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Survey of Certification Schemes for IT Professionals across Europe towards Harmonisation

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0. Executive Summary

CEPIS (The Council of European Professional Informatics Societies) is a non-profit organisation that seeks to improve and promote high standards among informatics professionals. CEPIS represents 37 member societies in 33 countries across Europe.¹

In recognition of the impact of informatics on employment, business and society, CEPIS is currently focusing on three key areas: Skills, Professionalism, and Education & Research. The Harmonise project, which is the subject of this report, forms the background for this work.

The Project's Scope and Objectives

The purpose of the Harmonise project was to review the existing qualification and certification schemes for ICT² professionals in Europe, and to clarify the underlying schemes, profiles, terminology and curricula. This report presents the results of the survey and summarises the main findings of the analysis.

The project took an in-depth look at vocational ICT qualifications in Europe, with the aim of establishing a common basis for assessing and comparing the ICT professional qualifications offered in each country.

The project started by gathering information on the current situation, and then examined the need for harmonisation and the feasibility of achieving it. It proposes a number of concrete measures designed to achieve convergence between the existing approaches to ICT skills certification in the different countries. It also recommends ways in which the differences between the approaches in different countries and institutions might be made more transparent, with obvious benefits for users and employers.

The project concentrated on certification arrangements and related training offerings, and on career development services offered to ICT professionals in Europe and beyond.

This report analyses four thematic areas:

- ICT Professional Labour Market (Section 3)
- ICT Skills Certification System (Section 4)
- ICT Skills Certification Market (Section 5)
- ICT Professional Certification Quality (Section 6)

An overview of the key findings is presented in Section Figure 7-3³ section 7.1⁴. The Harmonise Reference Material website is <http://www.cepis-harmonise.org/harmonise/php/index.php>

¹ Further information available on <http://www.cepis.org>

² Information and Communication Technology.

³ See page 150.

⁴ See pp. 142.



The Harmonise Project Consortium

The Harmonise project was carried out by a consortium of nine partners led by CEPIS, and including CEPIS member societies from Estonia, Germany, Hungary, Italy, and the United Kingdom, as well as the ECDL Foundation⁵ and partners from education and research.⁶

The Harmonise project is one of many activities that CEPIS conducts in the area of professional skills. For example, in its recently completed *eSkills Foresight Scenarios for the ICT Industry*⁷, CEPIS took an in-depth look at the core issues affecting the supply of and demand for IT practitioners and professionals. In that study, CEPIS predicted a significant shortfall in the supply of IT graduates over the coming years.

ICT Professional Certification

Since the 1990s, ICT certification has become an integral part of the education and training landscape. In the broadest sense, certification involves formally assessing that the candidate's knowledge and/or skills in relation to a subject are in conformance with a predetermined standard. In a narrower sense, it is the end point of a learning process with an accreditation system that formally validates the candidate's ability to perform a set of activities in the workplace to the required standards.

ICT professional certifications are driven mainly by the major ICT vendors, who use them as an important method of maintaining market share and customer support. The most popular of them are product-focused and driven by marketing and business interests. It is difficult to provide an objective assessment of the value and quality of these certification schemes, as their operation lacks transparency. Similarly, it is difficult to obtain reliable estimates of the number of individuals certified: our estimate, based on data gathered from twelve leading vendors, is that some 7.2 million professional certifications have been issued since the 1990s.

While the growth of ICT-vendor-specific certification appears to be slowing, vendor-independent offerings are still at the beginning phase of their lifecycle. There is also an observable shift toward profile-based certification. These developments are driven mainly by vendor-neutral and vendor-independent certification providers.

Need for Harmonisation

The continued development of the ICT industry – and ultimately the success of the economy as a whole – depends on the availability of sufficient numbers of qualified people with the required skills and competences.

The annual cost of software failures in Europe is estimated at almost €100 billion. Adequate training of staff would result in improved project success rates and better

⁵ European Computer Driving Licence Foundation

⁶ See Appendix N for list of consortium members.

⁷ Report to the European Commission's Directorate General for Enterprise & Industry



innovation capability. Thus, ensuring that ICT practitioners are able to perform to professional standards is a matter of vital importance for the economy and for society.

Our survey revealed 62 certification suppliers, delivering 617 types of certification. This proliferation is an obstacle to the achievement of global standards for the ICT profession. It also hampers the development of ICT as a professional discipline, and makes it less likely that employers will recognise ICT as a serious profession adhering to higher principles and clearly defined, international standards.

Our research suggests that employers do not place much value on ICT professional certification. This deserves further examination, as it strongly influences the demand by ICT practitioners for training and certification. We believe that certification should not itself be a priority, but that the obvious need is to establish ICT professionalism and international professional standards.

The value of certification varies greatly, and is determined to a significant degree by the ICT labour market. As a result, all stakeholders share a common interest in exercising more control over future developments and in forecasting market demand and supply more accurately.

Defining Harmonisation

If ICT professional certification schemes are successfully harmonised, the certifications will be more widely recognised, employers and job-seekers will be more aware of them and their value, and it will be clear to all stakeholders what they are and what they mean. This would be of considerable value in establishing ICT as a professional discipline.

In this project, harmonisation was defined in those terms: the achievement of broader recognition and transparency of ICT professional certification, higher awareness of what is available in the market, and the promotion of the benefits arising from a consistent, international ICT profession, based on clearly defined standards.

The project also sought to agree the scope of the harmonisation process and the principles that should guide it. The aim was to create an indepth understanding of the size and the nature of the IT Professional certification market and to arrive at (voluntary) certification guidelines and processes, based on common understanding and agreed definitions and requirements. This would provide a consistent base for dealing with more complex issues and problems in subsequent stages of the harmonisation process.

From the start, the project was aware that it had set itself an ambitious and challenging task. A number of pivotal questions were explored with experts and the wider community:

- What are the specific complexities of the ICT certification market?
- How do we expect this market to evolve and change?
- What do we need to do to harmonise this market?

ICT professional certification is part of a broader issue

Certification of ICT professionals has to be seen as part of a broader issue, namely the establishment of recognised standards for the international ICT profession. Concentrating on certification as an end in itself would fail to deliver sustainable results.



The goal of ICT professionalism is far more important, and should drive the harmonisation process.

Comprehensive knowledge base

One obvious obstacle to the achievement of harmonisation in the area of ICT professional certification is the limited knowledge of how these systems operate, what they offer, and what they actually deliver. The report provides answers to these questions, explaining the wider context of ICT professional certification and the major factors influencing its future development. The report also clarifies the origin of these systems, how they are built, and how they operate.

The Harmonise project has assembled a comprehensive knowledge base that can help stakeholders, employers and individuals to better understand what is currently available. It has prepared a number of options for achieving greater transparency within the EU, and analysed the feasibility of establishing a widely accepted common European approach to qualification and certification of ICT professionals.

The project web site (www.cepis-harmonise.org) includes information on existing ICT professional certification schemes, and links to important stakeholders and leading initiatives and expert communities in the area.

The challenge now is to validate the feasibility of the proposed harmonisation approach, and to transform the project's results and theoretical knowledge into action. The knowledge base provides a detailed picture of the ICT certification landscape. Decision makers and stakeholders will need these details to arrive at the concrete measures and solutions needed in the years ahead.

Success Stories and Experiences from the ECDL

The project drew heavily on the knowledge, background and insights of the ECDL Foundation, which was able to contribute its considerable experience of promoting and operating a successful certification business, with its unique partner network of learning providers and test centers.

Besides its end-user ECDL certification, the ECDL Foundation is currently deploying a certification programme called EUCIP (European Certification of Informatics Professionals). EUCIP complements the ECDL offering by providing a development path towards ICT professionalism.

However, the end-user certification market is quite different from the market for certification of ICT professionals – it is a high volume business, less specialised and less fragmented. The ECDL is pre-eminent in its field, with 7 million candidates registered in 146 countries, and now becoming accepted worldwide as the International Computer Driving Licence (ICDL). It is a single, clearly focused qualification, valued by employees and employers alike, with strong marketing, quality assurance, and ongoing development.

The Harmonise project considered the opportunities and challenges in emulating this success in the professional field. The project became convinced that there is a market need for a certification programme that is:

- Generic in scope, covering the main ICT job roles;



- Supported by all stakeholders, especially vendors and education/training providers;
- Attractive to employers and employees alike;
- Available Europe wide, at affordable prices;
- Quality assured throughout; and
- Consistent with the European Qualifications Framework and the emerging European e-Competence Framework.

The project results were checked by reference to EUCIP. The EUCIP qualification enables ICT professionals to document their competencies and skill-sets for employers or prospective employers and so increase their market value. EUCIP is owned and managed by the ECDL Foundation, supported by CEPIS and the professional ICT organisations across Europe.

European Certification of Informatics Professionals (EUCIP)

EUCIP is a relatively new programme developed by CEPIS in the last 4 years. The EUCIP Core level certification has been offered to date by the ECDL Licensees in Italy, Ireland, Norway, Spain, Greece and Estonia, and is now ready to be promoted and supported in other countries. The complete set of 21 EUCIP Professional Profiles was formally launched in March 2007, and EUCIP now certifies several levels of ICT professionals:

- EUCIP Core;
- EUCIP Professional (21 EUCIP Professional Profiles); and
- EUCIP IT Administrator.

The EUCIP programme was developed in cooperation with the major companies in the ICT sector, but CEPIS – a non-profit organization – guarantees its total independence from those commercial interests and influences.

Towards harmonisation

The Harmonise project sets out a roadmap for harmonising ICT professional certification, along with concrete recommendations for action. It draws on the EUCIP experience to suggest a path towards how IT Professional Certification harmonisation can be implemented.

The proposed harmonisation approach is built on ICT professionalism, a multi-stakeholder approach, quality standards, and visibility. It attempted to address the following key questions: Why harmonisation? For whom? and How?

The proposed approach is market-driven; we do not recommend a top-down regulatory approach to the existing market for ICT certification.

Round Table

Harmonisation activities need to be carefully planned, and must involve all stakeholders. The successful implementation of quality standards will require commitment from all



involved and affected parties, and in particular from professional associations, industry, and educational institutions.

The various stakeholders should meet regularly in a round table setting that facilitates the formation of partnerships and the exchange of information and knowledge. We recommend that such a round table be established without delay. All stakeholders should be invited to join. The Harmonise project has produced a comprehensive knowledge base that would provide this round table with a useful foundation for its work, including definitions, requirements and objectives.

The harmonisation process will depend on multi-stakeholder partnerships, in which the business sector complements, supplements and extends the resources of the public sector.

Harmonisation is a complex matter that demands the involvement and commitment of a variety of actors, each of whom may have different interests. Certification and training occupy separate domains. Industry stakeholders, such as e-SCC (the e-Skills Competences Consortium), complain that there is an observable disconnect between public education and the training needs of industry; they demand measures to build bridges between industry and education to avoid the creation of a 'parallel universe'.

The round table itself would agree the scope of harmonisation and the principles underpinning it, and aim to assemble an agreed body of knowledge and to arrive at global certification standards and processes.

ICT professionalism – the wider context

Harmonisation of ICT professional certification must be seen in the broader context of ICT professionalism. The ICT professional associations play a pivotal role in setting, developing and promoting standards in ICT certification – their desire to develop ICT as a professional discipline is the single most important driver of harmonisation.

Participation by the ICT professional associations in the harmonisation endeavour will ensure that it is effective – the members of these associations are the potential users and beneficiaries of the standards that will emerge from the process. It is important, therefore, that ICT professionalism be seen as the foundation of the harmonisation effort, and that broadly recognised professional standards be seen as an essential requirement for professionalism.

ICT professionalism also requires a shared body of knowledge, and establishing such a body of knowledge requires the broad support of all stakeholders. The multi-stakeholder approach that we recommend will help in this development.

Umbrella approach

A sustainable solution to the harmonisation of ICT professional certification must be based on an umbrella approach that allows different certification systems to co-exist and to be cross-referenced in a reference framework.

As the certification market is led by the major ICT vendors, the harmonisation effort must establish goals that are acceptable to these stakeholders and enable them to benefit from the emerging standards, and to invest in them.

In summary, an international profession requires three major elements:



- a common language for describing professional skills and competences;
- a standard means of measurement for professional skills and competences; and
- a mechanism for independent recognition and quality assurance of those professional skills and competences.

ICT professional certification will contribute to these developments, and should be seen as an essential element in the establishment of ICT internationally as a professional discipline.

Quality standards

The project team discovered that Quality standards and accreditation are among the most important aspects of a harmonised European approach to certification.

The harmonisation process should review existing quality approaches, and record their scope and objectives, and how they are applied. Normative documents should be collected and aggregated into a comprehensive knowledge base that categorises and aligns the available information in the different areas of activity.

To meet the needs of ICT professionalism and the standards required by the business community, continuous professional development must be facilitated. Individuals must be able to combine certifications from different suppliers, and to complement existing qualifications with new ones. This will work only if quality assurance processes are transparent.

Today, different ICT certification schemes emphasise quality assurance in different ways. Harmonisation needs to address quality at three levels:

- organisational;
- awarding body; and
- training delivery.

The harmonisation process should examine these three levels as a priority, and adopt agreed quality approaches in the field of education and training.

Transparency and visibility

As the market for training becomes more learner-centred, with the requirement for more varied and flexible learning opportunities, the contents of certification programmes must be made more transparent. Industry stakeholders endorse a coherent system in which public qualifications and vendor certifications are mutually recognised, and which supports individual professional development. An important step in this direction is the forthcoming European e-Competence Framework, currently under development by the CEN/ISSS Workshop in ICT Skills.

The ability to combine learning content, modules and examinations according to the individual's preferences demands a common language, coherence and alignment of standards (such as the award of credits for learning time), and the opening up of systems to make them more transparent and their content more visible to learners and courseware developers. Individuals should be able to acquire relevant competences,



knowledge and skills in whatever way suits them best, and to have them certified independent of how they were acquired.

Customers such as public organisations are increasingly interested in vendor-independent certification, as long as the products combine vendor-specific content with vendor-neutral content and, increasingly, business and soft skills.

Emerging European Frameworks

The emergence of European frameworks such as the EQF (European Qualifications Framework) and ECTS (European Credit Transfer System) means that the harmonised certification system should be aligned with these frameworks.

Continuous professional development of ICT professionals in a harmonised system will require common agreed reference points, a system for awarding credits for learning modules and achievements, and agreed accreditation procedures with strict objectivity and broadly recognised quality standards.

To integrate different programmes from different providers, there is a need for agreed principles, concepts, tools and methodologies. Harmonisation will depend on establishing an agreed framework for recognising, integrating and combining content from different certification providers.

Network of Interest

The Harmonise project has succeeded in establishing a network of interest and links with the major ICT vendors. This has already raised awareness among stakeholders and promoted the need for harmonisation of ICT professional certification.

The project established links to other projects and existing European groups working in related areas that had the potential to support the work of the project. It participated actively in a number of European working groups, such as the CEN/ISSS Workshop on ICT-Skills, and the European e-Skills Forum and its current follow-up activities, as well as liaising with the e-Skills Competence Consortium. The aim was to influence ongoing developments, to inform stakeholders and the expert community about the project and its potential outcome, and to acquire inputs needed for the performance of the project's tasks. This network of interest will be used to sustain the work of the project and to implement the required changes in the area of ICT professional certification.

Quality Management Board and Working Group

The Harmonise working group, which includes invited field experts with the necessary experience and background, reviewed and analysed the studies of the four specific areas continuously as they developed.

In addition, the project was monitored and supported by a quality management board, also consisting of field experts with the required professional background.

The project management board reviewed internal and external documents at regular intervals, as well as all deliverables produced by the project according to the project plan.