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EUCIP
European Certification of
Informatics Professionals

6° IT Star WS on Digital Security

Topic II-Research and Education in Information Security

CEPIS Survey of Professional e-Competence in Europe

The Information Security Job Profile

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EUCIP
European Certification of
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European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

European e-Competence Framework (e-CF)

A benchmark from the ICT business employers' perspective consisting of ICT practitioner and manager competences, aligned to the EQF, structured as needed and applied on the workplace, and intended to assist transparency and mobility in the EU labor market.

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e-CF Developments: e-CF as the de-facto system for interoperability of available competence models and standards.

EUCIP (European Certification of Informatics Professionals) SFIA models (Skills Framework for the Information Age), AITTS (Arbeitsprozessorientierte IT-Weiterbildung), Nomenclature 2005 CIGREF (Club Informatique des Grandes Entreprises Françaises) and other.

CEPIS: Competences and Professionalism

- the development of the professionalism is based on 2 main basic components
  - technical and behavioural competencies (syllabus)
  - ethical rules supporting integrity, responsibility and accountability of professional and manager

- On the theme of competences and professionalism development acts the following stakeholders with different roles:
  - Schools, Universities and Professional and Managerial training societies are the reference for the development and the update of the technical, behavioural end relational competencies.
  - The companies of the ICT supply-side, in particular the multinationals, act an important role for the innovation and the technological update
  - The companies of the ICT demand-side (Banks & Insurance, Public Administration, Commerce, Services, etc.) act an important role for their business innovation enhanced and supported **also** by digital technology
  - The associations are a reference for the acknowledgement of the competence profile and of its value, as well as the government of the ethic features.

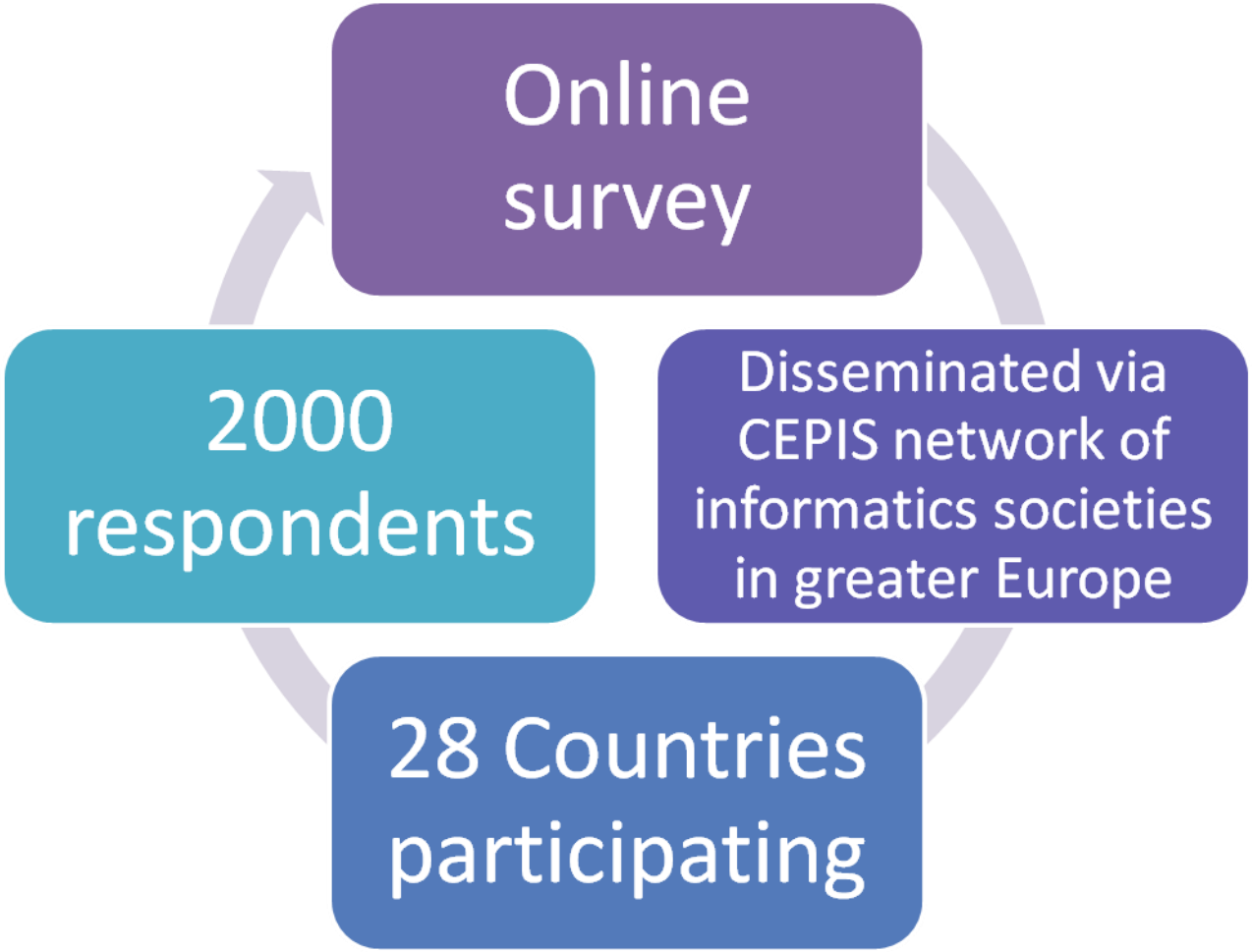
In this context the CEPIS Standard e-CF based, will cover in particular the technical competencies specific of each one of the job profiles which is recognized by the market.

What, as AICA, we learned through EUCIP and ECDL on enhancing the value of a Standard

It depends from

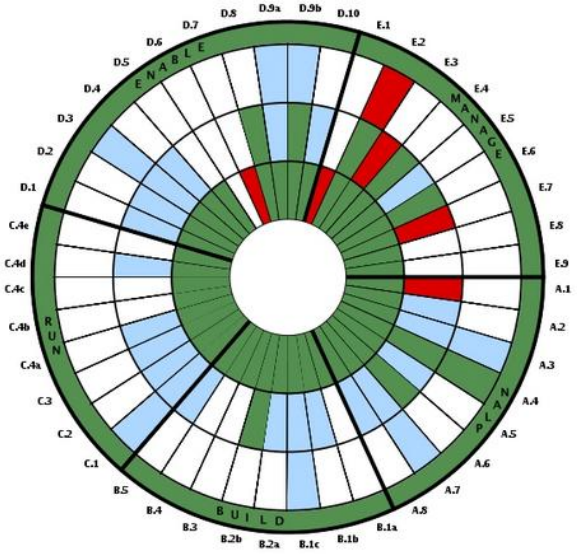
- The tools used to manage the basic syllabus to which refer
- The types and number of organizations and institutions that share the standard in order to make it have a diffuse application:
  - Schools and Universities
  - ICT and NON ICT companies (supply and demand side)
  - Public and Government organizations
  - Trade unions
  - Enterprise associations (banks, insurances, industries, commerce, services, ..)
  - Public funds for training financing
  - .....

Council of European Professional Informatics Societies



Methodology and Survey Approach
Three types of results

Personal Results: 1918 individual assessment



The chosen profile is "IT Project Manager" with a proximity index of **88.56%**

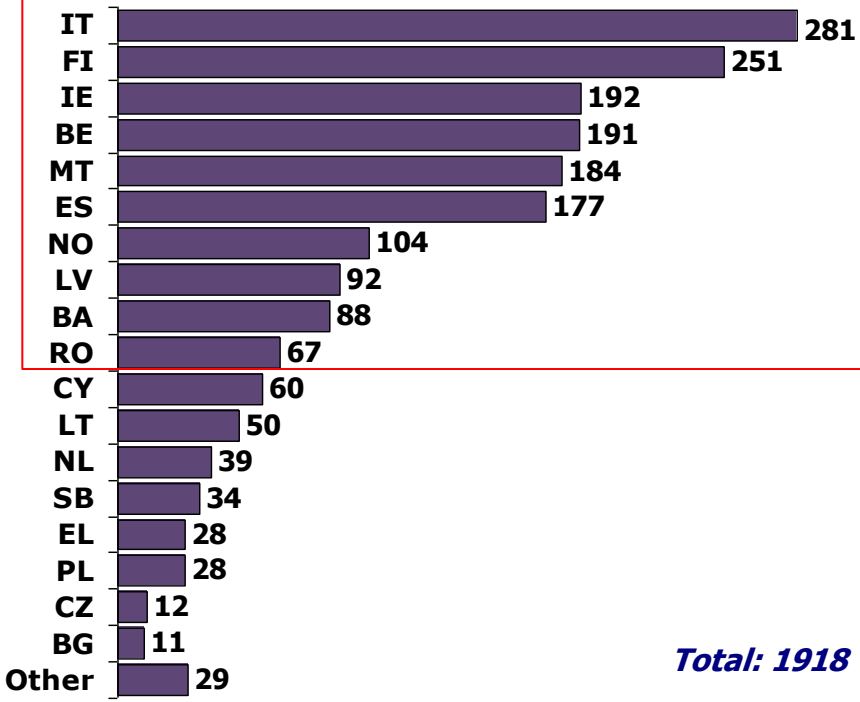
The graphics shows, in the spaces between the internal and the external circles, the average level of competence possession for the represented professiona profile.

The green areas represent the competences required by the profile that you have.

The red areas represent the competences required by the profile to which you have a deficiency

The blue areas represent the competences that you have but that are not required by the profile.

Aggregated Results: 7 (100+ responses) **and 3** (50+responses) **Country Reports**



Total: 1918

1 European Report, based on the analysis of 1918 respondents by country

CEPIS Survey of Professional e-Competence in Europe

Welcome Fiona Fanning

The Questionnaire

To complete the questionnaire, please choose your current skill level, regardless of how or when you acquired the skill and without taking into account what is required by your current role or any job profile to which you aspire.

Evaluation Scale:
- None = Almost no knowledge of the subject.
- Basic = Knowledge of the principle concepts without in-depth analysis or experience.
- Intermediate = Knowledge of the concepts and application capabilities together with direct experience.
- Advanced = Complete and in-depth understanding of the concepts and application competence provided by extensive and still relevant experience.

By pressing the 'magnifying glass' beside the category title of each competence you can open a window showing examples of the knowledge and skills associated with that competence.
If you make some mistakes during questionnaire completion, click on the 'Undo' button and the values will be reset to their last saved state, as shown on the questionnaire by the dark gray boxes.
Once you have completed all questions, click the button 'View personal results'.
We suggest that you click the 'Save' button regularly to avoid losing any completed data.

http://ecompetence.cepis.org/

Modify personal information | Undo | Export to pdf | Save

A-Plan	None	Basic	Intermediate	Advanced
A.1-IS and Business Strategy Alignment Anticipates long term business requirements and determines the IS model in line with organisation policy. Makes strategic IS policy decisions for the enterprise, including sourcing strategies.	○	○	○	○
A.2-Service Level Management Defines, validates and makes applicable service level agreements (SLA) and underpinning contracts for services offered. Negotiates service performance levels taking into account the needs and capacity of customers and business.	○	○	○	○
A.3-Business Plan Development Addresses the design and structure of a business or product plan including the identification of alternative approaches as well as return on investment propositions. Considers the possible and applicable sourcing models. Presents cost benefit	○	○	○	○

Interprets market needs and evaluates market acceptance of products or services. Assesses the organisations potential to meet future productio[illegible] production, marketing

E.2-Project a
Implements plans f[illegible] and management of i[illegible] processes to meet ide[illegible] interfaces and budget[illegible] budget and in accorda[illegible] progress.

E.3-Risk Man
Implements the ma[illegible] management policy a[illegible] containment plans.

E.4-Relations
Establishes and mai[illegible] and complying with or[illegible] needs through empat[illegible] /supplier needs, conc[illegible]

E.5-Process
Measures effectiven[illegible] sources. Follows a sys[illegible] measurable business

E.6-ICT Qual
Implements ICT qu[illegible] manage quality with r[illegible] influence continuous quality improvement.

E.8 - Information Security Management

Implements information security policy. Monitors and takes action against intrusion, fraud and security breaches or leaks. Ensures that security risks are analysed and managed with respect to enterprise data and information. Reviews security incidents and makes recommendations for continuous security enhancement.

Knowledge

- the organisations security management policy and its implications for engagement with customers, suppliers and subcontractors
- the best practices and standards in information security management
- the critical risks for information security management
- the IS internal audit approach

Skill

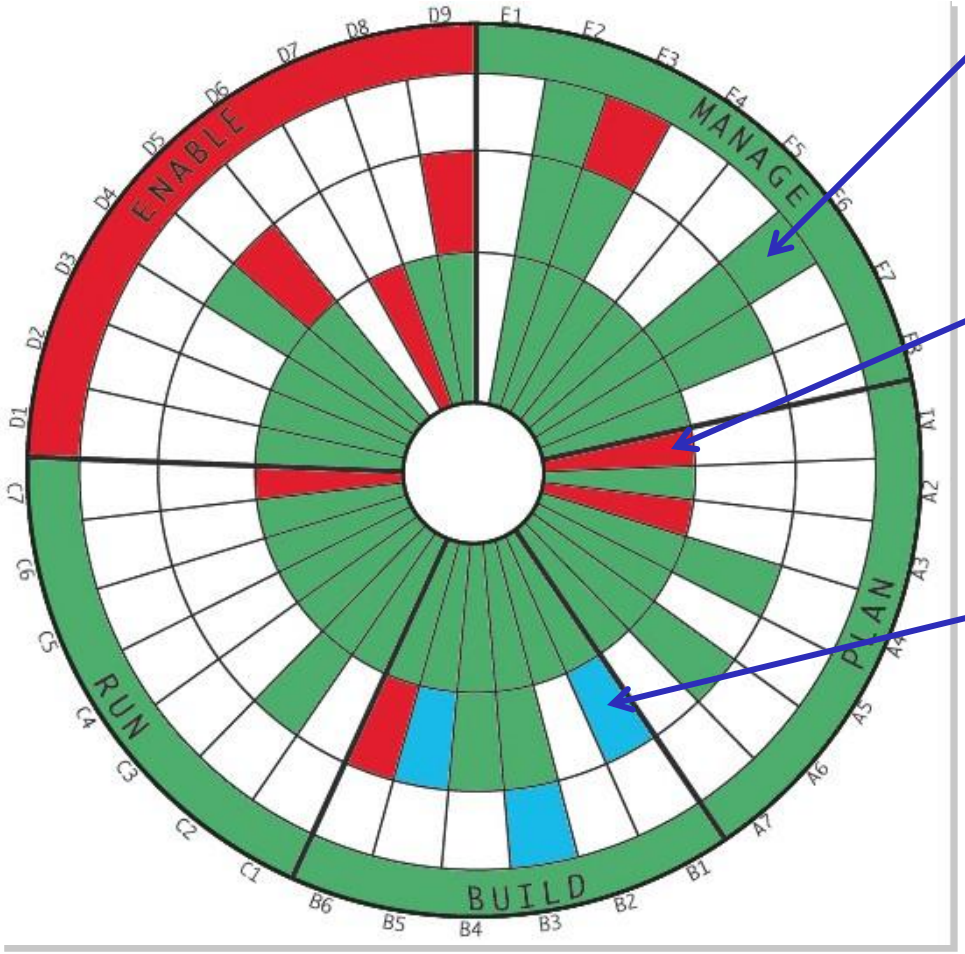
- document the information security management policy, linking it to business strategy
- analyse the company critical assets and identify weaknesses and vulnerability to intrusion or attack
- establish a risk management plan to feed and produce preventative action plans
- perform security audits

E.7-Business Change Management
Assesses the implications of new IT solutions. Defines the requirements and quantifies the business benefits. Manages the deployment of change taking into account structural and cultural issues. Maintains business and process continuity throughout change, monitoring the impact, taking any required remedial action and refining approach

E.8-Information Security Management
Implements information security policy. Monitors and takes action against intrusion, fraud and security breaches or leaks. Ensures that security risks are analysed and managed with respect to enterprise data and information. Reviews security incidents and makes recommendations for continuous security enhancement.

E.9-IT Governance
Defines, deploys and controls the management of information systems in line with business imperatives. Takes into account all internal and external parameters such as legislation and industry standard compliance to influence risk management and resource deployment to achieve balanced business benefit.

Personal Report

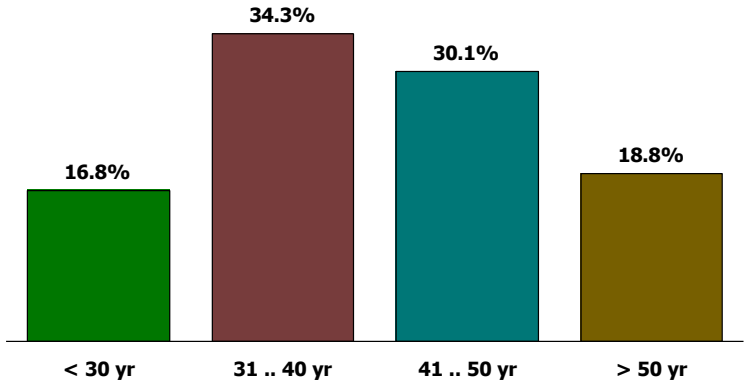


Competences required by the represented profile

Competence required by the profile but where respondent has deficiency

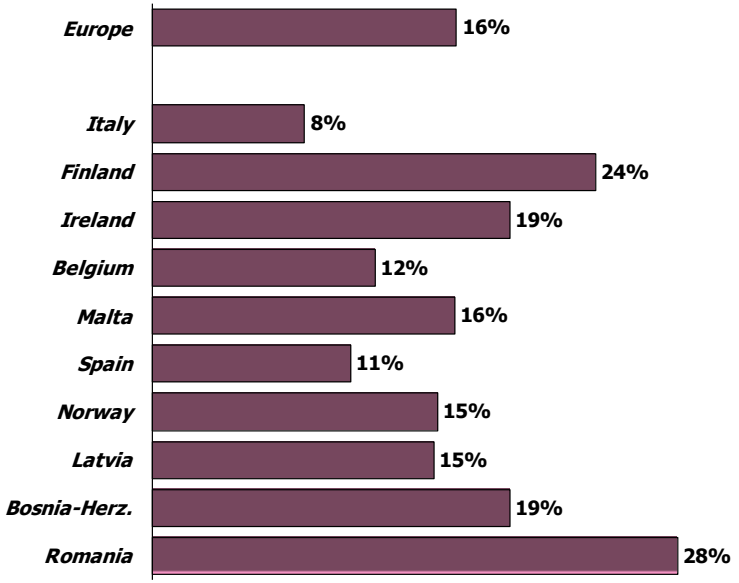
Competences that exceed those required by the profile

Professional e-Competence in Europe



AGE

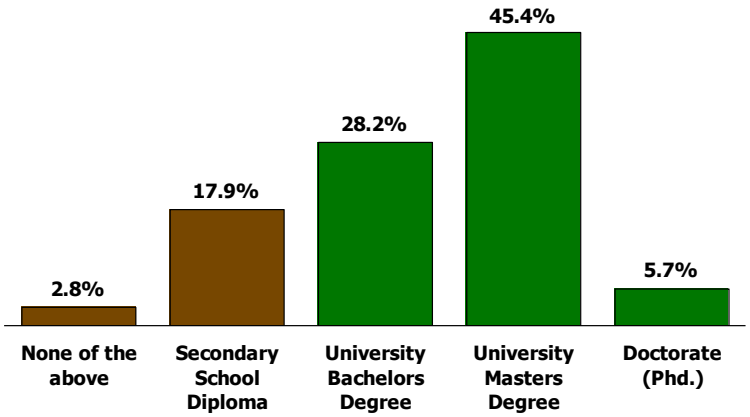
Number of professionals under 30 very low – confirms anticipated shortages



Gender

- Average of 16% are female. Lowest in Italy at 8%.
- Some profiles have 0 female representation

Professional e-Competence in Europe

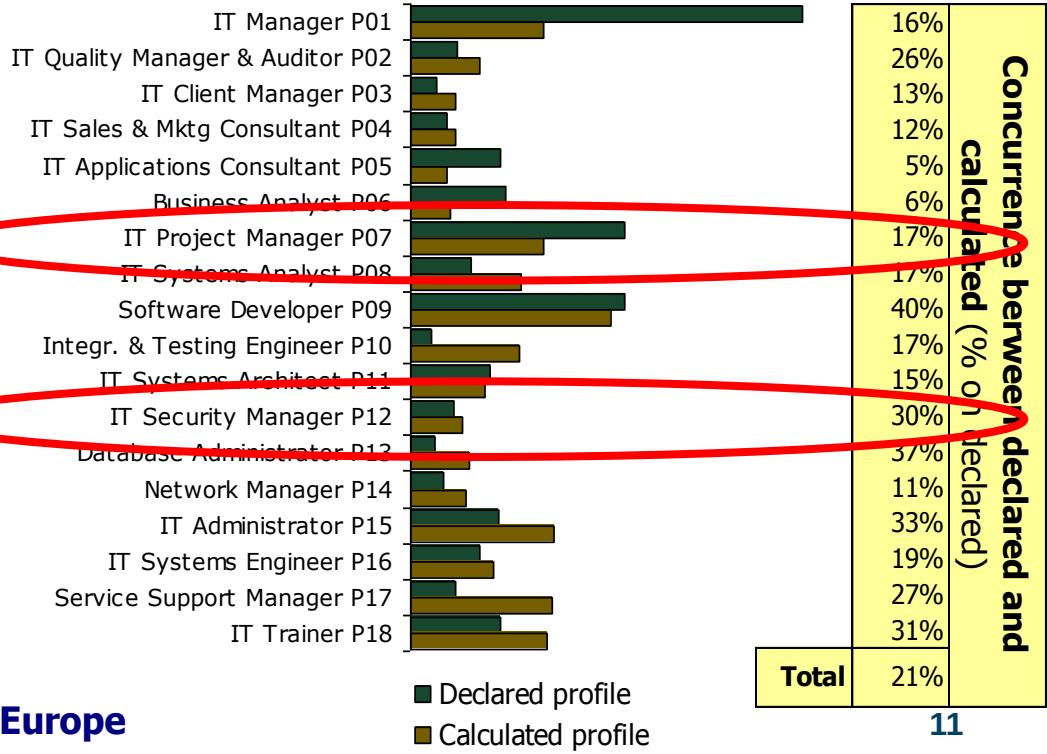


Education

- More than half of respondents (51.1%) having either a Master or a PhD qualification
- But not in IT!

Profiles

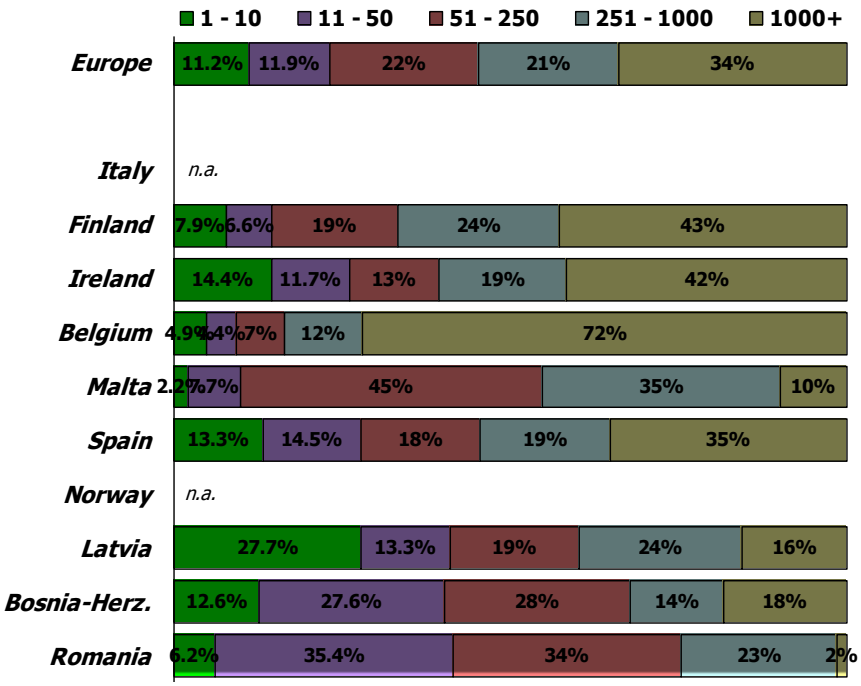
Some notable differences between the stated and calculated profiles



Professional e-Competence in Europe

Profile Distribution

- By educational level: 80% with university degree
- By IT education: 64% main focus
- By IT industry: 50%
- By enterprise size: 13% in micro, 54% in the large

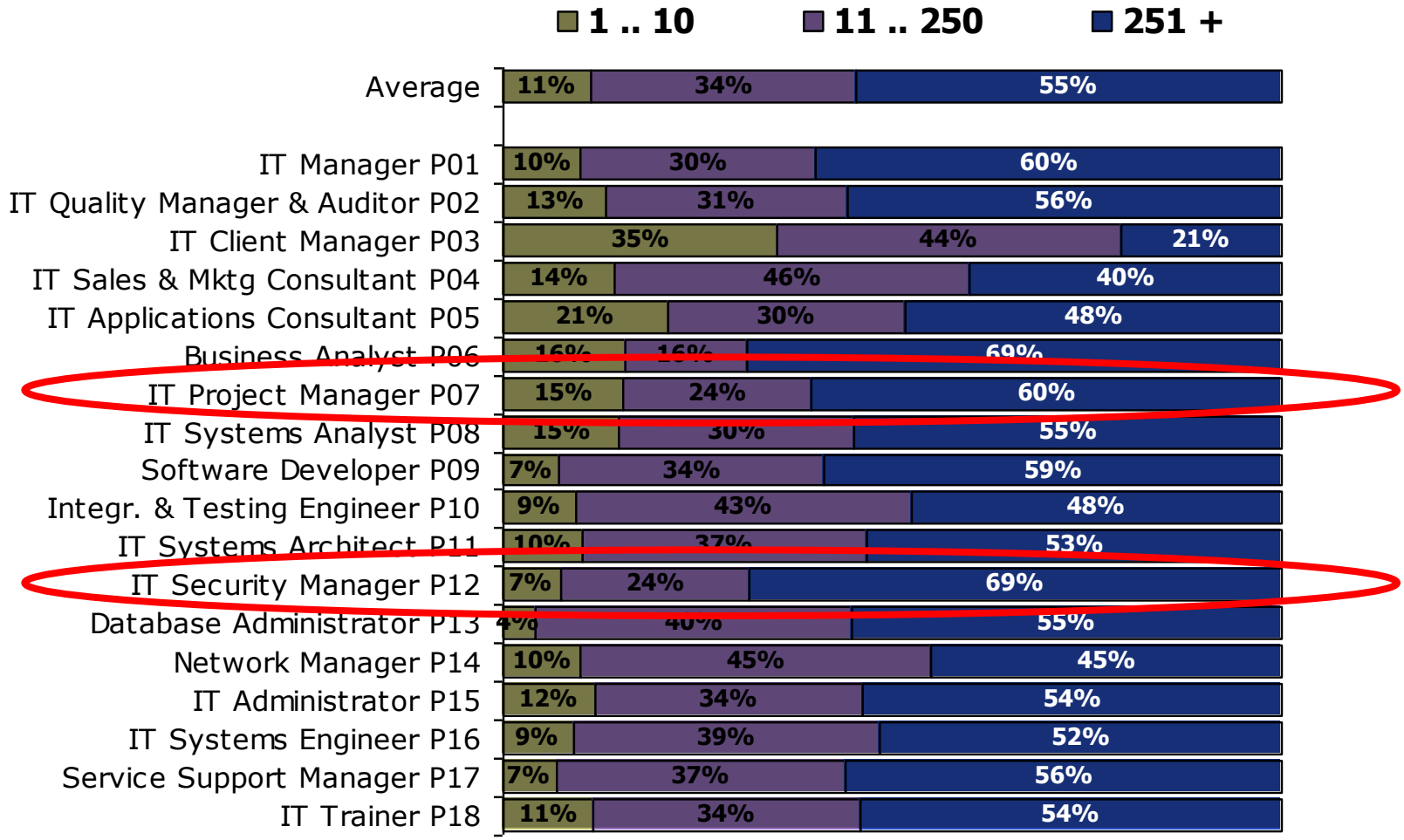


KI distribution

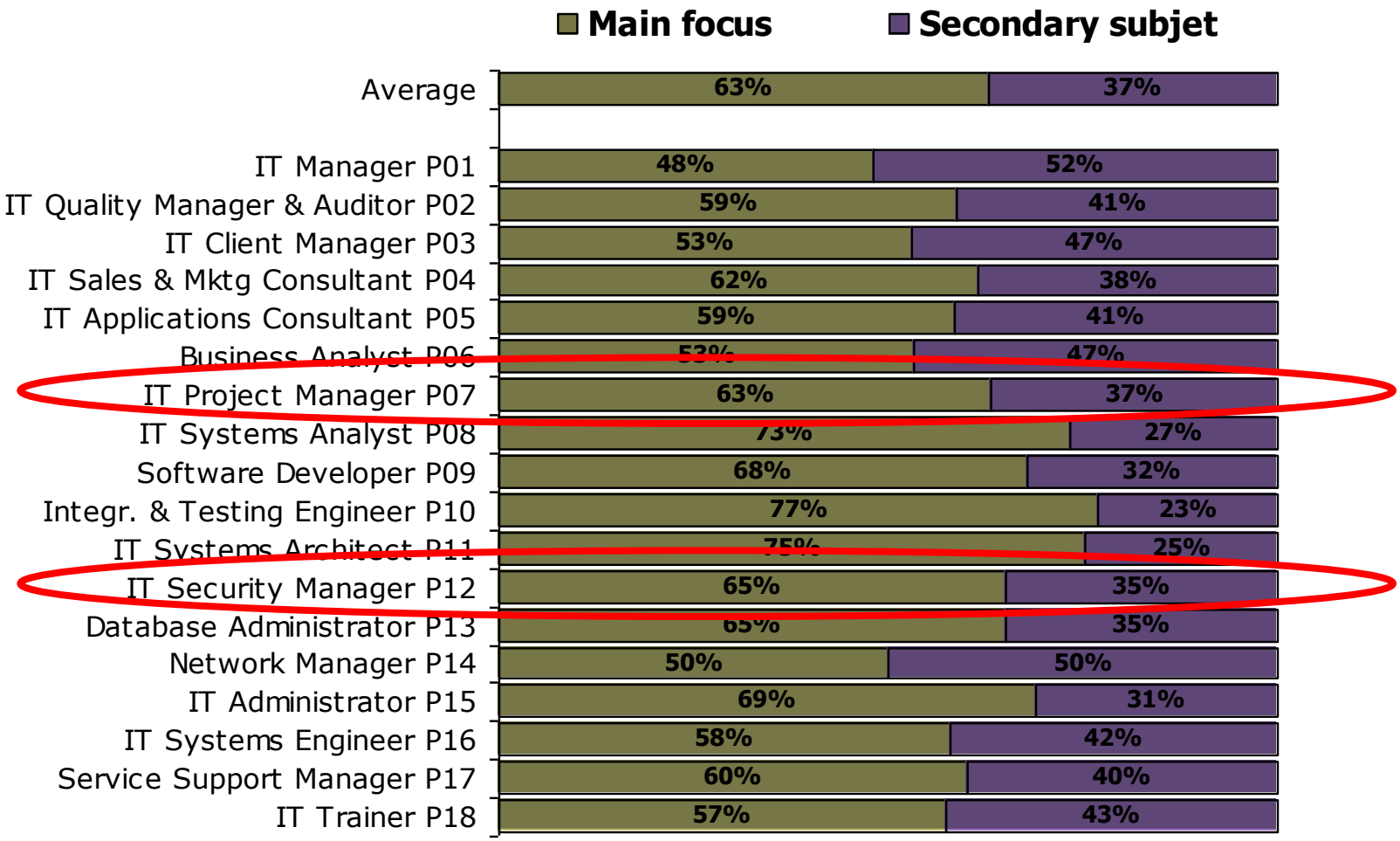
- plan 1,66 and build 1,67 and run 1,68 out of 3,0: to be improved
- enable 1,38: a lot to do
- manage 1,51: again a lot to do

Analysis of Calculated IT Profile Clusters

Profile Distribution by Enterprise Size



Profile Distribution by IT-focused Education

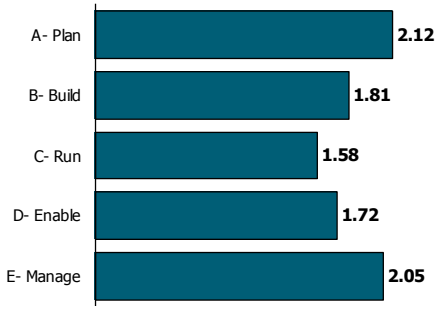


Proximity Profiles
Detail of IT Project Manager

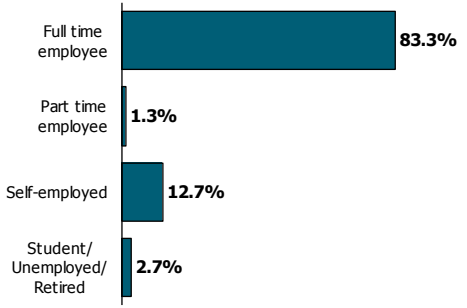
IT Project Manager

Base: 179 respondents

Knowledge index

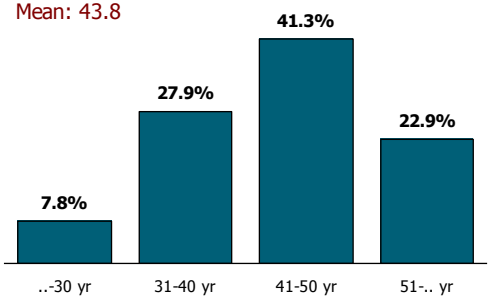


Professional status

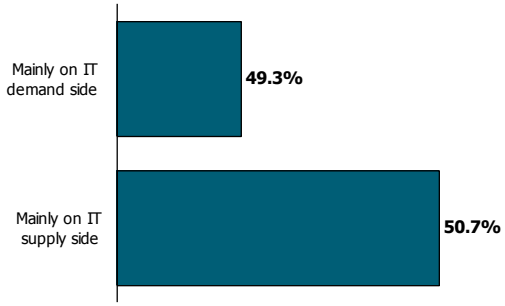


Age

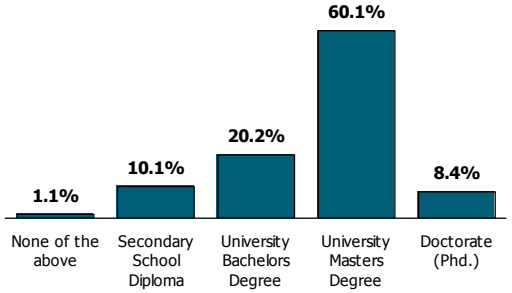
Mean: 43.8



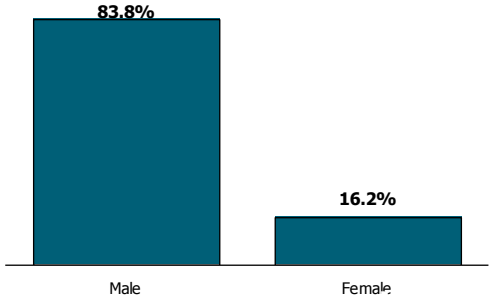
Industry sector



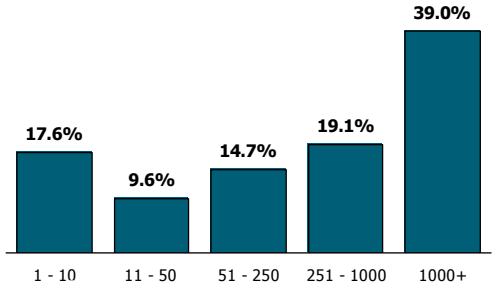
Educational level



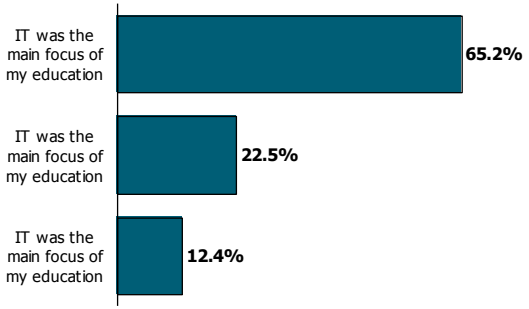
Gender



Enterprise size



IT Education



Proximity Profiles - detail of

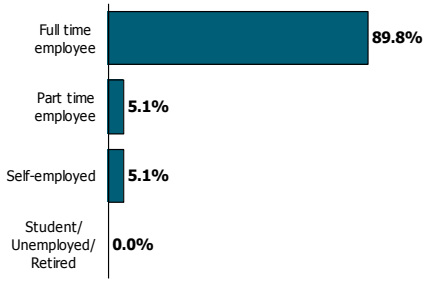
IT Security Manager

IT Security Manager

Europe

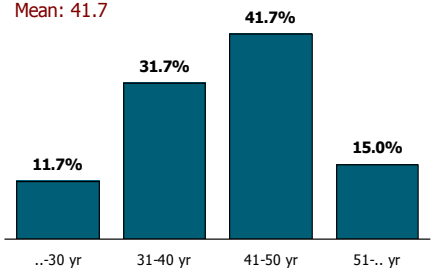
Base: 60 respondents

Professional status

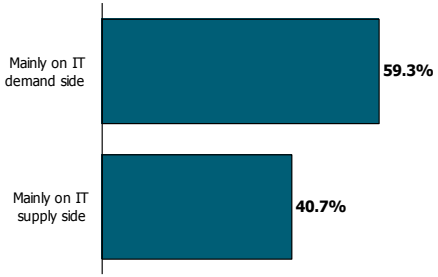


Age

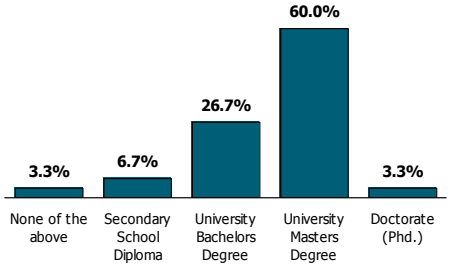
Mean: 41.7



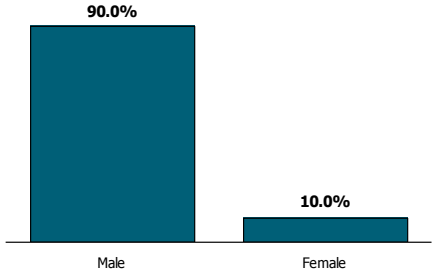
Industry sector



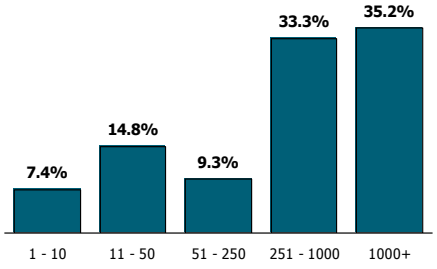
Educational level



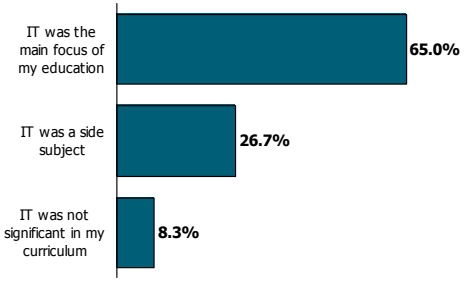
Gender



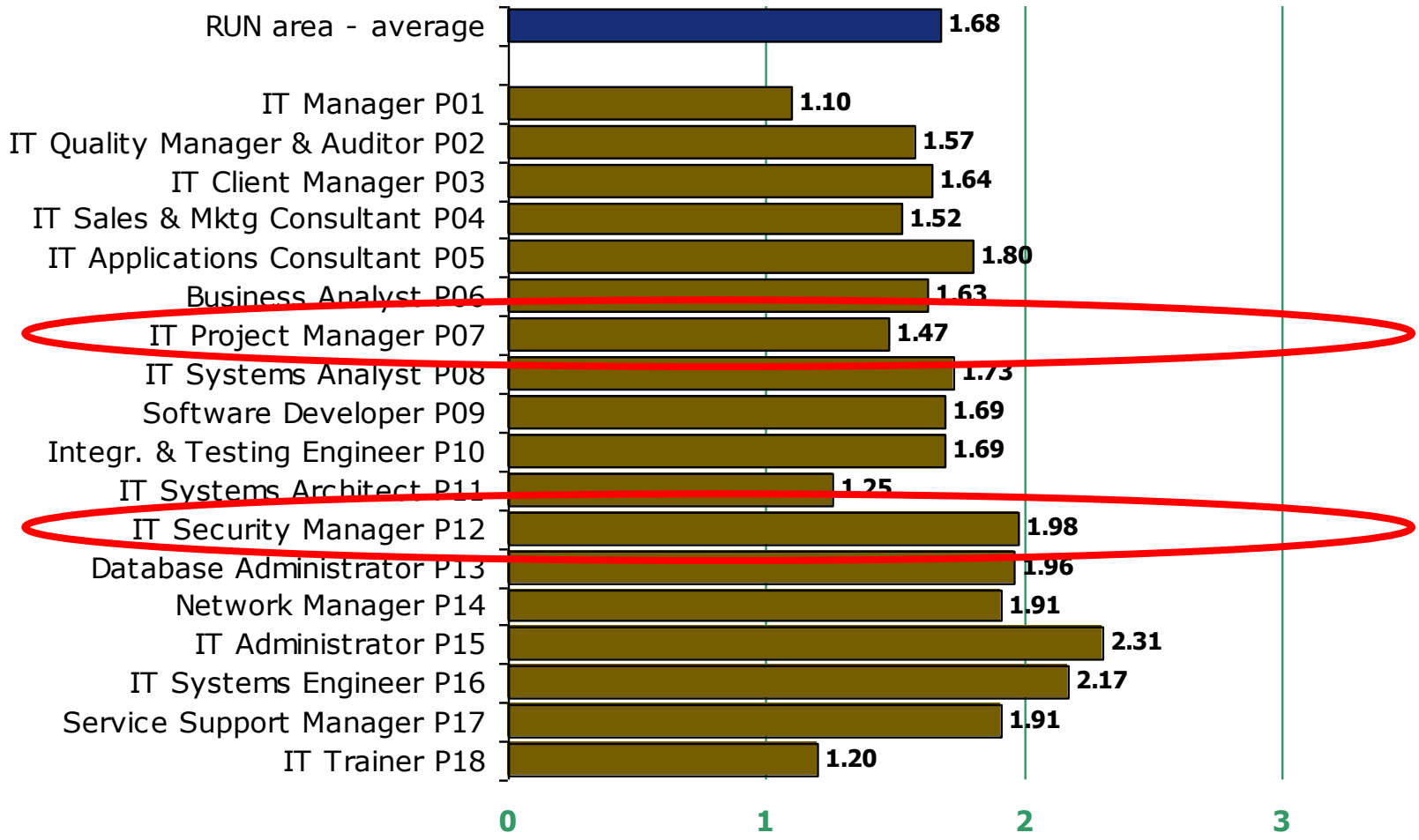
Enterprise size



IT Education



IT Competence – Knowledge Index - RUN



DIGITAL FORENSIC SPECIAL SKILLS (Mastronardi)

This expert requires special skills, in particular to conduct the following investigative jobs:

- crime of forgery (reconstructed on the basis of digital documents)
- violation of the personal data processing rules in a corporate
- legal protection of corporate data base
- contracts for the supply of services
- damages for defects of management software
- contracts for marketing and distributing software
- challenge procedures, dispute resolution and reassignment of the domain name in case of unfair competition among entrepreneurs
- responsibilities of the Registration Authority, the use of an inhibitory site, the provider's responsibility, liability of the maintainer
- privacy and minimum measures of security for personal data in public and private health activities, free professional company to produce goods and/or services
- offenses of possession and dissemination of pedo-pornography
- offenses relating to the phenomenon of the "phishing"
- terrorism.

Is it possible to create a new e-competence compliant profile ?

CEPIS Survey Recommendations

1. **Career paths with defined training and education requirements are needed**
   - Almost half of respondents did not have IT as the main education focus.
   - Large number of respondents failed to match the e-competences needed for their declared job profiles.
   - Defined career paths and training for IT roles could help in producing a new generation of IT professionals with the right skills.

2. **The e-CF should be applied as a pan-European reference tool to categorise competences and identify competence gaps. It has become clear that the e-CF is a practical reference tool and it should be further disseminated across Europe.**
   - Whilst applying the e-CF, it became apparent that it is a practical reference tool with value in categorising and defining IT competences.
   - It should be continually developed and disseminated across Europe.
   - The findings from this research may help the CEN Workshop on ICT Skills to further refine the job profiles.
   - The three identified competence clusters can help identify and improve low competence levels in a given area.

Conclusions: the Labor Market to which Cepis will refer

- new graduates from Schools and Universities, reached through teachers and professors

- Specialists (professional and manager) as individuals which work for and in the companies of the ICT supply side and in the companies of the ICT demand side (NON ICT Companies and Public Administration organizations) of every sector and dimension;

- ICT Demand side Organization's Responsible: Information Systems Managers, Human Resources and Training Managers, Purchasing managers;

- ICT Supply side Company's Responsible: Business Managers, Human Resources and Training Managers.

Conclusions: the Services foreseen to serve many stakeholder needs

- **Professional services on behalf of individual specialists:**
  - competence assessment and recognition of the proximity profile
  - competence gap analysis to be covered
  - personalized design of learning paths and monitoring,
  - support to identify the strengths and weaknesses of the individual professional career position
  - ……

- **Business services on behalf of HR & ICT Departments' needs**
  - IT-skills inventory for the company
  - recruit the right resources for defined processes and projects
  - design and monitor learning paths focused on the gap of competences of the employed specialist
  - deploy certification's path
  - ……..

The model of continuous learning

Individual professional career development

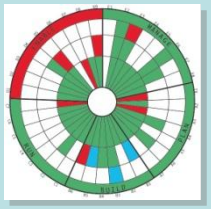
Practitioners (operators, professionals)

Teachers of School and e University

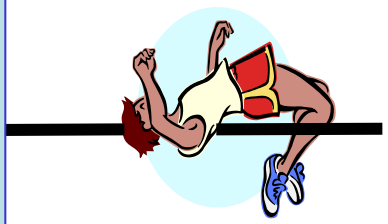
Work experience

High Education

Assessments and measures



Vendor independent



Certification

Entering in the Labor Market

Students e new graduates

Technological up-dating

Business Performace Improvement

Entrepreneurs

Managers

Authonomous Professionals

Professional e-Competence in Europe

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Thank you

Roberto Bellini