

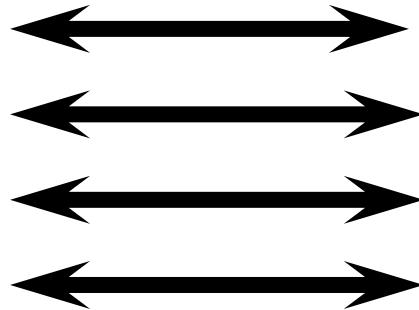
Chapter 3B. ICT professionals, competences and certifications

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- ▶ The starting point
 - ▶ Core competences
 - ▶ Peter Principle
- ▶ About competences
- ▶ Computer profiles
 - ▶ Requirements for employment in New Information and Communication Technologies IN SPAIN
 - ▶ The EUCIP certification programme
 - ▶ European Competence Profiles in e-Content Professions
 - ▶ European e-Competence Framework (e – CF)
 - ▶ New career profiles

The starting point



- ▶ **The company:**
 - ▶ Has a clear mission supported by “core competences”
 - ▶ Formulates objectives.
- ▶ Work is necessary to achieve the objectives.
 - ▶ The jobs require capable and competent people.
- ▶ **Employees (Human Resources)** contribute with:
 - ▶ Personal characteristics
 - ▶ Physical
 - ▶ Psychological
 - ▶ Competences
 - ▶ Training
 - ▶ Experience

Core competences

- ▶ Some large firms identify “core competences” that **underpin the mission of the firm** (e.g., design, price, technology, ...).
- ▶ Core competences are those capabilities that are critical to a business achieving **competitive advantage**.
- ▶ Key ability or strength that an organisation has acquired that differentiates it from others, gives it **competitive advantage**, and contributes to its long-term success.

Competences in dynamic markets

- ▶ Competences can be determined by analyzing previous (good) results.
- ▶ In dynamic environments, companies tend to question their own competences and consequently whether their employees need to change.
 - ▶ **When do existing competences become obsolete?**
 - ▶ **Which competences are those that enable us to compete harder?**
- ▶ This leads us to consider:
 - ▶ **How to adapt the workforce to the current or planned situation?**
- ▶ As a consequence, we talk about **lifelong training**.

The Evolution of Communication

- ▶ This cartoon by Mike Keefe from the Denver Post should provoke some discussion!



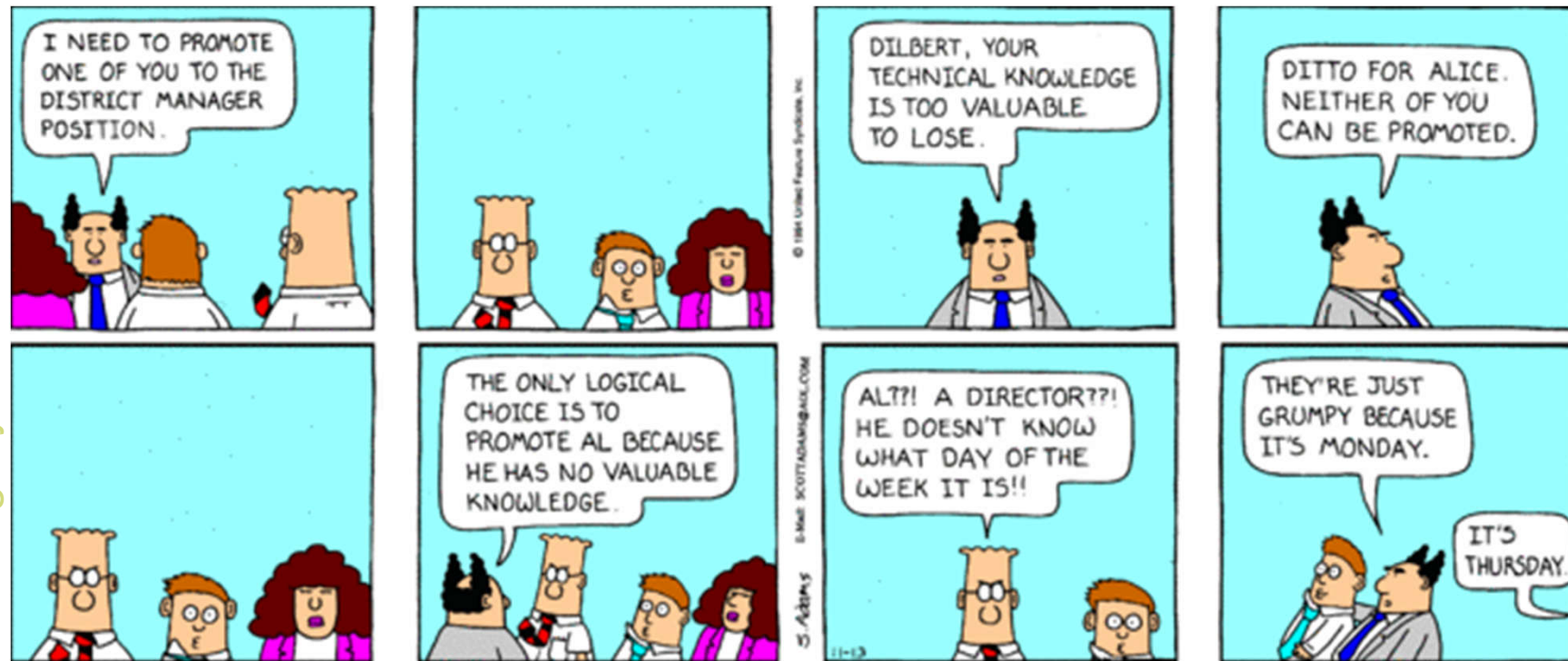
Internal promotion

- ▶ In many cases, **internal promotion** of employees is preferred for new jobs or vacancies.
 - ▶ **Advantages**
 - ▶ Very useful system to keep employees motivated
 - ▶ Maintain a healthy perspective that this can boost your professional career
 - ▶ **Disadvantages**
 - ▶ Competences may change and the person may not be able to handle the new job.
 - ▶ The competences which are good at this level are not always good at another.

Peter Principle

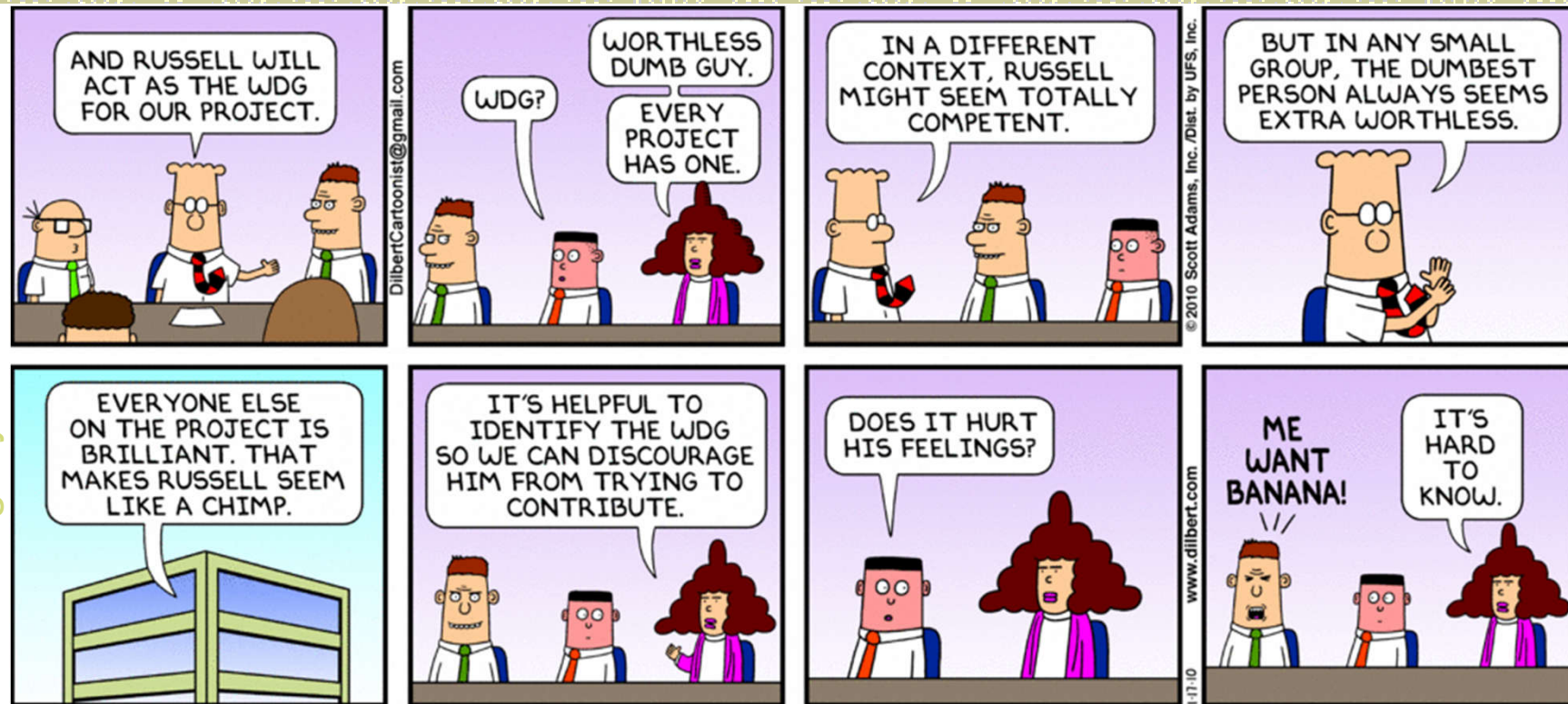
- ▶ **In a Hierarchy Every Employee Tends to Rise to His Level of Incompetence.**
 - ▶ The theory that employees within an organization will advance to their highest level of competence and then be promoted to and remain at a level at which they are incompetent.
- ▶ Basically it states that generally speaking incompetent workers will be promoted above competent workers to managerial positions where they thus don't have to do any real work and the damage they do can be limited.
 - ▶ Scott Adams, the author of the comic Dilbert wrote an entire book dedicated to how promotion has changed from the Peter Principle to his coinage **The Dilbert Principle**, in other words, instead of people getting promoted to their lowest level of competence, any and all incompetent employees are placed in the one place where they can do the least damage: Management.

Beyond the Peter Principle



- ▶ <http://www.dilbert.com/> (November 13, 1994)
- ▶ Inadequate promotion may discourage the rest of the team.
- ▶ A rating system for promotion would be fine.

Counterpoint to the Peter Principle



- ▶ <http://search.dilbert.com/comic/Competency> (January 17, 2010)
- ▶ Organizations need new staff, and these people are potentially incompetent.
- ▶ Actually this is a unique opportunity for new ones.
 - ▶ Do not let it pass by!

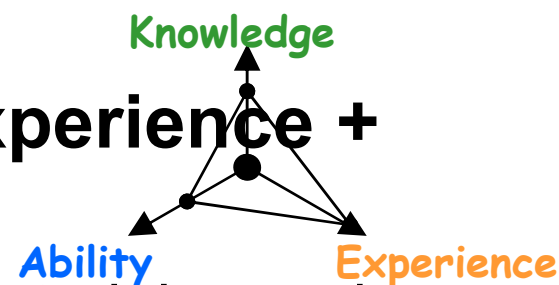
About competences

- ▶ Ambiguous term?
- ▶ **Definition of competence**
 - ▶ The ability to do something successfully or efficiently
 - ▶ The legal authority of a court or other body to deal with a particular matter
- ▶ Which competences should ICT professionals have?



Competence

- ▶ The ability to do something successfully or efficiently
 - ▶ He knows -> He is able to do (effectiveness and efficiency)
- ▶ **Competence = Knowledge + experience + ability**
 - ▶ **Knowledge** comprises a co-worker's training and qualifications.
 - ▶ **Experience** is framed by time and work content.
 - ▶ **Ability** refers to the capacity to utilize knowledge and experience to solve problems.



Competence

- ▶ **Will** is sometimes emphasized in definitions of competence.
- ▶ The concept of competence is also often referred to as:
 - ▶ **Motivation**
 - ▶ A reason or reasons for acting or behaving in a particular way
 - ▶ Desire or willingness to do something; enthusiasm
 - ▶ **Attitude**
 - ▶ A settled way of thinking or feeling about something
 - ▶ **Potential**
 - ▶ Latent qualities or abilities that may be developed and lead to future success or usefulness
 - ▶ The possibility of something happening or of someone doing something in the future

Competence dimensions

▶ Technical dimension

- ▶ Knows the work to be done and is very experienced

▶ Collaborative dimension

- ▶ Knows how to collaborate with others
- ▶ Facilitates coordination among members

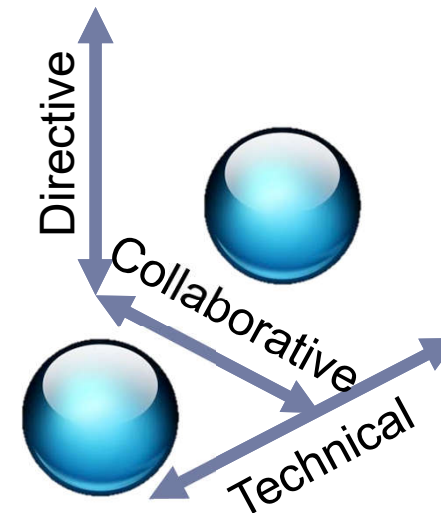
▶ Directive dimension

▶ Personal

- ▶ Feels motivated

▶ Teams – groups

- ▶ Leads
- ▶ Manages the strategy
- ▶ Manages the work
- ▶ Solves problems



Competence in practice

- ▶ Given the extreme complexity of many of the characteristics that are required today, **discrimination** can occur at many levels of screening.
 - ▶ Everyone understands that some jobs are not for everyone.
 - ▶ A firefighter requires intense physical effort. But ...
- ▶ At the **corporate level** we talk about:
 - ▶ **Specific competences of the organisation**
 - ▶ In business organisation and organisational structure (products)
 - ▶ **Business-related competences**
 - ▶ Facilitate business (negotiation, sales, leadership, ...)
 - ▶ **Personal competences**
 - ▶ Place the employee in good position to do the job
 - ▶ Teamwork, good listener, delegate, effective communication, ...

Another classification of competences

- ▶ Nowadays it has become fashionable to classify competences into:
 - ▶ **Hard skills**
 - ▶ They are referring to the technical work developed.
 - ▶ For many years competences were focused on this area.
 - ▶ **Soft skills (Non-technical skills)**
 - ▶ They currently generate interest.
 - ▶ Skills related to emotional intelligence, collaboration, teamwork, leadership, decision making, ...
- ▶ The technical ones are high perishable, but not soft skills.
- ▶ **Crew Resource Management**, Barbara G. Kanki, Robert L. Helmreich, José M. Anca



Competence GAP Analysis

▶ What do we have (**now**) ↔ What do we need (**future**)

▶ A radar chart shows:

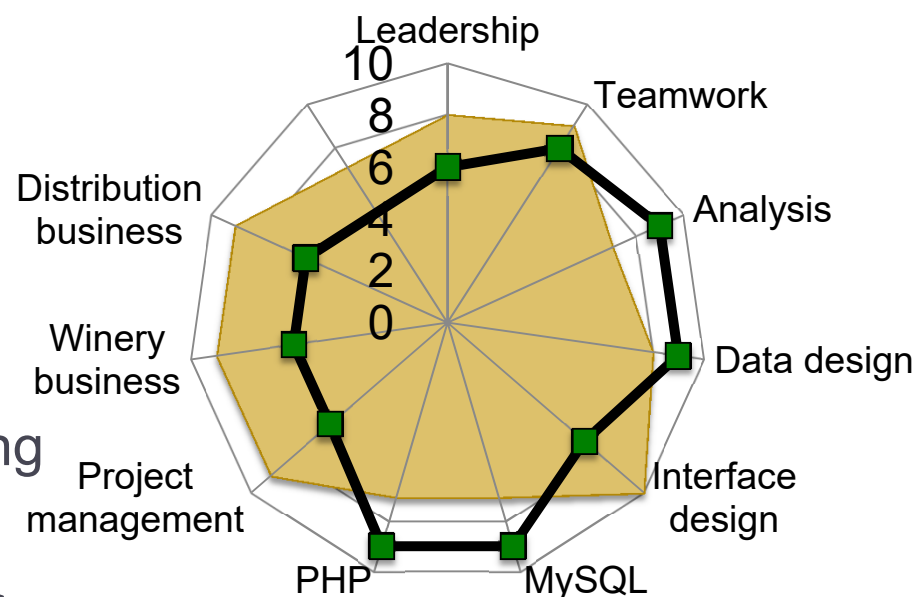
- ▶ Competences available
- ▶ Needs to be covered

▶ The analysis is to facilitate:

- ▶ Selection
- ▶ Identification of areas of training

▶ It may be for:

- ▶ Company and business sector
- ▶ Workers and company
- ▶ Workers and project
- ▶ Workers to promote



Requires Philip

Computer profiles

- ▶ Requirements for employment in New Information and Communication Technologies IN SPAIN
- ▶ **The EUCIP certification programme**
- ▶ European Competence Profiles in e-Content Professions
- ▶ **European e-Competence Framework (e-CF)**
- ▶ New career profiles

- ▶ Detailed analysis of requirements for applicants stated in job ads for graduates in Computing as published in the main Spanish newspapers as well as on specialised websites (2007)
- ▶ **Economic sectors for job ads**

Functional area	# profiles	% Profiles
Development	365	45,6%
Consultancy	124	15,5%
Systems	87	10,9%
Management	68	8,5%
Technicians	46	5,8%
Experts	38	4,8%

Requirements for employment in New Information and Communication Technologies **IN SPAIN**

► Number of positions offered by category

Sector	# Ads	% Ads
Computing/IT services	158	35,83%
Not known	44	9,98%
Industrial	26	5,90%
Computing/IT	26	5,90%
Finance	25	5,67%
Technology (aerospace, etc.)	23	5,22%
Consultancy	22	4,99%
Services in general	18	4,08%
Telco	17	3,85%
Health/pharma	13	2,95%
Building/engineering	11	2,49%
Editorial/media	10	2,27%
Retailing	9	2,04%
Transportation/logistics	7	1,59%



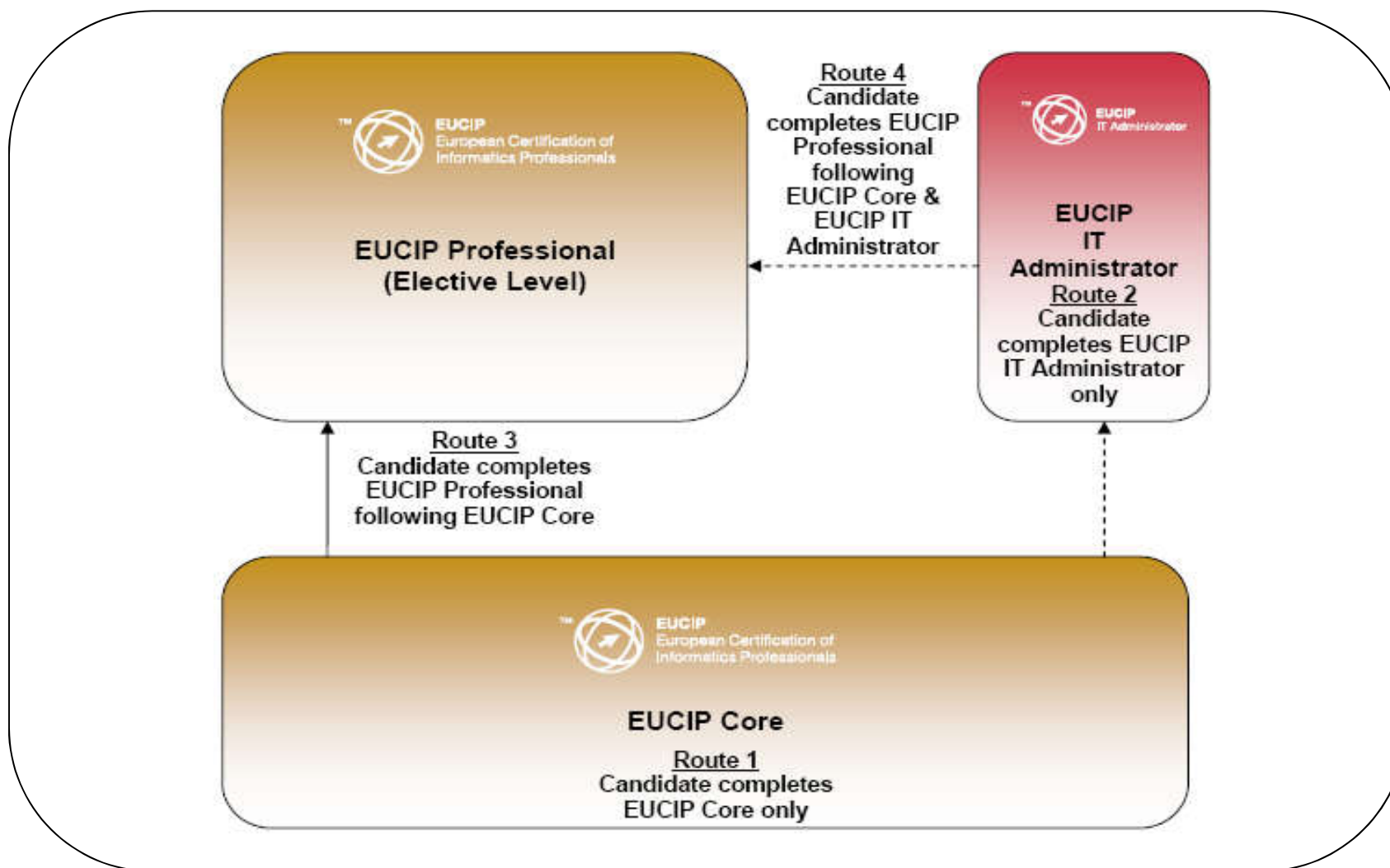
The **EUCIP** certification programme

- ▶ **EUCIP = European Certification of Informatics Professionals**
- ▶ EUCIP is a European qualification developed by CEPIS (**Council of European Informatics Societies**).
- ▶ Overall goals
 - ▶ Define an industry-driven vocational structure and standards for the informatics profession
 - ▶ Establish a sustainable European services network for informatics competence development
 - ▶ Contribute to closing the ICT professional skills gap in Europe
 - ▶ Offer a vehicle for life-long learning and competency enhancement for the ICT profession

Three certification programmes

- ▶ EUCIP covers a broad range of ICT knowledge on core topics relevant to all ICT practitioners.
 - ▶ **EUCIP Core**
 - ▶ An introductory-level three-part ICT professional certification
 - ▶ **EUCIP Professional**
 - ▶ Based around one of 21 different job profiles
 - ▶ **EUCIP IT Administrator**
 - ▶ A stand-alone certification focusing on the skills required by an IT administrator typically working for a small or medium-sized enterprise

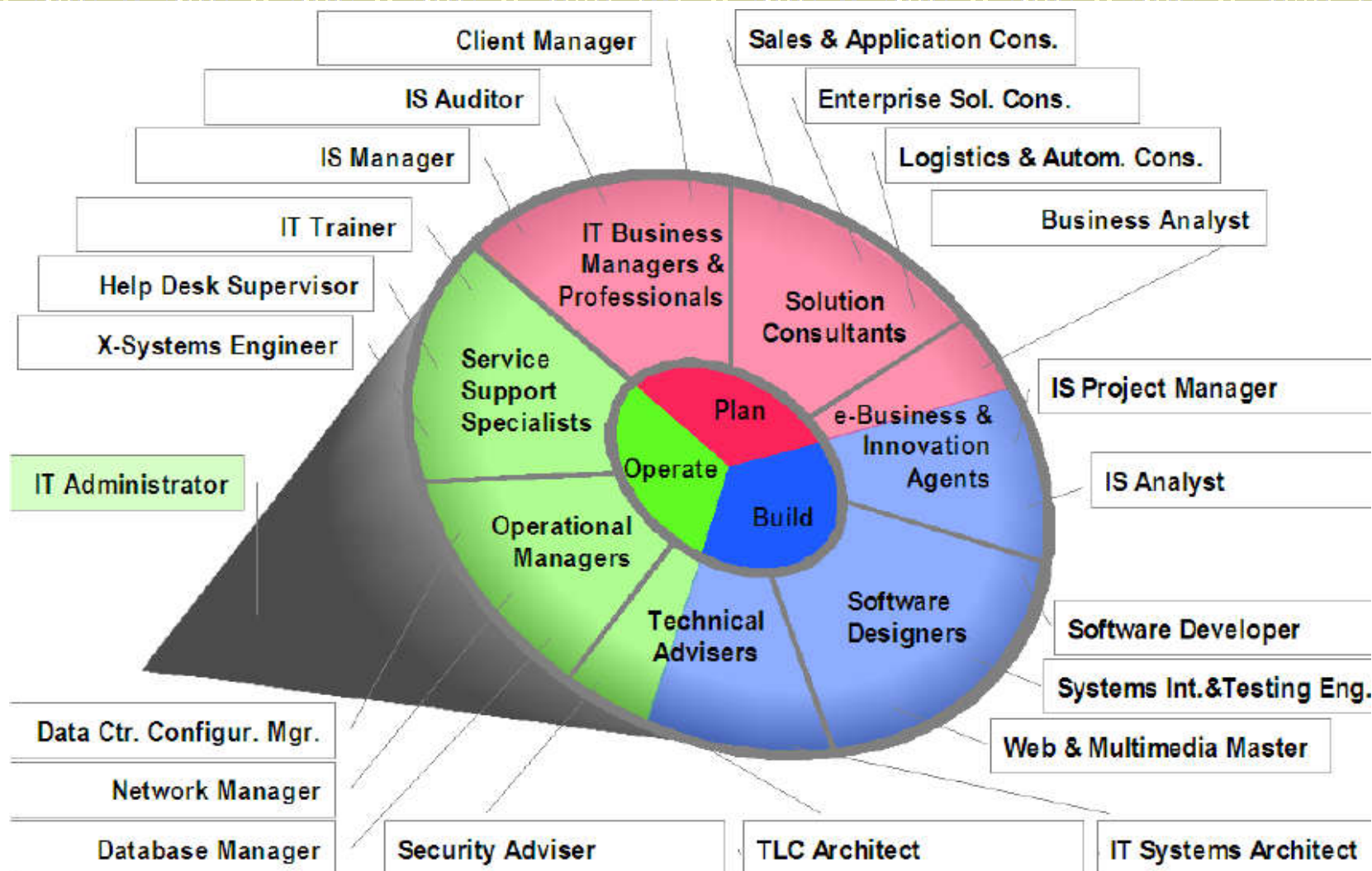
EUCIP – Progression Options



Knowledge Areas

- ▶ Hard knowledge areas
 - ▶ A) Planning Area
 - ▶ The Use and Management of Information Systems
 - ▶ B) Building Area
 - ▶ Development and Integration of Information Systems
 - ▶ C) Operating Area
 - ▶ Operation and Support of Information Systems
- ▶ Soft knowledge area
 - ▶ Essential Behavioural Skills

EUCIP Profiles



European Competence Profiles in **e-Content** Professions



- ▶ European specialist profiles for the **5 core professions** in the field of content development
 - ▶ Web designer
 - ▶ Web content/multimedia developer
 - ▶ Digital animator / 2D-3D specialist
 - ▶ Webmaster
 - ▶ Web content manager
- ▶ This project has been funded with support from the European Commission.
 - ▶ http://www.e-jobs-observatory.eu/sites/e-jobs-observatory.eu/files/2.R2.3+R%204.1Reference_Material_&_Methodology_EN.pdf

European e-Competence Framework (e-CF)

- ▶ The European e-Competence Framework (e-CF) provides a reference of 40 competences as required and applied at the Information and Communication Technology (ICT) workplace, using a common language for competences, skills and proficiency levels that can be understood across Europe.
- ▶ As the first sector-specific implementation of the European Qualifications Framework ([EQF](#)), the e-CF fits for application by ICT service, demand and supply organizations, companies, for managers and HR departments, for education institutions and training bodies, including higher education, for market watchers and policy makers, public and private sectors.
- ▶ The e-CF was developed through a process of collaboration between experts and stakeholders from many different countries under the umbrella of the [CEN Workshop on ICT Skills](#).
- ▶ The e-CF is a component of the [European union's strategy for e-Skills in the 21st Century](#) supported by the European Commission and The Council of Ministers. The Framework supports key policy objectives of the [Grand Coalition for digital Jobs](#) and benefits an ever growing user community from the EU and across the world.

European e-Competence Framework (**e-CF**)

- ▶ The tool enables users to explore the entire European e-Competence Framework (e-CF) and to build custom ICT competence profiles, such as job descriptions, educational profiles, and curriculum or qualification profiles, which can then be downloaded as a text file or printed.
- ▶ <http://profiletool.ecompetences.eu/>

New career profiles

- ▶ Artificial Intelligence Scientist
- ▶ Internet Systems Administrator
- ▶ Online Researcher
- ▶ Software Entrepreneur
- ▶ Technical Writer
- ▶ User Interface Designer
- ▶ Data Miner
- ▶ Bioinformatics Specialist
- ▶ Computer Operator
- ▶ Quality Assurance Specialist
- ▶ Auditor
- ▶ Tape Librarian / Archivist
- ▶ Computer Security Specialist
- ▶ Animation / Special Effects Programmer
- ▶ Electronic Sound Producer
- ▶ Multimedia or Game Writer / Editor
- ▶ Multimedia Developer
- ▶ Multimedia Producer
- ▶ Computer Game Designer / Programmer
- ▶ Play tester Computer Games
- ▶ Virtual Reality Designer / Programmer
- ▶ Embedded Systems Designer

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- ▶ Career opportunities in computers and cyberspace, Second edition.
- ▶ Career opportunities in the internet, video games, and multimedia.

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- ▶ Bengt Karlöf and Fredrik Helin Lövingsson, The A-Z of Management Concepts and Models, Thorogood Publishing 2005.