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e-Competence Framework for ICT Users - Part 2: User Guidelines

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

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Foreword

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties on 2013-05-06, the constitution of which was supported by CEN following the public call for participation made on 2011-10-04.

A list of the individuals and organizations in the ICT field which supported the technical consensus represented by the CEN Workshop Agreement is available to purchasers from the CEN-CENELEC Management Centre. These organizations are as follows:

- (ISC)2
- AICA
- CEPIS
- CIGREF
- DEKRA Akademie
- ECDL Foundation
- EaSA
- EMF eExcellence
- European Software Institute – Center Eastern Europe
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The final review/endorsement round for this CWA was started on 2013-01-23 and was successfully closed on 2013-05-07.The final text of this CWA was submitted to CEN for publication on 2013-08-01.

This CEN Workshop Agreement is publicly available as a reference document from the National Members of The following countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN-CENELEC Management Centre.

1 Introduction and Overview

1.1 Project Objective and background

The aim of the e-Competence Framework for ICT[1] Users project is to develop and validate a framework shell and populate the framework with an initial five e-Competence Areas with the assistance of project-created framework development guidelines. The following user guidelines document aims to assist users in understanding and applying the framework.

The e-Competence Framework for ICT Users ranges in depth from foundation to advanced levels, and is able to range in breadth from common, generic software domains to specialised technology domains, thus having the potential to provide a complete coverage of ICT user proficiency levels and e-competence areas. For the purpose of this project, five common e-competence areas have been selected for development (See e-Competence Framework for ICT Users).

Up to now, much of the activity around the creation of frameworks relating to ICT has focused on the practitioner (e.g. e-Competence Framework, SFIA, AITTS, CIGREF, EUCIP). This work has been important for the ICT sector, but by necessity has excluded ICT users, who constitute a much larger and more heterogeneous group. Due to the scale and complexity of the group involved, the development of a complete framework, containing all key competences relating to ICT in the workplace or home, is a considerable task.

A previous project – End-User e-Skills Framework Requirements – chose to first assess the current landscape of end user e-skills frameworks in Europe and to gain an understanding on the need for and possible structure and uses of a future end user framework. The results of this project suggests that there would be a high level of support for an end user e-skills framework. In addition, a clear picture on how that framework should look, as well as useful tools that could stem from the framework, were identified by that project. The desire for the framework to have a competence focus led to the framework being renamed and subsequent discussions within the CEN ICT Skills Workshop Plenary meetings have led to a proposed name of the "**European e-Competence Framework for ICT Users**".

The project has been developed through the **CEN Workshop on ICT Skills**[2], a network of experts representing the ICT industry, academic institutions, vocational training organisations, ICT professional associations, social partners and research institutions.

1.2 Background and policy

The development of an e-competence framework for ICT users is relevant to EU legislation, policies and actions relating to ICT standardization, as set out in the 2010 - 2013 ICT Standardization Work Programme (Directorate-General Enterprise and Industry), including the following:

- **European e-Skills Summit Declaration:** October 2002.
- **Decision 2318/2003/EC:** Adoption of a multi-annual programme for the effective integration of information and communication technologies (ICT) in education and training systems in Europe (e-Learning Programme).
- **e-Skills in Europe: Towards 2010 and Beyond:** Synthesis report of the European e-Skills Forum presented at the European e-Skills Conference on 20-21 September 2004 in Thessalonica. **A Declaration** was adopted recognising that the way forward is through multi-stakeholder partnerships.

[1] Information and Communications Technology (ICT)

[2] http://www.cen.eu/cen/Sectors/Sectors/ISSS/Activity/Pages/WSICT-SKILLS.aspx

- Communication of the European Commission of 7 September 2007 on "**e-Skills in the 21st Century: Fostering Competitiveness, Growth and Jobs"** Com 469 final and Competitiveness Council Conclusions of 23 November 2007 on a long-term e-skills strategy.

- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS "A Digital Agenda for Europe"

In addition, the proposed project supports European Commission service priorities set out in the 2010 - 2013 ICT Standardization Work Programme (Domain 7): namely, that work should support pan-European skills and competence frameworks and tools and that there should be a focus on developing standards relating to advanced ICT users, and not solely ICT practitioners.

The project, in its efforts to define an e-competence framework for ICT Users, will support the creation of a broad framework that services a variety of groups (see subclause 4.2 Target Groups) through the provision of a common reference system that allows practical solutions to real-world challenges. This is directly related to *Key Action 11* of the Digital Agenda for Europe, namely to "…develop tools to **identify and recognise the competences of ICT practitioners and users**, linked to the European Qualifications Framework and to EUROPASS…".

In summary, the intention is that the project will support the actions of the European Commission in strengthening the process of convergence of ICT Competence Frameworks within the EU by:

- Providing a validated structure, content and supporting instructions to facilitate the development of a comprehensive e-competence framework for ICT users to meet the needs of a broad range of stakeholders.

- Providing recommendations of tool sets that could be developed by third parties to support the framework.

- Contribute to the development of a cross-sectoral e-competence framework for ICT users that could relate to the European Qualifications Framework (EQF).

2 Definition of key terms

The following definitions are used in the e-Competence Framework for ICT Users. Sources for definitions include the previous End User e-Skills Framework Requirements Project[3], the European Qualifications Framework[4] and the e-Competence Framework for ICT Professionals[5] as follows[6]. For more detailed analysis on the chosen definitions, please see the associated development guidelines for this framework.

2.1
ICT User
Any individual who uses ICT systems and devices in either a work or personal[7] environment. ICT users apply systems as tools in support of their own activities, which is not necessarily ICT. ICT users utilise common, generic or specialised software tools

[SOURCE: End User e-Skills Framework Requirements, a modified e-Skills Forum 2004 definition]

2.2
ICT User e-Competence
The capabilities required for effective application of ICT systems and devices by the individual in either a work or personal[8] environment. Individuals apply systems as tools in support of their own activities, which is, in most cases, not ICT. ICT user e-competences cover the utilisation of common generic software tools and the use of specialised tools supporting business functions. ICT user e-competences vary in complexity from introductory up to an advanced usage level[9]

[SOURCE: End User e-Skills Framework Requirements, a modified e-Skills Forum 2004 definition]

2.3
e-Competence Framework for ICT Users
An e-competence framework for ICT users is a simplified conceptual structure used to categorise and express ICT user e-competence, to various degrees of granularity, across proficiency level(s)[10]

[SOURCE: End User e-Skills Framework Requirements]

2.4
competence
"demonstrated ability to apply knowledge, skills and attitudes for achieving observable results"

[SOURCE: e-Competence Framework for ICT Professionals]

2.5
attitudes
""cognitive and relational capacity" (e.g. …, synthesis capacity, flexibility, pragmatism, initiative, engagement, commitment...). If skills and knowledge are the components [of a competence], attitudes are the glue, which keeps them together."

[SOURCE: e-Competence Framework for ICT Professionals, modified]

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[3] ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA_16213_2010.pdf

[4] http://ec.europa.eu/eqf/home_en.htm

[5] http://www.ecompetences.eu/

[6] Some definitions have been modified to adjust/remove examples that do not relate to ICT users.

[7] Includes social and recreational home usage.

[8] Includes social and recreational home usage.

[9] Previous project definition - ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA_16213_2010.pdf

[10] Previous project definition

2.6
knowledge
“”knowledge” means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field…”

[SOURCE: European Qualifications Framework (EQF), modified]

2.7
skills
“Skills” means the ability to apply knowledge and use know-how to complete tasks and solve problems. …skills are described as cognitive (...) or practical (…)

[SOURCE: European Qualifications Framework (EQF), modified]

3 The Framework Shell – Understanding the Construct

3.1 Introducing the framework construct

The e-Competence Framework for ICT Users is structured using four dimensions, adopting the "dimension" terminology used by the e-Competence Framework for ICT Professionals. This intentional reuse of terminology will assist in leading to a more consistent approach to framework development, assist users (e.g. a Human Resource function) of both frameworks in getting to grips with each framework and also create a more consistent brand which could in the future be extended to create a similar framework for e-Business (e-Leadership), the third e-Skills category as defined by the European e-Skills Forum in 2004.

The four dimensions reflect different levels of ICT user e-competence requirements and are specified as follows:

Dimension 1: A set of broad areas or categories of ICT User e-Competence. Five areas have been developed in this project.

Dimension 2: A set of ICT User e-Competences are provided for each area, with a generic description for each competence. These competences provide the European generic reference definitions of the ICT User e-Competence Framework. Where a competence is shared across various e-Competence Areas, the project team should look to reuse the same competence wording where possible.

Dimension 3: This sets out the proficiency levels from Foundation to Advanced for each ICT User e-Competence. These in turn have an indicative relationship to EQF levels 1 to 4 for the majority of ICT user e-competences in the framework. This mapping is explored in further detail in subclause 3.4.

Dimension 4: Samples are provided of knowledge and skills that relate to the ICT User e-Competences set out in dimension 2. They are provided to add value and context and are not intended to be exhaustive. The knowledge and skills example are also organised into groups to enhance clarity.

The framework adopts a similar approach as the existing e-Competence Framework for IT Professionals in that while competence definitions are explicitly assigned to dimension 2 and 3 and knowledge and skills samples appear in dimension 4 of the framework, attitudes are embedded in all three dimensions. In essence this means that the wording of dimensions 2 – 4 contains references (sometimes explicit or sometimes subtle) of attitudes.

3.2 Dimension 1 – e-Competence Area

The work of the previous *End-User e-Skills Framework Requirements* project identified the five most popular areas that framework users would expect to see in the framework. Those five areas have been developed during this project and are:

- Word Processing
- Spreadsheets
- Presentations
- Web Browsing and Information Search[11]
- Communications[12]

[11] Expanded to include "…and Information Search" to give sufficient weight to the search.

Using e-Competence areas largely based on applications is an accepted and useful starting point for establishing the required competences for this framework. However, the framework is designed to anticipate that an ICT user's set of competences may increasingly be assembled from elements of multiple areas. In this regard, the framework has aimed to ensure that there is a degree of consistency of wording for shared competences (e.g. those including formatting, saving, sharing…) to allow these to be transferred between areas.

It is important to note that the five areas outlined above are not the complete set of ICT user e-Competence areas. The framework is explicitly designed to be expanded to include further ICT user areas in the future, including, but not limited to:

- ICT Security
- Database Use
- Web Editing
- Image Manipulation etc…

Possible future areas to develop to expand the framework are discussed in subclause 4.4.

3.3 Dimension 2 – ICT User Competence

The framework focuses on the competences that an individual will require for the effective application of ICT systems and devices in either a work or personal[13] environment.

While the framework is primarily focused on what the competent individual can do, the overall benefit to their organisation may be a result of a combination of their ICT user competence, professional competence and behavioural competences etc. This combination can also have similar applications in a home or societal context, as acquired competences can be used to drive a sense of e-inclusion[14] for a user and/or their family or peers.

The competences developed aim to become the European generic reference definitions of the ICT User e-Competence Framework.

[12] Initially named "e-Mail" but renamed following CEN Plenary input to allow for a broader coverage of communication methods (such as SMS, MMS, IM etc).

[13] Includes recreational home usage.

[14] http://ec.europa.eu/information_society/activities/einclusion/index_en.htm

3.4 Dimension 3 - Overview of the three proficiency levels

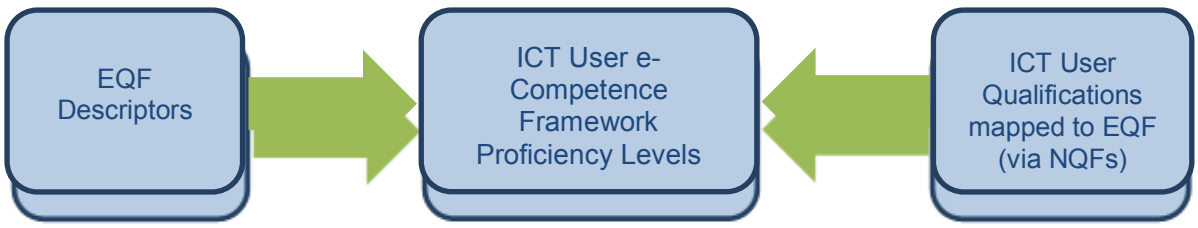
The three proficiency levels are as follows:

Proficiency Level	Description	Indicative relationship to EQF Level
Foundation	Able to apply basic knowledge and skills to carry out tasks, usually under direct or indirect supervision in a structured context; be able to solve routine problems; may have a low level of autonomy.	EQF Levels 1 and 2
Intermediate	Able to apply a range of knowledge and skills to take responsibility for completion of their tasks; be able to adapt their behaviour to circumstances to solve problems; may have a moderate level of autonomy.	EQF Level 3
Advanced	Able to select and apply a broad and complex range of skills and knowledge to complete their tasks, which may be subject to change; may have a higher level of autonomy; may also assist others or supervise them with routine work.	EQF Level 4

The description for each proficiency level is drafted based on a review of the associated descriptions for Knowledge, Skills and Competence at the correlating EQF levels. The descriptions have been combined and condensed where appropriate.

It is worth noting that in the case of ICT user e-competence, the progression from *Foundation* to *Intermediate*, to *Advanced* level may be linked to higher levels of autonomy. However, in many cases the users will be able to carry out more complex tasks, but this may not necessarily be linked to that ICT user supervising or assisting others with their work.

To evaluate how the framework could relate to the EQF, the framework development team used two mains input sources as outlined below:



Based on an evaluation of the EQF descriptors, it was possible to state that the majority of ICT user e-competences that would fall within the framework would have an indicative relationship to an EQF Level 1 up to an EQF Level 4. Some minor cases of ICT user e-competence will point to higher levels of the EQF (for example some features of ICT user databases or spreadsheets), but in the most part, the content of the framework would map to EQF Level 1 to 4.

To supplement this assumption, the project team carried out some desk based research and contacted some providers of certifications and qualifications for ICT user e-competence to ascertain if they had been mapped to the EQF (via NQFs). This process involved collating any evidence of

existing mappings to National Qualifications Frameworks, and using the European Commission Qualifications Comparison Tool[15] to find out the EQF equivalent.

This process has two key benefits:

(1) it would help to validate the estimated mappings based on the evaluation of EQF descriptors (for EQF levels) and the e-competence framework for ICT users, and

(2) it would help to deduce what content related to each level of the e-competence framework for ICT users.

The resulting grouping can be seen in the table below. In some cases where evidence of a mapping was not available (e.g. ECDL Foundation EqualSkills / e-Citizen and Microsoft Digital Literacy), a relative mapping was estimated based on the mappings available for their *Intermediate* and *Advanced* qualifications.

	Proficiency Levels		
ICT User e-CF	**Foundation**	**Intermediate**	**Advanced**
Indicative EQF Level	**EQF level 1 or Level 2**	**EQF Level3**	**EQF Level 4**
Examples	OCR Entry Level Award in Digital Literacy[16]	OCR Cambridge Level 2 Diploma in IT	OCR Cambridge Level 3 Certificate in IT
	EqualSkills or e-Citizen	ECDL	ECDL Advanced or ECDL Expert
	Microsoft Digital Literacy	MOS	Microsoft Office Expert or Microsoft Office Master
	IC3		

Further examples of how the proficiency levels link to seniority, experience and responsibility as well as how the ICT user can occasionally become an ICT Practitioner are outlined in subclause 2.4 of the associated framework Development Guidelines.

3.5 Dimension 4 - Sample Knowledge and Skill

Dimension 4 contains a sample of knowledge and skills associated with a particular competence. These knowledge and skills items may be displayed in relation to the competences as described in dimension 2 and 3. The knowledge and skills examples are also organised into groups to assist the framework user in reading the content. It is important to note that these are not a complete listing of all possible knowledge and skills required for a particular competence and that they are not organised in order of priority or importance.

3.6 Attitudes in Dimension 2, 3 and 4

3.6.1 General

In subclause 3.1 we noted that attitude is embedded in dimensions 2, 3 and 4 of the framework and that this means that the wording of these dimensions contains references (sometimes explicit or sometimes subtle) of attitude.

The following examples from the Word Processing e-Competence Area highlight how attitudes are included (attitudes in bold):

[15] http://ec.europa.eu/eqf/compare_en.htm

[16] Maps to EQF Level 1. Note: The OCR Cambridge is being replaced by Cambridge Nationals which have not yet been accredited.

3.6.2 Dimension 2 – ICT User e-Competence

Document Creation

Create documents for work or social (home/recreational) use. Navigate the interface **confidently** and **select** and use common tools **appropriately**. Create, format and edit document content to create **suitable** documents for your **chosen purpose**. Create and edit illustrations to **enhance** documents and communicate visually.

3.6.3 Dimension 3 – ICT User e-Competence Proficiency Levels

Uses input tools to create simple documents **accurately** and perform simple formatting and editing with some guidance.

Plan the content of a document. Use input tools to create and manipulate text **accurately** and utilise **appropriate** formatting and editing features to deliver **quality outputs**.

Plan the content of a complex document. Create and manipulate text **accurately** and **efficiently**. **Confidently** use advanced formatting and editing features to communicate information **effectively**.

3.6.4 Dimension 4 – Knowledge and Skills Examples

K2 Understand that keyboard shortcuts and key combinations can be used to carry out actions.

This item promotes **flexibility** to use alternative options to carry out a task.

K2 Understand how to plan a structured document.

This item promotes **initiative** and **synthesis capacity** when working with documents.

K1 Understand the options available for including/creating illustrations/images and adding them to the text. This item promotes an ability to **analyse options** and use **initiative** to select a suitable solution to meet current needs.

K1 Recognise the importance of proof reading a document, and understand the process to carry out a quality check.

This item promotes a **professional** attitude and a **commitment** to delivering the highest quality output.

4 Using the framework

4.1 Introduction

The following clause provides examples of how the framework can be used in practice. Before introducing these examples, it is worth recapping on the target groups who may interact with the framework:

- Human resource and training functions in organisations
- Training and/or certification organisations
- Government and regulatory authorities
- Individuals

It is important to note that these framework user groups will have differing requirements.

4.2 Target Groups

4.2.1 General

The following outlines some ways that the framework can be of assistance to each of the target groups.

4.2.2 Human resource and training functions in organisations

These functions require a way of describing ICT skills and competence that relates logically to job roles and that can be used to identify competence gaps. Human resource managers can reference the e-competence framework for ICT users to build job specifications and profiles and to identify appropriate candidates. Training managers can use it to build focused training plans, purchase training in a structured way, and reuse content.

In addition the availability of an e-competence framework for ICT users can help organisations to identify clearly where there are competence gaps and assist in finding suitable course content to fill the gaps identified. Integration of the e-competence framework for ICT users as the reference framework for computer skills in the Europass CV could also offer consistency and clarity for HR managers to evaluate candidates' computer skills and enhance mobility prospects for jobseekers.

4.2.3 Training and/or certification organisations

This target group can benefit from being able to create flexible training and certification solutions that relate to a common framework. Syllabus development can reference framework competences and supporting knowledge, skills and attitudes. Certifications could be built around the framework groupings of competences.

Training content providers can reference clear definitions of the competences required to meet specific needs. The availability of the framework should help the content industry both for hard copy and for eLearning solutions. The framework can help to define the learning environment and offer development paths for lifelong learning both in ICT user e-competences, and through the benefits that enhanced ICT user e-competences can offer for other educational options (e.g. further and higher education).

In addition the indicative mappings to the EQF can be referenced to add credibility to training and certification offerings.

4.2.4 Individuals

Access to appropriate and recognisable descriptions of their competences can facilitate individual mobility. A commonly accepted "language" for expressing ICT user e-competence allows people to reflect their specific KSCs on documents such as CVs and would allow employers to compare the relative merits of prospective employees.

The ICT user e-competence framework could be used to as a structure for representing ICT user e-competences in the Europass CV. In addition the indicative links to the EQF could add credibility to any qualifications obtained which map to the ICT user e-competence framework.

4.2.5 Government or Regulatory authorities

These organisations need tools to assist in tasks such as mapping qualifications and ICT proficiency level of citizens and users of eGovernment services. National qualification frameworks are engaged in formalising and structuring the certification space to allow certifications to map to each other. This process would be assisted by a standard expression of ICT user e-competence areas, particularly as the framework could potentially be mapped back to national qualifications framework, assisted by the EQF.

The ICT user e-competence framework could also assist national and regional governments to provide an objective measurement of ICT user e-competence in the general population and can determine the effectiveness of specific projects aimed at enhancing ICT user e-competence by comparing data over time (e.g. projects looking to close the 'digital divide', to promote e-inclusion, or to promote ICT user e-competence development to reskill and enhancing employability for jobseekers).

4.3 Framework uses and future tools to support target groups

4.3.1 General

The following clause outlines a series of the most popular possible uses for the framework based on research carried out by the framework development team. In addition, the examples highlight some possible tools that may stem from the framework, to be developed by third parties based on demand.

4.3.2 To assist in generating competence requirements for a job role

The work of the e-Competence Framework for ICT Professionals[17] has led to the development of a generic set of ICT Professional Profiles, suitable for ICT workers. In a similar vein, the e-Competence Framework for ICT Users can potentially be used as a reference point to create lists of required ICT User e-Competences for almost any job role.

Example: Marketing Assistant

A Marketing Assistant job role would consist of several role specific competences, such as market research, developing new market channels, customer relationship management, supporting senior staff, creation of reports and presentation of market data. Many of these tasks would require the potential candidate to have a set of ICT User e-Competences.

These requirements could be represented within in the role profile:

Table 1 - Illustration of ICT User e-Competences for a Marketing Assistant Job Role

Marketing Assistant	
ICT User e-Competence	**Proficiency Level**
Word Processing	Intermediate
Spreadsheets	Intermediate
Web Browsing and Information Search	Intermediate
Communications	Advanced
Presentation	Advanced

In doing so the employer, the human resource manager, and the prospective job candidate will all have a clear picture of the ICT User e-Competences required for the role. Any of those stakeholders also have the option of referencing the detail of the framework to clarify requirements.

[17] See www.ecompetences.eu for details.

4.3.3 To have a common reference of Competence, Knowledge and Skills and Attitudes descriptions

A wide variety of stakeholders of the framework can benefit from having a common European reference of ICT User e-Competences, supported by Knowledge, Skills and Attitudes.

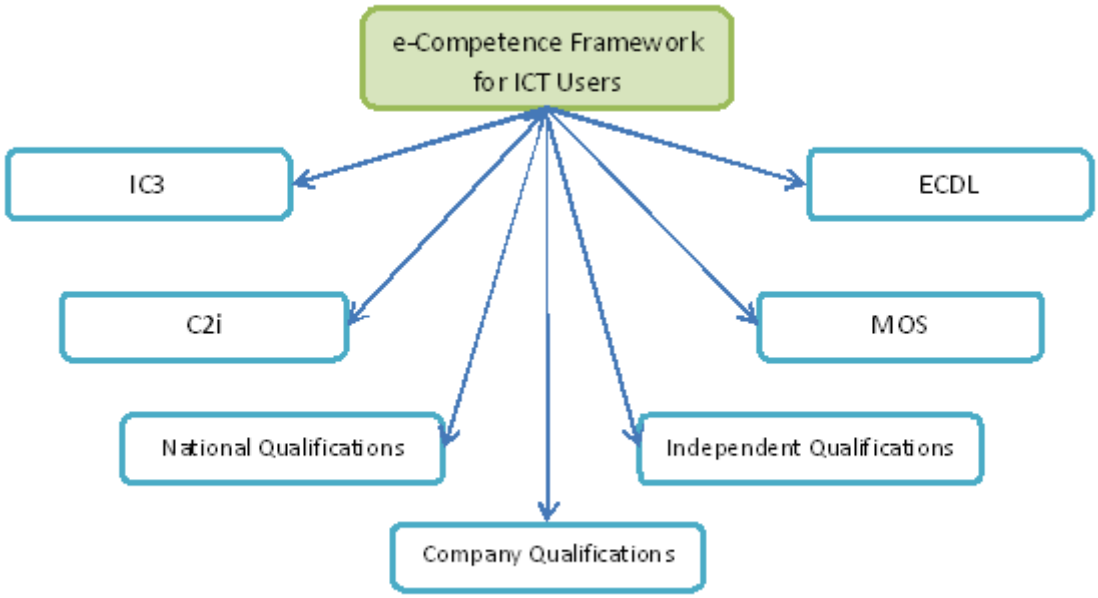
Table 2 - Illustration of benefits of the ICT User e-Competences as a reference point

Stakeholder	Requirement
Teachers	What content should I teach in my ICT class?
Human Resource Manager	What ICT competences does our staff need?
Recruiter	How do I pick the most competent candidate?
Regulator	How do qualifications in our country map across Europe?
Government	What competences do citizens need to use ICT today?
Training Provider	What should our ICT course cover?
Certification Provider	How do we reference our offerings in multiple countries?

For each of the stakeholder requirements outlined above, the e-Competence Framework for ICT Users provides a common European reference point to assist them.

4.3.4 To support cross referencing of certifications and qualifications for ICT users

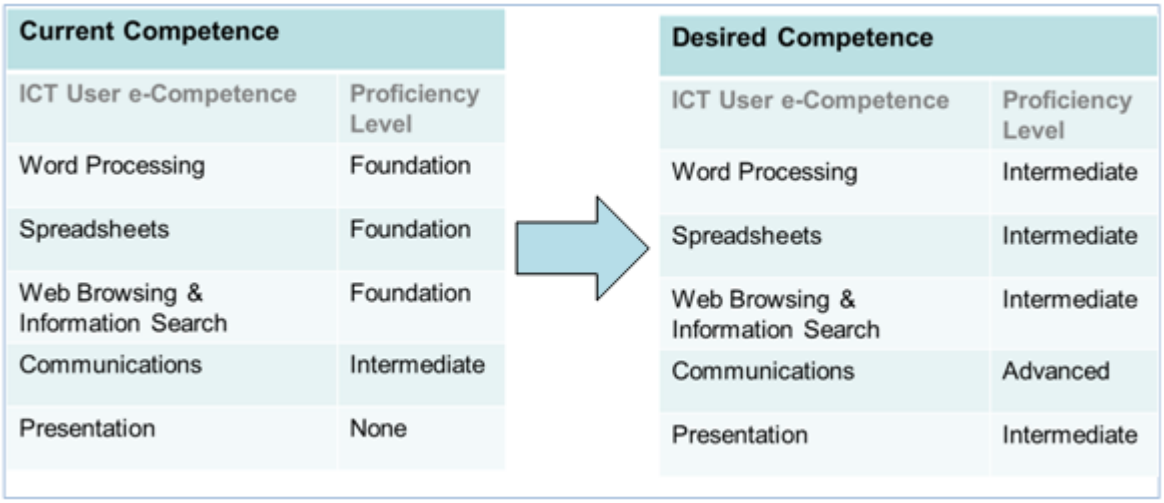
Although the ICT User domain does not have the "certification jungle" that is seen for ICT Professional certifications, there are still a wide variety of certifications and qualifications for ICT Users.



The e-Competence Framework for ICT Users has the potential to be used as a reference point, to provide clarity on how a certification relates to the framework and also how certifications relate to each other (to allow a training manager / customer to choose a certification option or certification pathway for progression through the proficiency levels). In addition, the framework could be of benefit to national regulatory authorities who control mapping or certifications to their National Qualifications Frameworks. There is also some potential for the framework to act as a translation device for national qualifications, as a result of the indicative mapping to the EQF.

4.3.5 To support competence development planning

Organisations require tools and supports to allow them to assess the competences of their staff and to provide a structured approach to competence development planning. The framework structure can be used as a reference point to map existing staff competences and also to plot targets for competence development to reach desired competence levels for a particular role.



Current Competence	
ICT User e-Competence	Proficiency Level
Word Processing	Foundation
Spreadsheets	Foundation
Web Browsing & Information Search	Foundation
Communications	Intermediate
Presentation	None

Desired Competence	
ICT User e-Competence	Proficiency Level
Word Processing	Intermediate
Spreadsheets	Intermediate
Web Browsing & Information Search	Intermediate
Communications	Advanced
Presentation	Intermediate

The illustration above shows how the framework could be used to plot the current competence levels of an individual. The organisations learning and development staff may feel that this individual needs to enhance certain competences and can plot the desired competence for the role. These types of competence development planning activities have the potential to be supported by a series of tool, for example:

Diagnostic Assessment Tool – To self-assess / assess current competence levels by asking questions based on framework contents

Individual Competence Development Account – An online system to show an individual's existing competence and pathway to competence development

Manager Competence Development Account – An online system to allow a learning manager to see progress of individual's competence development against agreed development plans.

4.3.6 Online Reference Tool

The e-Competence Framework for ICT Professionals has developed an online reference tool to support interaction with the framework. This tool offers users the opportunity to browse the framework, select specific competences to build custom competence profiles which can then be printed or downloaded. The availability of such a tool turns the conceptual framework content, into a tool that can be used by the target groups.

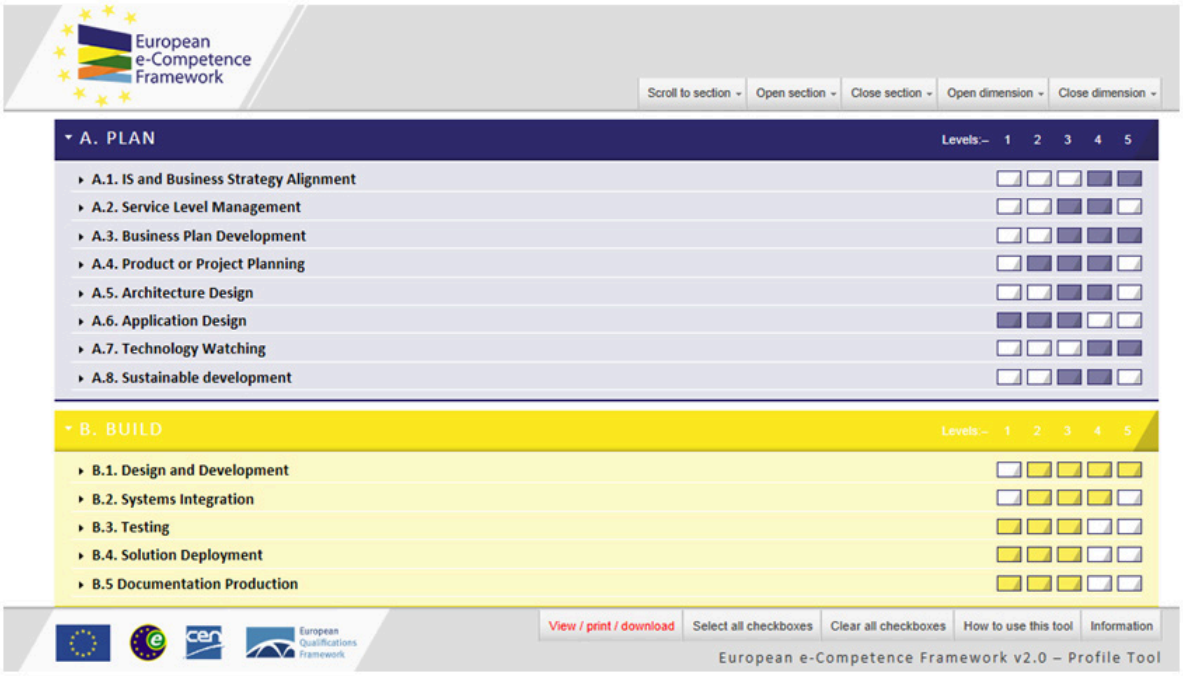


Figure 1 - e-Competence Framework for ICT Professionals Online Reference Tool

A similar tool could be developed to allow users to interact with the e-Competence Framework for ICT Users in the same manner. Such a tool could be used by individuals, human resources / training functions, training / certification organisations, and or governments, to allow them to interact with the framework and create customised views of its contents. It is possible that in the future the e-Competence Framework for ICT Professionals tool (and associated ICT Professional Profiles) could also include the ICT User e-Competences relevant to each area / profile as required.

4.3.7 To assist in populating ICT User e-Competences within a CV (e.g. Europass)

There is no standard way to represent ICT User e-Competences within a Curriculum Vitae and as a result individuals can often either refer to certifications or qualifications that they have attained, or make general statements about what applications or tools they can use.

The current guidance for this part of the Europass CV is as follows:

Dimension 1	Dimension 2	Dimension 3		
ICT User e-Competence Area	ICT User Competence	Proficiency Levels		
		Foundation	Intermediate	Advanced
Word Processing	Document Creation			
	Document Organisation			
	Document Collaboration and Interaction			
	Document Automation			
	Document Output and Storage			
Web Browsing and Information Search	Browse the web			
	Online Search			
	Copyright and Licences			
	Security			
	Information Assessment			
	Online Services			
	Information Sharing			
Spreadsheets	[In Development]			
Presentation	[In Development]			
Communications	[In Development]			
Competence Area 6	[Future project]			
Competence Area 7	[Future project]			
Etc.	[Future project]			

Computer Competence	
ICT User e-Competence	Proficiency Level
Word Processing	Intermediate
Spreadsheets	Intermediate
Web Browsing & Information Search	Intermediate
Communications	Advanced
Presentation	Intermediate

Individuals will be able to review the content of the framework (e.g. proficiency level descriptions) to assess their competence level. In addition, due to the indicative link to the EQF, individuals will be

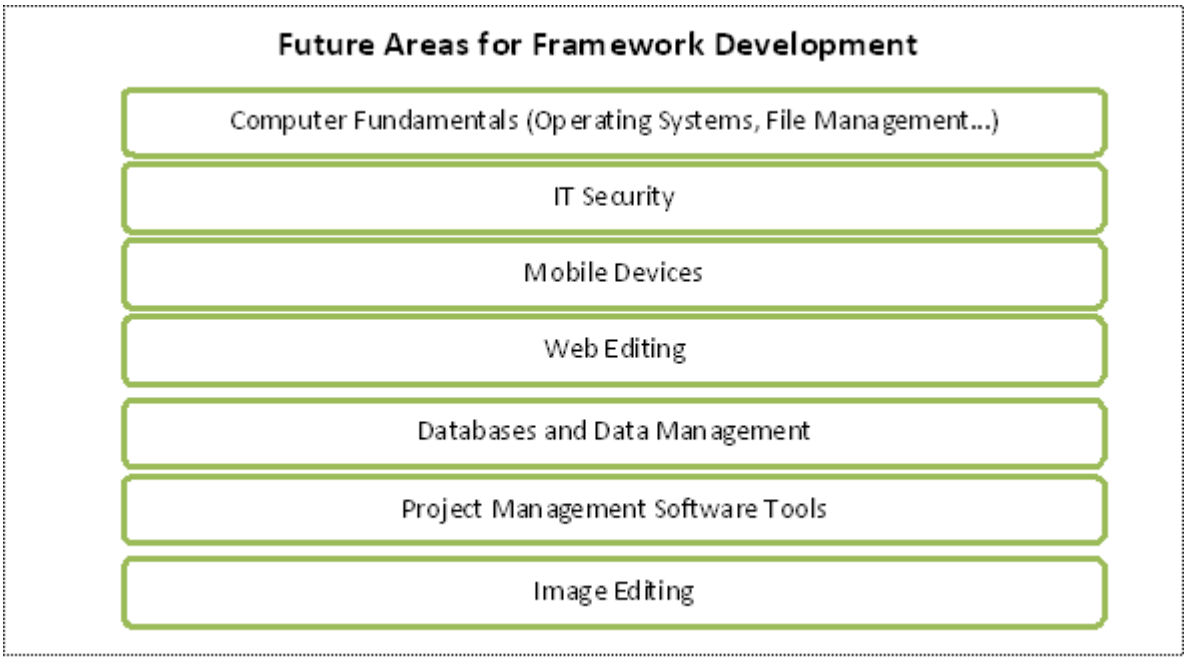
able to populate their competence and levels based on certifications they have completed, for example if they have completed MOS Expert for Spreadsheets they can state that they have Spreadsheets at an Advanced proficiency level, or if they have completed ECDL Word Processing module, they have Word Processing at an Intermediate proficiency level.

4.4 Future areas of framework development

4.4.1 General

During a survey of target groups conducted to validate the framework, the project team looked to gather information on the next set of priority areas to be included in the framework. Survey respondents were provided with a list of 17 possible areas, along with an "Other" option to allow for freeform responses.

The results suggested that the following areas would be the most beneficial to be developed to expand the framework in future:



Beyond the seven areas listed above, the demand began to drop to lower levels (< = 30 % response rates). These areas were typically in more specialised areas, such as Desktop Publishing, Financial Accounting, Video Editing, Computer Aided Design, etc.

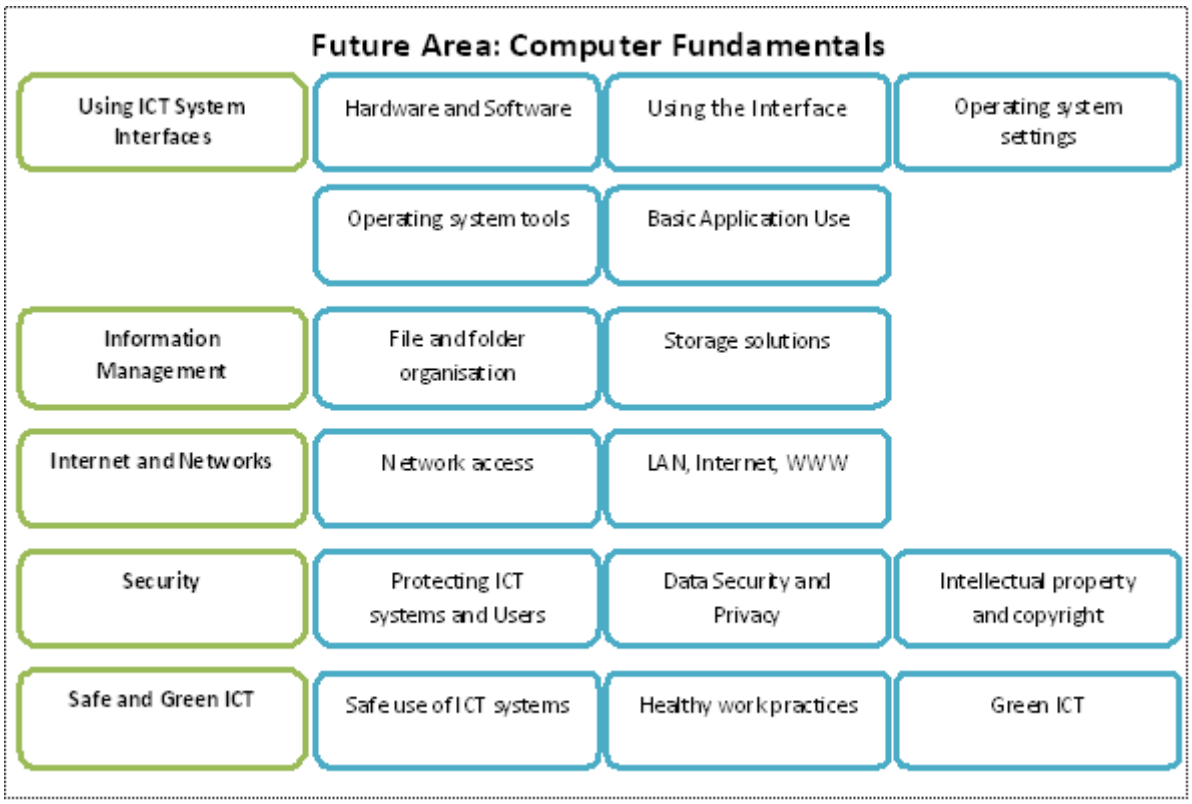
The IT Security and Mobile Devices may be integrated in appropriate competence areas as opposed to having their own standalone areas, as the competences for IT Security are transversal, and the competence associated with Mobile Devices are also starting to be application in other devices.

Open responses from the survey participants highlighted other possible areas to consider including Web Content Management Systems (which could be an aspect of "Web Editing" in the list above), Basic ICT (See Computer Fundamentals above) and Social Media, which is currently covered in the "Communications" area of the framework.

4.4.2 Computer Fundamentals

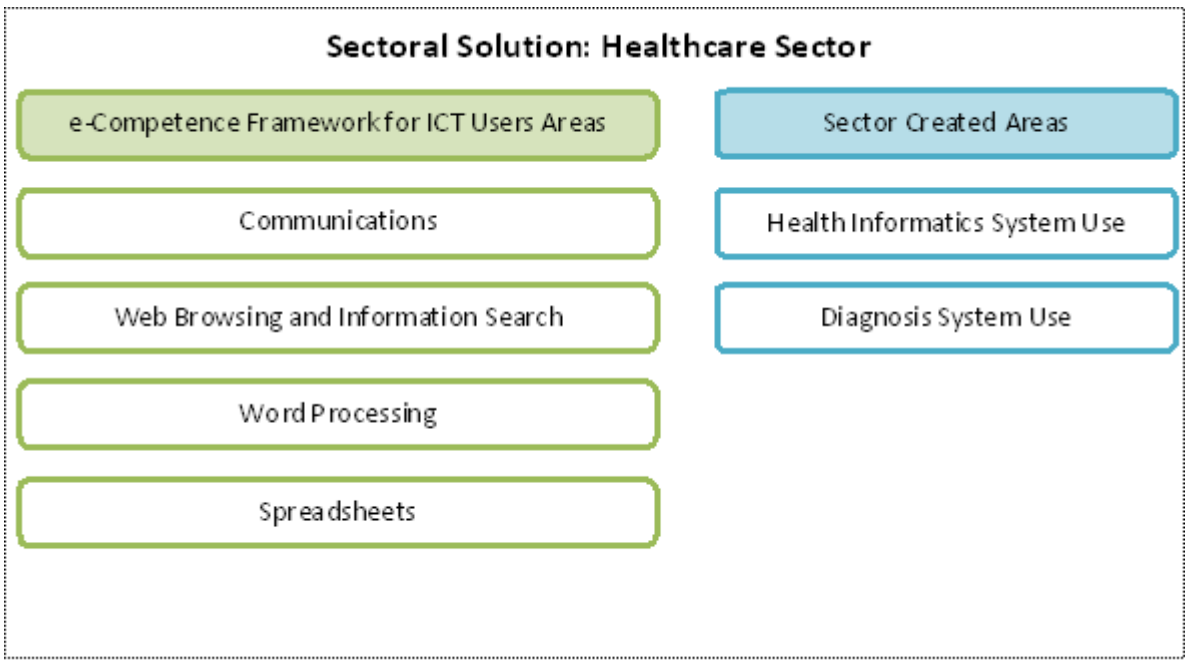
The notion of a Computer Fundamentals e-Competence Area received widespread interest throughout the development of the framework.

The following diagram illustrates what this future area of the framework could look like at a summary level, and shows the potential for the framework to be expanded and developed. The boxes with the green outline represent a view of the possible ICT User Competences (Dimension 2) for this future e-competence area, with the boxes with the blue outline representing an outline of the likely groups of knowledge and skills content that would be within Dimension 4.

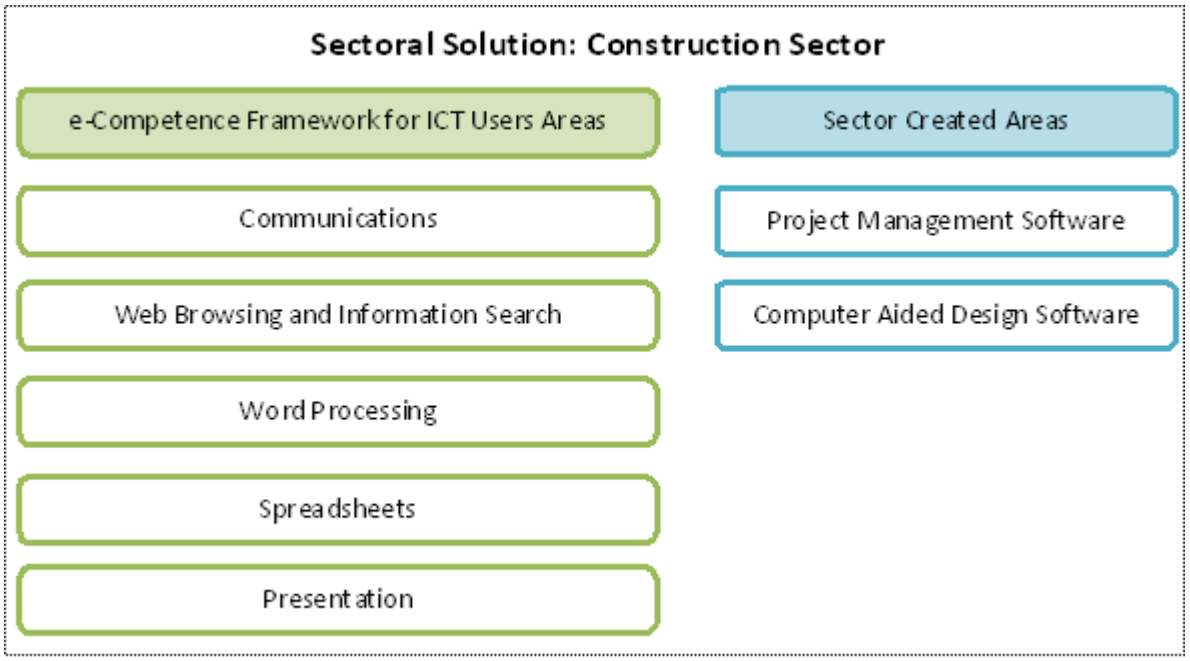


4.4.3 Sectoral Solutions

The framework is designed to be adapted and expanded to suit the various target groups. Within these groups (e.g. Human Resources) there may also be a need to package and expand the framework to a particular sector. Some examples are outlined below:



In the Healthcare Sector, those involved in training and development of staff may create a customised version of the framework for their organisation. This could include a series of existing e-Competence Areas, and be supplemented by some sector specific areas developed with the assistance of the development guidelines (those listed are for illustrative purposes only).



In the Construction Sector, those involved in training and development of staff may create a customised version of the framework for their organisation, or as an ICT element of their own framework for continuous professional development. As with the Healthcare example, this could include a series of existing e-Competence Areas, and be supplemented by some sector specific areas, or areas that may be developed for the e-Competence Framework for ICT Users in future (those listed are for illustrative purposes only).

4.4.4 Local administrations and public-private partnerships consortia (PPP)

These organisations, in a medium-term vision, will need to map ICT abilities of citizens as public utility user-centric services users; the local administrations and organisations involved in PPP, indeed, will provide innovative services based on the empowerment of citizens as co-designer.

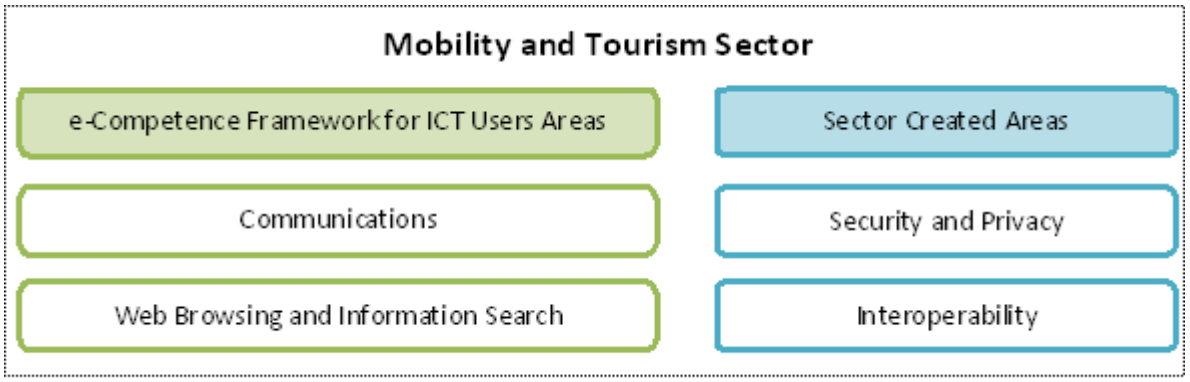
A recent survey [18]demonstrates the need to focus on users' skills in personalised mobile devices, at-home devices, teleconference systems and enhanced use of Smart TVs and all their add-ons like the kinetic or other human movement track devices.

These organisations shall use a framework to map and analyse the level of ICT usage skills by citizens and adopt appropriate countermeasure to reduce any skills gap; the scope is to optimise the engagement of citizens to be users of innovative services with a consequent reduction of time and costs of services delivery.

Examples of sectoral solutions in this context are outlined below:

Mobility and Tourism

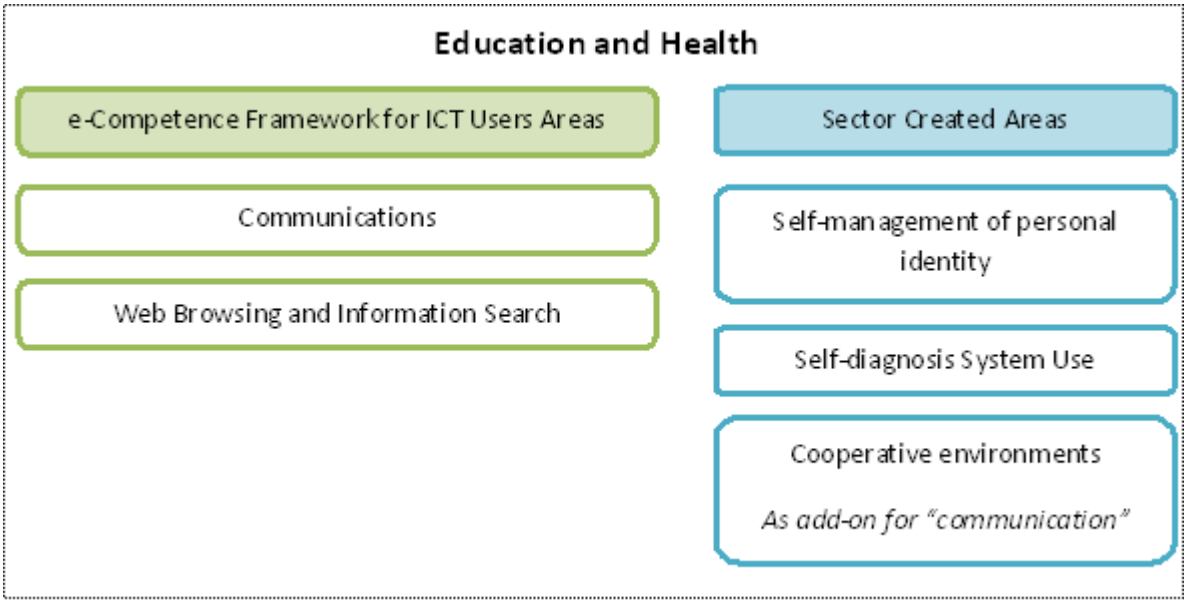
Need to develop more cloud services, with special attention to the user, by introducing personalized routes (i.e. bus on demand), the possibility to pay with mobile technologies and the possibility to use added value content during the city journey. Existing e-Competence Areas could be supplemented by new and/or sector developed areas to fulfil the needs of this user group:



Education and Health

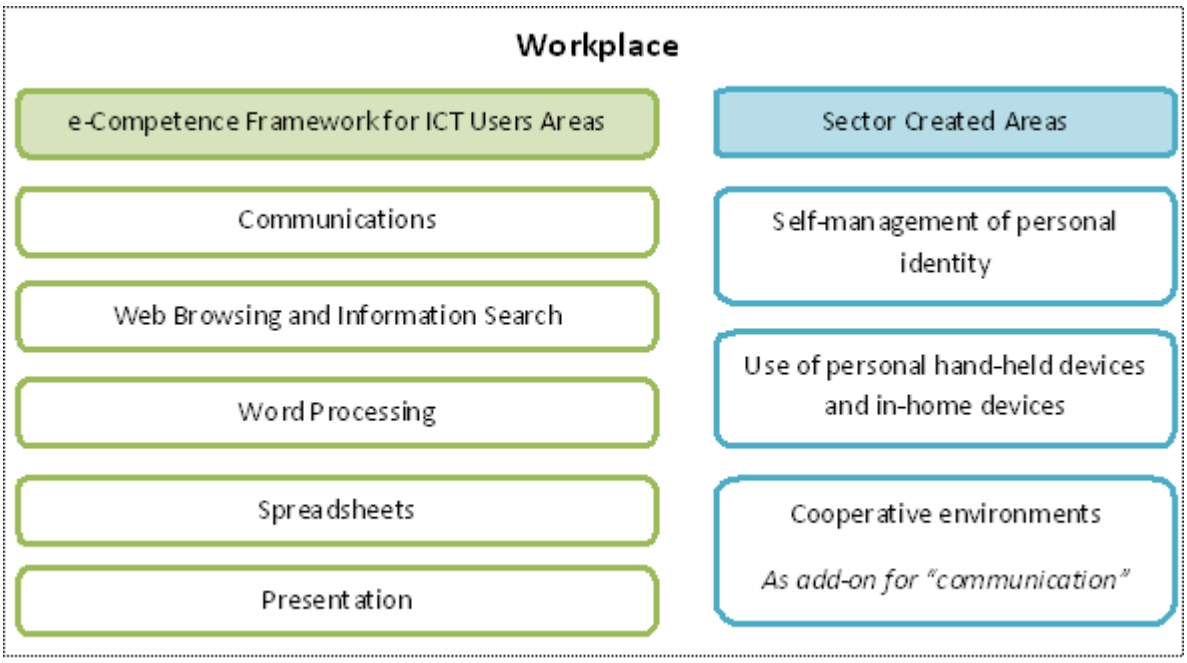
Within the education and health sector there is a desire for ICT user e-competence development to reduce time losses and costs, to empower the user with self-management tools, new cooperative environments, direct contact with patients, paramedic, students, and stakeholders. Existing e-Competence Areas could be supplemented by new and/or sector developed areas to fulfil the needs of this user group:

[18]Source NET-EUCEN network http://www.net-eucen.org/scenarios.php, D4.1 "Draft Scenarios for S4U"



Work (Cross Sectoral)

In the workplace in multiple sectors there is a desire for greater use of mobile for service fruition, to access open database, to make use of cloud for business, possibility to modulate the requests. Existing e-Competence Areas could be supplemented by new and/or sector developed areas to fulfil the needs of this large user group:

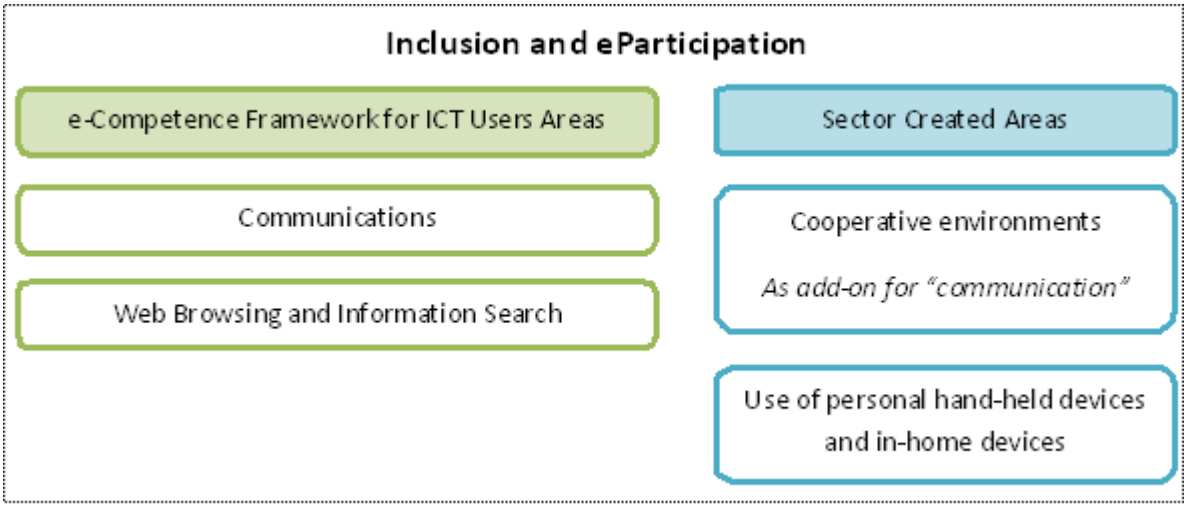


Inclusion and e-Participation

As part of the wider European drive for e-Inclusion and e-Participation[19], there is a desire to promote the use of cooperative platforms, to let citizens work with Public Administrations in the definition of services, for the interoperability of country documentation, and overall improvement of digital skills.

[19] http://ec.europa.eu/information_society/activities/egovernment/policy/eparticipation/index_en.htm

Existing e-Competence Areas could be supplemented by new and/or sector developed areas to fulfil the needs of this large user group:



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We are grateful to the wide group of contributors to the e-Competence Framework for ICT Users project, including the members and participants of the CEN ICT Skills workshop:

A/I/M bv, AFPA, AICA, AIRBUS, Association Pasc@line, ATI, ATT, British Computer Society, BIBB - Bundesinstitut für Berufsbildung, Birkbeck Univ. of London, Breyer Publico, CEDEFOP, CEPIS, CIGREF, CISCO, CPI Competenze per l'Innovazione, C&R Bureau for informatics and education, DEKRA Akademie GmbH, Deutsche Telekom AG, DND (Norwegian computer society), EeSA (former e-Skills ILB), e-Skills UK, ECABO, ECDL Foundation, Empirica GmbH, ESI BG, EuroCIO, European Metalworkers' Federation, EXIN, Fondazione Politecnico di Milano, FZI, HBO-I Foundation, IBM UK, IG Metall, Institut für Praktische Interdisziplinarität, Intel Corp., IPA Japan, IT Star, IWA IT, KWB eV, Microsoft Deutschland, MinEZ, Ministère de l'éducation et de la recherche FR, MPSA, MS Consulting and Research Ltd., MTA, NIOC, NormaPME, Norwegian computer association, ORACLE, PMI, Skillsnet, THAMES Communication, Trinity College Dublin, UK Cabinet office/ Delivery and transformation group, UNESCO, Uni Duisburg, UNI Europa, Univ. Danube/CEPA, Univ. Gent/Fac. EC&BA, Zumiya Consulting.

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[20] Some survey respondents opted to remain anonymous and have not been listed.

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6 Appendix 1: Glossary of Terms

Attitudes

"cognitive and relational capacity" (e.g. …, synthesis capacity, flexibility, pragmatism, initiative, engagement, commitment...). If skills and knowledge are the components [of a competence], attitudes are the glue, which keeps them together.(e-Competence Framework for ICT Professionals Definition - modified)

Competence

demonstrated ability to apply knowledge, skills and attitudes for achieving observable results.(e-Competence Framework for ICT Professionals Definition)

e-Competence Framework for ICT Users

An e-competence framework for ICT users is a simplified conceptual structure used to categorise and express ICT user e-competence, to various degrees of granularity, across proficiency level(s)[21]*. (Project Definition)*

ICT (Information and Communication Technology)

ICTs include any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning.

ICTs are rapidly changing global production, work and business methods and trade and consumption patterns in and between enterprises and consumers. ICT enables a radical change in structures of organisations and means of learning, researching, developing, producing, marketing, distributing and servicing digital and traditional goods and services. It also has a great potential to enhance the quality of life. (DG Enterprise and Industry - Glossary[22]*)*

[21] Previous project definition

[22] http://ec.europa.eu/enterprise/glossary/index_en.htm#i

ICT User

Any individual who uses ICT systems and devices in either a work or personal[23] environment. ICT users apply systems as tools in support of their own activities, which is not necessarily ICT. ICT users utilise common, generic or specialised software tools. (Project Definition)

ICT User e-Competence

The capabilities required for effective application of ICT systems and devices by the individual in either a work or personal[24] environment. Individuals apply systems as tools in support of their own activities, which is, in most cases, not ICT. ICT user e-competences cover the utilisation of common generic software tools and the use of specialised tools supporting business functions. ICT user e-competences vary in complexity from introductory up to an advanced usage level[25]. (Project Definition)

Knowledge

The outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field… (European Qualifications Framework Definition)

Proficiency Level

A level of being capable or proficient in a specific knowledge, skill domain expertise or competence. Proficiency indicates a degree of mastery that allows an individual to function independently in the performance of a specific knowledge application, skill domain, expertise or competence (e-Competence Framework for ICT Professionals Definition)

Skills

The ability to apply knowledge and use know-how to complete tasks and solve problems. …skills are described as cognitive (...) or practical (…).(European Qualifications Framework Definition - modified)

[23] Includes social and recreational home usage.

[24] Includes social and recreational home usage.

[25] Previous project definition - ftp://ftp.cen.eu/CEN/Sectors/List/ICT/CWAs/CWA_16213_2010.pdf