ICT Implications Method

Assessment of ICT implications of EU legislation

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Introduction

We live in a digital era where the Internet, social media and mobile devices, Information and Communication Technologies (ICT) in general have an influential role in the delivery of public and commercial services to citizens and business. The Commission has recognised the potential of ICT/digital (N.B. ICT and digital will be used interchangeably in this document) and has opted for a Digital Single Market (DSM) as a top-priority of the Jean-Claud Junker European Commission (EC). Similarly, various digital initiatives are on-going in the Member States implementing EU related or domestic legislation.

Inevitably, the implementation of almost all new or revised EU policies require the support of ICT, e.g. for secure cross-border exchange of information between authorities, for the delivery of online public services to citizens and/or business, information processing and publication through web-based Portals.

As a result, early considerations of ICT impacts when preparing new policies, increases the chances for optimal implementation timely, in lower cost and without creating new e-barriers. It also contributes to getting the best value from the developed, maintained and operated IT systems through reusability and better planning. The same applies for the evaluation of adopted policies, especially in view of a potential revision.

ICT impacts are defined as the consequences a legislative act can have in relation to the use of ICT for the implementation thereof.

- The use of ICT in the implementation of policies might entail the development of new ICT solutions or the adaptation of existing ones and is likely to have impacts on existing processes and IT systems of the EC, Member States and businesses.
- The implementation of policies impacts in almost every case the processes, the data which needs to be stored and retrieved, the data exchange between businesses, citizens and governmental organisations or the applications which are used to execute the processes.

In this regards, ICT impacts should be assessed whether a proposed legislation:

- **Directly addresses ICT** (as it is the case for "Internet ready" legislation or for legislation referring specifically to an ICT system or service); or
- **Needs ICT as a supporting element** (e.g. IT systems and services, computer networks, information management systems).

The earlier ICT requirements and associated impacts are identified and analysed, the greater the likelihood that appropriate solutions can be prepared and accepted by stakeholders including Member State administrations. To do so, a coordinated, consistent approach to the ICT assessment is needed at EU level.

For this purpose, in 2010, Gartner was mandated by the European Commission (EC), and in particular the Directorate-General for Informatics (DG DIGIT), to design a method available to policy-makers and ICT developers at the EC as well as the Member States (MS) and other implementing bodies, to assess the ICT/digital impacts of EU policies.

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1 ‘Internet –ready’ is the term used to denote areas with the potential for more effective and appropriate interventions based on the on-line migration of off-line activities – and especially where existing instruments and legal frameworks allow as-yet-unrealised adaptation in interventions and policy processes.
Developed under the framework of the Interoperable Delivery of European eGovernment Services to Public Administrations, Businesses and Citizens (IDABC) programme, the purpose of this method was to enable public administrations, both at EU and national levels, to better assess ICT implications of proposed EU policies, ideally prior to their adoption by the European Parliament (EP) and the Council (i.e. ordinary legislative procedure), but also later once the initiative has been adopted.

In other words, this method aimed to ensure that any potential ICT issue (in particular, in terms of costs), which might be encountered by MS or by the EC while implementing an EU policy, could be taken on board at a sufficiently early stage in the legislative process to be avoided or mitigated.

In the framework of the ISA (Interoperability Solutions for Public Administrations) programme (successor of IDABC), more specifically in the context of the ISA Action 3.1 – Assessment of ICT implications of EU legislation, the EC has contracted KURT SALMON to review this method, taken into account acquired experience in applying the method and recent updates on the way legislation is prepared by the Commission.

After having performed desk research, tested the existing method on several assessments and consulted Commission DGs and services, KURT SALMON designed a new method for assessing the ICT impacts of EU policies.

Given that KURT SALMON research was mostly focused on the European Commission, the method is mainly addressed to EC policy makers, involved in Impact Assessments (IA) or Evaluations of Commission initiatives, and ICT experts in charge of assessing the ICT impacts of EU initiatives. The outcome of the assessment with this method should provide sufficient evidence to respond to the IT-related concerns that are likely to arise in the decision-making process or the public reaction after the Commission adopts the initiative.

In a similar way, the method can also be used by MS national expert to assess the ICT impacts of EU legislation implementation or transposition or of their national legislation. The method might however be adapted to the particularities of the national legislation production systems and constitutional formats.

The first part of this report describes this ICT assessment method, going through its design principles and processes. The second part is focused on the governance and highlights the roles and responsibilities and the interactions between the different bodies involved in the ICT assessment. The third part aims at explaining the role of Member States in executing an ICT Assessment.
1. ICT assessment method

Designed for forward-looking IAs as well as retrospective Evaluations and Fitness Checks, the ICT assessment method aims at supporting the implementation of EU policies by considering at an early stage in the EU policy cycle whether ICT impacts may arise from a policy and should thus be further assessed.

In order to ensure coherence with the EC Guidelines on Better Regulation\(^2\) published in May 2015, the ICT assessment method builds on the existing IA and Evaluation process while adapting to the changing world by putting a priority on ‘digitally minded’ policies.

This section aims at going into further detail on the ICT assessment method design principles, and the proposed processes to support their application.

1.1. Design principles

The ICT assessment is governed by a set of design principles whose application provides more relevant and useful evidence for decision making on ICT. Based on the Better Regulation and on the feedback received from Commission officials, the following six design principles were defined as the basis for the ICT assessment method.

1. **Focus on regulatory IA and Evaluation of Commission major initiatives.**
   
   ICT impacts should be assessed for the Commission's major initiatives, prospectively in the context of IA or retrospectively when carrying out Evaluations. ‘Major initiatives’ include the initiatives from the Commission Work Programme (CWP); REFIT items; mandates for the negotiation and conclusion of international agreements; Commission Communications and delegated and implementing acts.

2. **Start as early as possible in the EU policy cycle and ensure that the assessment remains aligned with the EU policy cycle timeline.**
   
   An ICT assessment can only be successful if it is undertaken at an early stage of the policy development. In this regards, ICT should be considered when the idea for a new initiative is conceived already; and further explored and assessed when the Roadmap or the Inception IA is prepared. This will indeed indicate to the ICT experts from the lead DG or from DG DIGIT possible impacts on ICT and thus enhance their participation in the related Inter-service steering group. The ICT Assessment should feed into the IA as well as the Evaluation and fitness checks process to ensure its alignment with the EU policy cycle timeline. The presence of ICT experts in Inter-service steering groups is therefore essential to make this link.

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3. **Align with the Better Regulation guidelines, including coherence with EU legislation and Commission initiatives e.g. on data protection, data security, European Interoperability Framework.**

The ICT Assessment should follow the 11 principles and minimum standards of the Better Regulation guidelines as the latter aim to provide a rigorous evidence base to inform decision-making and contribute to making Commission activities more effective, coherent, useful, relevant and efficient while enhancing transparency, participation, learning and accountability.

With regards to ICT specifically, the coherence of the policy options with existing and ongoing ICT-related policies, existing interoperability standards, specifications and guidelines and the Commission IT Governance should be verified; e.g. European Interoperability Strategy, European Interoperability Framework, cloud computing strategy, standards and best practices for systems architectures, data management, semantic definition of data, etc.

4. **Ensure that the initiative is digitally-minded and considers proven evolving technologies (Big data, Internet of things) when assessing ICT impacts of policy options.**

Digital technologies such as the Internet, social media and mobile devices heavily impact daily life but their pervasive presence and influence is expected to grow yet further. For this reason it is first important to ensure that the proposed policy options also reflect this reality and its development. Whether directly addressed or referred to as a supporting element, ICT should be considered as an instrument to implement policy options.

For this purpose, policy options should be "digitally minded" and support the development of the Digital Single Market. Moreover, the emergence of new technologies such as Big Data and data analytics in the landscape of scientific analysis and the increasing role of the Internet, web-services and social networks in aggregating information about people and organisations should be considered when assessing ICT impacts.

5. **Seek for reusability (artefacts, standards, building blocks, networks, governance, methods or policies) and best practices (including existing business models and methods).**

As mentioned in the Better Regulation guidelines, the possibility of re-using what exists already and not "reinvent the wheel" should not be overlooked. As much as possible ICT solutions should be "open", i.e. favouring the use of open standards and of open data. Reusing existing ICT solutions is indeed essential as it allows minimising costs and accelerating implementation time.

6. **Update the ICT assessment based on the Parliament and Council adoption process.**

During the adoption process, the Parliament and the Council may introduce amendments that (significantly) change the legislative text and therewith the ICT impacts of the policy. In this case, the ICT assessment should be aligned with the Council and Parliament adoption process and thus updated so as to take these amendments into account.

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1.2. Process

As mentioned in the design principle N°2, the ICT assessment should “Start as early as possible in the EU policy cycle and ensure that it remains aligned with the EU policy cycle timeline”. In this context, this sub-section aims to describe how the processes related to the ICT assessment interlink with the EU policy cycle, and which process steps are included in the ICT assessment method.

Figure 1 below gives an overview of the EU policy cycle based on the Better Regulation guidelines 2015.

**Figure 1 EU policy cycle: Better Regulation guidelines**

The three proposed processes to assess ICT impacts, i.e. Digital screening and ICT Assessment (1), ICT impact re-assessment (2) and Monitoring and Reporting (3), will be aligned with the main phases of the EU policy cycle, as illustrated in Figure 2.

**Figure 2 ICT assessment and EU Policy cycle processes**

The remaining of this section aims to explain each of the proposed processes to assess ICT impacts.
1.2.1 Digital screening and ICT assessment

As depicted in Figure 3, the process related to the digital screening and ICT assessment is articulated around two main phases, Digital screening (Phase I) and ICT assessment (Phase II), and supported by a set of three deliverables, i.e. digital screening checklist, ICT Inception report and ICT Final report.

**Figure 3 Digital screening and ICT assessment processes**

The digital screening checklist, ICT Inception report and ICT Final report aim to provide additional guidance to policymakers and ICT experts in the application of the ICT Assessment process steps:

- **Digital screening checklist**: List of high-level questions aimed at helping the policy units of the lead DG identify whether the initiative has any ICT impacts and thus requires to go through a more detailed ICT assessment;

- **ICT Inception Report**: It serves as a starting point for defining the scope and preparing an ICT assessment. It is based on a template that should be filled-in by ICT experts and ideally submitted for review to the Inter-Service Steering group before the actual assessment of ICT impacts;

- **ICT Final Report**: Based on the key findings from the assessment, this report should provide policy-makers with clear evidence-based results to support decision-making on the preferred policy option (and related technical scenario). It is based on a template that should be filled-in by ICT experts and ideally submitted for review to the Inter-Service Steering group at the end of the ICT assessment phase.
This sub-section aims at describing into detail each phase of the digital screening and ICT assessment.

**Phase I: Digital screening**

During the IA or the Evaluation, the initial ICT impacts identified in the CWP, Management plans and Roadmap or Inception IA should be further analysed and updated.

In line with the Better Regulation’s recommendations⁴, a “digital screening” should first take place at the early stage of the IA or Evaluation to reveal the existence of ICT/Internet based options needing further analysis. This screening should be performed by the policy-makers from the lead DG, supported by ICT experts from their internal teams (if necessary). Four main criteria are included in the digital screening checklist, as illustrated in Figure 4.

**Figure 4 Criteria under analysis in the digital screening checklist**

An easy way to do the digital screening is to go through each of the criteria included in the digital screening checklist and simply answer with a “YES” or “NO”⁵. Table 1 provides detailed information on each of these aspects.

**Table 1 Criteria included in the digital screening checklist**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is there any need to establish an ICT or Internet based solution?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a need to develop, migrate and/or operate any kind of new or existing IT system, network or service over the Internet or private networks?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It could be that ICT/Internet is in the core of the legislation or simply a supporting driver of it.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• The Energy labelling Directive⁶, which is part of the ecoSearch Initiative, transfers traditional consumers rights and dealers obligations to the Internet sales channel for kitchen appliances and other white goods;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Member States administrations cooperate by making use of the Internal Market Information system⁷;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Member States interconnect their business registers and notify each other about changes to those registers⁸.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Criterion</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Is any &quot;information processing&quot; involved?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By this we mean collection, storage, retrieval, consultation, filtering, exchange, reporting, etc. of any kind of meaningful data (text, image or video).</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Industrial installations and aircraft operators have to report on CO₂ emissions under the Emissions Trading System;</td>
<td></td>
<td></td>
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<tr>
<td>- Airline companies have to report to law enforcement authorities on passengers' data to prevent terrorism;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- National authorities have to exchange information on criminal records.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Caution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- When data-forms have to be designed it is likely that information processing will occur and will be probably supported by an IT system;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- When &quot;reporting&quot; is required it is likely that data have to be collected, formatted and transmitted (as information) through IT systems and networks.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Are any &quot;business processes&quot; established or changed?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>By &quot;business process&quot; we mean a sequence of activities to produce a specific result. Today, most of those activities can be automated and executed through workflows.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Examples:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- In the case of public procurement, a call for interest is published, companies submit their bids, which are evaluated before the winning applicant is awarded;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The Commission receives a request by organisers to run a &quot;signature collection&quot; campaign in line with the European Citizens Initiative Regulation. Signatures have to be collected by the organisers and validated by the national competent authorities and the Commission to be informed of the result;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Following inspection of a product in the market (i.e. laboratory control), food inspectors notify national authorities for product's non-compliance. Following verification at national level, the Commission and connected Member States are alerted.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Caution:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Information processing is partly or wholly a business process (e.g. information collection, reporting, etc.). It means that whenever &quot;information is processed&quot;, it is likely that some short of business processes will have to be established or modified;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- The existence of business processes does not necessarily require the implementation of an IT solution. It can be that a mixture of automated and non-automated (e.g. paper based) processes exist. It is however probable that over time a full automation will be necessary and this should be considered upfront.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Are there any "security or data protection" requirements?

Sensitive data must be treated with care. If any option refer to such a need it is highly possible that special IT measures should be taken to ensure exchange, integrity and confidentiality of this data, such as encryption, secure hosting, limited access, etc.

Example:
- Competent national authorities wishing to exchange citizens’ data, even if it is on paper that has been digitally scanned, must do so in a secure manner.

Caution:
- It is highly unlikely that information can be exchanged securely, especially across countries, without electronic means. Whenever such a need arises a secure IT network and system are likely to be required.

If the answer to ALL of the above questions is "NO", then the link with ICT is very likely to be either insignificant or non-existent. No further analysis is required at this stage. However as the IA process evolves, a reappraisal may be necessary.

If the answer to ANY of the above questions is “YES”, then it is highly likely that there is a dependence of the option(s) on ICT. As a result, ICT experts should be called upon to perform a deeper assessment and move on to Phase II – ICT assessment.

**Phase II: ICT assessment**

At this stage, ICT experts⁹ are requested to investigate the ICT impacts of the policy and make recommendations on the preferred policy option(s) and related technical scenario(s) for implementing the initiative.

As shown in Figure 5, the overall approach for Phase II is composed of three main steps: Step 1 – Define the scope of the ICT assessment; Step 2 – Prepare the ICT assessment and Step 3 – Assess ICT impacts. Each of these steps is further described in this sub-section.

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⁹ ICT experts may come from the lead DG internal IT team or from DG DIGIT.
In order to support the ICT experts going through a detailed ICT assessment, an ‘ICT Inception report template’ can be used. Pre-formatted so as to follow the three-step methodology above mentioned, this template serves as a starting point for Step 1 (Define the scope of the ICT assessment) and Step 2 (Prepare the ICT assessment).

**Step 1: Define the scope of the ICT assessment**

The first step of the method aims to define the scope of the ICT assessment. As mentioned in the Better Regulation guidelines\textsuperscript{10}, “As must set out the logical reasoning that links the problem (including subsidiarity issues), its underlying drivers, the objectives and a range of policy options to tackle the problem.”

In the context of an ICT assessment, the same reasoning should apply and the three (3) following questions should be answered by the policy, business and ICT experts collaborating on the initiative.

- **How is ICT linked to the problem?** [Identify the ICT relevance of the policy problem]

ICT may create, exacerbate or complicate a problem (e.g. ICT means are not used, or are insufficient/outdated and not responding to the needs) but also be useful in developing, implementing and monitoring common, consistent and coherent solutions to address the problem (e.g. ease of collecting concrete and robust measurements; ability to mandate or implement common definitions, principles, requirements and procedures; flexibility to keep up to date with new information requirements of consumers and other key stakeholders).

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• How could ICT contribute to achieving the policy objective(s) in an efficient and effective way? [Identify the ICT relevance of the objectives]

On the one hand, ICT may produce benefits directly related to the policy objectives, e.g. setting up a new surveillance system gathering seismic information from distributed sensors is expected to help predict better the occurrence of earthquakes which can be translated in terms of costs or lives saved.

On the other hand, ICT may also produce benefits indirectly related to the policy objectives, e.g. by solving problems linked to the provision of transparent, timely and precise information on a market in which competition is imperfect; by putting in place ICT infrastructures that are not only used for the specific policy but create a digital environment that can either be reused by another policy or generally establish channels for types of information exchange other than those required by the policy.

• How could ICT be leveraged to implement each policy option? [Define the technical scenarios]

As mentioned in the Better Regulation Toolbox\textsuperscript{11}, ICT should be considered as an instrument to implement policy options. In this regards, one should define, describe and identify the main requirements of the technical scenario(s) that relate to each policy option. In other words, one should explain how each policy option can be implemented, from an ICT point of view. While one technical scenario can be defined for several policy options; one policy option can also be implemented by different technical scenarios.

The technical scenarios should be designed in coherence with the landscape of EU legislation and Commission initiatives, including existing interoperability standards, specifications and guidelines e.g. on data protection, data security, European Interoperability Framework, European Interoperability Strategy, Cloud computing strategy, standards and best practices for systems architectures, data management, semantic definition of data, etc.

The technical scenarios defined at this stage will be the ones further analysed in the remaining of the assessment.

Step 2: Prepare the ICT assessment

The second step of the method aims to prepare the ICT assessment. As mentioned in the Better Regulation guidelines\textsuperscript{12}, “IAs must present the likely impacts of the options, who will be affected by them and how.” It should be noted that likely impacts can either be positive (benefits) or negative (costs).

For this purpose, one should:

- Identify the stakeholder groups affected by the technical scenarios and map them to the various types of regulatory costs and benefits;
- Define the ICT cost-benefit model for each technical scenario;
- Select the most appropriate data collection methods to estimate costs and benefits and the most relevant assessment criteria against which the technical scenarios are to be compared.

- **Who are the stakeholders affected by the ICT impacts of the initiative?** [Analyse stakeholders]

A “stakeholder” is any individual or entity impacted, addressed or otherwise concerned by an EU intervention. In this regards, a stakeholder analysis provides a means to identify the relevant stakeholders who have a “stake” or interest in the assessment under consideration and make clear how these are affected by the problem and will be concerned by the initiative.

Based on all stakeholder groups affected by the initiative (either positively or negatively), as mentioned in the Roadmap or Inception IA, a deeper analysis of the stakeholder groups is needed. It means profiling each stakeholder group, based on their size, their role and the potential impacts of the technical scenarios on them.

While the profiling can be performed at stakeholder group level, it can also be pushed further by analysing the profiles of the stakeholders belonging to the same group (segmentation) to ensure more accurate results. For instance, the stakeholder group “businesses” can be decomposed into large companies, SMEs, start-ups, etc. as they may not all be impacted the same way by an initiative.

At the end of this analysis, all potential impacts – positive or negative – should be mapped out according to the specific parties that would be affected. For this purpose, the impacts identified during the profiling should be mapped to the regulatory costs and benefits described in the Better Regulation guidelines 2015\textsuperscript{13}.

In order to be a valid support to decision-making, the costs and benefits items should be mapped to the specific regulatory costs and benefits typologies from the Tool #51 of the Better regulation\textsuperscript{14}, for each stakeholder group and each scenario assessed. The ultimate purpose of this mapping is to feed into the IA as well as the Evaluation and fitness checks process (as mentioned in Design Principle N° 2).

The total cost arising from the implementation of a policy (or ‘regulatory costs’) is the sum of (1) Direct Costs; (2) Enforcement Costs; and (3) Indirect costs:


• **Direct Costs** are these costs linked to the needs to divert resources to carry out the direct consequences of a policy option. Direct costs can be broken down into regulatory charges, substantive compliance costs, administrative burdens and hassle costs;

• **Enforcement Costs** are these costs associated with activities linked to the implementation of a policy, such as monitoring, enforcement and adjudication;

• **Indirect costs** are these costs incurred in related markets or experienced by consumers, government agencies or other stakeholders that are not directly targeted by the policy.

With regards to regulatory benefits, there is no commonly agreed taxonomy of regulatory benefits although the Commission recommends a convenient classification into three categories:

• **Direct regulatory benefits** are these benefits related to the improvement of the well-being of individuals and efficiency improvements;

• **Indirect regulatory benefits** include spill-over effects related to third-party compliance with legal rules, wider macroeconomic benefits, and other non-monetizable benefits, such as protection of fundamental rights, social cohesion, reduced gender discrimination, international and national stability;

• **The “ultimate impacts” of regulation** encompass well-being, happiness and life satisfaction, environmental quality, and more economic goals such as GDP growth and employment.

Assuming that IT costs are mainly substantive compliance costs or indirect compliance costs, for the other categories of costs and for all categories of benefits, estimates should be performed in accordance to the Better Regulation guidelines\(^\text{15}\) and toolbox\(^\text{16}\) 2015.

Stakeholder analysis is the basis to define the ICT cost-benefit model and will drive the data collection methods to be used during the ICT assessment. It is thus essential to ensure that all stakeholder groups affected by the ICT impacts of the initiative are well identified and analysed.

For this purpose, **desk research on secondary data**\(^\text{17}\) should be performed and an **inception workshop** should be organised with the DG in charge of the initiative (lead DG) to confirm that the driver(s), objective(s) and scope of the assessment are clear and well understood by all parties.

• **What are the IT costs for implementing each technical scenario (per stakeholder group)?** [Build the ICT cost-benefit model]

The four main levels of assessment needed to come up with an ICT cost-benefit model, for each technical scenario (and per stakeholder group) are summarised below:

1. Identify regulatory costs and benefits concerned;

2. Identify requirements (business, functional or non-functional) for each technical scenario;

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\(^{17}\) “Secondary data” refers to the data collected by someone other than the user, or the data collected for a purpose other than the current one (in this case the ICT assessment of a specific initiative). Conversely, primary data are collected by the investigator conducting the research.
3. Estimate ICT costs using the ICT cost taxonomy from the VAST (i.e. infrastructure, development, maintenance, support and training) to estimate the cost per technical scenario;

4. Estimate ICT benefits using the regulatory benefits taxonomy indicated in the Better Regulation guidelines\textsuperscript{18} and toolbox\textsuperscript{19} 2015 (i.e. improved well-being and market efficiency, indirect compliance benefits, wider macroeconomic benefits and other non-monetizable benefits).

**ICT costs**

In order to build the ICT cost model corresponding to each technical scenario and for each stakeholder group, it is essential to decompose each technical scenario into requirements. Following a project management approach, each technical scenario should indeed be broken down into business, functional or non-functional requirements. These requirements may be identified via data collection (e.g. desk research, interviews). A set of questions included in Table 2 may also help identify the impacts of each technical scenario, in terms of key requirements. For instance, realising that existing business processes will need to be modified for the stakeholder group N°1 if technical scenario N°1 is selected (question 1 under “Business processes category”) will lead the ICT expert performing the assessment to further explain how these processes will be modified (e.g. additional process, stakeholder, input needed) and then define whether these impacts will generate a cost or a benefit for the stakeholder group N°1.

**Table 2 Guidance on the type of ICT impacts to assess**

<table>
<thead>
<tr>
<th>A. Business processes and Information flow</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A1. Will the implementation of the technical scenario require the establishment of new business processes?</strong></td>
</tr>
<tr>
<td><strong>A1.1. [If yes] Which one(s) would need to be automated (by ICT)?</strong></td>
</tr>
<tr>
<td><strong>A1.2. [If yes] Which one(s) would need to be implemented manually (without ICT support)?</strong></td>
</tr>
<tr>
<td><strong>A2. Will the implementation of the technical scenario impact the existing information flow?</strong></td>
</tr>
<tr>
<td><strong>A3. Will the implementation of the technical scenario impact the volume of information exchanged between business processes?</strong> (Estimated number of businesses/citizens/other objects affected, number of transactions, number of users, amounts of money etc.)</td>
</tr>
</tbody>
</table>

*In order to have a clear view on the existing and future processes, roles and responsibilities of stakeholders and the related information flow, we recommend modelling these information flow and business processes.*


### B. Data management and semantics

**B1.** Does the technical scenario require data exchange between ICT systems?

- **B1.1.** [If yes] Is there any requirement or constraint with regards to the data format?
- **B1.2.** [If yes] Is there any need for data transformation (from one data format to another, e.g. in the case of open data provisioning)?
- **B1.3.** [If yes] Is there any impact on metadata (e.g. xml schemas, data models)?
- **B1.4.** [If yes] Is there any impact on reference data (e.g. codelists, taxonomies, dictionaries, vocabularies)?

**B2.** Does the technical scenario imply the provision, collection, exchange, storage and/or retrieval of data?

**B3.** Are there any linguistic translation requirements involved?

**B4.** Are the data required for the initiative being collected or maintained already?

- **B4.1.** [If no] Are the data required available?

**B5.** Are there requirements to ensure the confidentiality, integrity, protection and/or authentication of the data involved?

**B6.** Who (what entity) is responsible for (has the ownership of) the required data?

**B7.** Does the initiative refer to a national base register?

- **B7.1.** [If yes] Are there any interactions foreseen with the base register by the technical scenario?

> Sensitive data must be treated with care. If any option refers to such a need it is highly possible that special IT measures should be taken to ensure exchange, integrity and confidentiality of this data, such as encryption, secure hosting, limited access, etc.

### C. ICT Specifications/Standards

**C1.** Does the initiative refer to any European, international or national ICT specification(s)/standard(s)?

- **C1.1.** [If yes] What are these ICT specification(s)/standard(s)?

**C2.** What ICT specification(s)/standard(s), which are not referenced in the initiative, could be used for the implementation of the technical scenario?

> A specification is a type of a standard which is often referenced by a contract or procurement document. It provides the necessary details about specific requirements.

> Standards include endorsed and non-endorsed standards.

### D. Implement the ICT solution

**D1.** Is there any specific ICT solution mentioned in the initiative (*)?

**D2.** What are the technical requirements related to the ICT solution (e.g. infrastructure, technology, network, reliability, usability, performance, scalability, accessibility, security, extensibility, testability)?

**D3.** Will you be able to reuse existing ICT solution(s) to implement the technical scenario?

**D4.** Will you need to develop a new ICT solution to implement the technical scenario?

**D5.** Is there any need to migrate existing or legacy systems as part of the ICT solution?

**D6.** How long will it take to develop/ adapt the ICT solution (Less than 12 months? Between 12 and 24 months? Between 24 and 36 months? More than 36 months?)?

**D7.** Is there any time constraint for developing the ICT solution?

**D8.** Is the architecture of the ICT solution defined in the initiative (e.g. centralised or decentralised)?

**D9.** Is there any obligation/reference to complying with any ICT architecture framework?

**D10.** Is the governance to develop the ICT solution defined?

**D11.** Is the governance to operate, support and maintain the ICT solution defined?

(*) frameworks, services or software applications

### E. Risks

**E1.** What are the organisational risks, if any, associated with the implementation of each technical scenario?

**E2.** What are the technical risks, if any, associated with the implementation of each technical scenario?
The implementation of the identified requirements should then be mapped to specific cost categories, such as the ones from VAST, i.e. Infrastructure, Development, Maintenance, Support, Training.

Following VAST, five categories of costs should be analysed while defining the ICT cost model of each technical scenario:

1. **Infrastructure costs** provide the total (anticipated) cost of the hardware (e.g. network, servers, storage) and software (e.g. licences, libraries) required to develop, support, operate and maintain the online collection system;
2. **Development costs** provide the total (anticipated) cost (human resources) for the development of the system (e.g. analysis and process re-engineering activity, coding activity, project management activity, test activity, configuration & change management activity, deployment activity);
3. **Maintenance costs** provide the total (anticipated) cost (human resources) in person days per year to maintain the system (e.g. activities related to both corrective maintenance and evolving maintenance);
4. **Support costs** provide the total (anticipated) cost (human resources) in person days per year to support the system, its users and end-users;
5. **Training costs** are related to the costs to train systems’ users.

The sum of these costs aims to provide an estimate of the Total Cost of Ownership\(^{20}\) (TCO) related to each technical scenario assessed.

While defining these costs, one should take into account whether these costs are investment or operating costs. Investment or set-up costs are one-off costs incurred at the beginning of a project only e.g. to develop a new solution; whereas operating costs are ongoing costs related to the operation of a solution and its improvements.

**ICT benefits**

In order to build the ICT benefit model, the ICT expert should first identify all the benefits related to each technical scenario and for each stakeholder group. In accordance with the Better Regulation guidelines\(^{21}\) and toolbox\(^{22}\) 2015, each benefit identified should then be mapped to a corresponding category of regulatory benefits, whether direct, i.e. improved well-being and market efficiency, or indirect, i.e. indirect compliance benefits, wider macroeconomic benefits and other non-monetizable benefits.

Each type of regulatory benefits should finally be described, at least qualitatively and, when possible, quantitatively, as these will provide inputs when comparing the technical scenarios against a set of assessment criteria (please refer to the sections on the assessment criteria in Step 3: Assess the ICT impacts). The assessment of the benefits may, for instance, contribute to the evaluation of a technical scenario’s efficiency (e.g. reduction in IT costs), effectiveness (e.g. increased citizens’ satisfaction), value for EU (e.g. saved time), coherence, relevance or technical feasibility.

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\(^{20}\) The TCO of an information system defines the total estimated cost to develop the system, to put it into production, to operate it, to support it, to maintain it, to phase it out at the end, etc. The cost estimation should be as comprehensive as possible and include all costs from the very inception of the system until its phase out.


VAST can be used to identify the qualitative benefits of a technical scenario, as it provides a set of key questions aimed to assess the value of the technical scenario for the EU. VAST can also be used to estimate the benefits in monetary value, as it includes a specific tool aimed at assessing saved time, reduction in IT costs and direct operating costs, and qualitatively.

This information may be valuable inputs when comparing the technical scenarios against a set of assessment criteria (please refer to the sections on the assessment criteria in Step 3: Assess the ICT impacts).

- **What is/are the most appropriate data collection method(s) for assessing ICT costs and benefits for each concerned stakeholder group?** [Define the data collection method]

Consulting those who will be affected by a new policy or initiative, including those who will implement it as a regulatory obligation is essential for producing high quality and credible results. Consultation indeed helps to ensure that policies are effective and efficient, and it increases the legitimacy of EU action from the point of view of stakeholders and citizens.

In this regards, the stakeholder groups impacted by the technical scenarios should be consulted. Depending on these groups’ profiles, in particular their size and the types of impacts of each technical scenario on them, specific data collection method(s) can apply, as illustrated in Figure 6.

**Figure 6 Mapping of stakeholder groups and data collection methods**

![Figure 6](image)

Even though more data collection methods exist, e.g. focus groups, Delphi method, the four data collection methods listed above are these recommended for the assessment of ICT impacts.
A 12-week internet-based public consultation must be part of the consultation strategy for all the initiatives subject to IAs, Evaluation and Fitness Checks as well as for Green Papers, to ensure that stakeholders’ views are sought on all key IA questions.

In this regards, public consultation has been excluded from the ICT assessment data collection methods, taking into consideration that the outcome from the ICT assessment will directly feed in the IA or Evaluation results to be reviewed during the public consultation.

1. First, desk research, which involves the summary, collation and/or synthesis of secondary data, aims not only to obtain a clear picture of the field of study at the inception phase but also to verify the primary data collected along the assessment. In other words, desk research is the instrument to screen and collect legal, policy, and technical information from documentation available at national and EU level (e.g. monitoring or evaluation reports from previous or similar programmes, statistical data from Eurostat, studies carried out by or for the Commission, results of consultation documents such as Green Papers, good practice in Member States, internationally agreed standards) but also to validate the primary data collected via other data collection methods, such as interviews and surveys.

At the inception stage, the desk research should result in a selection of the most relevant documents to consult during the assessment of ICT impacts. During the analysis phase, desk research will be used to perform quality controls on the primary data collected.

2. Secondly, interviews are the tool to be used in order to collect information directly from the stakeholders having a direct stake in the assessment. The interviews rely on the desk research findings, more precisely on the areas identified as to be investigated. As a data collection method, interviews provide in-depth information on explaining the reasoning leading to certain actions and describing the phenomena in question (i.e. answering to question types “How?“ “Why?”).

Different types of interviews can be conducted. A distinction indeed needs to be made between structured, semi-structured and non-structured interviews:

- **Structured interviews** are supported by an interview guide, i.e. a rigorous set of questions, which does not allow one to divert;
- **Semi-structured interviews** are supported by a framework of themes to be explored, so as to allow new ideas to be brought up during the interview as a result of what the interviewee says; and
- **Unstructured interviews** are more informal and free flowing than the other types of interviews, as questions are not prearranged upfront but rather developed during the course of the interview, based on the interviewees’ responses.

The use of each method depends on the purpose of the interview and the nature of the information that is being sought. However, in the case of an assessment of ICT impacts, structured interviews should be conducted, supported by an interview guide tailored for each type of stakeholder group to be interviewed. The interview guide should be based on the desk research findings, more precisely on the areas identified as to be investigated, and on the ICT cost-benefit model.

In order to ensure the good preparation of both parties, the interview guide should be submitted at least 3 days in advance to the interviewees. It is also recommended to disseminate the minutes to the interviewees within two days after the interview and ask for their review within five days after the submission.
At the inception stage, the list of stakeholders to interview should be established and the purpose of the interview clearly defined.

3. Thirdly, questionnaire surveys aim at collecting data from a sample of the population, through a structured, limited set of questions, in order to quantify data. It is indeed a powerful research instrument to provide quantitative figures on a phenomenon or a perception.

Questionnaire surveys should be built based on the pre-analysis of the data collected from the interviews, e.g. the interview questions not answered by interviewees should be reformulated or deleted; based on the answers received from the interviews, open questions should be turned into closed questions with a list of proposed answers.

In order to assess the validity of a questionnaire, it is recommended to proceed with a pilot-test addressing a restricted sample of respondents from or similar to the target population (“face validity”) prior to launching it to the full sample of recipients. Pre-testing is indeed another opportunity to verify the questions’ relevance, formulation, flow but also any technical issues. It will also allow assessing whether the survey is too long and whether respondents are losing interest in the course of the survey.

In order to have a response rate sufficiently high to ensure a good representation of the target population and thus reliable results, a reminder should be sent to the respondents, two weeks after the survey is sent.

At the inception stage, the list of stakeholders to survey should be established and the purpose of the survey clearly defined.

4. Finally, workshops are proved to be a very efficient and effective format for gathering expectations and feedbacks from different stakeholder groups.

The main objective of organising a workshop with the lead DG during the inception phase of an ICT assessment is to ensure that the problem driver(s), objective(s) and scope of the assessment are clear and well understood by all parties while benefiting from the expertise of each participant.

The main objective of organising a workshop during the final phase of an assessment is to ensure quality control. In fact, this does not only allow generating perception data that can triangulate with desk research and interviews data, but more importantly prompt a deeper discussion to justify and explain the assessment results.

In any case, the format of the workshop should be participatory, leveraging e.g. interactive voting tools to improve the participation and engagement of the stakeholders in the study. This can bring additional value compared to more traditional methods such as lectures or presentations.

At the inception stage, the list of stakeholders to invite to the inception workshop should be established and the purpose of the workshop clearly defined.

It should be noted that the different data collection methods should be triangulated to ensure the coherence, reliability and validity of the information/data collected.
Against which assessment criteria should the technical scenarios be compared? [Define the assessment criteria]

In line with the Better Regulation guidelines, the main assessment criteria against which the technical scenarios should be compared are effectiveness and efficiency. Additional ones, such as the technical feasibility, coherence, relevance and EU added value of the technical scenarios, may be introduced as needed.

- **Efficiency**: this criterion aims to identify the "least-costly" technical scenario;
- **Effectiveness**: this criterion aims to identify the technical scenario supposed to deliver the "best-value-for-money";
- **Technical feasibility**: this criterion aims to identify the technical scenario which can be the most easily implemented. It refers to the quality criteria (e.g. functional completeness, performance, compatibility, usability, portability, security) with which the ICT solution(s) should comply.
- **Coherence**: this criterion aims to identify the technical scenario which is the most aligned with overarching EU objectives, strategies and priorities (please refer to Design Principle N°3);
- **Relevance**: this criterion aims to identify the technical scenario that is the most pertinent to address the policy problem and reach the policy objectives; and
- **EU added value**: this criterion aims to identify the technical scenario that would achieve the greatest amount of value for the EU, in comparison with the other scenarios and with what could be achieved by Member States at national and/or regional levels.

Each assessment criterion may be drilled down into sub-criteria (when possible). Establishing the assessment criteria \( j \) to be used to compare scenarios \( m \) is typically done by involving policy makers and ICT experts in meetings and brainstorming sessions. These criteria must be measurable, at least in qualitative terms, and be provided by the terms of reference to the ICT Assessment. The criteria should then be presented and validated by the (other) inter-service steering group members.

Following the principles of a multi-criteria analysis\(^{23}\), once the assessment criteria (or sub-criteria) are established, weightings should be assigned to each of them \( w_j \) to reflect their relative importance in the decision.

Multi-criteria analysis is the recommended method to compare different technical scenarios. Weighted Sum Method (WSM) is used to identify the preferred scenario, which is a simpler method compared to methods like the Analytical Hierarchical Method (AHP). WSM aims at designating a preferred scenario, to classify alternative scenarios ("alternatives") in a small number of categories and/or to rank the alternatives.

WSM implies that the score of a technical scenario ("alternative") is equal to the weighted sum of its evaluation ratings (for each criterion (or sub-criterion) identified), where the weights are the importance weights associated with each criterion. The WSM method can be applied without issues in case all units of measurements are identical. It is used only in single dimensional decision-making problems (e.g. dollars, mileage) where all units of measurements are identical. The Analytical Hierarchical Process (AHP) is more sophisticated that the WSM and is applicable in both single and multi-dimensional decision problems. This method can define more precise weights for each individual criterion, compared to WSM. However, the formula to calculate the preferred option is identical to the one used for WSM (refer to equation 1 below).

In this regards, each criterion (or sub-criterion) should be weighted using a scale of 10 points. Participatory techniques involving policy-makers and ICT experts should be employed. The weightings should then be presented and validated by the (other) inter-service steering group members.

### Table 3 Summary of the list of assessment criteria and related weightings

<table>
<thead>
<tr>
<th>Weighting (assessment criteria)</th>
<th>Assessment criteria</th>
<th>Weighting (sub-criteria)</th>
<th>Sub-criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>$W_1$</td>
<td>Efficiency</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>$W_2 = \sum_{m=1}^{M_2} W_{2,m}$</td>
<td>Effectiveness</td>
<td>$w_{2,1}$</td>
<td>&lt; Name and description of sub-criterion N°1 &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$w_{2,2}$</td>
<td>&lt; Name and description of sub-criterion N°2 &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$w_{2,M_2}$</td>
<td>&lt; Name and description of sub-criterion N°M_2&gt;</td>
</tr>
<tr>
<td>$W_K = \sum_{n=1}^{M_K} W_{K,n}$</td>
<td>&lt; Name and description of the assessment criterion N°K&gt;</td>
<td>$w_{K,1}$</td>
<td>&lt; Name and description of sub-criterion N°1 &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$w_{K,2}$</td>
<td>&lt; Name and description of sub-criterion N°2 &gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$w_{K,M_K}$</td>
<td>&lt; Name and description of sub-criterion N°M_K&gt;</td>
</tr>
</tbody>
</table>

### Step 3: Assess the ICT impacts

The third step of the methodology aims to assess the ICT impacts.

In order to support the ICT experts presenting the ICT assessment results, an ICT Final report template was developed. Based on the key findings from the assessment, this template should provide policy-makers with clear evidence-based results to support decision-making on the preferred policy option (and related technical scenario).

In order to start the ICT assessment and as recommended by the latter template, estimates on the costs and benefits of implementing each technical scenario should be collected and analysed. The technical scenarios will then be compared so as to make recommendations on their related policy options.

- **How to ensure that the data collected is coherent, reliable and valid?** [Collect and analyse data]

At this stage, the data collection methods to use for the assessment of ICT impacts have been selected and the cost-benefit model defined.
In case questionnaire surveys and interviews are to be used, the interview guides/questionnaires should be designed in a way that ensures that the questions cover all the costs and benefits items defined in the cost-benefit model.

Taking into account that quantitative inputs may be difficult to obtain, both qualitative and quantitative questions should be addressed to stakeholders when it comes to assessing the value of a cost or benefit item. For instance, one could ask to "estimate the costs to establish a connection using sFTP and then address another question to "rate the complexity to establish a sFTP connection from 1 to 5 (1 being the most complex and 5 the least complex)".

Additionally, as it is usually easier to assess costs than benefits, particularly as far as their monetary value is concerned, one may be willing to use other techniques than consultation for estimating benefits, e.g. comparison to a historical case, use of a proxy or break-even approach.

Once the data are collected, it is essential to verify their coherence, reliability and validity.

For the assessment of coherence, one should check that the data collected responds to the following principles, which are based on criteria for the quality of indicators, known as RACER (Relevant, Accepted, Credible, Easy to monitor and Robust against manipulation) in the Better Regulation guidelines:

- **Relevant**: closely linked to the objectives to be reached (in this case, measured). Relevance indicators should not be overambitious and should measure the right thing (e.g. a target indicator for health care could be to reduce waiting times but without jeopardising the quality of care provided).

- **Accepted**: The role and responsibilities for the indicator need to be well defined (e.g. if the indicator is the handling time for a grant application and the administrative process is partly controlled by Member States and partly by the EU then both sides would assume only partial responsibility).

- **Credible**: Indicators should be simple and robust, unambiguous and easy to interpret. If necessary, composite indicators might need to be used instead – such as country ratings, well-being indicators, but also ratings of financial institutions and instruments. These often consist of aggregated data using predetermined fixed weighting values. As they may be difficult to interpret, they should be used to assess broad context only.

- **Easy to monitor** (e.g. data collection should be possible at low cost).

- **Robust against manipulation**: e.g. if the target is to reduce administrative burdens to businesses, the burdens might not be reduced, but just shifted from businesses to public administration.

With respect to reliability, the following assessment criteria should be used:

- **Scientific quality**: Metrics, calculation methods and presentation of results should be of high scientific quality;

- **Full transparency**: the data collection and calculation methods should be clear, fully documented (within the ICT Inception report) and the raw data should be made available. This last criterion is a condition of the quality of the data.

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Finally, triangulating the data collected can ensure data validity.

Triangulation of data is defined according to the practical guide for the Commission services on how to ‘Evaluate EU activities’, as “the use of data collected using different tools and from different sources, and/or analysis from different theoretical perspectives and by different analysts, and at different time” \(^{25}\). As mentioned in the previous chapters, the evaluation should ensure the gathering of both qualitative and quantitative measures for evaluating the achievement of the programme against both general objectives and specific objectives. Triangulation of data aims to ensure the validity, reliability, and accuracy of the information/data collected.

When planning triangulation of data, the evaluators should consider whether the data collected is qualitative or quantitative. This is necessary because the meaning of validity is not the same for qualitative and quantitative research. In quantitative research, validity refers to whether the findings of a study are true and certain – “true” in the sense that research findings accurately reflect the situation and “certain” in the sense that research findings are supported by evidence \(^{26}\). When addressing the validity of quantitative data, one will focus more on the “true” meaning than on the accuracy of the data collected. The focus groups with experts generate perception data that can triangulate with survey and interviews data, but more importantly prompts a deeper discussion to justify and explain the study results.

In addition, the assessment questions should be looked at from different standpoints and by different methods (triangulation of methods). Using a mix of qualitative and quantitative methods allows drawing robust conclusions on findings. For instance, desk research can be a way to verify the data collected via interviews and questionnaire surveys. The quantitative inputs received via the latter data collection methods could be compared to similar initiatives, using benchmarking tools such as the EICart or GOVIS \(^{27}\).

Accessibility: in principle, all evidence gathered should be made available to the general public. Unless data includes confidential elements, it is recommended that it is made available via the EU Open Data Portal \(^{28}\) which provides a single point of access to a growing range of data produced by the institutions and other bodies of the European Union. Such information has a significant potential not just to increase transparency but also, through its re-use, to create new products and services and efficiency gains in administrations. Facilitating access to public data will also foster the participation of citizens in policy making processes.

- **How to draw conclusions and make recommendations on the technical scenarios analysed?**
  
  [Compare the technical scenarios and make recommendations on the policy options]

Based on the outcomes of the data analysis, one should be able to provide the costs and benefits, advantages and disadvantages, of the options assessed.

The outcome of an ICT assessment may depend on predictions which by nature will have a degree of uncertainty attached to them. Uncertainty should therefore be taken into account in the results of the assessment. When this is not possible, assumptions should be explicitly stated.

\(^{25}\) Evaluating EU activities – A practical guide for the Commission services, Directorate General for Budget, European Commission, July 2004

\(^{26}\) Triangulation: Establishing the Validity of Qualitative Studies, Lisa A. Guion, David C. Diehl, and Debra McDonald, 2011


\(^{28}\) https://open-data.europa.eu/en/data/
Sensitivity analysis should be used to reduce uncertainty. Sensitivity analysis involves considering a range of possible values of one key variable or factor which is likely to affect the outcome of the regulations; obviously this technique can also be applied to several (but, in practice, not many) factors at the same time.

Moreover, a social discount rate should be used to convert all costs and benefits to “present values” so that they can be compared, as further explain the Better Regulation toolbox.²⁹

Taking into account the key findings from the data analysis and the weighting attributed to each assessment criterion (and potentially sub-criterion), the following distinctions should be made:

- Assessment criteria could be of both types: quantitative and qualitative.
- For quantitative assessments, estimate the monetary value (monetised costs minus monetised benefits). This is usually the case for efficiency, some or all of effectiveness, as well as for other assessment criteria as appropriate;
- In any case, use a scoring mechanism from 1 (lowest) to N (highest) in order to rank the technical scenarios against each sub-criterion and criterion.

"N" corresponds to the number of scenarios assessed: if three (3) technical scenarios are compared, the scoring mechanism should go from 1 (lowest) to 3 (highest=most favoured); if four (4) technical scenarios are compared, the scoring mechanism should go from 1 (lowest) to 4 (highest).

At this stage of the assessment, and following the principles of a multi-criteria analysis, one should evaluate how well each technical scenario meets the assessment criteria previously defined, against the baseline scenario, so as to determine the preferred scenario.

For this purpose, the weighted score for each technical scenario should be computed by multiplying each technical scenario rating by the related weighting. Let us assume that we have N technical scenarios and K assessment criteria in our decision making problem. The preferred technical scenario, \( P^* \), is the one that satisfies the following equation:

\[
P^* = \max_{N \geq i \geq 1} \sum_{j=1}^{K} m_{ij}w_j
\]

Where \( m_{ij} \) stands for the individual score related to the assessment of the technical scenario \( i \) against criteria \( j \), and \( w_j \) stands for the relative weighting (expressed in %) of criteria \( j \).

Based on these computations, recommendations can be made on the preferred policy option(s) (i.e. policy option(s) related to the highest ranked technical scenario(s)). Table 4 shows a way of displaying these results.
### Table 4 Comparison of the technical scenarios

<table>
<thead>
<tr>
<th>Assessment criteria</th>
<th>Weighting</th>
<th>Technical Scenario code (TS) and Short Title N°1 TS01&lt;–TSST&gt;</th>
<th>…</th>
<th>Technical Scenario code (TS) and Short Title N°N TSN&lt;–TSST&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantitative criteria, e.g. efficiency, effectiveness, etc.</strong></td>
<td>Assessment criterion N°1 (monetised)</td>
<td>( W_1 )</td>
<td>( S_1(1) )</td>
<td>( S_1(N) )</td>
</tr>
<tr>
<td></td>
<td>Total monetary value (in EUR)</td>
<td>( W_1 )</td>
<td>( S_1(1) )</td>
<td>( S_1(N) )</td>
</tr>
<tr>
<td><strong>Qualitative criteria, e.g. effectiveness, technical feasibility, coherence, relevance, EU added value.</strong></td>
<td>Assessment criterion N°2</td>
<td>( W_2 )</td>
<td>( S_2(1) )</td>
<td>( S_2(N) )</td>
</tr>
<tr>
<td></td>
<td>Sub-criterion N°1</td>
<td>( w_{2,1} )</td>
<td>( S_{2,1}(1) )</td>
<td>( S_{2,1}(N) )</td>
</tr>
<tr>
<td></td>
<td>Sub-criterion N°2</td>
<td>( w_{2,2} )</td>
<td>( S_{2,2}(1) )</td>
<td>( S_{2,2}(N) )</td>
</tr>
<tr>
<td></td>
<td>Sub-criterion N°M</td>
<td>( w_{2,M} )</td>
<td>( S_{2,M}(1) )</td>
<td>( S_{2,M}(N) )</td>
</tr>
<tr>
<td><strong>Assessment criterion N°K</strong></td>
<td></td>
<td>( W_K )</td>
<td>( S_K(1) )</td>
<td>( S_K(N) )</td>
</tr>
<tr>
<td></td>
<td>Sub-criterion N°1</td>
<td>( w_{K,1} )</td>
<td>( S_{K,1}(1) )</td>
<td>( S_{K,1}(N) )</td>
</tr>
<tr>
<td></td>
<td>Sub-criterion N°M</td>
<td>( w_{K,M} )</td>
<td>( S_{K,M}(1) )</td>
<td>( S_{K,M}(N) )</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regardless of the way results are presented, it must be clear that all these assessments are based on evidence, including quantitative data. The ICT assessment should indeed provide sufficient evidence to respond to concerns that are likely to arise in the decision-making process or the public reaction after the Commission adopts the initiative, with regards to ICT.
1.2.2 ICT Impact re-assessment

As mentioned in the Design principle N°6, the ICT assessment should take into account any changes made on the proposed legislation during the Parliament and Council adoption process, if these amendments (significantly) modify the ICT impacts of the policy. For this purpose, the method defines one ICT impact re-assessment process, which consists in verifying whether the amendments made by the co-legislators modify the ICT impacts of the policy and, if it does so, re-assess the ICT impacts accordingly.

As illustrated in Figure 7, the outcome of this process is an amended ICT Final report that should contribute to the review of the Council and Parliament and thus to the proposed final legislation.

*Figure 7 ICT Impact re-assessment processes*
1.2.3 Monitoring & Reporting

A horizontal monitoring and reporting should be put in place, as displayed in Figure 8, to guarantee that ICT impacts are not overlooked. These are further explained in the remaining of this sub-section.

**Figure 8 Monitoring and reporting processes**

1. The initiatives from the Commission Work Programme should be monitored (by DG DIGIT, DG CONNECT, Commission’s IT Governance, etc.) to identify initiatives having ICT impacts;

2. All Commission DGs could report an indicative planning of studies (IAs and Evaluations mainly) in their Commission DGs Management plans so as to allow DG DIGIT to screen these and potentially identify initiatives to be further assessed;

3. IT experts (from DG DIGIT, DG CONNECT, Commission’s IT Governance, etc.) could be invited to the Regulatory Scrutiny Board (RSB) as ad-hoc experts to control that ICT impacts were assessed when needed and not overlooked;

4. Report to the Commission’s ICT Governance ex-ante during ICT screening and ex-post at the end of the IA or Evaluation process about critical/major upcoming IT developments.
2. Governance

The goal of the ICT Assessment method is to ensure that ICT impacts of new Commission initiatives are estimated before the adoption of a new initiative by the Commission (Commission proposal)\(^{30}\), or when reviewing existing EU policies.

In order to achieve this goal, collaboration between policy, legal and ICT experts from different Commission DGs and services is required from the start of the policy development to the end of the IA or Evaluation process. This collaboration should indeed result in a common understanding of the objectives of the initiative and an agreement on the options and corresponding technical scenarios to reach these objectives in the most efficient and effective way.

In addition to the close collaboration of stakeholders during the ICT assessment or Evaluation, it appears that the governance related to the ICT assessment method also plays a key role in the success of the method. The consultation of the Commission DGs and services showed that the governance of each individual assessment should not be standalone but rather integrated into the existing IA and Evaluation governance.

This section aims at describing the proposed governance of the ICT assessment method and ICT individual assessments, including the roles, responsibilities and interactions of the different governance bodies involved. The last part of the section suggest actions for a horizontal monitoring and reporting of the EU policy cycle, in order to ensure that no ICT impact is overlooked.

\(^{30}\) A revision of the estimated ICT impacts is necessary in case of substantial amendments made by the European Parliament and Council to Commission proposals.
2.1. Governance of the ICT assessment method

In view of the governance of the ICT assessment method, four main roles can be distinguished, as depicted in Figure 9. This sub-section describes each of these roles and the interactions between them to facilitate the ICT assessment.

**Figure 9 Governance of the ICT assessment method**

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**Secretariat-General (mentor of the method):**

The Better Regulation guidelines refer to and include a specific tool on the ICT assessment of future or existing policies. As the owner of these guidelines, the Secretariat-General supports and promotes across the Commission DGs and services the need for and importance of considering ICT impacts when developing or evaluating a policy.

**DG DIGIT (owner of the method):**

DG DIGIT is responsible for (i) updating and maintaining the method (based on the inputs received from the Community of practice, in particular); (ii) providing support (consultation, training, etc.) to Commission units willing to use the method; (iii) and defining a communication strategy for increasing awareness on and stimulating the use of the method. DG DIGIT should exercise its role as the “digital leader” in the governance of the method.

**Pool of experts:**

A pool of experts needs to be established and maintained by DG DIGIT. Trained on the ICT assessment method, these resources (from DG DIGIT) should be made available to support policy units willing to assess the ICT impacts of their initiative.

Acting as “business analysts” creating the connection between the IT service and policy units, the pool of experts should not only bring their view on IT to the policy DGs but also gain knowledge and experience from the policy DGs in their field of expertise. Their experience of the method should therefore be shared with other practitioners in a Community of practice.
Community of practitioners (and Centre of excellence):

A Community of practitioners should be established and animated by DG DIGIT. While resources from the pool of experts should participate in this community, the latter should also be composed of the DGs having used the ICT assessment method on their own initiatives and, ideally, these producing a lot of policies as their expertise may be valuable to the community.

The objective of the Community of practitioners is first (i) to facilitate ICT assessments within the different Commission DGs and services, based on the experience from these having applied the method; and secondly (ii) to provide inputs on the method by ensuring that practitioners share their experiences on the use of the method with a common goal to improve it.

In the long-term (5 years), the Community of practitioners could migrate to a Centre of Excellence that has enough the professional competence and organisational capacity to guide and perform the ICT assessment function for the whole of the Commission.

2.2. Governance of individual Impact Assessments and Evaluations

As mentioned in the introduction of this section, the governance of individual assessments should be based on the existing IA or Evaluation governance.

In this regards, the lead DG, Secretariat-General, and the Inter-service steering group (including DGs having a specific interest or expertise in the initiative) play a role in this governance; and two additional bodies not always involved in IA or Evaluation processes complement this structure for the ICT assessment specifically: i.e. IT team from the lead DG and DG DIGIT, as highlighted in green in Figure 10 below.

This sub-section describes each of these roles and the interactions between them to facilitate the ICT assessment.

Figure 10 Governance of individual assessments
**Lead DG or Secretariat-General:**

The Inter-Service Steering group (ISG) is set up and chaired by the Secretariat-General or the lead DG, depending on the sensitiveness/importance of the initiative. The lead DG should ensure that the ISG is composed of all necessary expertise i.e. legal, business, ICT and then draw on this expertise to assist in the ICT assessment process.

**Inter-Service Steering group:**

An Inter-Service Steering group is a group of Commission representatives from more than one DG or service. In fact, all DGs with policies likely to be affected by the initiative or that will contribute to the objectives of the initiative should be invited to participate to the ISG, along with the relevant policy coordination unit of the SG and the Legal Service. In addition, DGs with core expertise in specific areas such as economic analysis (e.g. DG ECFIN), scientific research and analytical models (e.g. JRC), social impacts (e.g. DG EMPL), SMEs, competitiveness (e.g. DG GROW), environment (e.g. DG ENV), fundamental rights (DG JUST) etc. should also participate where appropriate to ensure that the IA or Evaluation calls upon all relevant expertise in the Commission services.

In general, the role of the ISG is to steer the IA or Evaluation process and collectively prepare the IA or Evaluation report. The ISG should review all the key elements of the IA and the policy initiative, including the ICT assessment findings before it is submitted for approval to the Regulatory Scrutiny Board (RSB) and launched in the inter-service consultation.

The lead DG and ISG should constantly check the quality of the work being undertaken for the ICT assessment, ensuring that it is evidence-based and free from bias.

In this regards, they should be involved all along the ICT assessment, and in particular:

- **During Step 1 (Define the scope of the ICT assessment)** the lead DG and ISG should ensure a common understanding of the policy problems and objectives and verify the compliance of the technical scenarios to further assess with the policy objective.
- **During Step 3 (Assess ICT impacts)** to make sure that robust and reliable research, data collection and analysis are conducted.

**IT team from the lead DG and/or DG DIGIT:**

Based on the results from the Digital screening\(^1\), the lead DG may decide to invite members from the lead DG internal IT or DG DIGIT to participate in the ISG. These ICT experts will then be responsible for the ICT assessment of the initiative (Phase II of the ICT assessment), including the production of the ICT Inception report and ICT Final report, under the supervision of the ISG.

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\(^1\) An ICT assessment should be performed if at least one question from the scoping checklist is answered by ‘YES’, during the digital screening of the initiative.
3. The role of Member States

The method aims to provide policy-makers and IT specialists with guidance for assessment of ICT implications, both at EU level and Member States level. Even though using the ICT assessment method remains voluntary for Member States, these can be involved in executing an ICT Assessment in three ways:

1. Member States may be asked to assess the ICT impacts of an initiative as external experts from the Inter-Service Steering group;

2. Member States may want to assess themselves the ICT Implications of national or EU legislation.

In the first case, using MSs’ external expertise along with their knowledge may be particularly helpful when analysing ICT impacts. In this regards, the ICT assessment should be organised in a manner which allows views to be collected from and results to be reviewed by MSs with regard to all elements of the impact analysis. Member States could follow-up on the progress and review the results of an ICT assessment by becoming members of the initiative Inter-Service Steering group (external experts). Else, they could be consulted during the IA/ Evaluation (Step 3 of the ICT assessment) for providing their inputs on the costs and benefits foreseen for their stakeholder group.

In the second case Member States can transpose the method as described in this report for an ICT assessment at national level\(^{32}\).

The process overview for the method is presented in Figure 11 without reference to EU bodies. In this regards, the policy cycle at national level can be simplified into two phases: (i) policy preparation, ending with the adoption of the policy by the concerned Ministry; and (ii) policy review, ending with the adoption of the policy by the Parliament. This illustration can be used within the Member States to communicate the process.

\(^{32}\) The transposition of the method at national level aims to be further explored in 2015.

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**Figure 11 ICT assessment and national Policy cycle processes**