CEN WORKSHOP AGREEMENT

Ref. No.: CWA 16624-3:2013 E

September 2013

ICS

English version


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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
- AICIA
- CEPIS
- CIGREF
- DEKRA Akademie
- ECDL Foundation
- EaSA
- EMF eXcellence
- European Software Institute – Center Eastern Europe
- ESI Central Europe
- EuroCIO
- EXIN
- FZI
- HBO-I
- IWA IT
- KWB eV
- Microsoft
- Pasc@line
- Thames Communication
- UBO

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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 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 document outlines the development guidelines used to create 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 (81% of survey respondents said it was Extremely Important to Moderately Important to have an end user e-skills framework) 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”.

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.

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1 Information and Communications Technology (ICT)
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 3.2 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).

1.3 Definition of key terms

Rather than focus our attentions on developing new definitions for various terms to be used in the project, the project team have looked to suitable existing definitions to provide a basis for our work. Definitions for the project have been sourced from the previous End User e-Skills Framework Requirements Project, the European Qualifications Framework and the e-Competence Framework for ICT Professionals as follows:

**ICT User**

*Any individual who uses ICT systems and devices in either a work or personal*\(^3\) *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.*

**ICT User e-Competence**

The preceding project (End User e-Skills Framework Requirements) defined an ICT user e-competence as follows, using the e-Skills Forum 2004 definition as a starting point:

*The capabilities required for effective application of ICT systems and devices by the individual in either a work or personal*\(^4\) *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*

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\(^2\) Some definitions have been modified to adjust/remove examples that do not relate to ICT users.

\(^3\) Includes social and recreational home usage.

\(^4\) Includes social and recreational home usage.
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.

**e-Competence Framework for ICT Users**

The preceding project (End User e-Skills Framework Requirements) defined e-Competence framework for ICT users as follows:

*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)*.

**Competence**

Following a review of the definitions within the e-Competence Framework for ICT Professionals, the EQF and the IPTS study, Mapping Digital Competence: Towards a Conceptual Understanding, the project team adopted the e-Competence Framework for ICT Professionals definition for the term competence:

“demonstrated ability to apply knowledge, skills and attitudes for achieving observable results”.

This definition was deemed to be the most succinct wording for this term and contained all the key elements of competence in one single statement.

The e-Competence Framework for ICT Professionals documentation states that their definition of competence also encompasses social and personal abilities, as e-competences are holistic units expressing complex behaviours; they embed “attitudes” and degrees of individual autonomy; this becomes more evident when e-competences are described according to e-Competence Framework proficiency levels.

The fact that there is a clear statement that the definition encompasses social and personal abilities is particularly useful for an ICT user focused e-competence framework, where many users will apply their competence in these contexts. In addition, the embedded “attitudes” and the notion of levels of autonomy will relate well to the proficiency levels available in the e-competence framework for ICT users.

**Attitudes**

The term attitude is also given a specific definition in the e-CF. The project team made some adjustments to the examples to enhance relevance for this ICT user focused framework:

“cognitive and relational capacity” (e.g. analysis capacity, 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.”

The original e-Competence Framework for ICT Professionals definition is below. The project team felt that “analysis capacity” may be more relevant as a skill and that the example of “synthesis capacity” would most likely apply to the advanced level of ICT users, whereas it would be more prevalent across the range at an ICT Professional level. Some additional examples of attitudes (initiative, engagement, commitment) were also inserted to give greater clarity.

“cognitive and relational capacity” (e.g. analysis capacity, synthesis capacity, flexibility, pragmatism...). If skills and knowledge are the components, attitudes are the glue, which keeps them together.”

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2 Previous project definition
The concept of attitude is often overlooked when considering ICT user e-competence. However it is clear that there are various opportunities for attitudes to be embedded in the framework, since it is related to feelings and ways of thinking when dealing with something.

The attitude will be determining the ICT user’s behaviour when for example searching the web. The attitude will have an important impact on the final outcome, which can be variable due to the fact that there is plenty of information and data on the web. So, even if the ICT user has the necessary knowledge and the skills to search, find and classify information and data, a positive and fruitful result would also depend on an initial positive mind-set that would include a certain level of self-confidence in reaching the required outcome.

Knowledge

For the term knowledge, the project team have adopted a modified version of the EQF definition:

""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…"

The full EQF definition (see below) was deemed to be too narrow for the potential users of the framework, particularly the phrase "work or study" which would not include social or e-inclusion uses of ICT like access to public services or staying in touch with family. The second sentence “…theoretical and/or factual"; was deemed to be implied in the modified definition.

""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 of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;"

In this instance, the project team chose the EQF definition as it was felt that the e-Competence Framework for ICT Professionals definition was deemed to be suitable for the ICT Professional, but not suitable to be easily applied to the end user. The e-Competence Framework for ICT Professionals definition is below:

Knowledge represents the “set of know-what” (e.g. programming languages, design tools…)

and can be described by operational descriptions.

Skills

For the term skills, the project team adopted a modified version of the EQF definition:

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

The examples within the definition were removed to simplify the definition. If necessary they could be adjusted to be more relevant to the user group for example:

“…cognitive involves the use of logical, intuitive and creative thinking and practical involves the use of software tools like word processing and presentations.”

The project team also reviewed the e-Competence Framework for ICT Professionals definition of skills, however the wording focused on “managerial” and “technical” tasks, terms that were deemed to be at too high a level for the majority of ICT user e-competences.
2 The Framework Shell – Understanding the Construct

2.1 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.

A generic description of each ICT User e-Competence area has also be provided.

**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 2.4.

**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.

2.2 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

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8 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. With the emergence of smaller tools and cloud based software solutions, it will become more and more likely that users will use these as “toolkits” to create their own set of tools to complete their tasks.

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…

2.3 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\textsuperscript{10} 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\textsuperscript{11} 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.

2.4 Dimension 3 - Overview of the three proficiency levels

2.4.1 General

The three proficiency levels are as follows:

\textsuperscript{9} 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).

\textsuperscript{10} Includes recreational home usage.

\textsuperscript{11} http://ec.europa.eu/information_society/activities/einclusion/index_en.htm
<table>
<thead>
<tr>
<th>Proficiency Level</th>
<th>Description</th>
<th>Related to EQF Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation</td>
<td>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.</td>
<td>EQF Levels 1 and 2</td>
</tr>
<tr>
<td>Intermediate</td>
<td>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.</td>
<td>EQF Level 3</td>
</tr>
<tr>
<td>Advanced</td>
<td>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.</td>
<td>EQF Level 4</td>
</tr>
</tbody>
</table>

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 project team used two mains input sources as outlined below:

Based on an evaluation of the EQF descriptors, the project team could 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[^12] 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.

During the process the project team began to group content from existing frameworks, certifications and qualifications to create a “Content Library” for reference for framework content development.

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.

<table>
<thead>
<tr>
<th>Indicative EQF Level</th>
<th>Proficiency Levels</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation</td>
<td>Intermediate</td>
<td>Advanced</td>
</tr>
<tr>
<td>EQF level 1 or Level 2</td>
<td>EQF Level 3</td>
<td>EQF Level 4</td>
</tr>
<tr>
<td>OCR Entry Level Award in Digital Literacy</td>
<td>OCR Cambridge Level 2 Diploma in IT</td>
<td>OCR Cambridge Level 3 Certificate in IT</td>
</tr>
<tr>
<td>EqualSkills or e-Citizen</td>
<td>ECDL</td>
<td>ECDL Advanced or ECDL Expert</td>
</tr>
<tr>
<td>Microsoft Digital Literacy</td>
<td>MOS</td>
<td>Microsoft Office Expert or Microsoft Office Master</td>
</tr>
<tr>
<td>IC3</td>
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<td></td>
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</tbody>
</table>

2.4.2 Proficiency Levels – links to seniority, experience and responsibility

There are two main approaches when considering “responsibility”:

1. Responsibility as related to the hierarchy within the organisation. The CEO, Manager, Secretary all have different levels of responsibility related to their roles and level in the organisational hierarchy.

2. Responsibility as “all those obligations you have to fulfil when you have to complete an indicated task”.

Both are valid and the correlation between the e-competences and the level of responsibility comes down to the correlation between responsibility (in terms of hierarchy and obligations within a task) and experience, because the experience contributes to producing competences. Training often provides someone with skills and knowledge, but it is the ability to put it into practice (using experience) and apply attitudes that turns it into competence.

In an ICT Professional enterprise, like a software firm, titles like Senior Specialist are not given for just competences and experience, but for their responsibility. Their gained competences and experiences is their past (already achieved), and their responsibility is related to their future work. Practically it means that enterprises do not want to pay high salaries for staff who are competent, but who do not take any responsibility on their shoulders.

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Maps to EQF Level 1. Note: The OCR Cambridge is being replaced by Cambridge Nationals which have not yet been accredited.
When we consider the focus of this framework i.e. the area of ICT User e-Competence, ICT is the tool used to execute particular actions. The responsibility in the organisation (i.e. rules and roles) does not always directly impact on the ability to use an ICT tool.

The ICT user e-competence framework is not focused on just companies, organisations or people that develop Software (who operate at a higher level with higher competences and higher responsibility), but is focused on the use of common ICT software and tools at defined levels of proficiency to contribute to effective and productive work in whatever company or home context they require it. In a company context, the level of job role responsibility is not directly linked to the level of ICT User e-Competence required. There are many CEOs who are highly competent in their business role, but who dictate their emails or letters to a PA and allow them to carry out the ICT User element. The CEO in this case is responsible for the content of the letter or email that is sent (as he or she decides the content and he or she signs it), but in this case the CEO is not the one who displays the ICT User e-competence to complete it. The most competent ICT User in an organisation (or in a home) is not always the person with the highest level of responsibility. This is also the case in a home user context, as the head of a household is not necessarily the person who is the most proficient ICT User, with children often being delegated responsibility to carry out ICT User tasks by their parents. To highlight the link to proficiency, we can say that the company personal assistant has been given the responsibility for sending out 1000 invitations for a conference. He or she can:

(1) address the envelopes manually

(2) print out each address separately using a word processing tool, or

(3) use a mailing feature of a word processing tool.

So no matter how he or she will do it, her responsibility is exactly the same i.e. to send out the invitations, but the level of proficiency that he or she has with a word processing tool and his or her attitude to completing the task will dictate the approach that he or she uses and the related evidence of competence with a word processing tool.

This linkage between responsibility, tasks and proficiency is best captured in Dimension 3 of the framework, in the content of the proficiency level descriptions across the three framework levels. However, the supporting content in Dimension 4 is the “toolkit” that any competent ICT User will build up to utilise to display their ICT competence. Please see the framework contents for reference.

2.4.3 Proficiency Levels – how the ICT user can occasionally become an ICT Practitioner

It is important to note that the majority of people developing their ICT user e-competence are not doing so to progress towards becoming an IT Practitioner. However, in a very small number of cases we may see examples of this occurring.

For example, an ICT user who wishes to validate their non-formal or informal competences in developing web pages using Adobe Dreamweaver software may work towards the Adobe Certified Associate (ACA) qualification, which is mapped to Level 4 of the EQF. This places the qualification within the scope of the e-competence framework for ICT users, but also within the scope of the competence framework for ICT professionals. On completion of this qualification, they may wish to pursue this route further and complete the Adobe Certified Expert (ACE) qualification, which is mapped to Level 5 of the EQF, placing it solely within the scope of the e-competence framework for ICT professionals, and potentially offering this individual with the opportunity to have a career as a “Digital Media Specialist” as they have demonstrated a professional level in proficiency with one or more Adobe software products that are often used by such specialists. This example is highlighted in the diagram below, showing the potential progression for such an individual as highlighted by the relevant frameworks:
The example highlights that, in some cases, an ICT user may have a career pathway into becoming an IT practitioner by advancing their e-competence proficiency levels, however we fully recognise and respect that for the majority of ICT users this is not their goal or motivation for developing ICT user e-competences.

2.5 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.

Clause 4 of these guidelines provides further detail on how these samples were chosen and how they are written.

2.6 Attitudes in Dimension 2, 3 and 4

2.6.1 General

In subclause 2.1 we noted that attitudes are 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 attitudes.

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

2.6.2 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.
2.6.3 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.

2.6.4 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.
3 Development Methodology

3.1 Requirements for an End User e-Competence Framework

The previous framework requirements project provided a useful overview of existing ICT user frameworks across Europe:

![Figure 1 - Existing ICT User e-Competence Frameworks](image)

The project team have reviewed a number of these frameworks, some similar frameworks for other areas (e.g. e-Competence Framework for ICT Professionals and Eumesta (European media standards in vocational education and training)), as well as some leading certification providers in the area, to review how they construct their framework and the associated writing style for each element of their framework.

3.2 Target Groups

3.2.1 General

The previous framework requirements project also highlighted four main target groups who would interact with the e-competence framework for ICT users. These groups are:

3.2.2 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 could use an e-competence framework for ICT users to build job specifications and profiles and to identify appropriate candidates. Training managers could 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 could 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.

3.2.3 Training and/or certification organisations

This target group could benefit from being able to create flexible training and certification solutions that relate to a common framework. Syllabus development would be supported by an agreed knowledge and skills domain. Certification could be built around logical and required groupings of competences.

Training content providers would have a clear definition of the competences required to meet specific needs. The availability of a framework should help the content industry both for hard copy and for eLearning solutions. The framework could 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 potential for mapping to the EQF will add credibility to training and certification offerings.

3.2.4 Individuals

Access to appropriate and recognisable descriptions of their competences would facilitate individual mobility. A commonly accepted “language” for expressing ICT user e-competence would allow 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 link with the Europass CV in order to make it more recognisable and relevant. In addition the potential links to the EQF could add credibility to any qualifications obtained which map to the ICT user e-competence framework.

3.2.5 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 to national qualifications framework, and in turn to 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).

3.3 Stakeholder validation of the framework shell and content

3.3.1 Validation Methodology

To validate the framework development activities, the project team carried out the following activities:

- Host an open technical expert meeting to allow for initial feedback and enhancement of the work carried out to date, with a focus on the development guidelines and the initial framework content.

- Circulate a survey to individuals and organisations representing the four identified potential target groups of the framework (See subclause 3.2). The survey provided an opportunity for members
of these potential framework user groups to review initial framework content and provide guidance on the framework development to ensure that it is suitable for their needs.

- Supplement the survey of framework content by gathering expert input on the development guidelines from the participants of the CEN ICT Skills workshop and survey participants who opt-in to provide specific feedback on the document.

- Host an additional open technical expert meeting later in the project to allow for further feedback on the draft framework contents and the recommendations on future areas to development and uses for the framework.

The focused quantitative data from the survey, supplemented by the qualitative input on the development guidelines and framework aimed to ensure that the approach to developing the framework and the content of the framework meet the expectations of the target groups.

### 3.3.2 Technical Expert Meetings

In advance of the wider validation of the development guidelines and the initial framework content, the project team first sought some input and guidance via an open technical expert meeting. This meeting allowed interested stakeholders to be given an overview of the work of the project to date and provide specific feedback on areas for improvement.

The meeting provided an overview of the project, the development guidelines and the initial framework content. The participants had an opportunity to provide their feedback and guidance and this was summarised by the project team to allow for reviews and edits to be made.

During this meeting the project team also outline the proposed methodology for the wider validation of the framework content and development guidelines.

A second expert meeting took place in the latter stages of the project. The purpose of this session was to provide an update of the project work to date to develop the framework. The meeting focused on a presentation and review of the draft framework (all five areas) as well as presentations and discussions on future uses for the framework as well as future framework areas that could be developed.

These open technical expert meetings provided valuable expert input and guidance for the project.

### 3.3.3 Framework Survey to target groups

The use of a survey to gather input from framework target user groups has been used by the previous End User e-Skills Framework Requirements project and also during development of e-Competence Framework Version 2.0 and as such is a useful tool to gather a large amount of data from the target groups without a high cost or time commitment required from the experts involved. Based on previous experience, the survey was structured to gain the maximum amount of data from the respondent within a reasonable timeframe (15 min to 25 min).

While the survey is a quantitative research instrument, it is important to note that the target groups in question are quite focused, and as a result the number of responses required to generate workable results would be relatively small. A survey response of around 100 relevant respondents from across the four target groups and from different EU countries should be sufficient. The focus will be on the quality of selected respondents. Access to the list of respondents from the previous framework requirements project who indicated that they would participate in future related research provided a useful starting point of relevant and interested respondents.

The general structure and questions of the survey was developed through an iterative process by the project team and was finalised for broader circulation after some initial piloting testing.
The survey was distributed in an electronic form, supported by an introductory email providing the context for the project. The introductory email included an attachment with the full content of the two initial framework areas to allow the respondent to familiarise themselves with the content in advance of completing the survey.

3.3.4 Expert input of Framework Development Guidelines

A further element of the validation phase involved the distribution of the draft framework development guidelines for comment. The framework development guidelines were circulated to interested stakeholders and they were allowed approximately two weeks for comments.

The aim of the expert input was to provide additional guidance and enhancement to the framework development guidelines. This expert review, coupled with the additional guidance points relating to the initial framework content will greatly enhance the overall framework and ensure that it meets the needs of the target groups.
4 Framework Style Guidelines

4.1 Introduction

Before developing a style guideline for the e-Competence Framework for ICT Users, the project team first reviewed a series of existing frameworks to help inform their framework style. This review of how other European ICT user frameworks write both competences and knowledge and skills items, included:

- ITQ framework and National Occupational Standards (United Kingdom)
- Framework for Basic Skills for Adults (Norway)
- European e-Competence Framework for IT Professionals
- Eumesta - European media standards in vocational education and training

In addition, the project team reviewed the syllabus or course outline documentation of some leading certifications to understand the approach taken by these providers in writing and grouping knowledge and skills based content. These examples included:

- Certiport IC3
- OCR Cambridge
- ECDL (including Foundation level programmes, ECDL and ECDL Advanced)
- Microsoft Digital Literacy
- Microsoft Office Specialist (including Microsoft Office Expert and Master)
- C2i – France – ICT Certification for Higher Education

The examples above were also used to populate the content library discussed later in Clause 4.

4.2 Writing for the framework

4.2.1 General

Following this review, an initial approach to writing for the dimensions of the framework evolved. Some initial illustrative examples of this can be found below.
4.2.2 Template

<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>ICT User e-Competence Area</th>
<th>e-Competence Area Name</th>
<th>Short Description</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dimension 2</th>
<th>ICT User e-Competence</th>
<th>Title and general description</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Dimension 3</th>
<th>ICT User e-Competence Proficiency Levels</th>
<th>Foundation</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short description of the competence expectation at foundation level.</td>
<td>Short description of the competence expectation at intermediate level.</td>
<td>Short description of the competence expectation at advanced level.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimension 4</th>
<th>ICT User e-Competence</th>
<th>Knowledge Examples</th>
<th>Typical, individuals will display knowledge including:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Group Heading</td>
<td>K1 Knowledge Item Description.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K2 Knowledge Item Description.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skills Examples</th>
<th>Typical, individuals will display skills including:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group Heading</td>
</tr>
<tr>
<td></td>
<td>K1 Skills Item Description.</td>
</tr>
<tr>
<td></td>
<td>K2 Skills Item Description.</td>
</tr>
</tbody>
</table>

See Also: e-Competence Area (ICT User e-Competence) A list of cross-references to other relevant areas.
### 4.2.3 Example – Word Processing – Content Organisation

<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>ICT User e-Competence Area</th>
<th>Word Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension 2</td>
<td>ICT User e-Competence</td>
<td>Content Organisation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organise document content to ensure a logical structure. Use templates, tables, headers and footers to logically structure a document. Use appropriate referencing to cite sources and assist readers in understanding content. Link to and embed content from other sources to enhance a document.</td>
</tr>
<tr>
<td>Dimension 3</td>
<td>ICT User e-Competence Proficiency Levels</td>
<td>Foundation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organise a simple document positively, with some guidance.</td>
</tr>
<tr>
<td>Dimension 4</td>
<td></td>
<td>Knowledge Examples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typically, individuals will display knowledge including:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Structure and Layout Content</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K1 Understand and recognise the structural elements of a document (headings, indexes, tables).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K2 Understand how to select a suitable structure and layout for a document recipient.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Use Referencing</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K1 Understand the importance of referencing and benefits of using referencing features in documents.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K2 Recognise different referencing options (footnote, endnote, citation, table, figure).</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Link and Embed Content</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>K1 Understand what type of information can be used from other sources.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>K2 Understand the differences between links and embedded information and the benefits of their use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NOTE:</strong> This is a non-exhaustive list of examples.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NOTE:</strong> This is a non-exhaustive list of examples.</td>
</tr>
</tbody>
</table>

**See Also:** Spreadsheets (Data Analysis and Organisation), Presentations (Content Organisation), Communications (Contact Creation and Organisation)
4.2.4 Example 2 – Summary View

The Word Processing e-Competence Area could be seen as a summary view as follows:

<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>Dimension 2</th>
<th>Dimension 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT e-Competence Area</td>
<td>ICT User Competence</td>
<td>Proficiency Levels</td>
</tr>
<tr>
<td>Word Processing</td>
<td>Document Creation</td>
<td>Foundation</td>
</tr>
<tr>
<td></td>
<td>Content Organisation</td>
<td>Intermediate</td>
</tr>
<tr>
<td></td>
<td>Document Collaboration and</td>
<td>Advanced</td>
</tr>
<tr>
<td></td>
<td>Interaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document Automation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document Output and Storage</td>
<td></td>
</tr>
</tbody>
</table>

4.3 Selecting Competences, Knowledge and Skills Examples

4.3.1 Introduction

After a deep discussion and analysis on the ways and forms to select and write Competences, Knowledge and Skills, the project team decided to take the route of building on already existing tools and contents and adapt them to the ICT user e-competences framework project. To do so, the project team has designed and followed the six steps methodology below:

4.3.2 Step One – Creation of a content library

In order to be able to make informed decisions around the content of the framework, it will be important for the project team to first collate a content library of existing frameworks and certifications in use across Europe for the definition of ICT User e-Competences. An overview of how the content library was created can be found in Appendix 2.

4.3.3 Step Two - Domain Validation

The first use of the content library is to assist in validating the names for the ICT User e-Competence Areas (Dimension 1). In this phase the project team review the proposed Dimension 1 names against the names of similar modules or areas in the library.
The following naming adjustments resulted from this exercise:

<table>
<thead>
<tr>
<th>Original Name</th>
<th>New Name</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Processing</td>
<td>Word Processing</td>
<td>No change – well recognised naming approach.</td>
</tr>
<tr>
<td>Spreadsheets</td>
<td>Spreadsheets</td>
<td>No change – well recognised naming approach.</td>
</tr>
<tr>
<td>Presentations</td>
<td>Presentations</td>
<td>No change – well recognised naming approach.</td>
</tr>
<tr>
<td>Web Browsing</td>
<td>Web Browsing and Information Search</td>
<td>Searching and finding information given similar weighting in many content library examples.</td>
</tr>
<tr>
<td>e-Mail</td>
<td>Communications</td>
<td>Broader name to encompass other electronic communication forms.</td>
</tr>
</tbody>
</table>

4.3.4 Step Three – Competence Selection and Naming

The next phase of the selection process also draws on the content library. The process for competence selection and naming can be summarised as follows:

1. Populate content library with relevant frameworks, course outlines and syllabus material relating to a given e-Competence area.
2. Review how content is grouped in existing frameworks
3. Create draft suggestions for Competences (Dimension 2) based on groupings above.
4. Iterative revisions by Project Team to enhance competences.
5. Drafting of descriptions for Dimension 3 for each competence.
6. Review and agree on wording for Dimension 2 and 3 for the e-Competence area.

4.3.5 Step Four - Knowledge and Skills Item

Following completion of the population of Dimension 2 and 3 for the e-Competence area, the project team populates a series of knowledge and skills examples for each competence. The process for doing so will be as follows:

1. Populate content library with knowledge and skills items from relevant frameworks, course outlines and syllabus material.
2. Link knowledge and skills to framework competences.
3. Select shortlist of knowledge and skills content to include as examples, choosing most widely adopted knowledge and skills content.
4. Apply logical grouping headings for knowledge and skills sets.
5. Iterative revisions by Project Team to finalise shortlist of examples.

6. Draft chosen Knowledge and Skills examples for Dimension 4 for each competence.

7. Review and agree on wording for Dimension 4 for the e-Competence area.

To assist in this step of the work the project team have initially aimed to have a maximum of four knowledge and skills items per sub-grouping within a competence. The project team agreed on a limited list of action verbs for knowledge items, choosing from “Recognise”, “Describe” or “Understand”. For skills items there is a much wider variety of verbs used to accurately describe the skills in question, including verbs such as “Navigate”, “Use”, “Enter”, “Format”, “Edit”, “Modify”, “Create” etc. The team carried out editorial reviews in the latter stages of development to ensure that verbs were used consistently throughout the framework.

The overall wording of each knowledge and skills items should be focused and be supported by a series of examples within parenthesis where necessary. Just like the knowledge and skills items, these examples are non-exhaustive. The project team shall also aim to ensure that there will be no currency issues with items, by avoiding the inclusion of fads or passing trends. The knowledge and skills items are not exhaustive lists and are not organised in order of priority or importance.

4.3.6 Step Five – Review of consistency across e-Competence Areas

On completion of step four, the project team carry out a wider review of the contents of each e-Competence area. The purpose of this review will be to smooth any inconsistency between e-Competence Areas (e.g. level of granularity in knowledge and skills items, consistent wording approach etc).

The project team will also make sure that if there are any overlaps between some competences from different areas of competence, a clear system will be put in place that will enable anyone consulting the Framework, either for a direct use or for applying it to a new competence area, to be aware of these overlaps. This task resulted in the creation of cross references in the framework (See example in subclause 4.2.3 above).

4.3.7 Step Six – Validation of Framework Content

Once steps one to five have been completed draft framework contents are ready for external validation as outlined in subclause 3.3.

4.4 Using the framework

To supplement the development guidelines, the e-Competence Framework for ICT Users also features a complementary User Guidelines document. This document focuses on how the framework can be used in practice by the various target groups and also features some recommendations on future areas to consider for development as well as possible tools that may stem from the framework in future.
5 Acknowledgements

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:


Further acknowledgement must be given to those who were involved in the validation activities and expert meetings including14:


Individuals: Trijntje van Dijk, Marc Van Coillie, Jaedok Shim, Hideki Murayama, Dudley Dolan, George Gorgogetas, Eduardo Rispoli, Gyözö Kőrmöczi, Juan Gordon, Laura Marin, Sigrid Dornetshuber, Simon Grant, Kevin Curran, Giacomo Rizzo, Fabio Frittoli, Giovanni Franza, Edyta Gorecka.

Expert Meeting Participants: Denise Leahy (Trinity College Dublin), Frank Mockler (ECDL Foundation), Philippe Magnobosco (AFNOR), Dudley Dolan (CEPIS), Richard Coady (Certiport), Kirsten Pantone (Microsoft), Steven van ‘t Veld (A/I/M bv), Thomas Schuster (FZI Forschungszentrums Informatik an der Universität Karlsruhe), Riccardo Scquizzato (Competenze per l’Innovazione Italy), Mary Cleary (ICS Skills), Pierfranco Ravotto (AICA), Dimitrios Theodorakis (CEPIS), Anusca Ferrari (IPTS), John O’Sullivan (Thames Communications), George Sharkov (European Software Institute), Plamen Nedkov (ICT Star).

Further thanks to all other European e-Skills stakeholders who have provided highly valuable input and support throughout the ongoing project.

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14 Some survey respondents opted to remain anonymous and have not been listed.
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)\(^15\).
(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\(^16\))

ICT User

Any individual who uses ICT systems and devices in either a work or personal\(^17\) 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\(^18\) 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\(^19\).
(Project Definition)

\(^{15}\) Previous project definition
\(^{16}\) http://ec.europa.eu/enterprise/glossary/index_en.htm\(l\)
\(^{17}\) Includes social and recreational home usage.
\(^{18}\) Includes social and recreational home usage.
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)
7 Appendix 2: Populating the Content Library

The following briefly outlines the process involved to develop a “Content Library” of existing framework content, course outlines and syllabi relevant to the five ICT User e-Competence areas being developed in this project.

The content library was created through a collaborative process involving the project team. The team utilised a shared spreadsheet to develop the content library remotely.

Source and document relevant framework areas

The project team reviewed the content of a variety of existing frameworks and content and summarised all potentially relevant content in the library. The sources used were as follows:

- UK National Occupational Standards
- VOX Framework (Norway)
- IC3 – Certiport
- Microsoft Digital Literacy – Standard Curriculum
- Microsoft Digital Literacy – Advanced Curriculum
- MOS (Core)
- Microsoft Office Expert and Master
- ECDL
- ECDL Advanced and Expert
- Greece – Syllabus guidelines… (Aligned to ECDL which is covered above, so included for reference only.)
- C2i (Level 1) (France)

The team linked to the relevant file or website to assist in the next phase of the content library development. The result of this phase gave a content library with:

- A list of the proposed ICT User e-Competence Framework Areas
- A list of the other related frameworks being used to source data
- A list of their related content areas, and links to these areas

A subset of this content is displayed below:

---

20 MOS Master is an additional credential that can be awarded based on completion of a combination of MOS and MOS Expert exams.
21 Including ECDL Foundation programmes such as EqualSkills and e-Citizen, referenced for the “Foundation” level.
22 ECDL Expert is an additional credential that can be awarded based on completion of a combination of ECDL Advanced exams.
Populate the Content library with related framework content by proficiency level

The next phase of populating the content library involved drilling into the detail of each framework and creating a listing of all related content by ICT User e-Competence Area.

The results of this phase gave a content library with:

- A Detailed listing of all related framework contents for an e-Competence Area
- All content positioned against an appropriate framework proficiency level (Foundation or Intermediate or Advanced)

A subset of this content is displayed below:

UK National Occupational Standards (Word Processing related content)

<table>
<thead>
<tr>
<th>ICT User e-Competence Areas (Framework proposals)</th>
<th>UK National Occupational Standards</th>
<th>Microsoft Digital literacies Standard Curriculum V3</th>
<th>ECDL</th>
<th>CI (level 3) France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Processing</td>
<td>AP: Word processing software</td>
<td>Introduction to Word Processors (within Productivity Programs)</td>
<td>Word Processing</td>
<td>D3 - Produce, process, exploit and disseminate digital documents</td>
</tr>
<tr>
<td>Spreadsheets</td>
<td>US: Spreadsheet software</td>
<td>Introduction to Spreadsheet Programs (within Productivity Programs)</td>
<td>Spreadsheets</td>
<td>D3 - Produce, process, exploit and disseminate digital documents</td>
</tr>
<tr>
<td>Presentations</td>
<td>PE: Presentation software</td>
<td>Introduction to Presentation Programs (within Productivity Programs)</td>
<td>Presentation</td>
<td></td>
</tr>
<tr>
<td>Web Accessing and Information Sharing</td>
<td>IT: Using the Internet</td>
<td>The Internet (within &quot;The Internet and the World Wide Web&quot;)</td>
<td>Web Browsing and Communication</td>
<td>D4 - Organize research and information in the digital age</td>
</tr>
<tr>
<td></td>
<td>AM: Using mobile IT devices</td>
<td>The Internet (within &quot;The Internet and the World Wide Web&quot;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>CF: IT communication fundamentals</td>
<td>Using E-Mail (within &quot;The Internet and the World Wide Web&quot;)</td>
<td>Web Browsing and Communication</td>
<td>D5 - Networking, communicate and collaborate</td>
</tr>
<tr>
<td></td>
<td>UM: Using e-mail</td>
<td>Other Methods of Communicating on the Internet (within &quot;The Internet and the World Wide Web&quot;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IM: Using mobile IT devices</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>PK: Personal information management software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ECDL / ICDL (Word Processing related content)
The content library was then utilised as outlined in Clause 4.
8 Appendix 3: Verbs / words used to express attitudes in the framework

The following appendix provides a useful reference table of verbs and words that have been used in the framework to provide either an explicit or implicit reference to attitudes. This can be used as a reference during the development of any future areas or sector specific / custom areas for the framework.

Explicit formulations

<table>
<thead>
<tr>
<th>Word/verbs/expressions</th>
<th>Primarily used in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidently</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (Advanced level)</td>
</tr>
<tr>
<td>Actively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
<tr>
<td>Pro-actively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
<tr>
<td>Accurately</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (Intermediate level)</td>
</tr>
<tr>
<td>Positively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
<tr>
<td>Intuitively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (Foundation level)</td>
</tr>
<tr>
<td>Committed; with commitment</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
<tr>
<td>Creatively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (Advanced level)</td>
</tr>
<tr>
<td>Appropriately</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
<tr>
<td>Efficiently; Effectively</td>
<td>Dimension 2</td>
</tr>
<tr>
<td></td>
<td>Dimension 3 (all 3 levels)</td>
</tr>
</tbody>
</table>

Implicit formulations

<table>
<thead>
<tr>
<th>Word/verbs/expressions</th>
<th>Associated attitude</th>
<th>Primarily used in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Align outputs; Chosen / Specific purpose; Enhance productivity; Enhance; Enrich; Ensure; Evaluate; Interpret; Optimal; Quality outputs; Refine; More precise; Select; Suitable.</td>
<td>Attitude of willing to reach excellence and better targeting of actions/results.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Generate; How to aggregate; Manage regularly.</td>
<td>Attitude of willing to act and to be constant in the action.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Adapt; Aid; Answer posts; Communicate; Communication; Contribute; Customise; Formulate; Interact.</td>
<td>Attitude of willing to help, give and share. Also Attitude of being active.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Act lawfully; Ethics.</td>
<td>Attitude of willing to act within a standard of respect, education and good practices.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Achieve goals; Obtain results.</td>
<td>Attitude of commitment with set purpose and target.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Access; Configure settings; For future uses; Take preventive actions.</td>
<td>Attitude of pro-activity and dynamism.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Reduce risks; Taking responsibility; Identify; Verify.</td>
<td>Attitude of accepting a leadership position.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Critically.</td>
<td>Attitude of being open minded, flexible and accepting differences aiming to develop and improve continuously.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Carefully.</td>
<td>Attitude of being prudent.</td>
<td></td>
</tr>
<tr>
<td>Be familiar; Compare to other sources.</td>
<td>Attitude of continuous learning and benchmarking.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Reduce human efforts.</td>
<td>Attitude of looking for efficiency.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
<tr>
<td>Use easily; With ease.</td>
<td>Attitude of willing to make thing accessible and easy for others.</td>
<td>Dimension 2 Dimension 3</td>
</tr>
</tbody>
</table>