiscal resources;
- Measuring what is achieved in the field of interoperability and when implementing the EIS. This raised questions about measuring the costs and benefits of interoperability and how to prove that it is worth investing in interoperability;
- Emphasising the bottom-up approach where every action should provide concrete results in terms of service provision enhancement to businesses and citizens;
- The reuse of what already exists should be maximised, at EU and Member State level;
- The access to, and sharing of, information contained in base registers can be achieved either through the exchange of eDocuments or through the direct access to the data contained in those base registers. This raises questions such as the validity of cross-border electronic documents, ownership, licensing, data protection, security, and cost;
- The establishment of open and constructive collaboration with the industry. In this field, lessons learnt from constructive and successful experiences of collaboration between the public sector and the industry are very welcome;
- The emergence of cloud computing, and the challenges it poses, such as openness, standardisation, information ownership, and security.

