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Digital Innovation Leader Profile

e-business and IT innovation competences for NON-IT enterprises

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AICA's **contribution to design the Digital Innovation Leader Profile**

We propose 4 main topics to design the new Digital Innovation Leader Profile (DIL) for NON IT organizations:

1.Which factors push towards the need of innovation

2.A generalized professionalism model to design the IL-Innovation Leader profile

3.Which new competences should have a DIL, added to those of already designed e-CF profiles

4.Recommendations to accelerate the build up of basic DIL competencies

1.1 Factors pushing for innovation

- Emerge “flexible society”, based on behavioral changes at personal and organizational level; competences help employability and sustain innovation
- technology evolution facilitate digital cooperation and social + professional role integration
- the sociological point of view help to
  - define a new general work model where competence are considered as work contents and integrate knowledge, process and technology
  - Distinguish replicable competences sustaining productivity and employability from creativity that improve competitiveness through innovative competences
  - Enhance the role of competences no more as a work attribute but instead as a worker characteristic measurable and formally certified
  - Furthermore consider competence as a distinctive factor of professionalism and a possible leverage for innovation

1.2 Factors pushing for innovation: in the disruptive innovation theory, IT play a specific role

To analyze innovation we adopt the theory of Disruptive Innovation (Christensen) where

- ❑ disruptive innovation is that of new product/service (not present before in the market) based on technologies that play a “disruptive” role
- ❑ sustainable innovation, that includes updating the mix of already available user functionalities and/or incremental optimizations of new combinations of technological and competence components

For sustainable innovation a more in deep analysis has to be carried on to understand how is possible to engineer process to obtain components and products in growing volumes to serve the orders coming from the market. Process re-engineering could be obtain through higher automation level, where the capital investment increase and human work quantity decrease to obtain a reduced cost per unit of product.

The specialization of supply, production and distribution process allow to identify work phases that could be further more automated and outsourced as specific “modules” . The product /service sold assume his configuration and go towards the final client through various work steps along an operative network managed by different specialized partners up to the step in which the company assemble the product and deliver to the customer.

Along this network is possible to recognize two types of technology:

- The *Operation Technologies-OT*, that includes all the apparatuses, machines and systems needed to sustain operational process
- The *Information Technologies-IT*, that includes the complete set of technologies for data and information processing (hardware, software, communication and related services)

The operational flexibility derived from the fruitful combination of Operation and Information Technologies, Process and Competences

2. A new model for DIL: specific contribution of IT to Innovation

- IT-Information Technology contributes **together** with OT-Operation Technology, to both disruptive and sustainable innovation. Modularity of the various specialized work and transformation phase is based on specific combination per company of OT and IT.
- **IT is specially important in the sustainable innovation** where it helps to optimize the end-to-end performance of the various operators network. Especially in the service sector the IT contribution could be more important also for disruptive innovation, in which new service's can be produced mainly through IT that assume a partial but increased role of "Operation Technology.
- As a conclusion **IT could contributes to both product/service innovation** (with a disruptive impact at least for services) **or sustainable innovation** to optimize operational process of supply, production and distribution. IT specialists should learn how to analyze, model and share with their colleague IT contribution for both types of innovations.
- It could be useful to add to above indications a **new e-business competence**: may be defined as the use of IT inside all the enterprise activities generating business. Commerce constitutes the exchange of products and services between businesses, groups and individuals and is seen as one of the essential activities of any business. E-business methods enable companies to push integration of their internal and external data processing systems to obtain more flexible performance, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers and for effective and efficient management of their internal functions.

2. A new generalized model for IL-Innovation Leader Profile: the various dimensions of professionalism

Object of professionalism is study, design, implement, place in operation and manage of any "technical machine"; to support this capability, we need

- A shared **body of knowledge (BoK)** to support the competence system specific for any disciplinary area (ICT for instance);
- A **competence system** that includes technical, relational and sectorial rules skills;
- An **ethical code**, based on the integrity and accountability in respect to customer but also to assume a personal responsibility in respect of commitment expectations
- An **acknowledgment**, based on his/her value on the market, through the quality of his/her intervention, the cumulated experience and the engagement to work in the interest of society
- The capacity of employees to gain an higher level of **decisional autonomy** and assume **professional risk** at individual or collective level for entrepreneur

Those 5 professionalism general dimensions should allow to build up competence based professional profiles that could be accredited and certified in the labour market.

2. A new generalized model for IL: the synopsis of various professionalism dimensions

The 5 professionalism dimensions

- ❑ Autonomy and risk
- ❑ Acknowledgment
- ❑ Ethical Code
- ❑ Competences
  - ➢ Rules
  - ➢ Behavioral
  - ➢ Technical
- ❑ Knowledge (Core Body of Knowledge-specific for each discipline area)

2. A new generalized model for IL: the five typologies of professionalism defined in respect to the type of contract

Some numbers about organizations and generic workers in Italy

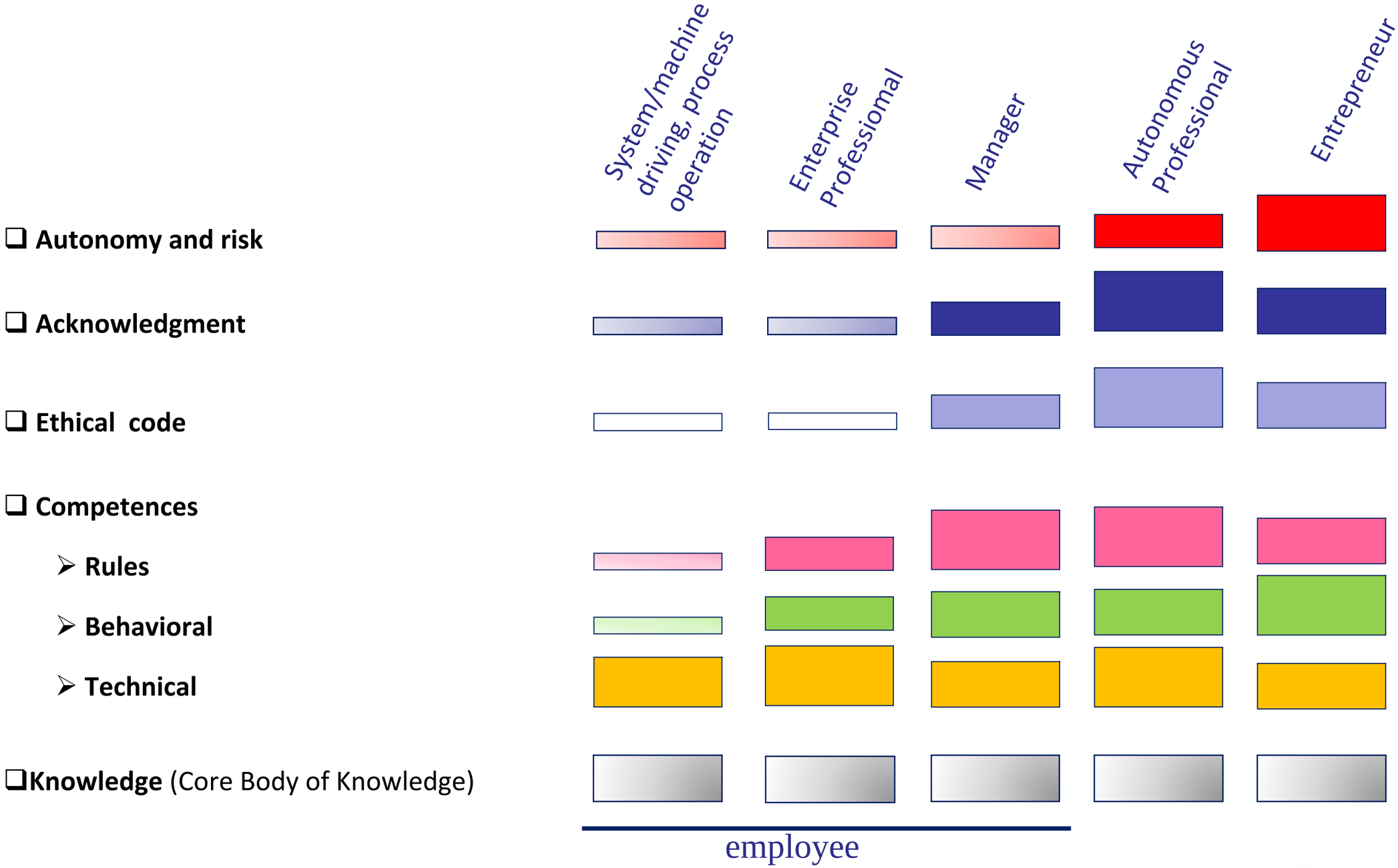
•Total organizations universe : consist of around 4,5 million entities (enterprises and public administrations) 94% of which are microorganizations (< 10 employees)
•The entire work force universe is around 20 millions workers
•Total portfolio of family professionalities is 30, comprehensive of around 6-7 hundreds profile

❑ **System driving, process operations**	employee
❑ **Enterprise Professional**	employee
❑ **Manager**	employee
❑ **Autonomous Professional**	self employed
❑ **Entrepreneur**	self employed

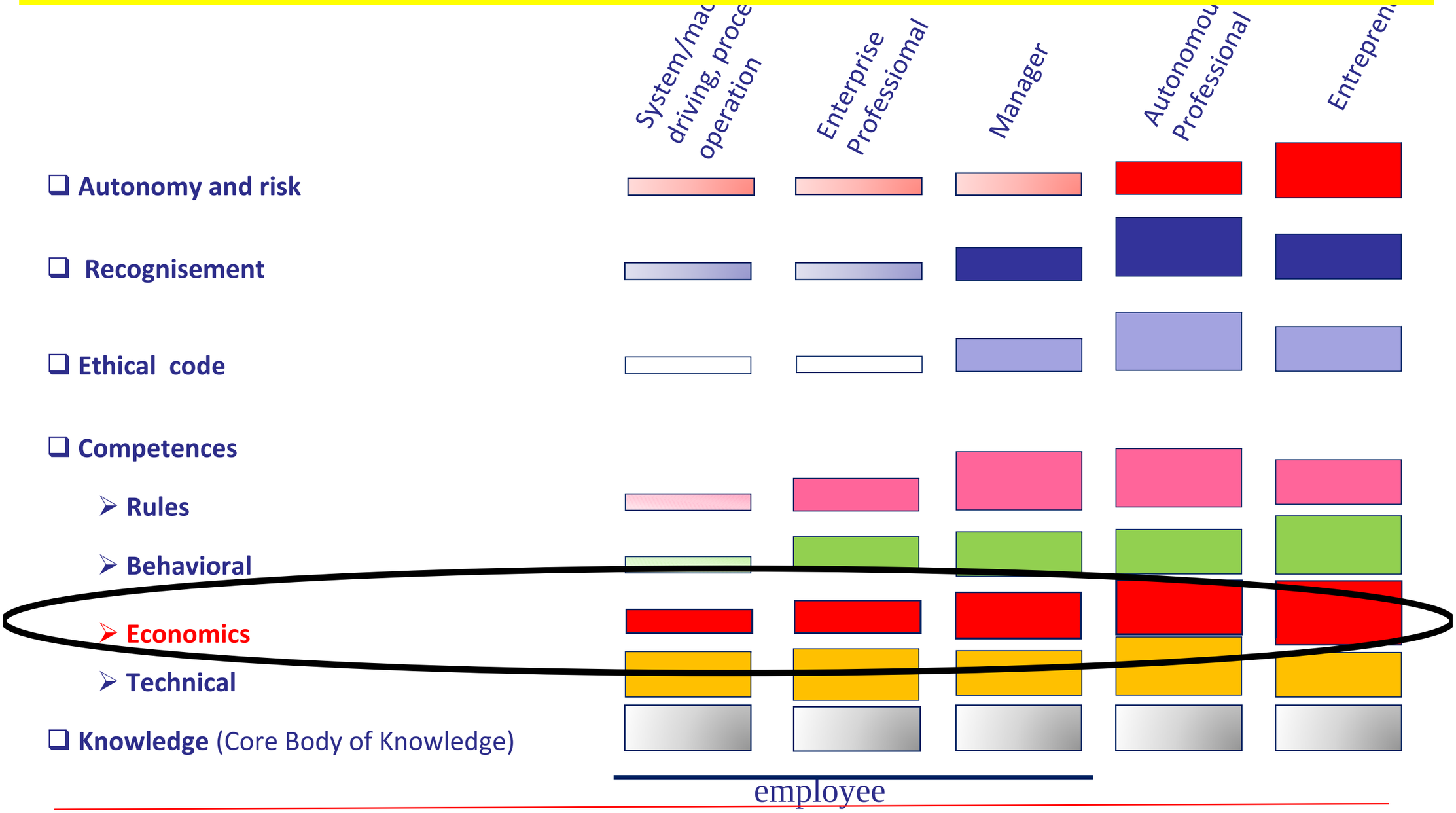
Some numbers about the ICT disciplines, in Italy

•ICT hardware and service company suppliers are 2-3% of the total company universe ; the demand market consist of the residual 95% of NON ICT organizations;
•ICT Specialist work force is of around 0,7 million workers, 3,5% of total workforce
•90% of total workforce is potentially user of digitalized services or digital enhanced products

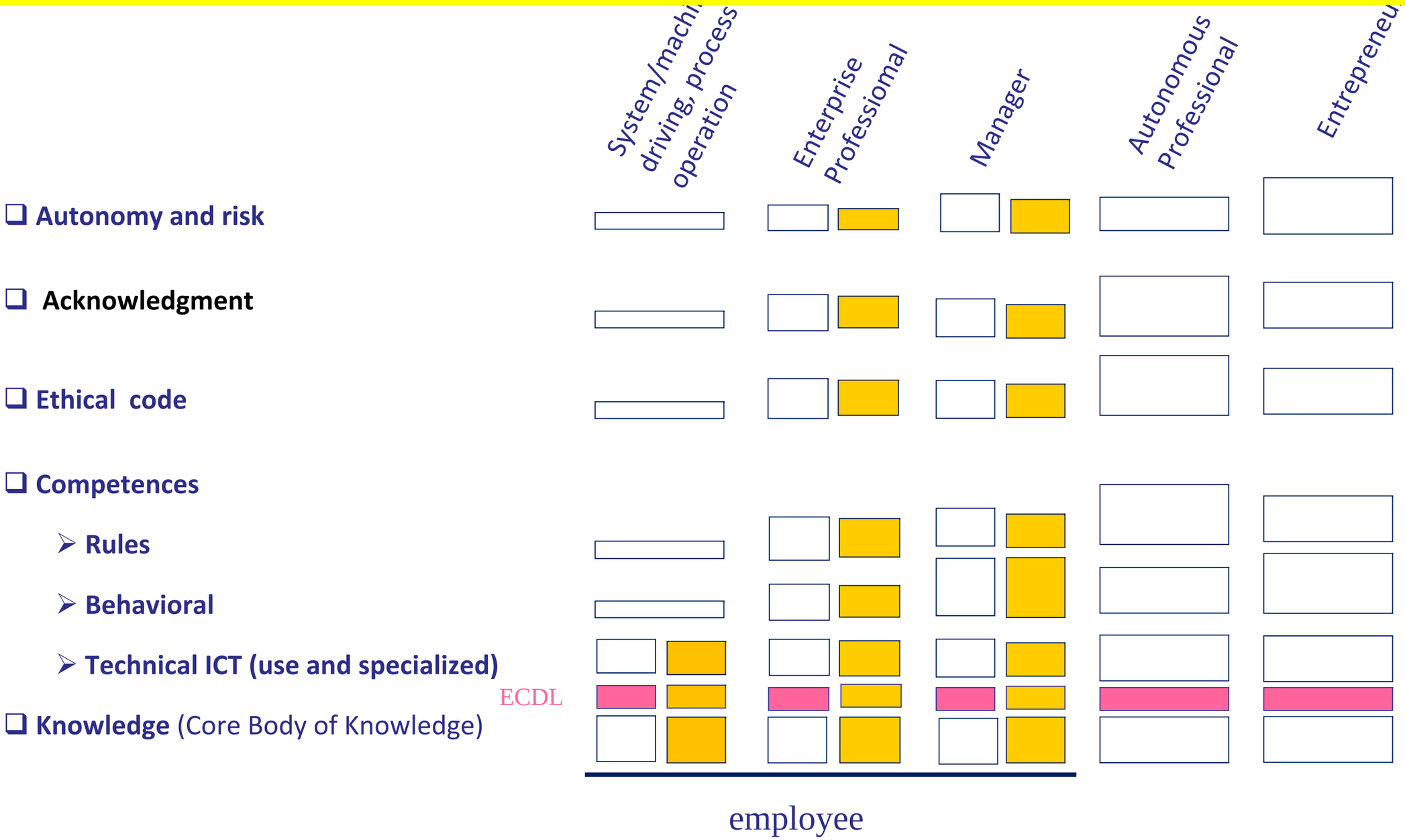
2. A new generalized model for IL and DIL: CNEL Model as a general framework to design competence based professionalism, valid for any discipline



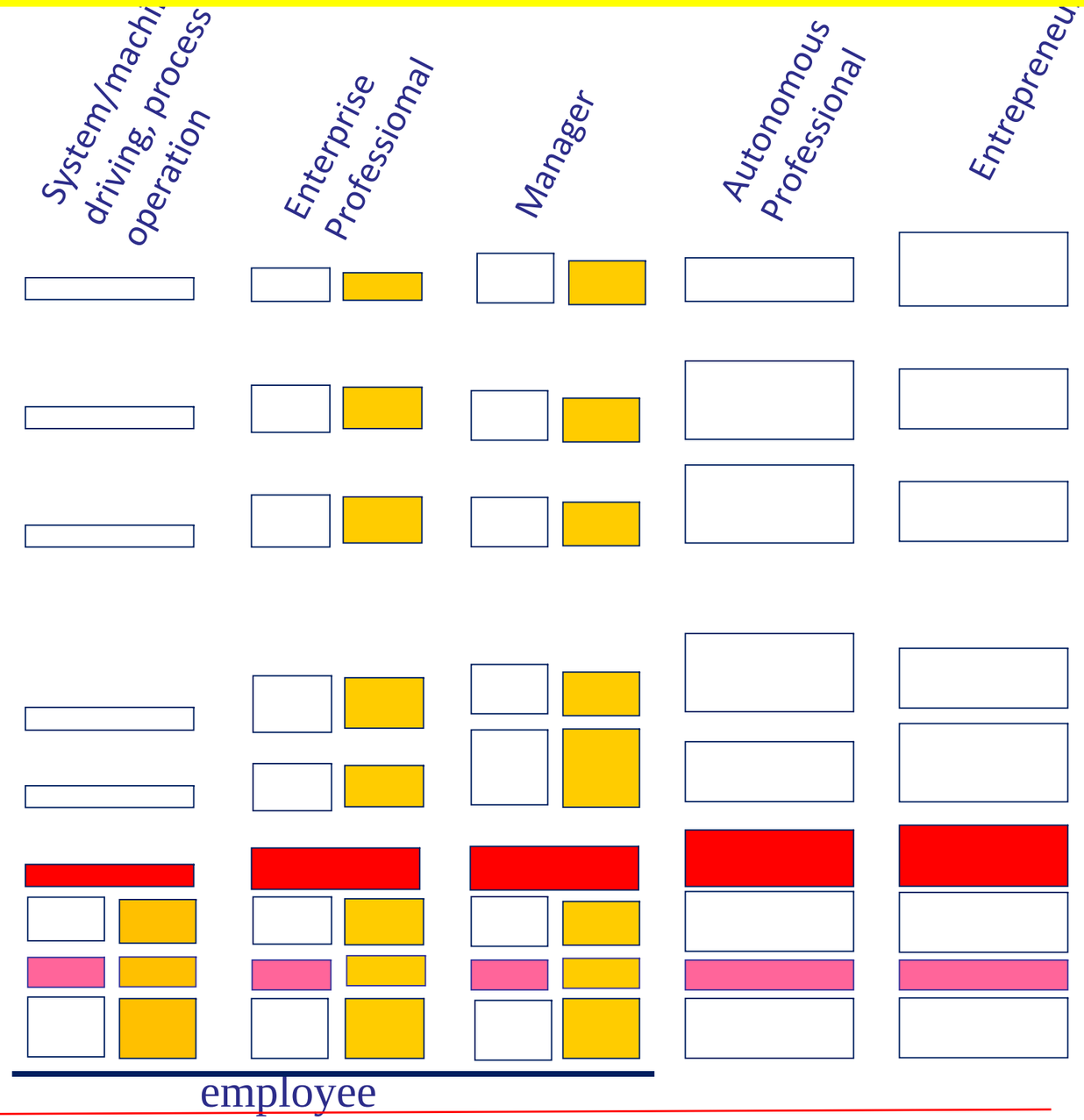
2. A new generalized model for IL and DIL: the general framework to design competence based professionalism, valid for any discipline, enriched with economic skills (2/3)



2. A new generalized model for Digital Jobs: the general framework to design competence based professionalism, valid for any discipline, with evidence of digital skills inside NON ICT Organizations (3/3)



2. A new generalized model for DIL: the general framework to design competence based professionalism, valid for any discipline, enriched with economic skills and with evidence of digital skills inside NON ICT Organizations (3/3)



- ❑ **Autonomy and risk**
- ❑ **Acknowledgment**
- ❑ **Ethical code**
- ❑ **Competences**
  - ➢ **Rules**
  - ➢ **Behavioral**
  - ➢ **Economics**
  - ➢ **Technical ICT (use and specialized)** ECDL
- ❑ **Knowledge** (Core Body of Knowledge)

EUCIP/eCF

2. A new generalized model for DIL: the six clusters of e-CF specialist profiles (1/2)

❑ Business Management

- Business Information Manager (BIM)
- Chief Information Officer (CIO)
- ICT Operation Manager (IOM)

❑ Technical Managers

- Quality Assurance Manager (QAM)
- ICT Security Manager (ISM)
- Project Manager (PM)
- Service Manager (SM)

❑ Service Operation

- Data Base Administrator (DBA)
- Service Desk Agent (SDA)
- System Administrator (SA)
- Technical Specialist (TS)
- Network Specialist (NS)

❑ Development

- Developer (D)
- Digital Media Specialist (DMS)
- Test Specialist (TS)

❑ Design

- Business Analyst (BA)
- System Analyst (SA)
- Enterprise Architect (EA)
- System Architect (SA)

❑ Support

- ICT Consultant (IC)
- Account Manager (AM)
- ICT Trainer (IT)
- ICT Security Specialist (ISS)

❖eCF profiles assumed as a basis to implement the Digital Innovation Leader Profile

3. Which new competences for DIL: added competence for the Innovation Leader (2/2)

	E-CF definition	Already defined competence (e-CF 2 profiles)	Added Technical competence (examples)	Added Economic and marketing competence (examples)
Project Manager	Manages project to achieve optimal performance that conforms to original specifications	A.4. Product or Project Planning E.2. Project and Portfolio Management E.3. Risk Management E.4. Relationship Management E.7. Business Change Management	IT Architect …… Customer Relationship Management ……	Buying behavior Product functional use Product life cycle Product positioning ……. Customer profiling Market segmentation …….
Business Manager	Analyses Information System for improving business performance.	A.1. IS and Business Strategy alignment A.3. Business Plan Development E.5. Process Improvement	Social Networking Enterprise Networking ……	Sales and marketing Communication …… Economic and financial balance …….

3. Which new competences for DIL: other characteristics of DIL profile

- The Digital Innovation Leader Profile is based on significantly more business knowledge than the traditional one; in this case he/she has
  - to make both project and business-related decisions and manage multiple stakeholders, each of whom has a different definition of project success, different reporting requirements and, possibly, a different perception of value at the end of the project
  - To bear frustration and sustain motivation in “normal” situations in innovation projects, where enterprise environmental factors will change continuously, the statement of work may be ill-defined initially, and the assigned resources may have personal values that are not aligned with the project´s expected value at completion; and as a further complication, where the true value of the project may not be known until well after the project is completed
  - Finally he/she has to learn how to manage scope creep, perform project health checks, and find ways to recover a distressed project before it becomes a failure
- He/she should have/acquire furthermore a deep specialized competence
  - Of the industry sector where operates the main competitor of his/her new business
  - To perceive the indications of a sample of final customers and transform indications into new functional use through compliant technical solutions

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DIL Profile could be considered a ***T-shaped professionality:*** those who are deep problem solvers with expert thinking skills in their home discipline (in this case the Digital deep competence-vertical bar of the T) but also have complex communication skills to interact with specialists from a wide range of disciplines and functional areas

(like economics and communication-horizontal bar of the T)

4. Recommendations to facilitate the build up of DIL competences

- Assuming for DIL the image of a T-shaped Profile, after the first 5 years engaged to build up knowledge for the vertical bar of T, at least another 3 years are needed to build up the horizontal bar of T
- The education furthermore has to be “open” and “global”, valid for world wide innovators, not national or Europe based; innovators have to navigate not only in the technological complexity but in the multicultural one
- Another point is the environment profile at the basis of educational path: with the already available expertise we can quote two different situation: the Scientific Park approach (like a specialized condominium) and the model of some other initiatives targeted to be a primary actor of innovation (like CEFRIEL-Politecnico Milano)
- There are some more conditions to satisfy for a successful solution of innovators education
  - to have a commitment, for instance in public bodies
  - To select the right resources, not only financial: capital venture, speedup decision of investment, mentoring support, etc.
- With all those conditions the innovation training path has to be started not before 2-3 years of work experience; the most important contents of teaching are have to be extracted from reality
  - case studies from which extract the real competences that have been considered the key of success
  - Other inputs like the CEPIS e-competence benchmark (www.cepis.org)
  - adding to an existing deep home discipline of study, some specific technological and marketing/economics qualifications.

Conclusions: conditions to accelerate the build up of Digital Innovation Leader Profiles enabling diffusion of innovation projects

1. **Factors pushing towards the need of innovation**: sociological, economical and technological changes push towards a more flexible and effective work model, where both replicable and innovative competences play an integrated roles to enhance disruptive and sustainable innovation for any organization

2. **A generalized professionalism model to design the IL and DIL Profile:** innovation in NON IT Organizations is generated by a combination of Digital Technology (or IT-Information Tech + Automation Tech) and Operational Tech plus other ingredients, so that the DIL has to lead the digital components implementation through an intimate collaboration with the Company Innovation Leader (CIL); the professionalism/competence model should acknowledge both type of competences present in a NON-IT Organization, supporting co-creation of innovation

3. **Which new competences should have a DIL, added to those of already designed e-CF profiles**: new competence has to be added in both bars of this new T-shaped profile

   a. Enrichment of 4 level generated digital competences in the e-CF model, starting from actual competences of Project Manager and/or Business Analyst

   b. Introduction from stretch of new economic and marketing competences

4. **Recommendations to accelerate the build up of basic DIL competencies**: DIL competences are generated any way through digital experience on challenging innovation projects; two main conditions to accelerate the acquisition of DIL integrated competence:

   a. A high level education and continuous & flexible learning path for experienced (2-3 years) young digital specialists

   b. Tools that helps the skills and profile management like the CEPIS e-competence benchmark service; those tools become more and more effective if could have a reference framework like e-CF (www.cepis.org)

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Thanks for your attention