CEN/ISSS Workshop on ICT Skills
CEN – European Committee for Standardization

European e-Competence Framework in action

Interim Report

The report is presented by the CEN nominated expert team
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It is supported by the input and views of the technical experts workgroup (EWG) and the CEN / ISSS Workshop Community.

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1. Introduction

1.1. European e-Competence Framework (e-CF) 1.0

The European e-Competence Framework (e-CF) version 1.0 is a reference framework of 32 ICT competences that can be used and understood by ICT demand and supply companies, the public sector, educational and social partners across Europe.

The framework has been developed by a large number of European ICT and HR experts and stakeholders in the context of the CEN / ISSS Workshop on ICT Skills from 2006 to 2008. It is the outcome of two-years e-Skills multistakeholder, ICT and human resources experts' work from multiple organisation levels.

The framework provides an international tool for:

- ICT practitioners and managers, with clear guidelines for their competence development
- Human resources managers, enabling the anticipation and planning of competence requirements
- Education and training, enabling effective planning and design of ICT curricula
- Policy makers and market researchers, providing a clear and Europe-wide agreed reference for ICT skills and competences in a long-term perspective.

The framework is structured from four dimensions:

Dimension 1	5 e-Competence areas, derived from the ICT business processes PLAN - BUILD - RUN - ENABLE - MANAGE
Dimension 2	A set of reference e-Competences for each area, with a generic description for each competence. 32 competences identified in total provide the European generic reference definitions of the framework.
Dimension 3	Proficiency levels of each e-Competence provide European reference level specifications on e-Competence levels e-1 to e-5, which are related to EQF levels 3-8.
Dimension 4	Knowledge and skills related to the e-Competences are indicated as optional framework components for inspiration. They are not intended to be exhaustive.

Table 1 – e-Competence Framework structure in four dimensions

An e-CF version 1.0 overview is provided on the next page.

For further information and European e-Competence Framework & user guidelines for download see: www.ecompetences.eu

5 e-Comp. areas (A – E)	32 e-Competences identified	e-Competence proficiency levels e-1 to e-5, related to EQF levels 3-8				
		e-CF levels identified per competence				
		e-1	e-2	e-3	e-4	e-5
A. PLAN	A.1. IS and Business Strategy Alignment					■
	A.2. Service Level Management			■	■	
	A.3. Business Plan Development			■	■	■
	A.4. Specification Creation		■	■	■	
	A.5. Systems Architecture			■	■	
	A.6. Application Design	■	■	■		
	A.7. Technology Watching				■	■
B. BUILD	B.1. Design and Development		■	■	■	■
	B.2. Systems Integration		■	■	■	
	B.3. Testing	■	■	■		
	B.4. Solution Deployment	■	■	■		
	B.5. Technical Publications Development	■	■	■		
C. RUN	C.1. User Support	■	■	■		
	C.2. Change Support		■	■		
	C.3. Service Delivery	■	■			
	C.4. Problem Management			■	■	
D. ENABLE	D.1. Information Security Strategy Development				■	■
	D.2. ICT Quality Strategy Development				■	■
	D.3. Education and Training Provision		■	■		
	D.4. Purchasing		■	■	■	
	D.5. Sales Proposal Development		■	■	■	
	D.6. Channel Management			■	■	
	D.7. Sales Management				■	■
	D.8. Contract Management		■	■	■	
E. MANAGE	E.1. Forecast Development			■	■	
	E.2. Project and Portfolio Management		■	■	■	■
	E.3. Risk Management		■	■	■	
	E.4. Relationship Management			■	■	
	E.5. Process Improvement			■	■	
	E.6. ICT Quality Management		■	■	■	
	E.7. Business Change Management			■	■	■
	E.8. Information Security Management		■	■	■	

Figure 1 – European e-Competence Framework (e-CF) version 1.0 (overview)

1.2. "e-CF in action" background and rationale

Discussions at the European e-Skills conference in September 2004 and at subsequent related conferences, workshops and meetings in 2005 established considerable interest and substantial support for the development of a European e-Competence Framework.

In parallel it became clear that the work of the CEN/ISSS Workshop on ICT Skills and its relevance to the current proposal of the European Commission for a European Qualifications Framework had generated significant interest from the ICT sector and IT professional labour market segment. At the high level, Budapest EQF-Consultation Conference in 2006 note was taken of the work done so far by the CEN/ISSS ICT Skills workshop and of the resulting progress made in this sector, which indicated a positive example for other economic or industry sectors (see Cedefop's virtual community on EQF).

The CWA 15515 on a European ICT-Skills Meta-Framework produced in 2005 offered a valuable description of current European activities in this area. It produced a detailed and pragmatic overview of existing approaches (in various Member States and in industry) and possible dimensions and purpose of an ICT skill Meta-Framework. The CWA 15515 also showed areas for continuing work by interested stakeholders in developing more generally usable frameworks and applying them.

Early in 2006, the framework stakeholders from AITTS (Germany), CIGREF (France) and SFIA (United Kingdom) met for a kick-off in Berlin, supported by representatives of large European companies, the European Commission and a research foundation.

During intensive follow-up, the group projected a programme of work towards a European e-Competence Framework under the umbrella of the CEN/ISSS workshop on ICT Skills. At the e-Skills Conference in 2006 in Thessaloniki, the initiative and early achievements were presented as a multistakeholder and European ICT sector driven effort.

In March 2007, a team of CEN nominated experts was established (Grant agreement for an action SA/CEN/ENTR/000/2006-37, funded by the European Commission, DG Enterprise and Industry) which started concrete work towards the framework. They were backed by the CEN/ISSS workshop plenary and supported by further interested and experienced HR and ICT representatives from European ICT stakeholders and Industry (both vendors and users), social partners, national ICT framework stakeholders, as well as ICT higher education, qualification and research.

The significant outcome of the work programme "Towards a European e-Competence Framework" is the European e-Competence Framework 1.0 presented in the previous chapter 1.1. The framework was completed and published in autumn 2008 by a CEN Workshop Agreement (e-CF 1.0 by CWA 15893-1 and e-CF user guidelines by CWA 15893-2), providing for the first time a set of Europe-wide agreed ICT practitioner and manager competences which can be used, understood and applied by all stakeholders involved across Europe.

The European e-Competence Framework was presented at the European e-Skills Conference in October 2008 in Thessaloniki.

Building on the European e-Competence Framework 1.0, the "e-CF in action" project work now addresses the need to

- update, further develop and maintain the European e-Competence Framework
- promote acceptance and application among ICT user and supply companies, the public sector, ICT practitioners and managers, political, educational and social partners.

1.3. Project objectives and deliverables

The prime objective of the "e-CF in action" project work is to develop and provide a complementary and interactive set of underpinning methods, solutions and tools that support the European e-Competence Framework by further development, promotion and maintenance of version 1.

The proposal was made in the context of the "2008 ICT Standardisation Work Programme" where stakeholders were invited to further develop European standards in the field of ICT and e-business skills. The work programme is based on the significant outcomes of the CWA publication "European e-Competence Framework" (15893-1) and accompanying "User guidelines for the application of the European e-Competence Framework (15893-2). These documents were elaborated by a large network of European ICT, HR and qualification stakeholders and experts and published in autumn 2008.

To achieve the prime objectives highlighted in the box above supporting "e-CF in action" aims are:

1. ***Maintenance*** **of the European e-Competence Framework delivered in 2008** –
   In accordance with published framework experience and feedback:
   a. Maintain and update dimension 2 and 3 competence descriptions
   b. Identify further high value competences and add if required

2. ***Further development*** **of the European e-Competence Framework delivered in 2008 –**
   The development of 'Knowledge and skills' associated with identified e-competences:
   a. Determine and specify the way to relate knowledge and skills to the overall framework
   b. Further elaboration and specification of framework dimension 4

3. ***Promotion and increasing the acceptance*** **of the European e-Competence Framework delivered in 2008 (Target group I: ICT industry, practitioners and managers, qualification and training)** – Identification of user focused approaches for print and online presentation of the framework and development of a technical solution:
   a. Elaboration of a user focused framework navigation structure with easy guidance and pragmatic access to competences and skills descriptors

b. Development of a graphical design which can be used in reference material such as posters, documents and web pages
c. Development of a related online solution for implementation on appropriate websites

4. ***Promotion and increasing the acceptance*** **of the European e-Competence Framework delivered in 2008 (Target group II: Higher Education, science and research)** – Methodological documentation for scientific and/ or methodologically interested public

The development steps of the related deliverables and tools are strongly related and mutually connected. The outcomes need to ensure compatibility of the European e-Competence Framework with formal and non-formal ICT education and training, qualifications, certifications and essentially with the workplace competence requirements of ICT practitioners and managers.

The European e-Competence Framework (e-CF), developed and established in the context of the CEN/ISSS Workshop on ICT Skills and supported by a large number of experts and stakeholders in ICT qualification development and HR management across Europe from 2006 – 2008, needs to be updated, maintained, made readily accessible and easily manageable. This will benefit a wide target group across Europe of ICT user and supply companies, the public sector, ICT practitioners, ICT managers, educational and social partners.

Addressing the aims described above, the following "e-CF in action" deliverables are in preparation:

I.) The final CWA will comprise of :

A. The updated and further developed European e-Competence Framework version 2.0 (addressing aim 1 and 2)
B. A user-focused navigation structuring and graphical presentation of the Framework for print and online implementation (addressing aim 3)
C. A scientific public-focused methodological documentation of the framework underpinning definitions, choices and decisions (addressing aim 4)

II.) A framework supporting e-navigation-tool providing the most appropriate method of navigating through the framework; to be implemented onto the European e-Skills and Career Portal and/ or www.ecompetences.eu (addressing deliverable 3)

As described above, final deliverables will be documented and published in a CEN Workshop Agreement (CWA). Additionally, the user focused presentation e-Tool will be provided ready for online implementation onto an appropriate EU website.

The CWA planned for 2010 will build on the CWA published in autumn 2008, by providing an updating and further development of the CWA 15893-1 and 15893-2 agreement as well as new solutions and tools for the Framework promotion and acceptance.

1.4. A European multi stakeholder process – parties and expert resources involved

From the outset, the CEN/ISSS workshop community and the stakeholders who initiated the European e-Competence Framework development process in 2006 were aware that the creation and maintenance of an endorsed European Framework required the involvement of a wide group of interested parties and experts. This was proven during the pilot pre-phase carried out by stakeholders in 2006 and further reinforced during the work towards the first consolidated version of the Framework in 2007 and 2008. The key success factor in project initiation was the involvement of multiple countries, companies and stakeholders, this remains central to future planning.

This "e-CF in action" work builds upon the proven necessity to deepen engagement of European ICT sector players and stakeholders from business, politics and education and it embraces this approach as a working philosophy and strategy. At the political level it is important to gain the support of larger European multistakeholder partners.

In April 2009, a group of six experts, financed by CEN, commenced methodological and operational technical work on the "e-CF in action" project. Following successfull experience during the e-CF 1.0 development, the experts are supported on technical and political level by a wider community.

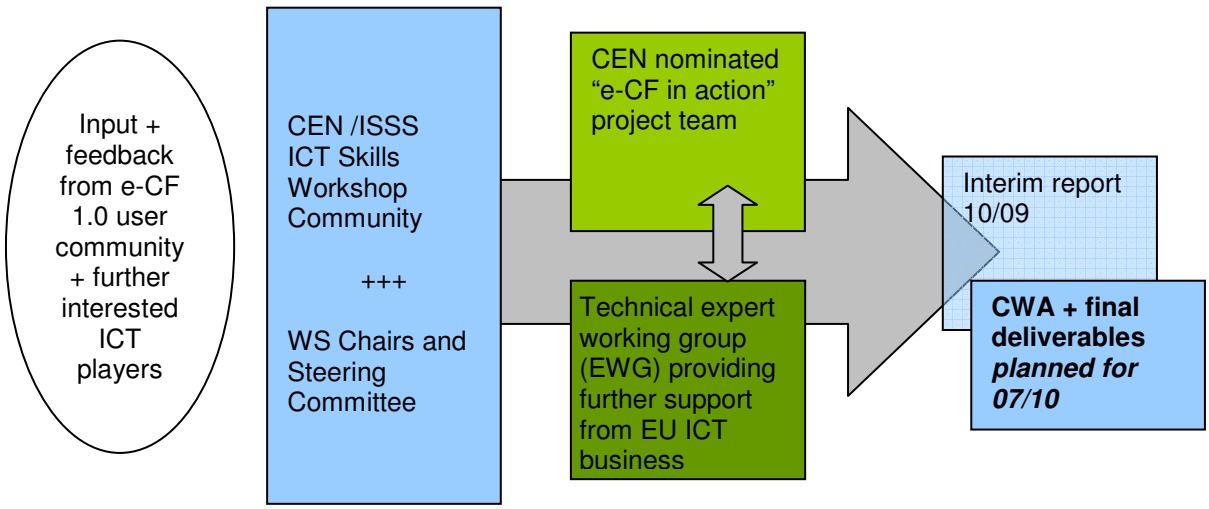

Figure 2: The e-CF in action project – Working structure, experts and stakeholders involved

The technical expert working group consists of the CEN technical experts including project coordination and further interested and experienced representatives from European ICT business and HR development. The collective experts provide a high level of know-how in human resources and ICT management, qualification, framework development, implementation and maintenance. The

experts come from ICT vendor industry (e.g. Bayer Business Services, Cisco, Deutsche Telekom) and the ICT demand industry (e.g. CIGREF, Airbus, EuroCIO, Banca d'Italia). Experts also include members with knowledge of higher education, qualification and certification providers (e.g. Fondazione Politecnico di Milano, EMSI Grenoble, EXIN International), trade unions (e.g. IG Metall) and further local frameworks (e.g. e-Skills UK/ SFIA, AITTS). The inclusion of this wider knowledge and experience is very valuable and essential in enlarging the CEN expert's perspective. The expert colleagues analyse and discuss the CEN experts input in order to reach common decisions on how to achieve first European consensus on the technical content for the future European e-Competence Framework version 2.0.

Further important feedback on possible framework improvements are gathered by ICT players from Europe who have knowledge of and/ or started to use the framework version 1.0.

To further enlarge the e-CF 1.0 user community, an additional CEN marketing expert supports the process through communication and marketing activities with a special focus on Eastern European countries. These communication and awareness activities are addressed to the larger interested public and potential framework users.

The technical work process towards the e-Competence Framework is supported and monitored by the CEN/ISSS workshop community on ICT Skills and the workshop Steering Committee. The final results are to be agreed and communicated by a CEN workshop agreement (CWA). The knowledge of ICT qualifications, certification and human resource development across Europe provided by CEN/ISSS, as well as the wide-spread contacts of the workshop members, provides an important background for the project.

2. The work programme and project planning

2.1. The project plan 2009/10: aims, scheduling and steps completed so far

As a first step of the work starting in April 2009, the experts nominated by CEN agreed on a project plan, determining the most important steps, the timeline, the resources and the responsible lead management in each case.

This plan was based upon the original "e-CF in action" project proposal conforming to a CEN call for tender. This background provided a road map for the project and, if necessary, it was readjusted according to experience gained from ongoing work. The following table 3 provides an overview on the latest iteration of the project plan and progress achieved so far, table 2 includes a legend for reading the project plan.

Project plan 2007/08 - legend

LM = lead management

CEN nominated experts

JB – Jutta Breyer *(project management and e-CF 1.0/ e-CF in action internal/ external communication)*
TH – Terry Hook *(ICT, framework updating & further development)*
FL – Frédéric Lau *(ICT, framework updating & further development)*
CM – Clementina Marinoni *(methodology, framework updating & further development)*
RS – Riccardo Scquizzato *(ICT, framework updating & further development)*
JvB – Joyce van Berlo *(framework updating & further development)*
PN – Plamen Nedkov *(e-CF 1.0 product promotion across EU with emphasis on eastern Europe)*

IR – Irmhild Rogalla *(Ms. Irmhild Rogalla's e-CF 1.0 development expertise will strengthen a coherent e-competence update of dimension 2 and 3 and support methodological documentation of the e-CF. It is planned that she will complement the team by joining them in November 2009).*

WIP = work in progress

Table 2: Project plan 2009/10 - legend

Task	Issues/ activities	schedule	LM	milestones/ deliverables	WIP
1	• Establish the project team • Elaborate and agree on detailed project plan	04/09 – 05/09	JB	• Overview project team, responsibilities and task assignments • Detailed project plan	ok
2	• Establish and maintain the broader working structures needed especially for - Task 4 focus on e-CF dimension 2 and 3) - Task 5 (focus on e-CF dimension 4) • Organise and carry out stakeholder meetings and consensus process	05/09 – 06/10	JB	• Overview working structures and expert resources involved • Stakeholders meeting and cooperation structures and events in the course of the project	WIP
3	• Further promotion of the e-CF 1.0, encourage framework use & feedback across Europe • collect user experiences and application examples	05/09 – 07/10	JB, PN	• Presentations at conferences and publications print / on-line • Update www.ecompetences.eu • Collection of stakeholders views, statements and international e-CF application experiences	WIP

4	Update the European e-Competence Framework • Update its e-competences defined • Identify and describe important new competences *(if so)*	10/09 – 06/10	CM, TH, JB	• European e-Competence Framework v.2.0 to be published in 2010	WIP
5	Promotion and increasing acceptance of the European e-Competence Framework (I): • Identify user-focused approaches for the framework navigation and presentation • develop a technical solution for online implementation	07/09 – 12/09 12/09 – 03/10	TH	• user-focused framework navigation method with easy and pragmatic access to framework elements • a graphical design using consistent graphics and colours, providing a brand image to support marketing and promotion • a related technical online solution for implementation on appropriate websites	WIP
6	• First documentation of outcomes in the draft interim report • Editing and readjusting the interim report according to feedback received	09/09 – 10/09	JB, TH	• Interim report	ok
7	• Stakeholder consultation on e-CF 1.0 feedback via on-line questionnaire	11/09 – 02/10	JB	• Stakeholders' feedback on e-CF 1.0 practical use and improvement potential	WIP
8	Further development of the European e-Competence Framework: • Specify and exemplify knowledge and skills (dimension 4)	05/09 – 06/10	CM, TH, JB	• Specification of dimension 4 (knowledge and skills) connected to the reference e-competences as part of the European e-Competence Framework in Action – v. 2.0 (s. Task 3)	WIP
9	Promotion and increasing acceptance of the European e-Competence Framework (II): • Methodological documenting of the Framework development – Draft • Consolidation according to feedback received	10/09 – 04/10	CM	• Methodological documentation to satisfy scientific and/ or methodologically interested user needs	WIP
10	• Implementing the e-CF navigation tool on www.ecompetences.eu	*07/10 or after voting process*	TH, JB	• Tool implemented on www.ecompetences.eu	

11	• Documentation of final outcomes in the draft final CWA • Editing the final CWA according to feedback received	05/10 – 07/10	JB, TH, CM	1) CWA, consisting of • updated and maintained European e-Competence Framework – v. 2.0, including - a user focused framework navigation structure - updated and where needed newly added competences and related descriptions in dimension 2 + 3 - specification of dimension 4 (knowledge and skills) • Methodological documentation of the European e-Competence Framework outlining rationale for choices and decisions 2) Online solution developed according to CWA outcomes for implementation in appropriate EU website (e.g. EU e-Skills and Career Portal and/ or www.ecompetences.eu)	
12	• digital publication of e-CF 2.0 for download on www.ecompetences.eu and website update	*after voting process*	JB	www.ecompetences.eu updated and digital e-CF publication 2.0 for download	

Table 3: e-CF in action project plan (2009-10)

The outcome of steps accomplished – mainly focused on the development of e-CF dimension 4 and some initial work on the other three project aims – will be explained in detail in part 4 of this report. Future work planned will be explained in detail in part 7. The project is meeting planned timelines.

2.2. Main steps of work

2.2.1. Maintenance of the e-CF 1.0 – dimension 2 and 3

The European e-Competence Framework 1.0 consists of:

- 5 e-Competence areas derived from ICT business processes:
  Plan – build – run – enable – manage (Dimension 1)
- Reference competences for each area, 32 in total: titles + generic descriptions (Dimension 2)

- Level-specific reference amendments for each competence, on e-Competence levels 1-5, related to EQF 3-8 (Dimension 3)
- Optional indication of knowledge and skills related to e-Competences, listed in some examples (Dimension 4)

Dimension 1 e-Competence area	A. PLAN				
Dimension 2 e-Competences: Title + generic description	A.1. IS and Business Strategy Alignment Anticipates long term business requirements and determines the Information System model in line with organisation policy. Makes strategic ICT policy decisions for the enterprise (ERP, CRM, Groupware, Network etc.).				
Dimension 3 e-Competence proficiency levels (on e-CF levels e-1 to e-5, related to EQF levels 3 to 8)	Level 1	Level 2	Level 3	Level 4	Level 5
	—	—	—	—	Provides strategic leadership to reach consensus and commitment from the leadership management team for the construction and implementation of long term innovative solutions.
Dimension 4 Knowledge (k) and skills (s) examples					s1. analyses business processes and architectures s2. determines requirements for processes related to ICT Services s3. identifies, analyses and defines user/customer needs s4. …. k1. knows ERP system potential and opportunities k2. …

Figure 3: European e-Competence Framework 1.0 – e-Competence example in its four dimensions

The aim of this work stream is to update where needed the 32 e-competence descriptions identified and described in Phase 1 and to identify, in the light of experience from early adopters, any new competences (related to dimension 2 + 3 of the framework as shown in the table) which should be added.

As main steps of work have been identified:

- collect and analyse feedback on the European e-Competence Framework published in 2008
- circulate the framework among further groups of stakeholders
- update descriptions and add new competences where needed
- collect and integrate final feedback on the European e-Competence Framework version 2.0 to be published in autumn 2010

Feedback received on the first version of the framework, published in 2008 is informing the work plan (see chapter 4.4). Additional feedback will be gathered through an on-line survey.

The initial technical work will be carried out by the CEN nominated expert team supported by the larger technical expert workgroup. It will be monitored, further discussed and improved by the CEN/ISSS workshop plenary on open technical session and plenary meeting occasions as well as feedback on the ongoing work by e-mail and on-line consultation.

2.2.2. Further development of the e-CF 1.0 – dimension 4

In presenting the forthcoming e-Competence Framework to interested stakeholders, it became clear that there is a significant interest in a specification of dimension 4 of the Framework (knowledge and skills). This dimension will support linkage between on the job ICT competence requirements (Industry and Public Sector) and educational products developed by higher education, vocational training and qualification providers across Europe.

Accordingly, for each e-competence detailed in the Framework, a set of "core" knowledge and skills will be identified with the support of qualification and training providers and developers (both public and private).

As competences can be defined as "knowledge and skills put into action", knowledge and skills elements are a necessary ingredient for developing and enhancing competence and can also provide substance for designing and developing ICT qualifications.

Just as e-competences are defined systematical and coherently in dimension 2+3 of the European e-Competence Framework, also knowledge and skills will be defined systematically in dimension 4. They will be expressed in learning outcome terminology in line with the EQF. Compliant with the aim of the European e-Competence Framework to promote European ICT labour force development and competitiveness, the knowledge and skills dimension will not be exhaustive but will provide pragmatic support to employers and education providers. The articulation of knowledge and skills will provide flexible guidance for training institutions; enabling design of educational offerings to meet employer requirements and position qualifications transparently and competitively in the European e-skills market.

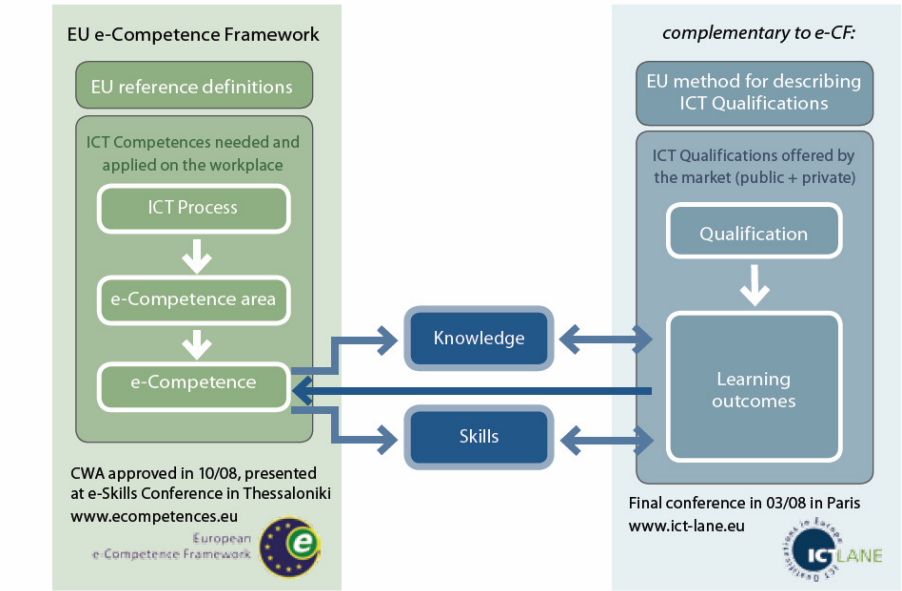

Figure 4: The relationships of e-Competences with ICT qualification contents by specifying the dimension 4 of the European e-Competence Framework *(source: www.ict-lane.eu)*

The main steps of work are:

- establish knowledge and skills requirements together with HE, VET, qualification and certification providers and HR experts
- determine the best user friendly way to relate knowledge and skills to the overall framework
- establish generic rules on how to identify and express coherently knowledge and skills for all e-competences of the framework
- develop knowledge and skills for the whole framework according to rules defined
- collecting stakeholders' feedback based on knowledge & skills draft suggestions
- finalising dimension 4 according to feedback received and in view of the e-CF version 2.0

The application of the European e-Competence Framework will be wider with the the inclusion of an enhanced knowledge and skills element. It will strenghthen the capability to bridge ICT competence demand (industry and public sector) and e-Skills training supply by applying a common language which is "competence" and also "learning outcome" oriented.

The initial technical work is being carried out by the CEN nominated expert team supported by the larger technical expert working group. The outcome will be monitored, further discussed and improved by the CEN/ISSS workshop plenary during open technical session and plenary meeting occasions as well as feedback on the ongoing work by e-mail and on-line consultation.

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2.2.3. A user focused e-CF navigation structure and on-line tool

The European e-Competence Framework is intended to provide a simple and pragmatic reference point for users ranging from ICT professionals to employer managers, through to education providers. However, at first sight, the initial spreadsheet containing the skill descriptor layout could be confusing for new users. To facilitate real world application of the e-Competence Framework it is necessary to supply an intuitive graphical interface enabling simple access and navigation to the framework's detailed content.

The initial structure of the European e-Competence Framework associates competence with ICT business processes "plan – build – run – enable – manage". This business-driven perspective provides employers with a familiar reference point. However, application by employers and other stakeholders requires a simple, logical and innovative f presentation style to support user take up.

The e-CF version 1.0 model provides a credible structure; however it requires orientation towards casual users if it is to be widely applied. To release value to employers and other stakeholders, there is a need for a a more attractive, eye catching framework navigation and design structure. This requires the development of a technical solution deploying graphical representation suitable for paper and web viewing.

The main steps planned are:

- investigate 'best of breed' graphical interfaces used by other frameworks
- determine most appropriate navigation method
- specify interface requirements
- build interface onto existing website, e.g. www.ecompetences.eu and/or European e-Skills and Career Portal or further appropriate website when identified
- create collateral for user support
- gain feedback and respond

The deliverable will be a graphical design in the form of a chart or schematic which can be used in reference material such as posters, documents and web pages to provide an easy navigational method to find relevant skill descriptors. In addition the use of consistent graphics and colour will provide a brand image to support marketing and promotion of the European e-Competence framework. To determine the most appropriate navigation method, 'best of breed' graphical interfaces used by other competence frameworks will be investigated, analysed and used to formulate a design specification. Once the interface requirements are identified, a related online solution will be developed which can be built onto the existing website www.ecompetences.eu and/or another appropriate website, e.g. the forthcoming European e-Skills and Career Portal. Creating additional collateral for user support will make it easier for framework adopters to deploy it and provide added value in their environment.

2.2.4. Methodological documentation for the academic and scientific community

An essential consideration within the framework development philosophy was to consistently strive for an end product which was readily usable by employers. This demanded that it was consistently constructed taking into account sound methodological choices and decisions. These pragmatic and methodological driven approaches were documented in the multistakeholder public addressed interim report "Towards a European e-Competence Framework" (2007).

Fruitful exchanges and further discussions with stakeholders from science and research showed a high interest and need to receive further methodologically founded documentation. This requirement will be addressed by the development of methodological documentation addressing the entire project to support increased understanding and acceptance of the framework by the higher education and research community.

Methodological work conducted to establish the European e-Competence Framework will be critically analysed and the rationale for development, structure and content of the European e-Competence Framework, including the collated feedback and incorporated results from consultation exercises, will be explained from an academic perspective. The methodological documentation will be published in the CWA.

2.2.5. Updating the e-CF user guidelines

Complementary to the European e-Competence Framework update to a version 2.0, the user guidelines for the application of the framework by ICT sector players will also be updated. Special attention will be paid to explaining the framework version 2.0 including the enhanced four dimensions.

3. Technical expert work performance in 2009

3.1. Project milestones: The technical expert meetings

The meetings of the technical expert working group (s. chapter 1.4.) are considered as project milestones and are essential components of work progress. During the CEN co-funded phase from 2009 to 2010, the technical work meetings are organised over three days. On the first day the CEN experts meet, review and agree work achievements to date. This agreement provides the input for the following two day meeting of the larger technical expert working group. To achieve an appropriate, "European" ambiance, independent of national and regional influences, the meetings take place in different locations across Europe.

3.1.1. London meeting 06/09 – aims and outcomes

The London meeting in June 2009 was the kick-off for a set of technical expert meetings to be held during 2009/10.

The most important initial aims were to create a common understanding of the "e-CF in action" framework maintenance objectives on a technical level and to achieve first results for the work on the dimension 4 development.

The experts compared and analysed the specific characteristics and benefits of knowledge and skills definitions based on the e-CF 1.0, and experience gained from users. Adhering to the working milestones defined in the "e-CF in action" work programme, they agreed on a pragmatic and broadly applicable approach on how to identify and specify relevant knowledge and skills examples for each e-competence of the framework.

The outcome of the London meeting was the agreement on a common set of rules to provide guidance on how to develop knowledge and skills specifications in expert sub-groups during the following months. Additionaly some first examples were created (see chapter 5.1.).

3.1.2. Paris meeting 10/09 – aims and emerging outcomes

The Paris meeting in October 2009 provided an opportunity to further discuss and consolidate the first draft of knowledge and skils definitions developed by the experts in small sub-teams, via teleworking, since the London meeting. Furthermore, the experts have started work on the update and

maintenance of dimension 2 and 3 of the e-Competence Framework. This involves checking e-CF 1.0 for the validity of original e-competences and reference definitions and levels assigned, and also exploring if adding new e-competences are required.

The expected outcome of the Paris meeting is a further consolidated draft of dimension 4 of the e-Competence Framework as well as firm proposals on framework optimisation and updating in dimension 2 and 3. First meeting results will be further developed during the weeks after the Paris meeting.

3.1.3. Further meetings planned

Until the accomplishment of the European e-Competence Framework 2.0 for draft CWA publication in July 2010, two more technical expert working meetings are planned, firm dates and aims will be established based on work in progress.

3.2. The work between the meetings: exchange by e-mail and conference calls

Whilst the three-day-workshops between CEN experts and members of the technical expert working group represent observable milestones of the technical project work, the work between meetings is likewise crucial. Each meeting has an intensive follow-up where the most important results are synthesised and summarised reflecting common agreements. Where relevant, the experts continue to work in sub-teams as exemplified by the work carried out on knowledge and skills.

The project and methodological lead manager provide direction for further work, encompassing next steps and expected outcomes and also preparation for the next meeting. The experts are experienced in virtual communication techniques and maintain contact through e-mail and conference calls.

4. Multi-stakeholder process – feedback and procedures

4.1. CEN plenary meetings and CEN technical sessions

Following the first consolidation of technical outcomes on a technical level, they are presented, re-discussed and further consolidated within the CEN workshop stakeholder community. CEN plenary meetings provide opportunity to regularly report on and to review the project work in progress. More detailed technical discussions take place in the context of CEN open technical sessions.

The e-CF in action work progress has been presented and discussed at the CEN plenary meetings in April and October 2009 in Paris and London.

Detailed discussions and collection of ICT stakeholders' feedback and input on the first work achieved on dimension 4 took place within the CEN open technical session on 1st of October in London. The

main subjects of discussion were the rules developed for identifying knowledge and skills as well as first dimension 4 drafts for the e-competences A1, A2, A7, B3, D1, B6. In view of the methodological documentation to be published as a part of the forthcoming CWA, a draft table of contents gave the basis for collecting stakeholders' views on which contents would be of special interest for scientific public and stakeholders coming from qualification environment.

A second CEN open technical session is planned for May/ June 2010 when the first consolidated expert drafts of the forthcoming e-CF 2.0 dimensions 2, 3 and 4 will be available.

4.2. Feedback area on www.ecompetences.eu

A continuous channel for providing feedback is ensured by the feedback area on the e-CF website www.ecompetences.eu. Via http://www.ecompetences.eu/1433,Contact.html, a feedback structuring document can be downloaded, filled and sent by e-mail to the e-CF project team coordinator.

This feedback channel is open throughout project work in progress and stakeholders' suggestions and comments are used to inform ongoing development of the framework update and maintenance work.

4.3. On-line survey planned for December 09 – January 10

To collect input on the e-CF 1.0 use and improvement potential, in addition to feedback on the first outcomes within the "e-CF in action" framework update work, a stakeholder on-line survey is planned to run from the beginning of December 09 until the end of January 2010.

The survey will address issues such as

- current experiences, if any, in use of e-CF and suggestions for maintenance/ improvement
- any key competences missing
- which of the dimensions of the framework are most important to the respondent and why
- knowledge and skills input based on expert group work
- are the identified skills and knowledge elements appropriate?
- are there any skills and knowledge elements missing?
- any overall suggestions regarding the usability of the entire framework
- suggestions regarding the service level and further implementation of the framework in EU environment

The outcomes of the survey are expected to provide valuable input for the European e-Competence Framework 2.0 consolidation phase, but it may also provide inspiration on future useful developments and activities related to the e-CF implementation and use across Europe.

4.4. e-CF 1.0 practical use – international application examples

The "User guidelines for the application of the e-Competence Framework by ICT sector players" were published in parallel to the e-Competence Framwork 1.0 in autumn 2008. This guide provides hints and ideas of possible framework use by companies, qualification and certification bodies, research institutions, sector associations and individuals.

Interaction with stakeholders during the "e-CF in action" project has enabled collection of examples on how the e-Competence Framework can be used from a variety of perspectives.

These examples are encouraging; on the one hand they prove the practical use and operational capability of the framework. On the other hand, they also bring some important input for framework maintenance and update work. The following list provides some examples coming from Europe and overseas:

- France:
  - e-CF use for an updated CIGREF Job profile „référentiel"
  - ICT company: reference e-CF to Cobit processes, internal use of the e-CF envisaged
- Germany:
  - Translation e-CF into German
  - Referencing ICT vocational and advanced training profiles to e-competences
  - e-CF test + use in a German SME with 300 employees around Europe
  - e-CF, EQF, NQF, AITTS: Series of publications planned for end of this year
  - Initiative "GlobePro": exploring the use of e-CF in a global business environment
- Italy:
  - Fondazione Politecnico: Using the framework as reference for a survey on Green e-competences required by ICT vendors, data centres and end-user companies
- Québec
  - Translation e-CF for internal use into French
  - Using the e-CF as reference for an internal competence analysis in ICT department (400 professionals), leaving out commercial skills
- The Netherlands
  - EXIN International: Intention to establish a „reference card", relating certifications to e-competences
- Germany/ France/ UK/ Spain
  - Airbus: Using dimension 2 and 3 descriptions for competence catalogue update

- EU level
  - CEN project on Interoperability of European e-Career Services (2008-09): e-CF as shared reference for interoperability of ICT career items and offers on-line in Europe
  - CEN project on e-Certification in Europe (2008-09): Recommendations to establish a certification overview map referring to e-CF

5. Interim outcomes achieved – overview on project progress

5.1. Further development dimension 4: Knowledge & skills

Dimension 4 articulates key skills and knowledge included in each e-Competence identified and defined in dimensions 2 and 3. Accordingly, dimension 4 details the core elements/ components determining the contents of the e-Competences.

These in-depth descriptors can for example be useful in defining specific and precise outcomes to be assessed within organisation's competence assessment programmes. In addition, dimension 4 is critical for training institutions as they need to specify training and education in terms of learning outcomes. In this context, skills and knowledge can represent both e-competences and the learning outcomes to be reached through learning/ training paths. Consequently, skills and knowledge represent a bridge between organisation competences and education institution training, or qualifications programmes (see also chapter 2.2.2.).

However, knowledge and skills provided in dimension 4 can only be examples and based upon generic descriptors to ensure that quantity does not inhibit manageability. In general, ways of detailing e-competences and making them applicable to specific environments are choices based upon an organisations' culture. The same can be said for training institutions as the choices made in delineating qualifications into skills and knowledge (and thus into learning outcomes) establishes differentiation between one education and training programme and another. Organisational choices related to skills and knowledge development provides a competitive key to address business success. Thus, the European e-CF cannot and should not replace an organisation unique decision making process but it can provide a foundation map to work from.

Dimension 4 will provide the main elements of knowledge and skills related to e-competences and will be constructed from an employer's perspective. Education and training institutions will be able to work with these short but precise e-competence components to revise or build curricula, syllabi, or learning programmes.

It is not intended to restrict educational style or content solely to these descriptors, on the contrary, education providers will be encouraged to produce materials complimentary their own culture. In consequence the e-CF dimension 4 will be deliberately confined to a set of key items that will act as guidance but not limit educational institutions to rigid or narrow content.

The work done so far to develop dimension 4 has included two stages:

a) Specifying rules to build dimension 4 – Identify relevant knowledge & skills

b) Drafting knowledge & skills specifications for A1, A2, A7, B3, D1, D6

a) Rules for dimension 4 – Identify relevant knowledge & skills

To achieve a consistent shared background for the knowledge & skills development phase, the expert team defined in an initial step guidelines on how to identify and express knowledge and skills included in the e-competences of dimension 2. Dimension 3 was considered only to verify consistency of identified knowledge and skills. At this stage, identified knowledge and skills are not related to specific competence levels in dimension 3. The rules were specified as follows:

1. **KNOWLEDGE (K)** and **SKILLS (S)** are to be directly related to **DIMENSION 2**.
   In principle, they should respond to the questions:
   - What do I have to be able to do? (for skills)
   - What do I have to know? (for knowledge)
2. Use **K&S GRAMMAR** to build the sentences [*see blue box on next page*].
3. **Each verb** used within the **SKILL description** should represent an **objective** and potentially **verifiable action** [*competences are holistic concepts embedding attitudes and future treds; skills are their demonstrable components*].
4. **KNOWLEDGE** can be described as theoretical and/or factual [*according to the EQF definition*].
5. Each identified **piece of knowledge** should be described as a **verifiable outcome** [*just as skills, also knowledge are demonstrable components of competences*].
6. If **KNOWLEDGE** is a **clear component of a skill**, only mention it again if you find it necessary (repetition may not add value).
7. Try to identify **no more than 5 KNOWLEDGE and 5 SKILLS** per competence. Take "**relevance** for effective competence performance" as your guiding criterion to choose the key K&S items.
8. Knowledge & skills are related to the competences they refer to.
9. **Test** the identified K&S **against DIMENSION 3** to check:
   - **Is there something relevant missing**? If yes, please add a further K or S that is still consistent with DIMENSION 2. If added K or S **are not** consistent with dimension 2, maintain them but highlight in yellow.
   - **Are ALL the identified K&S also applicable to DIMENSION 3**? If not, i.e. some K or S identified from dimension 2 are not applicable to any level in dimension 3, maintain them but highlight in yellow.

Table 4: Rules for dimension 4 – identify relevant knowledge & skills – version 1

K & S GRAMMAR + examples	SKILLS: WHAT DO I HAVE TO BE ABLE TO DO? → action verb + object, Examples: – *analyses business processes and architecture* – *identifies customer needs* – *applies preventive maintenance* – *implements user interface suitable for user's needs* – *motivates and drives a team* – *designs technical specifications of modules or components* KNOWLEDGE: WHAT DO I HAVE TO KNOW? → "knows" + object, Examples: – *knows ICT security policies* – *knows constraints and opportunities within the SLA* – *knows information modelling techniques* – *knows frameworks and methods of IT governance* – *knows Information System Architecture concepts*

Table 5: Rules for dimension 4 – identify relevant knowledge & skills examples – version 1

These rules have been tested and validated during the next phase on dimension 4 specification, consisting in developing relevant knowledge and skills examples for each e-competence. They were also presented and discussed within the larger ICT stakeholder community together with the first knowledge and skills examples provided below during the first open technical session on 1st of October in London. (First results in Table 6)

During the first CEN open technical session it emerged that the verbs expressing the knowledge section could be varied trying to reflect a level of knowledge. This issue will be investigated in coming months. However, to clarify concepts of the adopted method some interpretation of the original rules and use of grammar, have been introduced following feedback received in the CEN open technical meeting:

1. "**To know**" just means "**being familiar with**", regardless of whether the piece of knowledge has been learnt, experienced, acquainted with, etc. At this stage of development, the intention is to remain at a general level. The items can be more accurately specified step by step, as they are fine-tuned and adjusted.
2. **KNOWLEDGE** can be described as theoretical and/ or factual [*according to the EQF definition; see also point 1 of this list*]. However, **KNOWLEDGE** here is intended to be from an organisations' perspective, hence academic knowledge such as "the fundamentals of marketing" or "applied mathematics" are not relevent.
3. **UNDERSTANDING** can be added to the KNOWLEDGE column. (However, at the next stage it can even be moved to the SKILL column.)

4. Pay attention to avoid mistaking a **Task** for a **Skill**, boundaries are often unclear. Technically, a "task" is a specific activity to be conducted, while a "skill" is the ability to carry out a task. Consequently, for example, "writing reports" may be a task, i.e. the activity of writing reports, or maybe a skill, i.e. the ability to write reports. By convention, skills will be expressed with the phrase "to be able to" [*see blue box*].

At this stage, the overall set of rules can be reviewed as follows:

1. **KNOWLEDGE (K)** and **SKILLS (S)** are to be directly related to **DIMENSION 2** and to **competences they refer to**. In principle, they should respond to the questions:
    a. What do I have to be able to do? (for skills);
    b. What do I have to know? (for knowledge).
2. "**To know**" just means "**being familiar with**", no matter if the suggested piece of knowledge has been learnt, experienced, got acquainted, etc. At this stage the intention is to stay at a general level. The items can be more accurately specified step by step, when tuning and adjusting at a later stage.
3. **KNOWLEDGE** can be described as theoretical and/ or factual [*according to the EQF definition; see also point 1 of this list*]. However, **KNOWLEDGE** here is intended to be expressed from an organisations' perspective, hence academic knowledge such as "the fundamentals of marketing" or "applied mathematics" for example, are to be omitted.
4. Each identified **piece of knowledge** must be described as a **verifiable outcome** [*just as skills and also knowledge are demonstrable components of competences*].
5. **UNDERSTANDING** can be added to the KNOWLEDGE column. (However, at the next stages it may even be moved to the SKILL column.)
6. **Each verb** used within the **SKILL description** must represent an **objective** and potentially **verifiable action** [*competences are holistic concepts embedding attitudes and future trends; skills are their demonstrable components*].
7. Pay attention to avoid mistaking a **Task** for a **Skill**, boundaries are often unclear. Technically, a "task" is a specific activity to be conducted, while a "skill" is the ability to carry out a task. Consequently, for example, "writing reports" may be a task, i.e. the activity of writing reports, or maybe a skill, i.e. the ability to write reports. By convention, skills will be expressed with the phrase "**to be able to**" [*see blue box*]
8. If **KNOWLEDGE** is a **clear component of a skill**, only mention it again if you find it necessary (repetition may not add value).
9. Use **K&S GRAMMAR** to build the sentences [*see blue box*].
10. Try to identify **no more than 5 KNOWLEDGE and 5 SKILLS** per competence. Take "**relevance** for effective competence performance" as your guiding criterion to choose the key K&S items.

11. **Test** the identified K&S **against DIMENSION 3** to check: a. **Is there something relevant missing**? If yes, please add a further K or S that is still consistent with DIMENSION 2. If added K or S **are not** consistent with dimension 2, maintain them but highlight in yellow. b. **Are ALL the identified K&S also applicable to DIMENSION 3**? If not, i.e. some K or S identified from dimension 2 are not applicable to any level in dimension 3, maintain them but highlight in yellow.

Table 6: First revision of rules for dimension 4 – identify relevant knowledge & skills – according to the feedback received from the CEN open technical session

Consequently, the present revised Grammar:

GRAMMAR + examples	**SKILLS: WHAT DO I HAVE TO BE ABLE TO DO?** → "Is able" + "Action verb" + object Examples: – *Is able to analyse business processes and architecture* – *Is able to identify customer needs* – *Is able to apply preventive maintenance* – *Is able to implement user interface suitable for user's needs* – *Is able to motivate and drive a team* – *Is able to design technical specifications of modules or components* **KNOWLEDGE: WHAT DO I HAVE TO KNOW?** → "knows" / "is familiar with" + object → "understands" + object Examples: – *knows ICT security policies* – *knows constraints and opportunities within the SLA* – *knows information modelling techniques* – *knows frameworks and methods of IT governance* – *knows Information System Architecture concepts* – *understands the language of customer*

Table 7: First revision of rules for dimension 4 – identify relevant knowledge & skills examples

(b) Draft knowledge & skills specifications for A1, A2, A7, B3, D1, D6

As explained at the beginning of this chapter, knowledge and skills provided in e-CF dimension 4 can only be examples but must be the most representative. They are not exhaustive. In addition, they reference e-competences in Dimension 2. Accordingly, at this stage, they are not related to specific e-competence levels in Dimension 3.

e-CF area	*e-competence*	**KNOWLEDGE**	**SKILLS** *Is able to…*
A. PLAN	***A.1. IS and Business Strategy Alignment***	K1 Knows business strategy concepts K2 Knows trends and possibilities of IT inside or outside of own company K3 Knows the potential and opportunities of relevant business models	S1 Analyse future developments in business processes and technology S2 Determine processes requirements for related IT services S3 Identify and analyse long term user/customer needs S4 Actively participate in IT strategy and policy development S5 Actively contribute to the development of the business strategy
	A.2. Service Level Management	K1 Understands service level agreement documentation K2 Knows how to compare and interpret management data K3 Knows the critical elements that form the metrics of service level agreements K4 Knows how service delivery infrastructures work K5 Knows impact of service level non - compliance on business performance	S1 Analyse service provision records S2 Evaluate service provision against service level agreement S3 Negotiate realistic service level targets S4 Use relevant quality management techniques (pareto, six sigma …….) S5 Anticipate and mitigate against potential service disruptions
	A.7. Technology Watching	K1 Knows emerging technologies and relevant market applications K2 Knows market needs K3 Knows relevant sources of information (e.g. magazines, conferences and events, news letters, opinion leaders, etc.)	S1 Monitor sources of information and continuously monitor relevant innovations S2 Identify vendors and providers of relevant solutions; evaluate,select and propose the best valueoption S3 Identify the business advantages and benefits of adopting emerging technologies
B. BUILD	***B.3. Testing***	K1Knows techniques, infrastructure and tools t used in the testing process K2 Knows the lifecycle of a testing process K3 Knows different sorts of tests (functional, integration, performance, usability, stress etc.) K4 Knows national and international standards defining quality criteria for testing	S1Create and manage a test plan S2 Manage and evaluate the test process S3 Design tests of IT systems S4 Prepare, specify and conduct tests of IT systems S5 Report and document tests and results
D. ENABLE	***D.1. Information Security Strategy Development***	K1 Knows the potential and opportunities of relevant standards and best practices K2 Knows the impact of legal requirements on information security K3 Knows the Information Strategy of the organisation	S1Develop and evaluate the company strategy for information security S2 Define, present and promote an information security policy for adoption by the organisation S3 Apply relevant standards, best practices and legal requirements on information security S4 Anticipate changes in information Security Strategy and formulate plans for future implementation

e-CF area	*e-competence*	KNOWLEDGE	SKILLS *Is able to…*
	D.6. Channel Management	K1 Knows the competition (what and where) K2 Knows market distribution across the field K3 Knows sales channel typologies (e.g. direct sales, VAR, web marketing) K4 Knows incentive policies K5 Knows user experience	S1 Identify the best sales channel for the product or solution proposed S2 Define discounts according to market needs S3 Communicate and provide marketing guidance to Value Added Resellers S4 Monitor and supervise channel performance according to forecast and takes corrective actions if necessary S5 Apply web marketing methods

Table 8: Draft knowledge & skills specifications for A1, A2, A7, B3, D1, D6

These first draft knowledge & skills specifications were elaborated in a multiple level process. Following an initial discussion and agreement in expert sub-teams, the descriptors were validated by the methodology expert and were aligned in terms of English language. Once a first draft is developed for the whole e-CF, it will be further discussed and improved in the broader technical expert working group.

Based on this three-step approach, the knowledge and skills specifications as shown in table 5 provide a first draft for continuous improvement within the European ICT stakeholder community until the draft agreement planned for 2010 (s. chapter 7.1). The issue which emerged during the first CEN open technical session, that verbs expressing the knowledge section could be varied to reflect a level of knowledge, will be investigated in coming months.

5.2. Maintenance dimension 2 and 3: e-Competence definitions

From the commencement of the “e-CF in action” project, the CEN nominated experts team collected feedback on e-CF 1.0 look and use, including suggestions for possible e-competence and e-competence level amendments and optimisations. In parallel, it became clear that several ongoing intitiatives have the potential to enrich the view of the expert team and of the CEN Workshop community. Precise input has yet come or is expected to come from e.g. EuroCIO, Exin, CIGREF members, IG Metall as well as the research activities on „Green IT“ competences lead by Fondazione Politecnico di Milano.

The Paris expert meeting in October 2009 provided the opportunity for the first structuring of feedback and ideas received. The outcomes will be consolidated and will provide guidance for the e-competence and level updates within the following months.

5.3. e-CF navigation structure and on-line tool

The specialist nature of graphical design and web navigation tools requires the deployment of contract agencies to support this work stream. The graphical representation of the e-CF and it's associated symbols must be fit for use in conventional documents and also must form an integral component of interactive web pages. In addition as an added value facility, over and above the original proposal, the project team has been able to negotiate an agreement to build a simple user tool to enable the construction of job or curriculum profiles.

The milestones for development are shown below. Table 9 relates to graphics design and table 10 to web elements

Deliverable from Sub contractor	Start Date	Finish Date
▪ Create initial graphical design (consistent image and colour to be incorporated into all materials)	Sept 2009	October 2009
▪ Work under guidance from CEN expertsrepresentative, to ensure graphic meets requirements for use in web pages.	Oct 2009	Nov 2009
▪ Finalise graphical design	Dec 2009	Jan 2010

Table 9: Tool development milestones graphic design

Deliverable from Sub contractor	Start Date	Finish Date
▪ Work under guidance from CEN experts representative to produce Navigation design – construct initial demonstration model	Nov 2009	Dec 2009
▪ Finalise incorporation with pre-defined graphic design and produce working navigation model	Jan 2010	Feb 2010
▪ Develop application to enable users to create own unique e-CF profiles	Dec 2010	April 2010
▪ Provide final web site tool and navigation methodology including new e-CF content. Liase with web hosting team.	March 2010	April 2010

Table 10: Tool development milestones web elements

This work stream is operating to the planned time scale.

Desktop research on other framework structures has shown that user acceptance of sophisticated competence structures is commonly supported by the provision of additional tools. Initial tools are often supplied by the framework originator, which in turn generates interest from commercial providers

who expand upon the tool set making the framework accessible to a wider audience. This principle has been embraced for the e-CF project and will bring the e-CF framework 'to life'.

5.4. Methodological documentation

With regard of the methodological documentation planned for deliverable 4 of the "e-CF in action" project; a draft table of contents has been developed. The table of contents, below, has been presented and discussed at the CEN open technical session on 1st of October 2009 in London and provides a road map for the draft methodological documentation which is scheduled to be circulated in February 2010.

Based on the feedback provided by stakeholders, especially from scientific and qualification environment, the methodological documentation will be continuously improved.

1. Introduction: the e-Competence Framework structure
   1.1. The e-CF in its four dimensions
   1.2. Reasons behind the "hidden" use of the concepts of *ICT business process* and *knowledge areas*

2. The Dimensions 2 and 4: Competences, Knowledge and skills
   2.1. The issue
   2.2. Some definitions from literature
   2.3. The EQF approach
   2.4. e-CF definitions shared within European ICT stakeholders

3. The Dimension 3: Proficiency levels
   3.1. The issue
   3.2. The EQF learning levels
   3.3. The role of the "context"
   3.4. The other two components of levels: autonomy and behaviours

4. Bibliography / References

Table 11: Methodological documentation – table of contents

6. e-CF 1.0 and "e-CF in action" communication

6.1. Updating www.ecompetences.eu

As a final step of the communication activities which accompanied the European e-Competence Framework development in 2007/08, the European e-Competence Framework website www.ecompetences,eu was updated to enable stakeholders to use the site as the source of information on the e-CF framework. The website provides the development context, stakeholders involved, e-CF structure and basic principles as well as downloads of the framework and accompanying material.

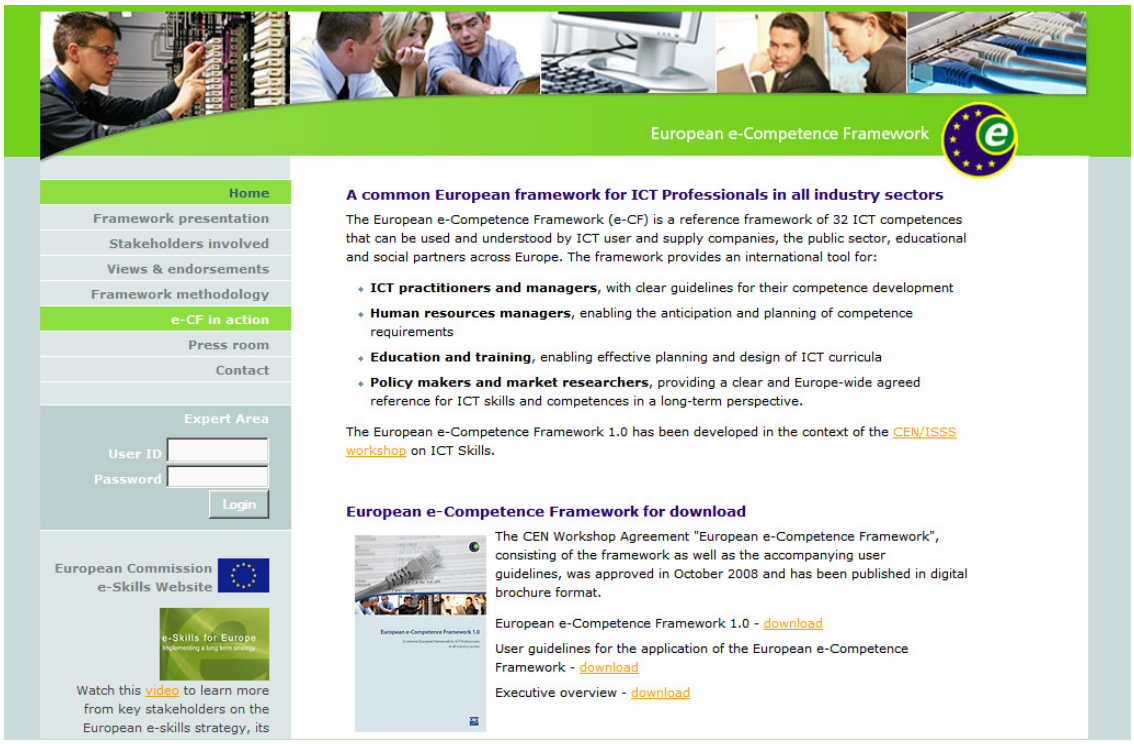

Figure 5: The e-Competence Framework website www.ecompetences.eu

Within the "e-CF in action" project, the website has been updated, it includes a new section informing about development of version 2 and it will be regularly updated until publication of the amended framework in Autumn 2010. Furthermore, stakeholders' endorsements and views namely from Eastern Europe contributors but also from further EU level players as e.g. the e-Skills ILB have been added or are in preparation.

6.2. The e-CF in Central, Eastern and Southern Europe

The CEN WS on ICT Skills Plenary meeting in Paris (April 2009) was a useful occasion to consider activities related to e-CF communications. Soon after, the elements of a communications plan were agreed.

This Communication Plan incorporates 6 activity areas related to e-CF product promotion:

- Ensuring endorsements, statements and commitments in support of e-CF
- Preparing and updating target lists for communications (focal points/ epresentatives at national ministries, trade unions, ICT demand and supply industries, public sector, academia and other)
- Attendance of meetings and conferences for e-CF presentation and promotion
- Active work towards an e-CF media presence and publications

- Internet presence and accessibility, including material on web-sites and links to www.ecompetences.eu
- Coordination and Reporting

While many countries from Central Europe contributed actively to the multistakeholder activities towards a European e-Competence Framework, participating stakeholders from **Eastern Europe** were much fewer. Therefore, it was deemed necessary to devote special attention to this region containining the 10 "new" EU member states.

Feedback from related communications activities so far is positive; the interest of individuals and national professional ICT societies is encouraging. These societies support various programs related to the Bologna process and to certification schemes (for example EUCIP and ECDL related). They find the e-CF fully compatible with their initiatives and they see value in aligning and integrating the e-CF into their activities and programs.

As an initial action, it was felt that high level endorsements and commitments from well-recognized individuals and societies would be very supportive in promoting the e-CF product in the Region. Contacts at various levels were established and proactive assistance and communications support were provided. As a result, several high-profiled representatives of leading professional ICT societies, industry and academia in Bulgaria, Italy, Lithuania, Poland, Romania, and Slovenia, gave their endorsements and support. Further statements are expected.

In parallel, lists of representatives of governmental institutions (Ministries of Education and National UNESCO Commissions) and Trade Unions were developed. These, coupled with the available networks coming from CEN/ Afnor, the e-CF 1.0 development and maintenance work and the communications network of the Regional ICT Association in Central, Eastern and Southern Europe (IT STAR), are expected to further increase the outreach for current and future communications activities related to e-CF.

6.3. Meetings and conferences

Additional to workshops and meetings organised by CEN, the "e-CF in action" project provides the opportunity to present the European e-Competence Framework 1.0 and related CEN/ISSS workshop activities to other meetings and conferences. A variety of occasions have been identified and performed so far:

- World Conference on Higher Education 2009 on 7th July 2009 in Paris, organised by UNESCO & Microsoft
- *Computer Days 2009*, 26-27 September, at the Kaunas University of Technology, Lithuania.
- *European e-Competence Framework in SME's,* Workshop on 10th October in Hamburg

- IT STAR conference *on ICT Skills, Education and Certification: the Multi-stakeholder Partnership*, 27 – 28 November 2009, Rome, Italy – http://starbus.org/ws4/ws4.htm.
- *Professional IT Training Facts 2009 Conference* on 17th and 18th November in Stuttgart, Germany – http://www.professional-training-facts.de
- *e-Skills for the 21st Century,* EC Workshop on 19th November in Brussels
- *European e-Skills Conference 2009* on 20th November in Brussels – www.eskills-pro.eu

Other national and international conferences, especially within the eastern European Region, as forums to promote the European e-Competence Framework 1.0 and related updating activities are envisaged.

6.4. Media and publications

The following publication activities are already completed or are in process;

- An e-CF article was published in the e-Skills ILB Newsbrief Spring Edition http://www.e-skills-ilb.org/docs/ILB_Newsbrief_Spring2009.pdf
- CEN WS on ICT Skills and e-CF related material and articles were published in the IT STAR Newsletter, *Vol. 7, no 1, Spring 2009, Vol. 7, no 2, Summer 2009,* and *Vol. 7, no 3, Autumn 2009* – http://nl.starbus.org
- Papers related to e-CF have been published in the proceedings of the *Computer Days 2009*, 26-27 September, Kaunas University of Technology, Lithuania (ISBN 978-9986-34-218-2)
- Papers related to e-CF will appear in the proceedings of the IT STAR conference *on ICT Skills, Education and Certification: the Multi-stakeholder Partnership*, 27 – 28 November 2009, Rome, Italy, and *Computer Days 2009*, 26-27 September, Kaunas University of Technology, Lithuania
- References and recommendations related to e-CF were made in the paper "*Current State of Informatics in Central, Eastern and Southern Europe",* in UPGRADE – special issue on the occasion of CEPIS' 20th Anniversary.
- In the context of the German project initiative "GlobePro", a series of e-CF related publications including an e-CF 1.0 translation is planned for end of this year in German language
- *Un référentiel de compétences européen*, in: *Stratégie et pilotage des systèmes d'information*, EMSI Grenoble, Dunod 2009
- An "e-CF in action" article will be published in the e-Skills ILB Newsbrief Autumn Edition planned for distribution on the European e-Skills conference 2009

6.5. Stakeholders' assistance and communication support

From the commencement of e-CF development in 2006/07, it was part of the communication philosophy to enable stakeholders to communicate the framework and related developments in their specific environment. To achieve some consistency in messages provided, digital presentation material has been developed within the e-CF 1.0 development phase.

This material is available in English language via www.ecompetences.eu. The "e-CF in action" work provides additional opportunities to actively distribute this material and to assist stakeholders with on demand materials when they inform others or want to learn more about the e-CF and ongoing updating activities.

7. Outlook (I) – Planning of future work

7.1. Dimension 4

As follow-up to the Paris technical expert meeting scheduled for October 2009, the first draft of the e-CF dimension 4 specifying relevant examples of knowledge and skills for each e-competence will be further consolidated and circulated among the European ICT stakeholders community in early 2010.

When the results of the framework maintenance and updating work in dimension 2 and 3 are available, the dimension 4 draft based so far on the e-CF 1.0 will be adapted to the new emerging e-CF version 2.0.

As successfully piloted and experienced during the e-CF 1.0 development phase "Towards a European e-Competence Framework"; a continuous improvement process in interaction with all interested stakeholders should lead to a final multistakeholder agreed version of dimension 4 in June 2010. This will provide the input for the CWA e-CF 2.0 public consultation version.

7.2. Dimension 2 and 3

The Paris technical expert meeting also provides an opportunity for initial structuring of ideas, stakeholders' input and feedback regarding relevant measures for the e-competences update in dimension 2 and 3 of the framework.

Following the Paris meeting, these outcomes will be further consolidated and tasks will be assigned within the technical expert community for providing suggestions on the related e-competence titles, descriptions and level assignments.

In parallel to dimension 4 optimisation activity, a continuous improvement process in interaction with all interested stakeholders will lead to a final multistakeholder agreed version of dimension 2 and 3 in June 2010, providing the input for the CWA e-CF 2.0 public consultation version.

7.3. e-CF navigation tool

A number of potential graphic designs have been constructed. A subset of three has been selected for further development and has been explored by the expert team at the Paris meeting in October 2009. The selected graphical symbol will then be tested for its suitability to be used and incorporated into a web site navigation tool. In November work will commence on the development of the navigable web site pages incorporating the selected design. Before the end of 2009 a demonstration tool will be constructed to demonstrate the functionality of the simple profiling tool.

Refinement and incorporation of the outcomes of 7.1 and 7.2 (above) will converge with this work stream during the first quarter of 2010 and combine into a suite of project deliverables.

7.4. Methodological documentation

Based on the draft table of contents as discussed with stakeholders on the open technical session in October 2009 in London, the methodological documentation addressed to academic and scientific interested communities and qualification providers will be developed.

Important inputs here will be some of the methodological documents edited during the e-CF 1.0 development phase; e.g. the “expert guidelines for the development of the European e-Competence Framework” published together with the “Towards a European e-Competence Framework” Interim report in November 2007 and the e-CF 1.0 accompanying user guidelines published in autumn 2008.

However, the methodological documentation will provide the opportunity to satisfy scientific needs without being constrained by the need to focus on practical orientation of framework users and ICT business.

In parallel to dimension 4 optimisation activity, a continuous improvement process in interaction with all interested stakeholders will lead to a final multistakeholder agreed version of the methodological documentation in June 2010, providing the input for the CWA e-CF 2.0 public consultation version.

7.5. European e-Competence Framework 2.0 CWA and publication in autumn 2010

Further work as described in the four previous chapters will lead to the final deliverables of the “e-CF in action” project, which is planned to be completed and the draft CWA available for public consultation in July 2010.

A CEN Workshop Agreement publication will follow. Additionally, the emerging European e-Competence Framwork 2.0 will be made available via digital publication for download on www.ecompetences.eu and via the on-line navigation tool accessible from the same website.

8. Outlook (II) – e-CF long-term governance challenges

The current "e-CF in action" project has received considerable positive feedback and suggestions eminating from European ICT multistakeholders concerning the e-Competence Framework version 1.0 and its possible applications. These comments show that the framework is not only welcome but in use by stakeholders across EU. The feedback coming from ICT supply and demand industries is especially valuable as it establishes the framework's practical use which is complimentary to the orginal framework development objectives. The framework has the potential to become a major asset for Europe.

National experiences coming e.g. from France, United Kingdom and Germany show that similar frameworks need in a long-term sustainable structure of framework governance, to support communication and maintenance.

Within the European ICT multistakeholders context, some stakeholders have started to think about how to address future governance issues. These activities should be encouraged. Strategic thinking, imagination and creativity will be important ingredients in the creation of an overal governance plan. Copyrights and CEN ownership issues have to be addressed together with the neutrality and high quality requirements of this ICT business reference and benchmarking tool.

It is strongly recommended that the body taking long-term responsibility, for governance, should be a neutral and highly professional organisation. It should be able to act in the interest of all ICT stakeholders, ignoring short-term interests and be capable of dealing with different perspectives on the market (ICT business – training and certification – HE – employers – trade unions etc.) as successfully as experienced during framework development and first maintenance.

Ensuring technical maintenance and ongoing effective communication and promotion of the framework are important in equal measure. To be of real use for all stakeholders across Europe, the framework should be governed transparently and remain an open source product, free to access and use.

The "e-CF in action" project work intends to establish a "walk alone" framework – this means it will deliver by end of next year an optimised framework version 2.0, supported by a simple on-line application tool and appropriate documentation on the methodological level. The framework will then have reached a level of maturity which demands serious thinking about the establishment of a long-term governance structure.

9. References

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www.ecompetences.eu

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