

Chapter 3.

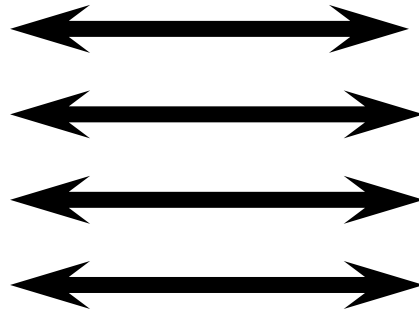
ICT competences and profiles

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 - ▶ Core competences
 - ▶ Internal promotion
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- ▶ Towards ICT profiles
 - ▶ RENTIC in Spain
 - ▶ The EUCIP certification programme
 - ▶ ESCO
 - ▶ European e-Competence Framework (e – CF)
 - ▶ European ICT professional role 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!



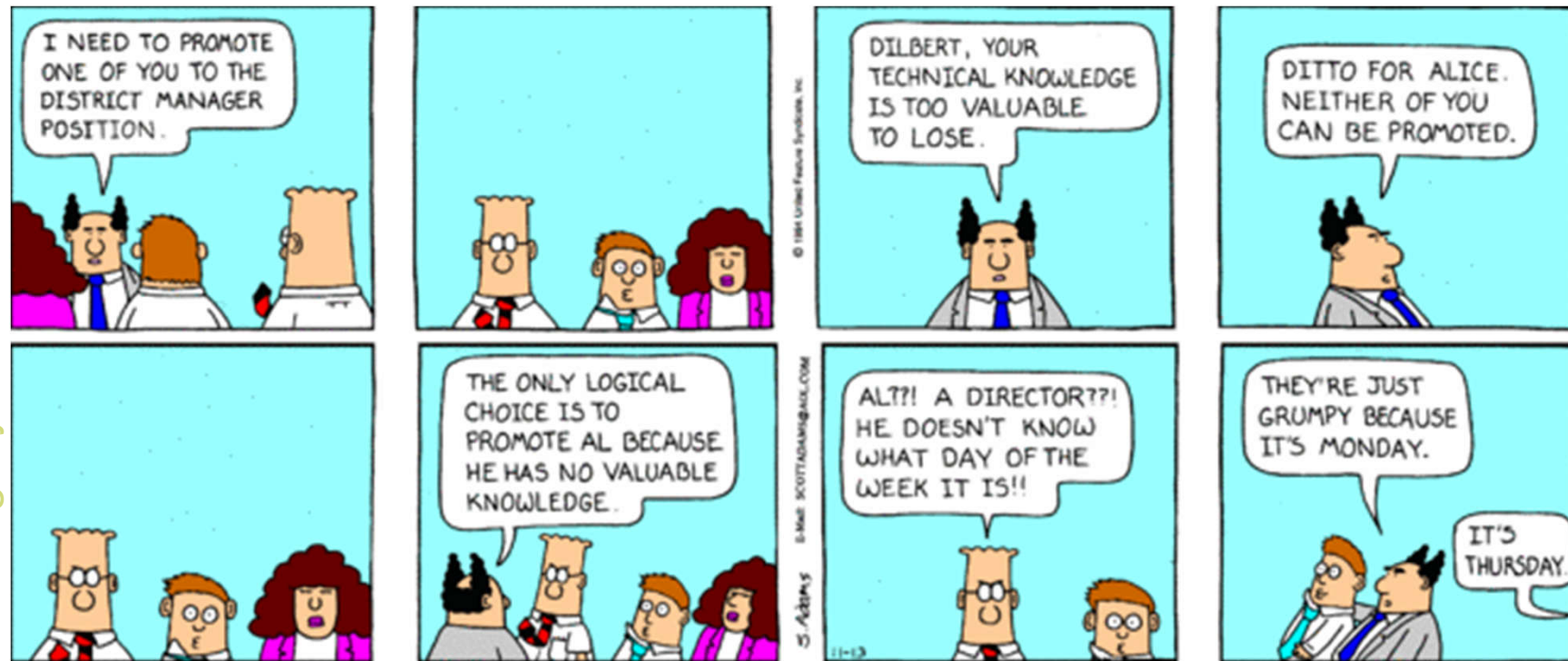
Internal promotion

- ▶ 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

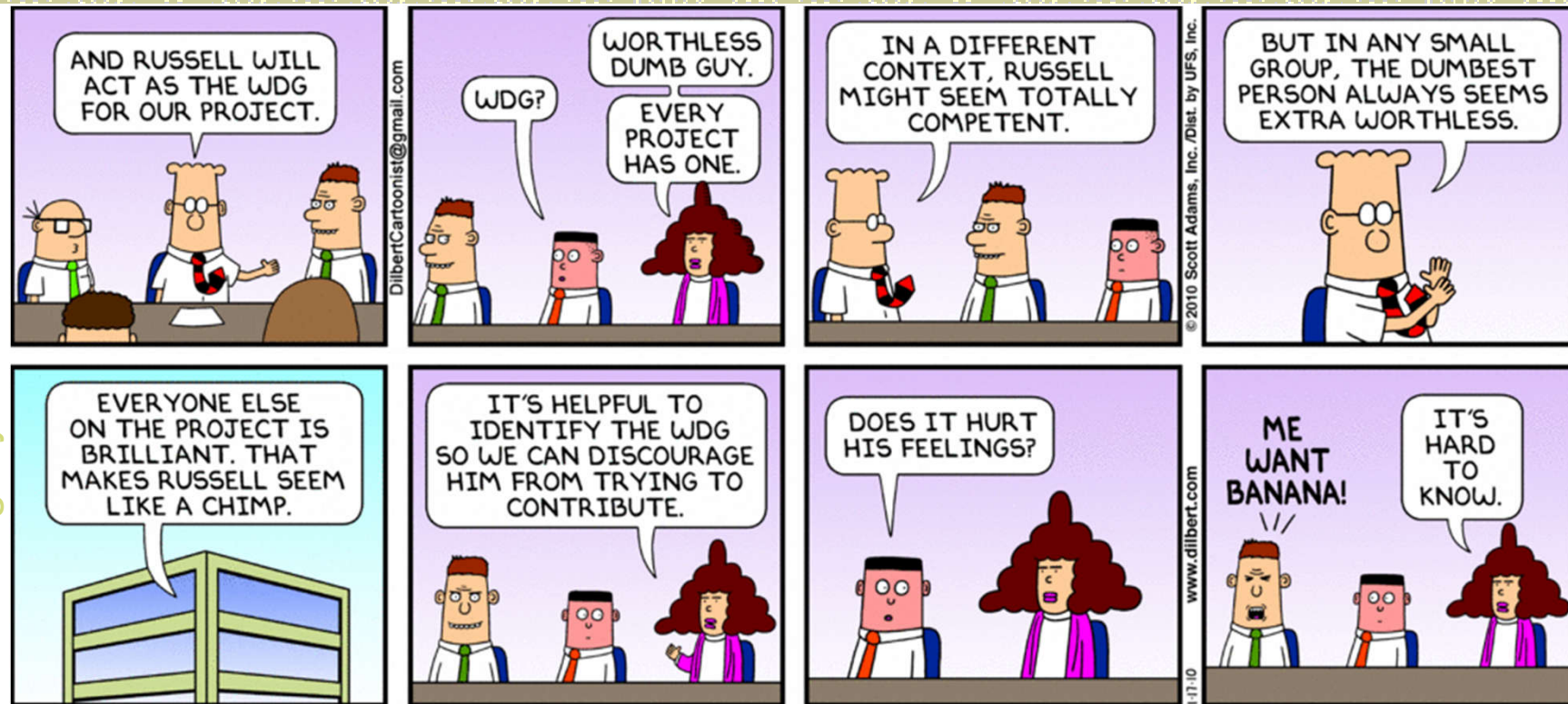
- ▶ **In a Hierarchy Every Employee Tends to Rise to His Level of Incompetence.**
 - ▶ The theory that employees within an organization will advance to their highest level of competence and then be promoted to and remain at a level at which they are incompetent.
- ▶ Basically it states that generally 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!

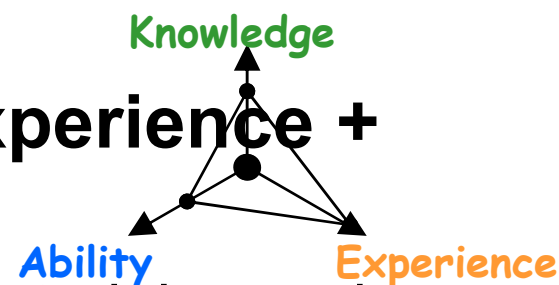
About competences

- ▶ 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

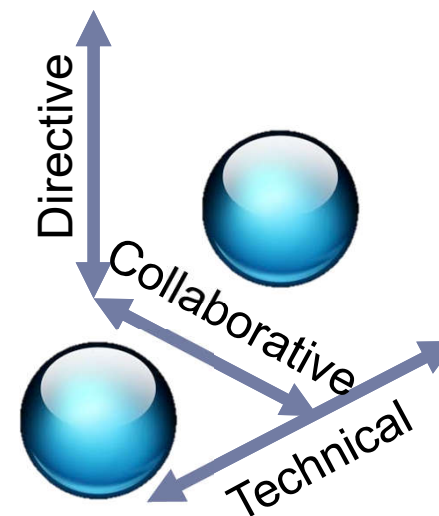
▶ Directive dimension

▶ 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:

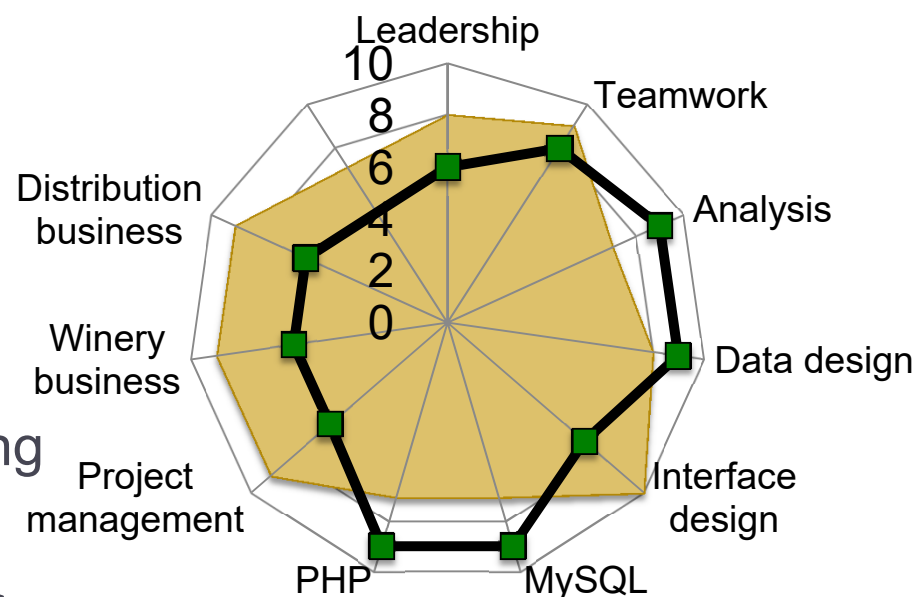
- ▶ Competences available
- ▶ Needs to be covered

▶ 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

Towards ICT profiles

- ▶ RENTIC in Spain
- ▶ The EUCIP certification programme
- ▶ **ESCO**
- ▶ **European e-Competence Framework (e – CF)**
- ▶ **European ICT professional role profiles**

RENTIC in Spain

- ▶ Requirements for employment in New Information and Communication Technologies (RENTIC)
- ▶ 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%

RENTIC 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%

Directive



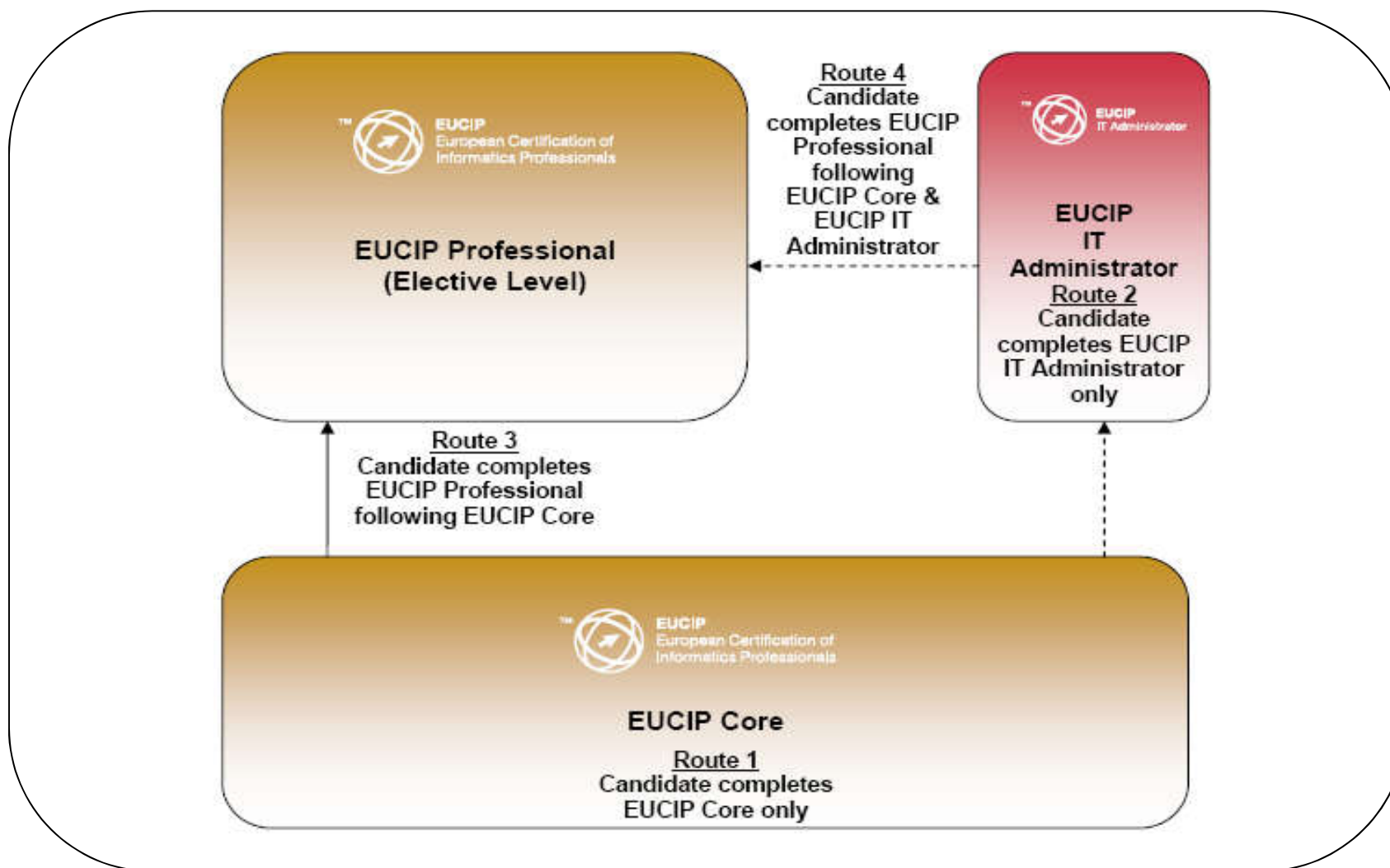
The **EUCIP** certification programme

- ▶ **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

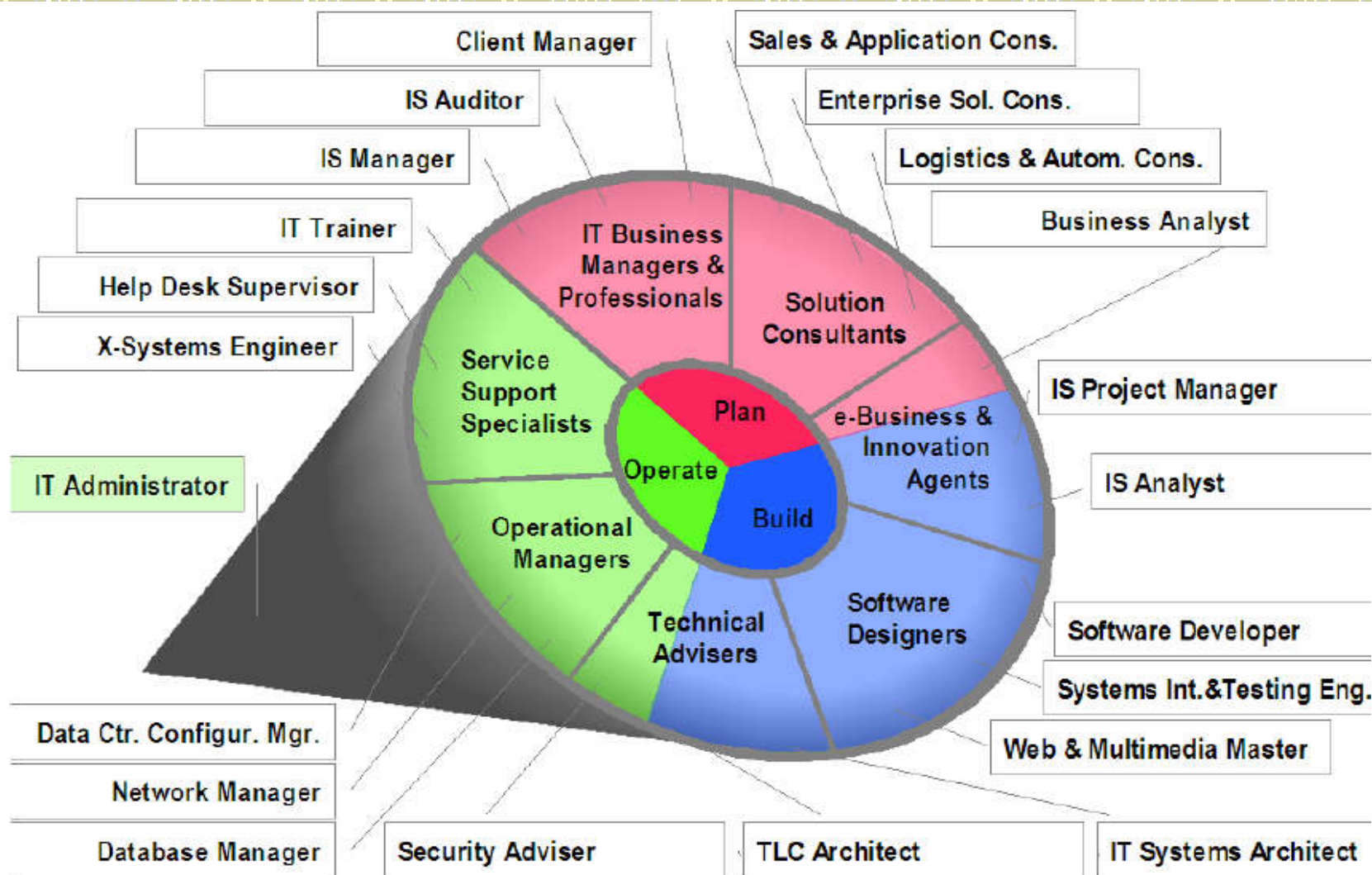
EUCIP – Progression Options



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 Skills/Competences, qualifications and Occupations**
- ▶ Occupations in ESCO are structured through their mapping to the International Standard Classification of Occupations (ISCO-08), which has been developed by the International Labour Organisation (ILO).
- ▶ ISCO-08 provides the top four levels while ESCO occupations provide the fifth and lower levels.

ESCO - Definitions

- ▶ **Knowledge:** The body of facts, principles, theories and practices that is related to a field of work or study. Knowledge is described as theoretical and/or factual, and is the outcome of the assimilation of information through learning.
- ▶ **Skill:** The ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).
- ▶ **Competence:** The proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations, and in professional and personal development.
- ▶ **Occupation:** a 'set of jobs whose main tasks and duties are characterised by a high degree of similarity'
- ▶ **Job:** a 'set of tasks and duties carried out, or meant to be carried out, by one person for a particular employer, including self-employment'

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

- ▶ 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 provides a reference of **41 competences** as applied at the ICT workplace.
 - ▶ Uses a common language that can be understood across Europe to describe the competences including skills and knowledge requirements of ICT professionals, professions and organisations at five proficiency levels, and is designed to meet the needs of individuals, businesses and other organisations in public and private sectors.
 - ▶ Became a European standard and was published in 2016 officially as the **European Norm (EN) 16234-1 European e-Competence Framework: A common European Framework for ICT Professionals in all industry sectors.**

- ▶ The e-CF provides support to:
 - ▶ ICT professional career development
 - ▶ HR planning and job profiles development
 - ▶ Recruiting and sourcing processes
 - ▶ Understanding learning paths and training offers

e-CF - Definitions

- ▶ **Competence:** a demonstrated ability to apply knowledge, skills and attitudes for achieving observable results
- ▶ **Skill:** ability to carry out managerial or technical tasks
 - ▶ Managerial and technical skills are the components of competences and specify some core abilities which form a competence.
- ▶ **Attitude:** the cognitive and relational capacity
 - ▶ e.g. analysis capacity, synthesis capacity, flexibility, pragmatism...
 - ▶ If skills are the components, attitudes are the glue, which keeps them together.
- ▶ **Knowledge:** the set of know-what that can be described by operational descriptions
 - ▶ e.g. programming languages, design tools...

e-CF: an example

Dimension 1 e-Comp. area	A. PLAN				
Dimension 2 e-Competence: Title + generic description	A.2. Service Level Management Defines, validates and makes applicable service level agreements (SLAs) and underpinning contracts tailored to services offered. Negotiates service performance levels taking into account the needs and capacity of stakeholders and business.				
Dimension 3 e-Competence proficiency levels e-1 to e-5	Level 1	Level 2	Level 3	Level 4	Level 5
	–	–	Ensures the content of the SLA.	Negotiates revision of SLAs, in accordance with the overall objectives. Ensures the achievement of planned results.	–
Dimension 4 Knowledge examples <i>Knows/aware of/ familiar with</i>	K1 SLA documentation K2 how to compare and interpret management data K3 the elements forming the metrics of service level agreements K4 how service delivery infrastructures work K5 impact of service level non-compliance on business performance				
Skills examples <i>Is able to</i>	S1 analyse service provision records S2 evaluate service provision against SLA S3 negotiate realistic service level targets S4 use relevant quality management techniques S5 anticipate and mitigate against potential service disruptions				

The **e-CF** Explorer

- ▶ Use this interactive tool to explore the competences and the **30 ICT Professional Role Profiles** identified by the European Committee for Standardization (CEN).
- ▶ <https://ecfusertool.itprofessionalism.org/explorer>

European ICT professional role profiles

