



Guide for the procurement of standards- based ICT

Elements of Good Practice

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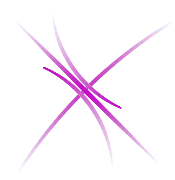


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1. INTRODUCTION

The Digital Agenda is Europe's strategy for a flourishing digital economy by 2020. It outlines policies and actions to maximise the benefits of Information and Communications Technology (ICT) for all. Several actions are related to improving standard-setting procedures and increasing interoperability. Europe must ensure that as far as possible new IT devices, applications, data repositories and services interact seamlessly everywhere.

1.1 The purpose of this guide

The guide is designed for use by procurement officials, IT managers, strategists and architects within public organisations, and policy makers at a wider government level.

The Guide is intended to help these actors who are responsible for both planning and purchasing ICT systems and services under the EU Procurement Directives to ensure fully effective competition following best procurement practice and in particular by

- Minimising the risk of becoming locked in to particular suppliers for unduly long periods, and by
- Making the best use of ICT standards.

The Guide does not give a list of recommended standards for use by public authorities when planning and procuring ICT goods and services. This would not be possible since the standards most relevant to each awarding authority will vary according to the particular functions needed and to the ICT strategies that have been adopted. However, the Guide does:

- Offer recommendations on elements of best practice in this type of procurement, with practical examples.
- Suggest some concrete ways in which invitations to tender and contracts for ICT might be expressed.
- Give references to sources of more detailed procurement guidance and information.

1.2 Definition of standards

Following Directive 98/34, this document defines a 'Standard' as "a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not compulsory and which is one of the following:

- international standard: a standard adopted by an international standardisation organisation¹ and made available to the public,

¹ Such as ISO



- European standard: a standard adopted by a European standardisation body² and made available to the public,
- national standard: a standard adopted by a national standardisation body and made available to the public.”

In addition, the European Commission will provide means by which fora and consortia specifications can be used with the same validity, once these have been approved by a multi-stakeholder platform.³

For the remainder of this document we will refer to formal standards developed by standard setting bodies, and technical specifications from fora and consortia that have the necessary properties to be approved by the multi-stakeholder platform as "standards".

1.3 Legal considerations: disclaimer

This guide is intended to help public authorities procure ICT goods and services, and is not intended as legal advice. Those responsible for procurement should ensure that all recommended stages comply with national and EU legal requirements, and seek legal support wherever necessary.

1.4 The importance of public procurement of ICT

The public procurement of ICT goods and services is important for a number of reasons.

- Public administrations are significant consumers of ICT, and their procurement can have a significant influence on innovation and competitiveness in the ICT market. *They have an obligation to ensure that the procurement of ICT takes place on a transparent and non-discriminatory basis that does not unduly favour specific vendors or suppliers.*
- The procurement of ICT represents significant expenditure of public funds. *Public administrations should therefore strive to ensure that the best value for money is achieved over the lifetime of the ICT.*
- Furthermore, public administrations' use of ICT is not limited to their own organisations — increasingly citizens are invited to interact with public administrations via ICT-enabled structures. *Public administrations should, wherever possible, avoid obliging citizens and businesses to use products or systems from specific vendors to access public services. Government have an obligation under the Public Sector Information Directive to make their data available in open formats.*⁴

² Such as ETSI and CEN

³ The multi-stakeholder platform will ensure these specifications have wide market acceptance and comply with public policy requirements such as openness, transparency and balanced processes. Examples of such fora and consortia are OASIS, W3C. See <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:349:0004:0006:EN:PDF>

⁴ Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0098:EN:NOT>



- Lack of interoperability among European public administrations might retard the functioning of the internal market.⁵

1.5 Procuring ICT that is based on standards – Action 23⁶ of the Digital Agenda

Procuring ICT that is based on standards accessible to all ICT suppliers can help promote competition among suppliers responding to public sector ICT tenders, and reduce the risk of public authorities becoming excessively dependent on a single vendor for the provision of ICT products or services beyond the timeframe of the initial procurement contract, a situation otherwise known as ‘lock-in’.

One of the main objectives of public procurement is to be as open as possible and to elicit bids from a good number of competitive suppliers. This nurtures competition in the private sector as contractors try to outdo each other to win government tenders. The most suitable company will be awarded the contract, leading to value for money and an improvement in the quality of goods and services provided to the members of public, and hence lead to more innovation. These objectives underpin EU procurement law.⁷

However, when a public authority is overly dependent on a single vendor for its ICT systems there will be a lack of competition for the provision of these systems and value for money might not be achieved in the long term. Symptoms of possible lock-in include the excessive use of specific brand names of products in tender descriptions, and requests for backward compatibility with proprietary systems of which only a few suppliers have knowledge.

Evidence from Europe Economics’ survey of procuring authorities shows that at least 40 per cent of respondents perceive some degree of lock-in arising from either a lack of interoperability and compatibility between existing and new systems or solutions, or from a lack of transferability of data and information between old and new systems.⁸ These perceptions of lock-in were supported by suppliers, 26 per cent of whom reported evidence of lock-in displayed in public sector ICT tenders, or felt that the tenders they have seen would serve to perpetuate existing lock-in.⁹

⁵ This point is addressed by the European Interoperability Framework: European Interoperability Framework (http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf)

⁶ Action 23 background can be found here: http://ec.europa.eu/information_society/newsroom/ct/fiche-dae.cfm?action_id=181&pillar_id=44&action=Action%2023%3A%20Provide%20guidance%20on%20ICT%20standardisation%20and%20public%20procurement

⁷ EU procurement law is embodied in the Procurement Directives: The Utilities Directive 2004/17/EC, which governs utilities procurement; The Public Sector Directive 2004/18/EC, which governs works, supplies and services procurement; Directive 2009/81/EC on procurement in the fields of defence and security; and Directive 2007/66/EC, which deals with remedies. Recent proposals for changes to these Directives are contained within European Commission (2011) “Proposal for a Directive of the European Parliament and of the Council on public procurement” COM(2011) 896 final

⁸ Although not directly related to the issue of standards, lock-in arising from institutional factors (e.g. staff familiarity with existing products) was noted by 25 per cent of respondents; and lock-in arising from service providers was noted by just under 20 per cent of respondents.

⁹ Europe Economics Procuring Authorities and Suppliers Survey s(2011) part of “Guidelines for Public Procurement of ICT Goods and Services; D2 – Overview of Procurement Practices’ SMART 2011/0044” A report by Europe Economics for the European Commission



The European Commission undertook to issue guidance on how to use standards in the procurement of ICT, since the appropriate use of standards will help alleviate lock-in. This is the aim of Action 23 of the Digital Agenda, and the resulting guidance is provided in this document.

1.5.1 What is the Problem?

Public authorities need to balance the need for new ICT purchases to work with their existing legacy systems built up over time with avoiding becoming over-dependent on a single supplier of the products or components that incorporate the relevant technologies. This is most likely to happen:

- if the products or system components are based on non-standard, proprietary technologies that cannot be implemented by competing suppliers; or
- if the system is developed in such a way that the public authority is reliant on the original developer for all future maintenance or changes, perhaps because of excessive use of “bespoke” features.

Being unduly dependent on a single supplier, vendor or developer beyond the timeframe of the initial procurement contract is known as ‘lock-in’ and is damaging to competition for future procurements.¹⁰ It implies that the costs to the public authority of migrating to products or systems of another supplier are prohibitively high, even if the alternative option has significant advantages in relation to the existing one.

By limiting the procurement choices of public authorities to certain vendors and the suppliers of their products, lock-in can reduce the ability of other market participants to compete in contracts for public procurement. This in turn can lead to lower levels of innovation, and higher prices.

Similarly, public systems designed for citizens’ use that are based on non-standard, proprietary technologies which cannot be implemented by alternative suppliers will restrict the choice that citizens have in the way they interact with the public authority. For example, a public website that can only be accessed through a specific Web browser will oblige citizens to use that specific browser; and a website that is not interoperable with accessibility software will restrict participation of disabled users. This can have a number of undesirable effects, including limiting competition in the ICT market.

1.5.2 ICT Standards

ICT standards may play an important role in preventing undue reliance on single vendors for products and system components that implement desired technologies by identifying the key element of the technology required and ensuring that its use is not limited to a specific product or service. Products and services from different producers can, in principle, be made interoperable

¹⁰ Note that the choice to *use* a single supplier or vendor does not necessarily create a problem of lock-in (there can be cost savings from using a single supplier in many cases); it is only when that single supplier is not standards compliant that the risk of lock-in arises.



by using such standards; this may enhance competition in the products and services that apply a particular standard.

A greater effort by public authorities to procure ICT that is based on standards that can be accessed and implemented by all suppliers could help to increase the openness of public ICT systems and increase the number of suppliers able to participate in public sector contracts.

There are also other ways in which procurers can enhance the openness of their ICT systems where the role of standards is limited.

1.5.3 Procurement practices

The existence of lock-in and excessive influence of legacy systems can lead public procurers to engage in poor procurement practices that restrict the ability of suppliers to participate in tenders. These difficulties have been highlighted in recent research.¹¹ They include:

- Problems in using standards appropriately in tenders.
- The use of brand names and proprietary technical specifications to identify products and systems, which only certain vendors or suppliers can provide.
- Requirements for the new ICT purchase to be compatible with previously purchased products or systems which can favour the original suppliers and thus restrict competition, whilst increasing the risk of vendor lock-in.
- The development of specifications which are too restrictive to enable suppliers to provide alternative, innovative solutions.
- Tender requirements that discourage participation of small and medium sized enterprises (SMEs).

1.6 Structure of the Guide

The guide follows the structure shown in Figure 1 and Figure 2 below. Figure 1 shows high level steps that are relevant for Chief Information Officers (CIOs), IT managers and policy makers when planning an ICT purchase, and which do not necessarily represent a sequential process. Actions addressed within these chapters may need to be taken or repeated at any time during the planning and development phases of ICT procurement. It is important that all relevant areas of public organisations are involved in purchasing decisions early enough to understand the full implications of the procurement and address any risks. These include legal departments, IT managers and chief information officers, procurers and wider public sector strategists, as well as those users directly affected by the ICT to be procured.

¹¹ Research based on a review of relevant literature, a survey of procurers and ICT suppliers across the EU and an analysis of a selection of tenders. See Europe Economics (2011) "Guidelines for Public Procurement of ICT Goods and Services; D2 – Overview of Procurement Practices' SMART 2011/0044" A report by Europe Economics for the European Commission



Figure 1: Preparing for ICT procurement

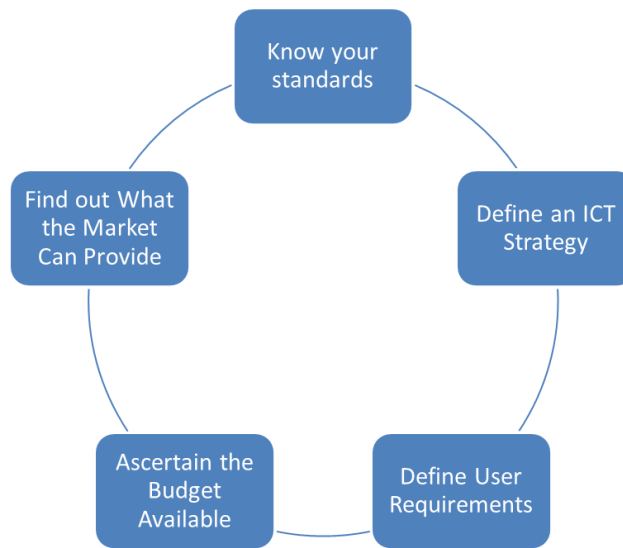


Figure 2 shows the main steps that are relevant for procurement officials implementing individual procurements.

Figure 2: Implementing individual procurements



After the procurement is complete it is good practice to review the process and the outcome of the procurement, drawing lessons where relevant and noting successful practice.



2. KNOW YOUR STANDARDS

2.1 The Benefits of Standards

A key benefit of standards in ICT is their role in facilitating interoperability. Standards define the minimum specifications of a technology which, if implemented, can enable products, systems and services developed by different suppliers to communicate and transfer data. Procuring a product from one supplier that is based on standard technology should help to ensure that future purchases are not limited to the original supplier, as others are also able to implement the technology. Public authorities should therefore make the best use of the full range of relevant standards when procuring ICT products and services.

The value of standards in this regard is therefore dependent on their quality and on the extent to which they can be accessed and implemented by the market. This will be influenced by:

- The costs of accessing the standard: standards' documentation can generally be made available either without charge or for a small fee. This will depend on the standard setting organisation's business model. High access costs can deter some users from accessing and using the standard.
- The cost and practicality of implementing the standard: standards can be implemented by users (e.g. ICT firms) either without charge or with compensation to the owners of the intellectual property of the underlying technology (e.g. royalty payments). Such payments, as well as other licencing terms and conditions, may affect the use of the standard.
- Market demand for the standard: standards may not be implemented widely for a variety of reasons. A standard will be of maximum value in terms of interoperability and avoiding dependence on a single supplier if it is mature and widely supported by the market.
- The development of the standard: if all stakeholders have the same possibility of contributing to the development of the standard, and public review is part of the decision-making process, then it is more likely that the implementation of the standard will not favour certain suppliers.

2.2 What to Look Out For

The standardisation landscape is very diverse and choosing standards can be complicated. Procurers should be aware that:

- Almost all standard setting organisations produce both effective and widely implemented standards, and standards that never achieve market-place acceptance. It is therefore not possible to judge the value of a standard simply by virtue of it being a formal standard. *Example: the IETF TCP/IP standard became much more widely implemented than the ISO OSI standard, despite the fact that ISO has produced many other very successful ICT standards.* Furthermore, whilst standards that are set through formal standard setting organisations go through a formal development process, they may still contain barriers to implementation by all interested parties. *Example: ISO standards ISO/IEC 29500; and*



ISO 32000 for document formats both reference proprietary technology and brand names which in some cases may affect implementation by certain parties.¹²

- On the other hand, specifications developed by industry that have not been through a formal standard setting process can be made available on an open and non-discriminatory basis and implemented across the market. *Example: Universal Serial Bus (USB) is a proprietary technical specification that is however opened for implementers. A not-for-profit organisation was set up: USB Implementers Forum (USB-IF). On the first release of USB, Intel owned some rights that had to be licensed. However, following reactions from industry, subsequent norms were royalty free. Access to the standard (USB-IF membership, getting an USB ID for low volume devices) is not trivial, but possible. Interestingly, following an initiative of the European Commission in 2009, one of the several plug formats (Micro-USB) has been chosen as standard plug for mobile phone chargers sold in the European Union.*
- Standards can be implemented in different ways and there can be parts of a product or solution that are left up to implementers to design. The fact that an ICT product or system incorporates a certain standard may not guarantee interoperability with products using the same standard from other suppliers. *Example: SQL (Structured Query Language) is a database querying language created in the seventies, and standardised by ISO in 1987 (ISO 9075). However, interoperability problems between major products still exist due to different interpretations of the standard, due to room for interpretation and the complexity of the standard. There remains the possibility of lock-in for suppliers using this standard.*
- There are technologies and specifications that appear to be widely implemented but have not passed through a standard setting process (i.e. through a standard setting organisation or an established alternative forum or consortia) and in reality could be implemented by only a few suppliers. These are not considered as standards in this document, and procuring products that implement these increases the risk of being locked into a limited number of suppliers or vendors.
- The intellectual property rights (such as patents) essential for implementing standards can be made available to implementers through a range of models. Many standards are made available on fair, reasonable and non-discriminatory (FRAND) conditions, which may or may not entail royalty payments. Some standards are made available on a strictly royalty-free basis under other licencing conditions. In addition, licence conditions can also stipulate the way in which a standard is implemented or the purpose it is used for. The way in which a standard is licenced may affect the use of the product or solution that implements it, and procurers should take account of this in the specific context of each ICT purchase to ensure the standard meets their eventual ICT need. Based on the nature of the licencing models, the costs associated with using a standard may vary greatly from one standard to another.

¹² We note that these examples are illustrations only and do not imply any recommendations to readers



- There are a large number of standards available and many different standards can reflect similar underlying technologies. Selecting ICT products implementing only certain standards may exclude alternative products implementing different standards which may better support the functional needs of the purchase.
- In general, standards are of varying quality and are always liable to change.

However, the benefits of using standards are numerous and public authorities should use them as fully as possible when specifying calls for tender. In order to do this the following steps are recommended.

2.3 What to Do

Who should act?

Knowledge of standards should be maintained by those involved in the development of ICT strategies, as well as those involved in developing individual ICT procurement needs. This could include IT managers and CIOs.

2.3.1 Review existing information on standards

Procurers and IT managers should make use of existing information and evaluations about standards, and investigate whether their government, regional authority or organisation has a set of standards that it promotes. If the procurement is related to a larger sectoral solution (for instance eHealth, transport or education) there might also be a set of standards to be used for compliance with that larger solution.

Public authorities should also leverage the work of specialised bodies in assessing and evaluating standards, such as international, European or national standards setting bodies; the European Commission's multi-stakeholder platform; and the Common Assessment Method Standards and Specifications (CAMSS).¹³ A number of Member States also publish lists and catalogues of standards which include recommendations as to the quality and openness of the standards. However, standards are often developed within a particular national context and may not be applicable to every public organisation. Information and links to all these sources are included in the Appendix.

2.3.2 Keep up to date with the development of new standards relevant to each area of ICT

There are a number of useful sources to consider in keeping up to date with the development of new standards. These cover areas such as eHealth, Transport, eAccessibility and eProcurement. The Appendix describes a number of such sources.

13 <https://webgate.ec.europa.eu/fpfis/mwikis/idabc-camss/>



2.3.3 Develop and maintain expertise on standards relevant to each area of ICT

Procurers and IT managers should maintain expertise on standards relevant to their area of ICT. This should include information on the various products and suppliers that implement the standard and the effects of this implementation. Cooperation with IT managers from other organisations is recommended, in order to share experiences and expertise.

2.3.4 Competence centre on standards

Some countries, regions and sectors have set up competence centres on standards, in order to alleviate the need for individuals to be aware of all issues associated with the use of standards. Examples include Single Face to Industry in Sweden and the Standardization Forum in Norway. These centres can give advice upon request, but also maintain catalogues of standards to be used in specific tenders. Procurers and IT managers should access these centres for information and advice where they exist. Furthermore, the European Commission's multi-stakeholder platform will develop a list of standards which can be used in public procurement, and it is recommended that public authorities draw on the list developed by the European Commission to enhance interoperability and increase efficiency.



3. DEFINE AN ICT STRATEGY

The implementation of good ICT procurement practice, including the appropriate use of standards and achievement of vendor independence, is likely to be most effective within the context of a considered ICT strategy. Such a strategy can be at the organisational, sectorial or national level, and generally defines the strategic direction of the authority's ICT and the actions required to achieve this.

The existence of an ICT strategy can be a good way of coordinating ICT decisions across organisations and governments. This is important given the need to involve many areas of public organisations in purchasing decisions early enough to understand the full implications of the procurement and address any risks. These include legal departments, IT managers and chief information officers, procurers and wider public sector strategists, as well as those users directly affected by the ICT to be procured.

ICT procurement decisions taken within the context of a strategy) are likely to result in purchases that meet the needs of the authority as a whole, rather than only those of individual departments. This is particularly relevant when migrating to new systems or solutions where the move is most cost-effective if undertaken on a wide scale.

Examples of ICT strategies could be those that seek to increase interoperability between public sector ICT systems; or promote accessibility for all citizens to government ICT structures. The procurement of ICT, including the standards used, would take place in such a way so as to realise these goals.

Who should act?

The definition of ICT strategies should be considered by CIOs and leaders with a clear view of the needs of the organisation or sector. However, all others involved (IT managers, procurement officials and end users) should be aware of the strategy and how they contribute to and are affected by it.

3.1 Selecting standards as part of an ICT strategy

ICT strategies can include the promotion of certain common standards for use across the public sector. This is likely to increase the degree to which public ICT systems can interoperate and work towards the same goals. However, selecting standards must be done responsibly to avoid discrimination among suppliers, and should be done in an open and transparent way.¹⁴ It is recommended that as many sources of information are accessed before deciding on the promotion of specific standards, such as engaging the market or sharing best practice with other organisations or countries.

¹⁴ This is emphasised in the non-discrimination and equal treatment principles that underpin the EU Public Procurement Directives Directive 2004/18/EC states that procurement should be based on principles of equal treatment, non-discrimination, and transparency, and that procedures should guarantee the opening-up of public procurement to competition.



We emphasise that requesting specific standards public sector tenders only makes sense where meeting the goals of the strategy relies on the same standards being used across the public sector (for example, strategies based on specific domains such as INSPIRE, or based on the re-use of ICT assets). Otherwise it is best to promote technology neutral procurement and in each separate case identify the best solution (such as standards, technologies and licensing models) to meet the goals of the ICT strategy. This is particularly relevant in the context of a diverse and rapidly changing ICT landscape — public authorities should give equal consideration to proprietary and non-proprietary solutions based on newly developed technologies to meet new technological needs, ensuring that these solutions are as far as possible standards based.

3.1.1 Requiring standards in tender documents

Article 23 of Directive 2004/18/EC states that standards can be requested by name in tenders if they are International standards, European standards or national standards (the newly set up Multistakeholder platform will approve a list of standards that are developed by industry fora and consortia that will also be allowed to be requested by name). However, the Directive states that any requests for specific standards must be followed by the clause “or equivalent” to ensure the principle of non-discrimination.¹⁵

In order to include a particular standard as a requirement in tender documents public authorities must be able to demonstrate that the standard is the only solution.

If a public authority needs to request a specific standard in tender documents and an ‘equivalent’ standard will not be suitable (e.g. in order to ensure interoperability) then it is important that the authority can demonstrate that the standard is the only solution. Having a clear ICT strategy will provide the context through which this can be justified. Justifications could be included as part of the award criteria.

¹⁵ We emphasise again that readers of this guide should ensure that they meet their national procurement laws, and that the recommendations in this guide are recommendations only.



4. DEFINE USER REQUIREMENTS

It is important to ensure that the ICT purchase meets the requirements of individual users, the organisation and wider public service. The objectives of the purchase (e.g. creating, recording or storing data, connection with other systems, use by internal staff; interaction with citizens etc.) will influence the degree of openness that is required and the appropriate standards to be used.

Who should act?

Defining user requirements should be undertaken by the end users of the ICT that is to be procured to ensure that it is fit for purpose (e.g. the department that will use the ICT solution or manage how the solution is provided to the public). This must be done together with IT managers to ensure that the ICT need is correctly translated into technical specifications, and legal and procurement experts to ensure that the ICT procured can be used in the way the public authority requires.

4.1 Understand the wider context of your ICT procurement

4.1.1 Need for interoperability

If the ICT purchase is intended to connect to other systems within an organisation or across government, procurers should be aware of any common interoperability standards that the purchase should implement. This will be particularly important in terms of information transfer (e.g. data, file formats), to ensure that information can be exchanged across the public sector.

It is recommended that public organisations (either individually or across whole governments) agree on a set of common standards and promote their use, to ensure interoperability between systems and products. It is recommended that this is done in the context of a wider ICT strategy as describe above.¹⁶

The development of reference architectures can be one way of coordinating ICT systems across organisations and governments. An ICT architecture consists of a set of formal descriptions of an information system's structural and behavioural properties, together with descriptions of how it may evolve or be adapted in the future. This often includes the promotion of certain standards to achieve the goals of the architecture. Reference architectures are often defined in relation to an overarching ICT strategy.

4.1.2 Understanding your legacy systems

Legacy systems, such as those built over time through continuous additions of proprietary products and modules, can constrain current and future ICT purchases if compatibility with, or knowledge of, the existing proprietary system is required. This may have the effect of favouring a limited number of vendors, suppliers or providers of these products or services. Legacy systems pose even more of a problem when new additions *have* to be produced by the same vendor due

¹⁶ The Appendix has examples of governments that promote standards for use in public sectors.



to a lack of standardisation in the original system. This can lead to technical obligations on the original vendor or service provider that extend beyond the timeframe of the initial contract, thus limiting future competition.

Therefore one option that should be considered when faced with procuring ICT in the context of legacy systems is a move away from the current system to one that is more open and will facilitate the use of products and services from multiple vendors or service providers.

The costs of "breaking the locks" from legacy systems can be significant, but these should be considered alongside the future benefits of more open systems within the business appraisal. A long term plan may be needed.

4.2 Defining what is required

4.2.1 Undertake a new evaluation of the ICT procurement

Procurers and IT managers should be aware of possible risk aversion bias within their organisations and should not expect to procure from the same supplier or the same product simply because this has been done in the past. A new evaluation should be undertaken of the ICT procurement, including engagement with the market to assess what is available. This may entail researching a number of different options to meet the ICT need. An important element of the evaluation would be to consider the organisational or user needs that the purchase should meet.

4.2.2 Consider the need for the use of the data generated or stored by the new purchase

Consideration should be given to how the information that will be received, generated or stored by the new ICT purchase will be used both now and in the future (in some cases access to data may be needed for a very long time). The inputs and outputs of the system or application should be in a sufficiently standard format to enable them to be accessed and used without reliance on the original application that created them.

This may entail requesting that the ICT purchase supports open data formats. For example, some governments mandate that information is created and exchanged in open formats such as ODF and HTML.

The costs of the specific data use needs must be considered within the option to be included in the business appraisal.

4.2.3 Consider the need for public access by businesses or citizens

It is important that citizens and businesses wishing to access public sector ICT are not restricted to using certain branded products or applications. Governments are also obliged under the Public Sector Information Directive to make their data available in open formats to facilitate such access. If public access to the ICT purchase is needed, consider in your business appraisal the costs of providing open access.

An important consideration here is the accessibility of public ICT websites for people with disabilities, for example blind and partially sighted people, many of whom need assistive technology to access websites (which must be interoperable). Public authorities should be aware



of the possibility of discriminating against people with disabilities, and should take account of the use of appropriate web accessibility standards in the designing of websites.¹⁷

Even when standards for interoperability do not exist (for example in the case of innovative, custom-made applications) a requirement for maximum public access for citizens may be included as an option and the costs of providing this taken into account within the business appraisal. The ICT need should be communicated to the market well in advance (see Chapter 6 on what the market can provide) to enable organisations to work with suppliers to develop suitable solutions.

It is recommended that, where possible, organisations test such applications for interoperability with a range of interfaces and data formats. A number of online tools are available to website developers to test accessibility of websites on multiple browsers. These typically create screenshots of a website as viewed in several popular browsers.¹⁸

If access is restricted in any way, consider the possibility of moving to more open applications. This could be achieved by requesting standards that allow for interoperability.

4.2.4 Consider the licencing of intellectual property rights

It is important to ensure that the way in which suppliers licence the intellectual property rights (IPR) embedded in the solutions they offer meets the needs of the procuring organisation. This includes the IPR embedded in the standards used.

Re-use and sharing

An example is the need to re-use or redistribute the ICT assets procured, such as software. This can be an important consideration for public authorities in the interests of making the best use of public funds.¹⁹

When an ICT application that is developed or put together to meet the needs of a public authority could be distributed, reused, improved, modified, translated in another language or localised for another country, public authorities should require from their ICT suppliers the licensing conditions allowing them to do so.

It is important that opportunities for re-use or sharing are identified before the procurement process; this applies to sharing or re-using both existing and future assets. In this way the necessary standards and licence conditions can be identified and incorporated into the procurement process.

¹⁷ Accessibility of websites is covered by the Digital Agenda for Europe, Action 64 http://ec.europa.eu/information_society/newsroom/cf/news-dae.cfm?subject=DAE§ion=News&pillar_id=222&action_id=0&page=2

¹⁸ Examples include BrowserShots(<http://browsershots.org/>), BrowserCam(<http://www.browsercam.com/>), NetMechanic Browser Photo(<http://www.netmechanic.com/products/browser-index.shtml>), Litmus(<http://litmus.com/>) and AnyBrowser (<http://www.anybrowser.com/index.html>).

¹⁹ There are a number of initiatives across the EU dedicated to support the sharing of software, semantic assets and open data, such as the OSOR.eu and JOINUP.eu platforms.



In case the supplier does not write the whole application source code, but combines or adapts existing components covered by various copyright licences, the supplier should confirm that these licences are compatible with allowing the public authority to distribute the application for the above purpose. An example of how such licence conditions could be requested in tenders is provided in the Appendix: Example text 1.

Because different solutions will include different IPR licencing models (based on the type of standards and components used) public authorities should be aware that requesting certain licence conditions that meet their needs may limit the range of solutions that can be offered. For example, requesting the ability to re-use software may restrict solutions incorporating proprietary software.

Other IPR considerations

Licensing models relating to individual standards should also be checked, and the licensing of the standard will affect its use under different business models. As an example, some FRAND-licenced standards are not compatible with some Open Source Software licences. Therefore it is essential that the authority checks that the standards they request will not unintentionally limit the types of solutions that can be provided.

Public authorities should also be aware of the IPR relating to all other parts of the solution provided by the supplier to ensure that the authority can use the results of the contract as it wishes. An example of text that could be used in tender documents to specify ownership of IPR is provided in the Appendix: Example text 2.

Indemnity

Public authorities should be aware of the provisions the supplier should make to indemnify the authority against possible IPR infringements relating to the supplier's solution. Such indemnification may be different under different business models (for example, provisions relating to open source software may be different to those relating to proprietary software) and the authority must consider this when requesting indemnification in tender documents as this may affect the type of solution offered. An example of the way in which indemnity could be requested is presented in the Appendix: Example text 3.

4.2.5 Consider the need to change suppliers or products

It is important that procurement decisions do not lead to organisations being unintentionally tied to certain products or suppliers. The ability to change products or suppliers should be incorporated into one of the procurement options (as this requirement may have cost implications for the solutions procured).

This is particularly important for contracts for ICT services (e.g. for the development and/or maintenance of IT systems). Suppliers, such as system integrators, who develop and manage custom-made systems can retain all the information about the system and make it very difficult to migrate to another supplier in the future to maintain or upgrade the system.

The first recommendation is to avoid where possible, commissioning excessively bespoke and complex solutions as these are both very costly and increase the risk of supplier lock-in.



The second recommendation is to ensure that the tender documents include provision for knowledge handover at the end of the contract period. Examples of text that could be included in tender documents to avoid lock-in with regard to data and services are provided in the Appendix: Example text 4 and Example text 5.

4.3 Assessing the options – the business plan

An ICT purchase should be considered as an investment. This applies to all purchases, from large-scale development projects to the renewal of software licences. Before each new procurement action, an evaluation of the need should be undertaken to ensure that the product or service specified in the tender meets the needs of the organisation. It is important that decisions are not purely based on historical or individual preferences, or existing contracts.

This action should start with an assessment of the current ICT landscape in which procurement actions need to take place, either to improve the existing systems or to add new functionality.

During this stage, careful consideration should be given to the long-term implications of the procurement action. Of particular importance is the likelihood of being tied to the original supplier or service provider after the initial contract period is over (i.e. the risk of lock-in). This could arise from a number of sources, such as reliance on the original provider for all future maintenance, changes or upgrades; the need to request future products or modules to be compatible with the one to be purchased; or the need to explicitly purchase products from the same vendor or brand.

Different options should be taken into account. An important consideration will be the openness of the ICT purchase to data transfer or future supplier change. It will be important to investigate ways in which openness can be achieved. This could be done through the naming of particular standards or through specific openness requirements in the tender.

A business appraisal should be conducted that considers the full costs and benefits of a number of these options so that unnecessary expenditure is avoided, and where ICT purchases are made the option offering the greatest value for money over the long term can be chosen.

4.4. What to Do

4.4.1 Plan ahead

ICT purchases should be planned ahead to allow time for a proper identification of need. Purchases that need to be done in a hurry (such as those near the end of a contract or licence period) carry a risk of the existing contract being renewed without full consideration of alternative options or the implications of remaining with the existing contract.

In the case of moving away from legacy systems, a long-term implementation plan may be required. This could include engagement with the market to identify the most feasible solution, which might require the procurement of services to adjust the existing system; or the procurement over time of elements that are compatible with both the existing system and non-proprietary standards.

Coordination with other public sector organisations is important to ensure that the new system is interoperable with those with which connections are required. In the case of legacy systems than



extend across organisations a higher level of coordination will be needed to ensure that change happens at all levels. The use of a formal change management process is recommended, that takes into account both the technical and non-technical elements of moving away from legacy systems.²⁰

4.4.2 Develop options

Depending on the ICT need there may be a number of options to consider for the ICT purchase; these will vary significantly according to whether ICT hardware, software, services or the development of bespoke systems are being procured.

In order to minimise the risk of long-term dependence on a single supplier or service provider, options should include the level of openness of the product or service. This could be achieved by:

- Requesting that the purchase implements certain standards (according to the discussion above, these should be open for access and implementation by all interested parties).
- Including in the option a requirement for the supplier or service provider to provide the desired openness in the absence of suitable standards. As shown in the text examples above, this could include requesting that the data produced by the system are available in an open format; or requesting that the developer of a system bears the costs of handing over the necessary documentation to another developer at the end of the contract (thus placing the incentive on the original supplier to make the system as open as possible).

More generally, and distinct from the use of standards *per se*, specific products that are known for their openness may also be considered. For example, when purchasing software the merits of open source software could be considered.²¹

When considering different options, it must be noted that supplier or service provider dependence can occur in many situations, even when the ICT system is not physically acquired by the organisation, but rather an ICT service is procured (e.g. through outsourcing or moving to the Cloud). Provisions for openness must therefore be considered in all types of ICT procurement.

Unnecessary bespoke service requirements should be avoided where possible, as the increased complexity of a system may increase the risk of being tied to the original developer.

It must also be borne in mind that regardless of the particular form of procurement (e.g. competitive tender, framework contract) consideration must be given to long-term implications of the procurement choice. This applies also to situations where products can be drawn from wider framework contracts.

²⁰ For example, the ADKAR Change Management Model: <http://www.strategies-for-managing-change.com/adkar.html> Please note that this is an example only and many other models exist.

²¹ It is important to note that there are both benefits and risks to using open source software. The following is a good source of information and advice about procuring open source software: OSOR Guideline on public procurement of open source software, IDABC European eGovernment Services (June2010), <http://www.osor.eu/studies/OSS-procurement-guideline-public-final-June2010-EUPL-FINAL.pdf>



4.4.3 Conduct a business appraisal of the options

A business appraisal should be carried out taking into account as far as possible all the costs elements arising from your need and user requirements. It is likely that trade-offs will exist between different needs and requirements, and thus a number of options should be developed and their relative costs and benefits assessed. Clear and useful guidance on how to conduct a business appraisal is provided by the UK Treasury's Business Case Guidance website and Green Book.²²

Important components of an appraisal should include:

- Consideration of the whole life costs of the ICT options. These include costs of maintenance, operation, changes and upgrades over the life of the purchase (and not just the life of the initial procurement contract). In the context of avoiding lock-in, exit costs are very important. These refer to the costs likely to be incurred in moving to another supplier or product in the future. As an example, up-front costs of an option using, say, non-standard proprietary technology that cannot be implemented by other suppliers, may be lower than a more open solution, but when exit costs are taken into account the more open solution may provide better value for money. On the other hand, non-proprietary products that are relatively cheap to purchase may incur substantial operational costs over their lifetime.
- Other costs incurred during any change could include training and support of staff (particularly with systems that have bespoke user interfaces), overcoming managerial inertia and coordinating with other departments or public sector organisations.
- The timeframe for the contract. The use of a specific vendor should not be implied after the timeframe provided for in the tender. Awareness of the likelihood of being tied to the vendor should be taken into account and reflected in the contract timeframe. Constraining future purchases to be compatible with existing products is likely to favour the original vendor and restrict competition.
- Consideration of the risk profile of the organisation. Some options may seem more risky than others (for example, choosing a smaller supplier instead of a large well-known one, or a less widely implemented standard); this should be acknowledged and appropriate weights placed on the costs of the options to adjust for the risk. That an option appears riskier than others does not imply that it should be dismissed without assessment of all other factors.
- Benchmarking of costs. The comparison of costs of different options may not be straightforward, particularly with more complex purchases. It is recommended that, wherever possible, examples of similar purchases are found from other public organisations, the private sector and other Member States in order to inform cost

22 HM Treasury 'Business Case Guidance' http://www.hm-treasury.gov.uk/data_greenbook_business.htm and HM Treasury 'The Green Book' http://www.hm-treasury.gov.uk/d/green_book_complete.pdf Chapter 5 deals with Options Appraisal

Define User Requirements



assessments. Of particular importance will be examples of exit costs that have been incurred in the past, when organisations have migrated systems.

The appendix includes an example of an investment appraisal undertaken by the Swedish National Police in order to decide on what ICT infrastructure to procure.



5. ASCERTAIN THE BUDGET AVAILABLE

Many public sector organisations now operate under more limited budgets than previously. They are also engaged in many ways with pre-planning of their expenditures. It is important that during the ICT procurement planning phase a consideration of the necessary budget is made and communicated. This is particularly important if the upfront costs of the procurement are likely to appear larger than the short-term benefits.

Who should act?

Ascertaining the available budget should be undertaken by those involved in the planning of the ICT procurement. This could include end users, IT managers and procurement officers.

5.1 What to Do

5.1.1 Accurately account for future costs and benefits

Within the business appraisal, evaluators should consider short- and long-term costs of all options and discount future costs and benefits to present values to enable an equal comparison.

When comparing new options against existing systems, information will need to be collected on the costs currently spent and expected to be spent on the existing systems.

Benchmarking exercises or information sharing with other organisations may help inform the costs of being locked in and the costs and benefits of moving to more open systems.

5.1.2 Communicate the budgetary need

Particularly in situations where large upfront costs need to be incurred to bring long-term benefits, it is important to communicate the rationale behind the decision clearly to those responsible for organisational finances. The costs associated to breaking the locks of legacy systems may seem high in comparison with leaving the system as it is, even though future benefits may outweigh the costs in the long term. An appraisal of the options, taking into account all future costs (including exit costs) and benefits may well therefore be an important tool in obtaining budgetary approval.

The existence of an overarching ICT strategy may be helpful here in providing additional support when setting out the case for the particular ICT purchase.

In organisations that work within annual budgets, the need for large upfront investment will have to be communicated well in advance.



6. FIND OUT WHAT THE MARKET CAN PROVIDE

This is an important step in the procurement process, as it enables the procurer to consult the market and to examine alternative solutions in the market place. Transparent market engagement can encourage the participation of a wide range of firms, and can help the procurer develop options that are feasible and best meet the ICT need. In addition, market engagement coupled with research into the available standards is an important step in assessing which standards are the best to include in terms of their market support and quality.

It should be noted that any initial consultation of the market, e.g. a potential technical dialogue, would have to be done under the condition that the seeking or accepting of advice does not have the effect of precluding or distorting competition.

Finding out what the market can provide may be an iterative process that both draws on and feeds into other steps such as defining the need or deciding on what standards to use. The need for market engagement should therefore be considered in the procurement planning from the beginning.

Who should act?

Finding out what the market can provide would be undertaken by IT managers and CIOs, depending on the level at which the procurement decision is taking place. If an ICT strategy is being developed, market engagement will need to take place at a high level, e.g. led by the CIO.

6.1 What to Do

As an example of guidance on how to effectively and transparently engage with market participants, we refer procurers to the DETE Ireland's *Buying Innovation: the 10 step guide to smart procurement and SME access to public contracts*.²³ Important steps to highlight are:

6.1.1 Find out what standards are supported by the market

Procurers and IT managers should consult with suppliers and supplier bodies, for example by means of suppliers' conferences, to enable suppliers to help select relevant standards, provide feedback on their feasibility and affordability, and gear up to be able to respond to future procurements relying on the selected standards.

Understanding the market, the environment of relevant standards in which it operates, the companies within it and their capabilities to meet the standards is an important step in

²³ Department of Enterprise, Trade and Employment (2011) 'Buying Innovation: the 10 step guide to smart procurement and SME access to public contracts'



encouraging supplier innovation. Care should be taken when the market is dominated by a few large players as this may influence the selection of standards.

Different types of standards (e.g. based on their licensing regimes) will have different effects on market entry depending on the nature of the ICT domain.

When considering specifications that have not been developed by a recognised body and/or are not publicly available, the relevant intellectual property rights must be checked in order to avoid *de facto* discrimination, which may result in only a single tender, or very few tenders, being submitted to the procurer.

6.1.2 Work with the market to develop suitable solutions

It may be useful to communicate long-term ICT procurement plans to the market to give suppliers time to react and develop solutions to your organisation's need. This is particularly important for solutions that require levels of interoperability that are currently unavailable. This will include informing the market of particular standards that have been adopted by the organisation, or of standards that will not be accepted.

6.1.3 Use information from the engagement process to develop technology-neutral specifications

Ensure that the development of the procurement options, and the accompanying technical specifications used in the tender, are not unduly influenced by the suppliers that have been involved in discussions.

Be aware that information gathered from suppliers on the options should be written within tenders in a technology-neutral way.

6.1.4 Undertake periodic evaluation of suppliers

One aspect of finding out what the market can provide could entail periodically evaluating supplier performance in terms of the extent to which they deliver products and solutions that implement standards (in particular any standards that your organisation is obliged or encouraged to use). Such evaluations could be particularly useful in contracts where regular supplier assessments are agreed.

Additional information sources for engaging with the market are provided in the Appendix.



7. DECIDE ON THE BEST PROCUREMENT PROCESS

This begins the advice aimed at individual procurers, as represented in Figure 1.2.

It is important to ensure that the procurement process itself operates in a manner that achieves the objectives set out above.

Who should act?

The procurement process should be decided by a procurement officer with knowledge of all available procedures. However, input will be needed from IT managers as the type of process could be influenced by the ICT need.

7.1 What to Do

7.1.1 Be aware of procurement procedures

Depending on the ICT good or service that is being procured, procedures ranging from open tenders to negotiated procedures may be appropriate. Public procurement procedures acceptable under the EU procurement directives are:

- (a) Open procedure, in which any interested operator can submit a tender.
- (b) Restricted procedure, in which any interested operator can request to participate, but only candidates invited to do so may submit a tender.
- (c) Negotiated procedure, in which the public body consults operators of its choice and then negotiates the terms of the contract with them.
- (d) Competitive dialogue, which may be used for complex contracts if the public authority is not able to define its technical requirements by itself.²⁴

Which procedure is appropriate will depend on the nature of the particular procurement. For example, for particularly small value procurements the negotiated procedure may be most appropriate. Or if the technical specifications cannot be established with sufficient precision, the competitive dialogue could be considered. However, in all cases the avoidance of lock-in should be considered.

7.1.2 Be aware of legal framework

Procurers should ensure that the procurement process conforms to relevant national and EU laws, which constrain the extent to which procurers can restrict their engagement to small numbers of individuals or firms.

24 http://europa.eu/legislation_summaries/internal_market/businesses/public_procurement/l22009_en.htm



8. WRITE THE INVITATION TO TENDER

When writing the tender documents for the ICT to be purchased, there are a number of aspects of good practice that should be observed. Those responsible for drawing up the technical specifications, such as IT managers, should ensure that specifications are technology-neutral and do not refer unnecessarily to brand names or proprietary technical specifications. Available expertise on standards should be used to ensure that appropriate standards are used and referenced properly.

Who should act?

Writing of tenders could be a collaborative approach involving different actors at different stages. For example, IT managers may draw up technical specifications, for procurement officers to complete the general aspects of the tender documents and legal experts to support legal aspects.

8.1 What to Do

8.1.1 Be aware of legal framework

Procurers must be aware of the legal framework that governs the referencing of standards in tenders. The Procurement Directives allow for the referencing of standards that are developed in the formally recognised standard setting organisations such as the international Standards Organisations ISO, IEC and ITO, and the European Standards Organisations (ESOs) CEN, CENELEC and ETSI, and the National Standards Bodies. The recently proposed legal package on European Standardisation²⁵ presents a proposal to allow direct referencing of standards and specifications from fora and consortia.²⁶

8.1.2 Avoid unnecessary use of brand names and proprietary technical specifications

Under EU Public Procurement Directives authorities must ensure that all economic operators are treated equally when issuing tenders. Procurers may refer to a brand name to describe a product only when there are no other possible descriptions that are both sufficiently precise and intelligible to potential bidders.²⁷ Appropriate reference to standards might be an alternative way to describe a bid sufficiently precisely. Therefore, whenever possible the mention of brand names should be avoided to explicitly request a product or to describe the characteristics of a desired product.

Technical specifications that refer to proprietary technology supported by a single or limited number of vendors should also be avoided, as this will have the effect of restricting the ability of competing suppliers to respond to the tender.

Where possible, use templates to help to express the ICT product or system in technology-neutral terms. Templates exist for certain products that can be used. Examples include Germany's

25 COM (2011)311 and COM (2011)315

26 Examples of global fora and consortia that play a significant role in the standardisation landscape are W3C, OASIS, IETF

27 European Commission release reference IP/06/443 dated 4 April 2006; this is also a reference to Directive 2004/18/EC, Article 23



BITKOM guides on wording tenders in a non-proprietary manner for desktop PCs, notebooks and servers.²⁸ Be aware of the consequences of compatibility requests.

Technical requirements in a tender may be important if there are specific constraints or needs related to existing IT structures or technologies, with which the new purchase must fit. Where possible, such technical requirements should be described without the use of brand names.

If it is not possible to ensure that the new ICT purchase will work with existing systems without requesting compatibility with proprietary products or systems, it is recommended that the risk of lock-in to the existing vendor or supplier be considered.

8.1.4 Be aware of the standards used and reference them properly

We reiterate the importance of being aware of the effect that the standards used within the tender will have on the ability of suppliers to respond to the tender, and the effect they will have on the product or service to be purchased.

For example, although they deal primarily with open source software, the OSOR guidelines also contain suggested model template texts for the inclusion of standards within tenders.²⁹

8.1.5 Include all necessary requests for openness to avoid lock-in

Other requests for openness may be made within the tender (in addition to requiring that the new ICT purchase implements or is interoperable with certain standards). These can be contained within the award criteria or functional requirements of the tender.

Bidders may be requested to demonstrate the costs required to make the solution open to alternative suppliers after the end of the contract period. Illustrations of example text are provided in the Appendix.

Care should be taken when assigning weights to different categories of cost within the tender, as these could encourage distortions in the way costs are reflected.

28 ITK-beschaffung: <http://www.itk-beschaffung.de/en/introduction.html>

29 OSOR guidelines on public procurement of open source software IDABC European eGovernment Services (June 2010), <http://www.osor.eu/studies/OSS-procurement-guideline-public-final-June2010-EUPL-FINAL.pdf>



9. CONCLUSION: EVALUATE THE PROCUREMENT EXERCISE

It is important to draw lessons for future procurement from each procurement process and share best practice and lessons learned. The effect of using certain standards can be assessed, as well as the accuracy of any cost benchmarking exercises. This evaluation can also be used to assess suppliers in the market in terms of the extent to which they have met required standards in their products or solutions.

Part of the evaluation process could be to assess how the outcome of the procurement exercise fulfils the wider ICT strategy of the organisation (e.g. how successful was it in enhancing interoperability; or providing accessibility?).

A further useful role of an evaluation could be in planning future procurement exercises, for example building a timetable of upgrades and contract renewals that would fit in with other procurement exercises, or would identify likely break points where new standards might impact decisions to buy, upgrade or renew.

9.1 What to Do

9.1.1 Write up case studies of procurement exercises to share best practice

Case studies could include the following elements:

- What standards were used and what effect this use had
- How well the procured product or solution was designed and delivered.
- How the overall costs of the procurement compare to the initial benchmarking exercise, and what adjustments need to be made to future benchmarking exercises.

It may be appropriate to disseminate best practice to other public organisations, including those in other Member States.



APPENDIX 1: EXAMPLE TEXTS

This Appendix includes examples of text that could be used in tenders to achieve various aims. We emphasise that the examples provided are for illustrative purposes only. Readers of this document are recommended to seek legal advice where necessary.

Example text 1: Requesting licenses for sharing

“The supplier will grant that the purchasing authority has the right to distribute the delivered application under the European Union Public Licence (EUPLv1.1 or later) or any licence(s) providing the rights stated in the article 2 of the EUPL.”

Example Text 2: General IPR conditions

The ownership of all copyright, trademarks, trade names, patents, and all other intellectual property rights (“IPR”) subsisting in the graphics, website layout, surface content, logos and devices, and the rights to the domain name(s), manuals, training materials or presentations shall vest and shall remain vested in the Commissioners absolutely.

The Commissioners, or the acknowledged owner, shall be and remain the sole owners of all IPR in all data, material, documentation or information inputted, loaded or placed onto the System in any manner, reports generated by or from the System, material or documentation placed on the System, outputs, and end-products.

The successful Tenderer will be required to indemnify the Commissioners against third party claims relating to the Commissioners’ use of any software, hardware or intellectual property.

All Pre-Existing IPR shall remain the sole property of the Party who owned, acquired or developed such IPR.



Example text 3: Requesting indemnity

The Contractor shall ensure that all and any necessary consents and/or licences for any software, instrument, modality or methodology are obtained and in place before use for the purposes of this Agreement (to include but not be limited to ensuring that the Client shall be vested with all necessary rights so as to enable the Client to enjoy the benefit of the Services for its business purposes). The Contractor hereby indemnifies the Client and shall keep and hold the Client harmless from and in respect of all and any liability loss damages claims costs or expenses which arise by reason of any breach of third party Intellectual Property Rights in so far as any such rights are used for the purposes of this Agreement.

Services procurement template from Ireland eTenders http://www.etenders.gov.ie/guides/Guide_Download.aspx?id=3364

Example text 4: For software systems where the data need to be migrated to future systems from a different provider

In order to ensure that a competitive tender can be used to select another potential provider after the lifetime of the supplied solution foreseen in this tender, an anti-lock-in provision must be met. All standards, interfaces, protocols or formats implemented by the supplied solution and required for the full use of all data created or maintained using the supplied solution during the lifetime must be made available to providers of equivalent technologies who may be awarded a subsequent contract, with no additional costs. Any costs required for migration of data must be borne by the supplier of the supplied solution. Such costs may be minimized by ensuring that the supplied solution uses only standards, interfaces, protocols or formats that:

- 1. are implementable by all potential providers of equivalent technologies*
 - 2. are developed through an open and transparent process*
 - 3. that have no restrictions on re-use, and no payments required for re-use*
-



Example text 5: For systems where the system itself needs to be maintainable by a different provider

In order to ensure that a competitive tender can be used to select another potential provider after the lifetime of the supplied solution foreseen in this tender, an anti-lock-in provision must be met. All standards, interfaces, protocols or formats implemented by the supplied solution and required for the full use of all data created or maintained using the supplied solution during the lifetime must be made available to providers of equivalent technologies who may be awarded a subsequent contract, with no additional costs. Any costs required for migration of data shall be borne by the supplier of the supplied solution. Such costs may be minimized by ensuring that the supplied solution uses only standards, interfaces, protocols or formats that:

- 1. are implementable by all potential providers of equivalent technologies*
- 2. are developed through an open and transparent process*
- 3. that have no restrictions on re-use, and no payments required for re-use*

Furthermore, all documentation needed in order to provide full support for the supplied solution must be made available to any subsequent provider. Any costs for preparing such documentation shall be borne by the supplier of the supplied solution.



APPENDIX 2: SOURCES OF INFORMATION

This Appendix lists useful sources of information to complement the guideline text.

General procurement guidelines

Other references to procurement best practice. At the EU level these include:

- European Commission (2007) 'Guide to dealing with innovative solutions in public procurement: 10 elements of good practice', Commission staff working document SEC(2007) 280 and
- DETE Ireland's Buying Innovation: the 10 step guide to smart procurement and SME access to public contracts.

Sources of information for the assessment of standards

The Common Assessment Method Standards and Specifications (CAMSS)³⁰ is an on-going action under the Interoperability Solutions for European Public Administrations (ISA) programme run by the European Commission. CAMSS is intended to enable the sharing of assessments of ICT interoperability standards across Member States. This resource will include an assessment library where past assessments can be searched.

CAMSS is intended to offer a neutral method to assist Member States in their assessments of standards needed in the development of interoperable national and cross-border eGovernment services. CAMSS aims to ensure that public administrations can assess and select the most relevant ICT standards for their needs. CAMSS comprises 1) a process, 2) a set of criteria and 3) an assessment library. The CAMSS process describes how to complete an assessment from start to finish using CAMSS criteria. Completed assessments are planned to be made available in an assessment library that helps Member States to share and re-use assessments.

Examples of organisations publishing lists that may be of wide interest include:

- The Netherlands Standardisation Forum, which maintains lists of mandatory and recommended open standards.³¹
- The Danish OIO Committee maintains a list of open technical specifications and recommendations on their applicability and usefulness.³²
- The Norwegian Agency for Public Management and eGovernment (Difi) maintains the Standardization Forum, which provides information about mandatory and recommended

30 <https://webgate.ec.europa.eu/fpfis/mwikis/idabc-camss/>

31 Standardisation Forum, Assessment Procedure and Criteria for Lists of Open Standards www.forumstandaardisatie.nl

32 <http://en.itst.dk/it-architecture-standards/standardisation/open-specifications/the-oio-catalogue>



standards for the Norwegian public sector. The standards are available through an online catalogue.³³

- The French RGI (Référentiel Général d'Interopérabilité) references standards recognised and supported by standards bodies, which are recommended for use by French public authorities. All standards are available online.³⁴
- In Malta, the specifications and technologies that have been adopted, or are being considered for adoption, by the Government of Malta are contained in the Adopted Specifications List. This is available on the Malta Information Technology Agency (MITA) website.³⁵

Ongoing areas of development in Standards

Below are listed some areas of work in the development of standards for specific domains.

- The 2010-2013 ICT Standardisation Work Programme, under which standards setting organisations are working to support the development and implementation of standards in priority areas such as eHealth, eGovernment and eInclusion.³⁶
- Work in the area of eAccessibility under European Commission Mandate 376, which will develop a toolkit of recommended technical specifications and templates for procurers to include in tenders.³⁷
- CEN provides a number of documents that are likely to be relevant to procurers in this respect, mainly in the form of CEN Workshop Agreements (CWAs).³⁸ These include documents covering:
 - Electronic invoicing.³⁹
 - Electronic procurement.⁴⁰
 - Electronic catalogues, and the link with classifications used for private and public procurement.⁴¹
- Project PEPPOL provides information about standards used for electronic Procurement (e-Procurement).⁴²

33 <http://standard.difi.no/english>

34 www.references.modernisation.gouv.fr/rgi-interoperabilite

35 https://www.mita.gov.mt/MediaCenter/PDFs/1_GMICT_S_0071_Adopted_Technologies.pdf

36 See http://ec.europa.eu/enterprise/sectors/ict/standards/work-programme/index_en.htm.

37 CEN, CENELEC, ETSTI, AENOR, Online Procurement Toolkit for accessible ICT products and services p.29 <http://www.mandate376.eu/>

38 The European Committee for Standardization (CEN) is a major provider of European Standards and technical specifications. It is the only recognized European organization according to Directive 98/34/EC for the planning, drafting and adoption of European Standards in all areas of economic activity with the exception of electrotechnology (CENELEC) and telecommunication (ETSI).

39 http://www.cen.eu/cen/Sectors/Sectors/ISSS/Activity/Pages/eInvoicing_2.aspx

40 <ftp://ftp.cenorm.be/PUBLIC/CWAs/e-Europe/eProc/cwa15236-00-2005-Feb.pdf>

41 <http://www.cen.eu/cen/Sectors/Sectors/ISSS/Workshops/Pages/eCAT.aspx>

42 <http://www.peppol.eu/>



- The European Commission have set up a European multi-stakeholder ICT standardisation platform to assess specifications developed by industry fora and consortia, of which procurers should be aware.⁴³
- In the transport domain:
 - Open traffic systems: Urban Traffic Management and Control (UTMC) specification in the UK. The Registry provides format standards for shared data (ie data communicated between applications of a UTMC system, or between a UTMC system and an external system)⁴⁴
 - Open Communication Interface for Road Traffic Control Systems (OCIT) in Germany, Austria and Switzerland provides technical specifications and standards for communication between systems⁴⁵
 - Smartcard systems: ITSO standard which belongs to the UK government to avoid proprietary smartcard systems in UK cities. ITSO is a government-backed non-profit organisation which sets a common technical standard that enables interoperable travel⁴⁶
 - There is a similar standard called Calypso operating in other countries of Europe. Calypso is the international electronic ticketing standard for contactless smart cards, originally designed by a group of European transit operators. It ensures multi-sources of compatible products, and makes possible the interoperability between several operator⁴⁷

ICT strategies and architectures

The Smartcities' guide to ICT architectures is another useful source and provides case studies of architectures in the Netherlands, Sweden and Norway.⁴⁸

Engaging with the market

The Netherlands Open in Connection website has guidance on communicating with suppliers about the use of open standards, and includes a template manifesto letter to suppliers.⁴⁹

The Netherlands Open in Connection website provides additional guidance on evaluating suppliers.⁵⁰

43 This multi-stakeholder platform is discussed in the Introduction to this Guide <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:349:0004:01:EN:HTML>

44 <http://www.utmc.uk.com/index.php>

45 <http://www.ocit.org/indexE.htm>

46 <http://www.itso.org.uk/>

47 <http://www.calypsotechnology.net/>

48 Smart Cities 'Creating Municipal ICT Architectures (2011): <http://www.smartcities.info/files/Creating%20Municipal%20ICT%20Architectures%20-%20Smart%20Cities.pdf>

49 Find English reference <https://noiv.nl/leveranciersmanifest/>

50 <http://http://noiv.nl/>



Migrating from a lock-in situation

The case study below provides an example of a public authority undertaking a full business appraisal to move away from a proprietary system.

A 2009 study by OSOR.eu investigated the overhaul of the Swedish National Police ICT server infrastructure, moving from proprietary to open source software and hardware. The overhaul concerned (i) the application server, (ii) the database, (iii) the operating system of the servers and (iv) the CPUs of the servers. The changeover was the result of a comprehensive case study made in 2006 following a realisation that the use of proprietary products created lock-in and was expensive. The study found that using open source products would reduce lock-in and consequently the total cost of ownership from €40m to €21m over 2006-2011, in addition to improving performance.

As the migration is large scale, the changeover process was carefully planned. The first phase, the 'implementation project' (2007), involved the procurement of X86 standard hardware and support for the MySQL database and the Linux operating systems, as well as development and installation of appropriate solutions. The second phase, the 'migration project' (2009 onwards), involved the actual migration of 33 legacy systems to the new ICT platform over a two year period. This phase has required interaction with various stakeholders to convince them of the merits of the new infrastructure, as well as interaction in experts to devise the optimal migration procedure is recommended in each instance.⁵¹

51 <http://www.osor.eu/studies/the-swedish-national-police-how-to-avoid-locking-yourself-in-while-saving-money>