



Presentation of the Consolidated System: the European Scenario

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Formalization



- In H.E.LE.N., the **formalization** instrument has been extensively used to reach the project goals since it allows to
 - better understand system dynamics
 - thus enabling also system knowledge diffusion and sharing.
- When the **quality aspect** is a major concern, to understand the systems means
 - Having an essential support in the design phase
 - Being capable of selecting criticalities as well as indicators
 - Enabling evaluator to comprehensively know the system
 - Activating an informed consultation which can exploit information concerning all the dynamics of the system
 - Being able to involve the stakeholders at all the levels (overall knowledge)
 - Symplifying revision following the feedback.



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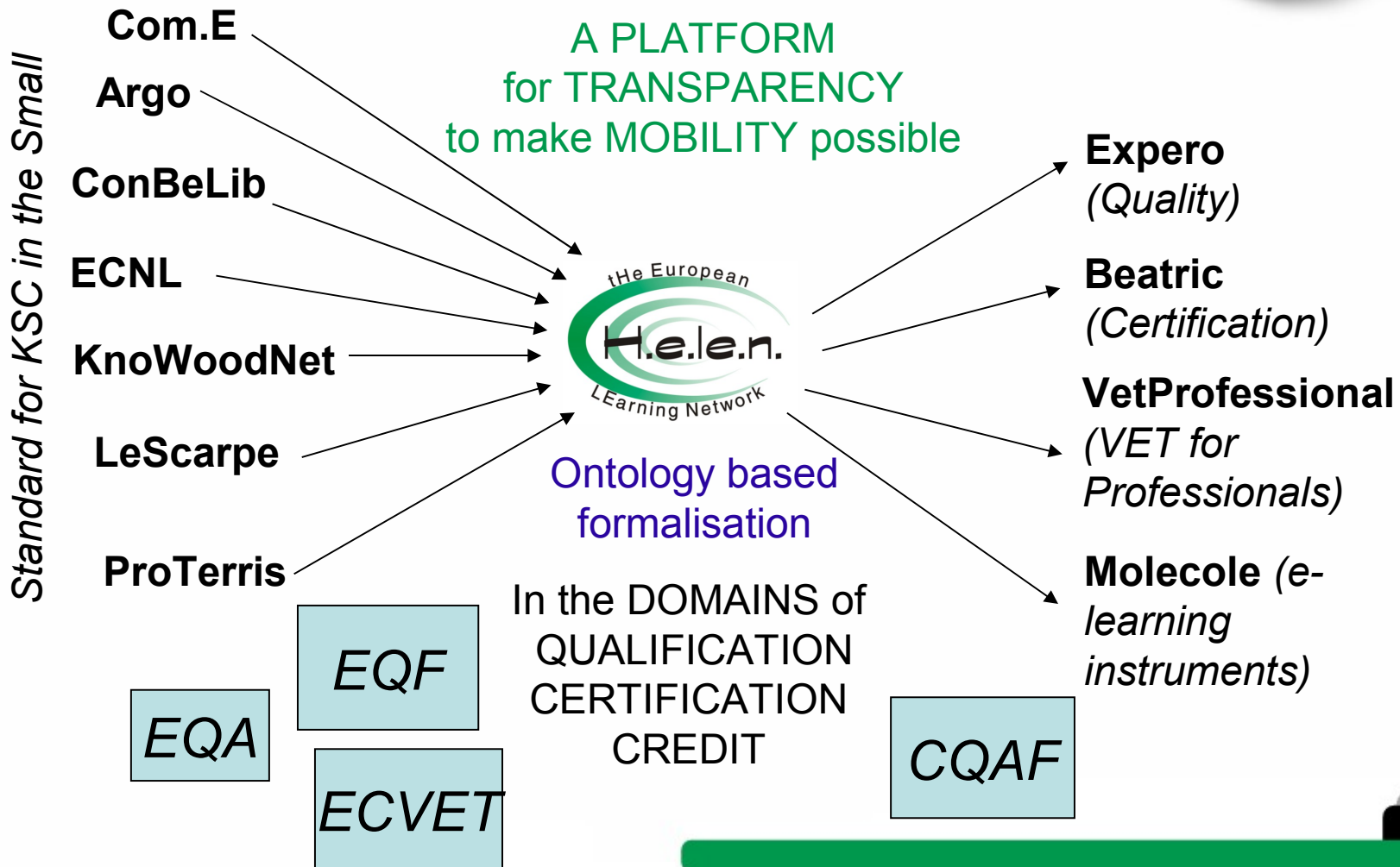
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The global vision



H.E.L.E.N. and Transparency



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Why this choice?



- Other contexts and experiences:
 - Automotive, to trace vehicles
 - Aerospace, to trace aeromobiles
 - Health, to trace patient
 - E-learning, to develop knowledge systems
- All based on **Ontology**

ISO-10303

ISO-TC-215



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Who said it is useful and why



- Mizoguchi (1995):
 - **Ontology** provides a common vocabulary, and an explication of what has been often left implicit.
 - The systematization of knowledge and the **standardization** constitutes the backbone of knowledge within a knowledge-based system.
 - A **metamodel** functionality specifies the **concepts** and **relations** among them, which are used as the main building blocks



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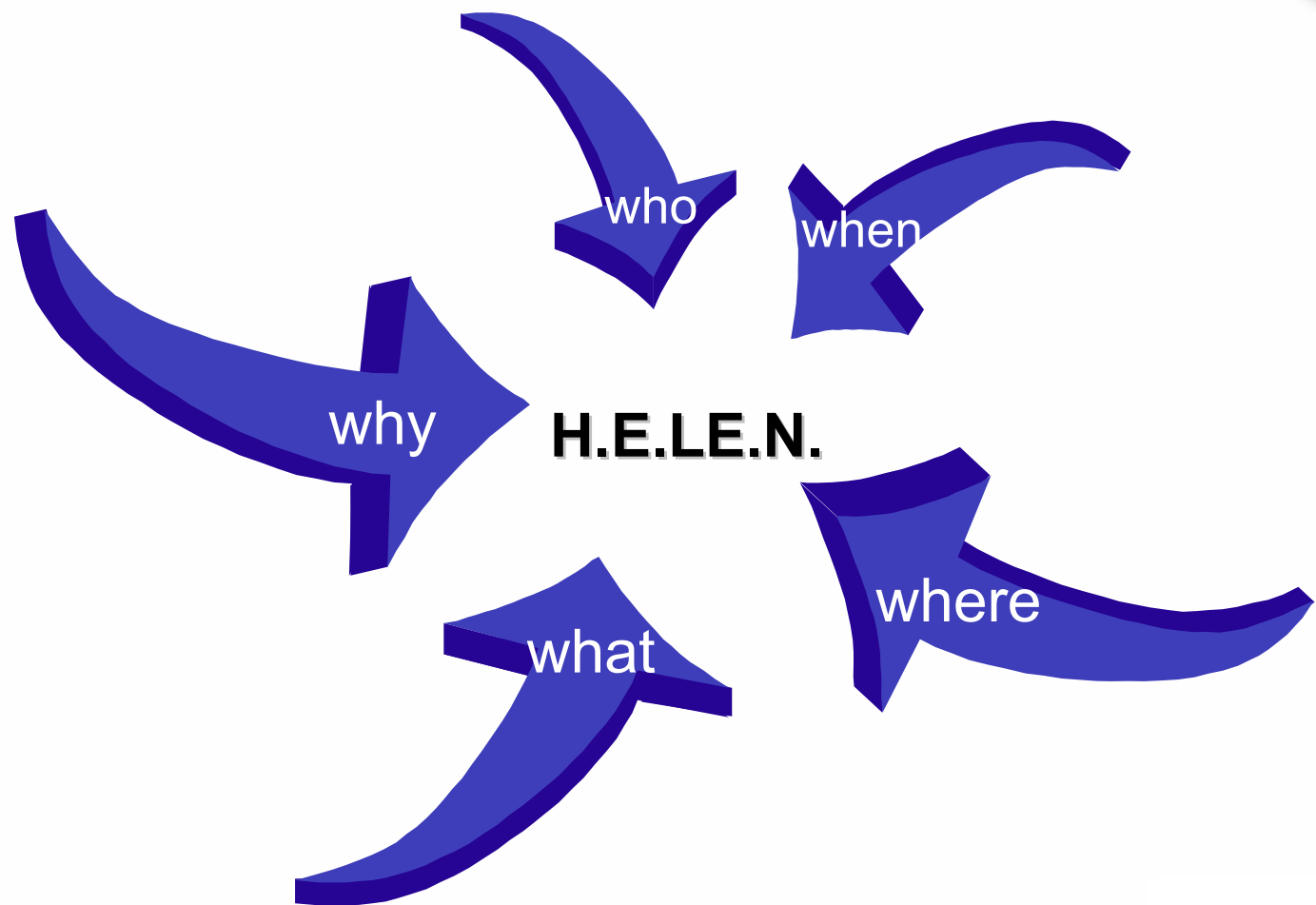
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H.E.LE.N. Project issues



WHY/1: Basic aims



- Promoting **mobility** of European citizens, both for labour and educational purposes
- Contributing to the establishment of a **transnational network**, to share and objectives, results and methodologies
- Favouring **mutual cooperation** among actors involved in VET, supported by the mediation capabilities of social institutions.
- H.E.LE.N. relates to the 3rd objective of the LdV Program:
 - Enforcing the contribution to the innovative processes
 - First priority: give value to learning



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WHAT/1: Action areas



- The action area is VET in non-academic post-secondary education
- This area is considered a strategic context to sustain development of a European knowledge society, where European “civis” represents the moving engine.
- Topics: common standards for qualifications, skill and competence description, certification methodologies (Europass framework), ECVET (European credit system for VET)



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WHAT/2: Specific objectives



- Means to **promote interaction** among standards of competences
- Support to **readability and sharing** of instruments and models
- Use of the Europass framework
- Systematic use of integrated information systems
- Best-practices identification to implement a transnational network
- Institution of privileged channels to support interactions among the various actors
- Stating communication solutions appropriate to mass target users



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WHAT/3: Project outputs

- “**Domains**”: collection containing the description and the formalization of professional figures, their competences, certification modes and credit transfer systems through ontologies
- “**QUOVADIS**”: specification of a semantic search engine based on the defined ontologies
- “**Best Practice Manual**” for a vocational training community: a development instrument of the European citizenship
- Transversal: H.E.LE.N. Web Portal, H.E.LE.N. virtual community, Monitoring & assessment reports, meetings



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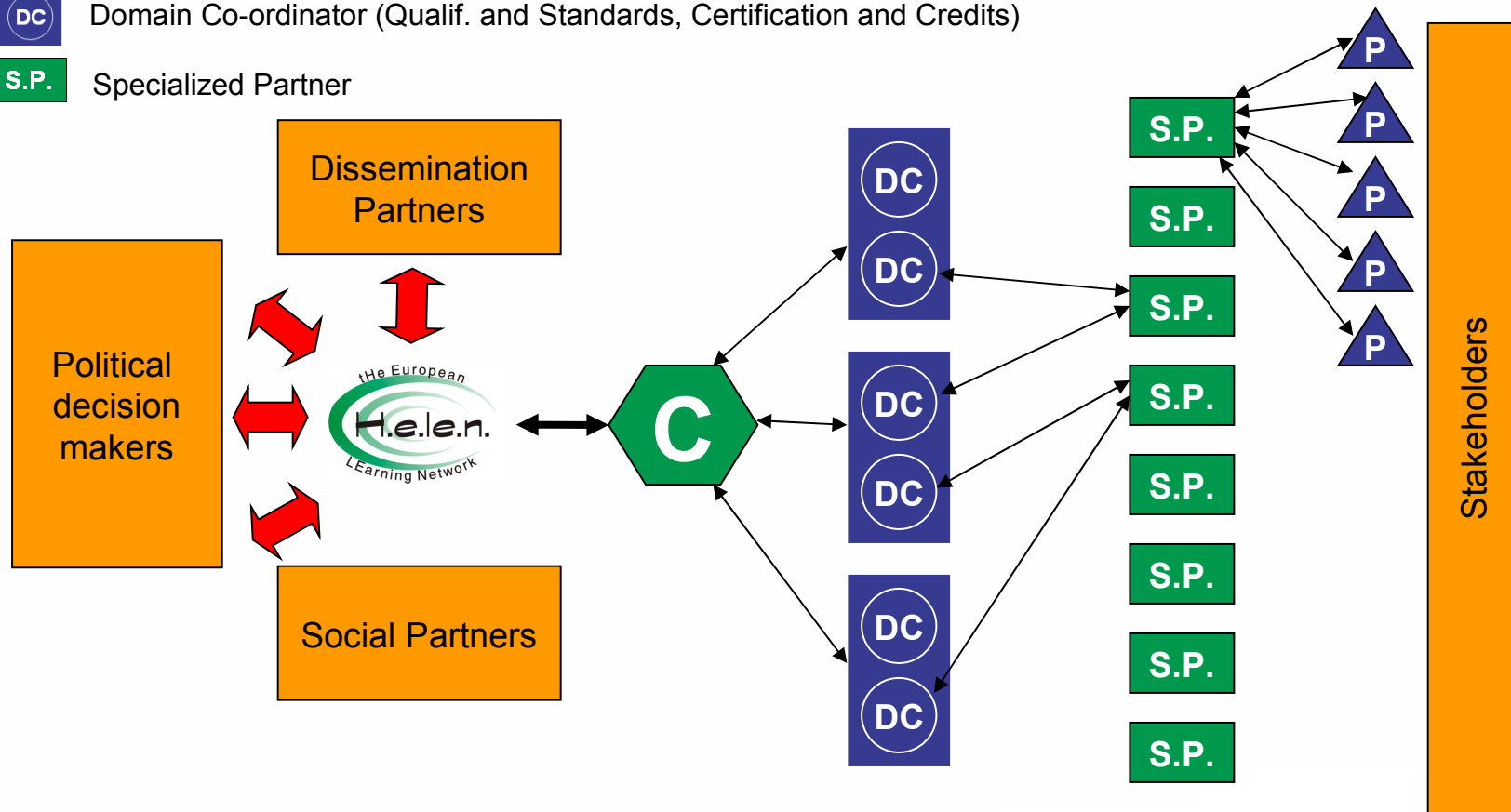
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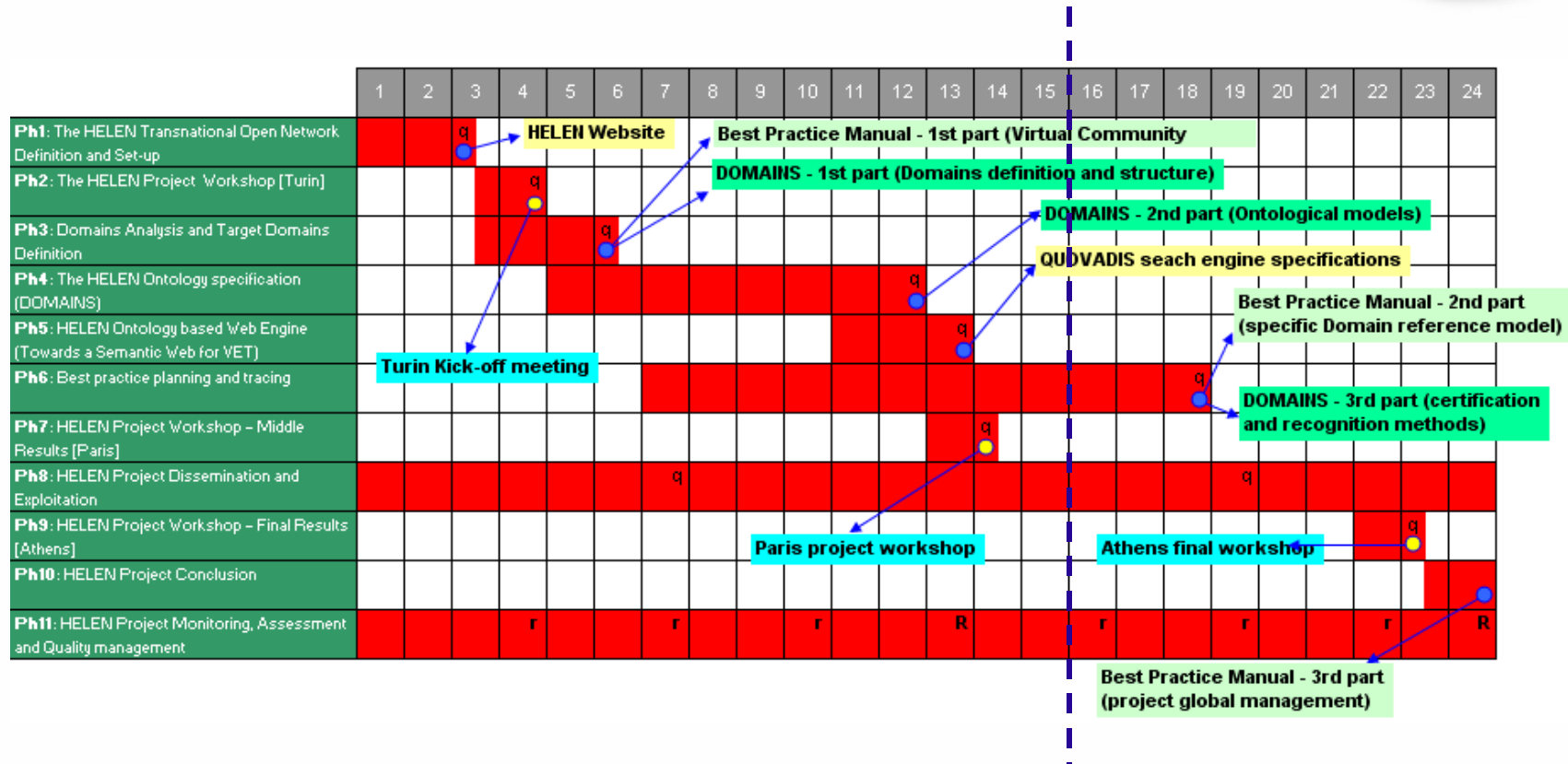
WHERE: Network structure



- C** Project Co-ordinator
- DC** Domain Co-ordinator (Qualif. and Standards, Certification and Credits)
- S.P.** Specialized Partner



WHEN: Main schedule



WHO/2: Partnerships



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H.E.L.E.N. Domains of analysis



- Selected analysis Domains for the H.E.L.E.N. project:
 - **Qualifications and Standards:** The qualifications in the national context for the definition of the professional education and their standards in terms of professional competences.
 - **Certification:** the transparency of the qualifications (Europass).
 - **Credits:** the credit system for the higher professional education (ECVET).



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EX.PER.O. Informative Model



- Scenario
 - position of the post-secondary VET educational paths within the context of the national formative system
 - monitoring and assessment system expected for VET, even not institutional but adopted and applied within the education and training body
- Structural concepts
 - general organigram of subjects
 - general organigram of functions
 - consultation (involvement of the stakeholders in the path lifecycle)
 - Address Board
 - realization
 - assessment
 - entry link
 - exit link with the labour market
 - follow-up (monitoring the career of graduates)



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EX.PER.O. Informative Model



- Organizational logics
 - the decision-making process
 - the network of responsibilities
 - the relationship with external referents
 - the contribution of the competence mix
 - the quality assurance
 - the level of access to services
- Qualitative factors
 - analysis of factors qualifying the system
- Formative processes
 - definition of the objectives
 - design of the path
 - realization and monitoring
 - guidance and counselling
 - assessment
 - feedback (reaction to the monitoring process, “in itinere” or terminal)



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EX.PER.O. Informative Model



- Link with the labour market
 - methods of access, monitoring and use of the labour market dynamics analysis
 - methods of adjustment according to the evolution of the normative context
 - methods of analysis and adjustment according to the technological evolution
 - methods of access, monitoring and use of the requirements analysis results
 - methods of surveying the latency time between the achievement of the title or certification and the entrance into the labour market (continues from follow-up)
- Link between systems
 - procedures for the adjustment to the lowest standards
 - procedures and protocols for the recognition of the credits achieved in the labour market
 - procedures and protocols for the recognition of credits among VET institutions



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EX.PER.O. Informative Model



- Differences between the Quality Systems
 - which are the common elements (or the distinguishing ones) between the national systems or the considered one and the system presented in the European Community document “Fundamentals of CQAF” attached?



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Assignment to Domains

Motivations



- With respect to H.E.L.E.N., the status of each of these three Domains is not homogeneous.
 - The Qualification Domain is more developed, as almost all of the involved countries do have a national system for articulating the professional education at post-secondary non-university level. This means that the work load for the Qualifications Domain will be significant in this area.
 - In the Certification, the transparency of qualifications-certification represents an in-progress topic (Europass 1 February 04).
 - On the other, we have the Credits Domain, in which the ECVET initiative is still in a definition phase.



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Assignment to Domains

Choices



- Therefore and as a way to cope with this difference in the status of each of the three involved domains, was decided to assign
 - two Coordination couples to the Qualifications and Standard Domain
 - while the third Coordination couple to the other two domains, that is, Certification Domain plus Credits Domain.



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Domain Coordinator couples



- The six Domain Coordinators have been grouped in couples. This decision has been motivated mainly as a way to complement the different skills that each individual coordinator possesses.
- The three coordinating couples are:
 - **Couple 1:** “Camillo Olivetti” ITIS (IT) + Regione Piemonte (IT)
 - **Couple 2:** CIEP - CR2i (FR) + Kenniscentrum Handel (NL)
 - **Couple 3:** OEEK (GR) + University of Zilina (SK)



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DC couples and Domains



Qualifications and Standard domain

“Camillo Olivetti” ITIS (IT)
Regione Piemonte (IT)

CIEP - CR2i (FR)
Kenniscentrum Handel (NL)

Certification and Credits domain

OEEK (GR)
University of Zilina (SK)



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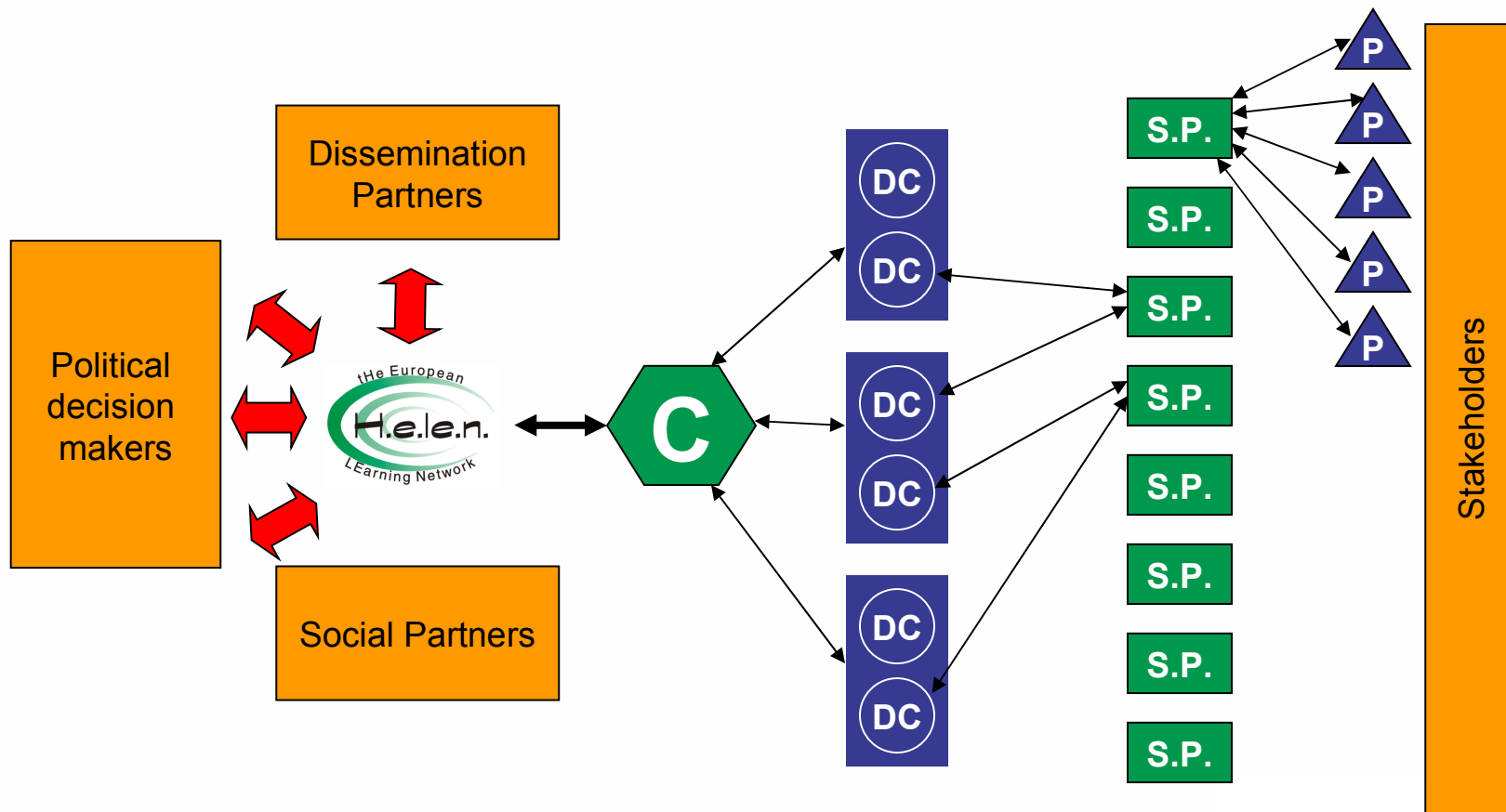
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H.E.L.E.N. Network

Overview



Assignments to DC couples



- The Coordination Couple 1 takes all the Italian specialized partners for what concerns the Qualification Domain. This is motivated by the fact that the Italian specialized partners are about the half of the total SPs.
- For this reason, it seemed more natural to divide the specialized partners in this way, specially considering the fact that all the Italian SPs share a common VET system, the IFTS model.
- The rest of the SPs go with the Coordination Couple 2.



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Specialized Partners



- Couple 1 of DCs for the Qualifications Domain 1 will have the following SP's
 - "P. Artusi" IPPSSAR (IT)
 - "A. Avogadro" ITIS (IT) (budget zero)
 - "A. Canova" Liceo Ginn. Statale (IT) (budget zero)
 - C. Prod. Veneto - Fond. G.Rumor (IT)
 - "G. Galilei" Liceo Scientifico (IT)
 - "A. Mattioni" IPSIA (IT)
 - "J.C. Maxwell" ITIS (IT)
 - "B. Pascal" ITSG (IT)
 - "E.U. Ruzza-T. Pendola" IIS (IT)



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Specialized Partners



- Couple 2 of DCs for the Qualifications Domain 2 will have the following SP's
 - WBS Training AG under Kenniscentrum Handel (NL)
 - PGP (ES) under CIEP - CR2i (FR)
 - Tourism College Killybegs (IE) under Kenniscentrum Handel (NL)
 - Univ. Tehnica Cluj-Napoca (RO) under CIEP - CR2i (FR)
 - Elfa s.r.o. (SK) under CIEP - CR2i (FR)



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Specialized Partners



- Finally, the Coordination Couple 3, in charge of the Certification & Credits, has on its turn all the Specialized Partners of the other two couples. This is motivated by the fact that all the SPs contribute to the three domains of analysis.
- Therefore each Specialized Partner has two different Domain Coordinators, one from the Qualifications Domain (either from couple 1 or 2) and another from the Certification & Credits Domain.



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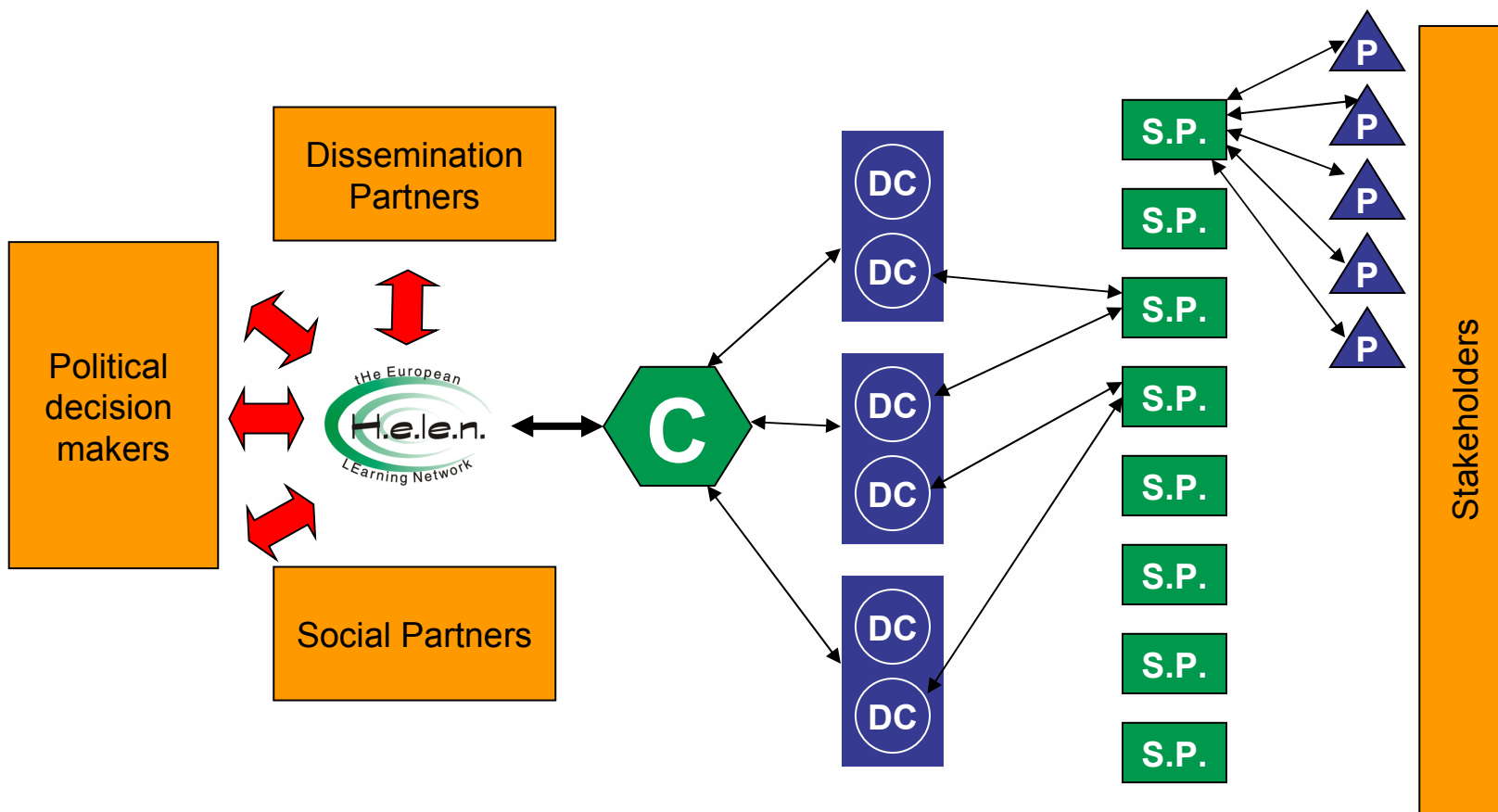


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H.E.L.E.N. Network

In-depth analysis of its structure



Key Activities



- H.E.LE.N. Key Activities are:
 - The analysis of post-secondary non-academic training models in the partner states and how they are inserted within the national training system (Ph.6 A.10, Ph.6 A.7)
 - The definition of the cases of study on the topic of Qualification & Standards and Certificates for every strategic partner (Ph.6 A.1)
 - The acquisition of informative and knowledge basis (Ph.4 A.8)
 - The construction of national models (Ph.4 A.12)
 - The construction of the meta-model for the link with the national models (Ph.6 A.5)
 - The formalization - test of links among models (Ph.6 A.6)



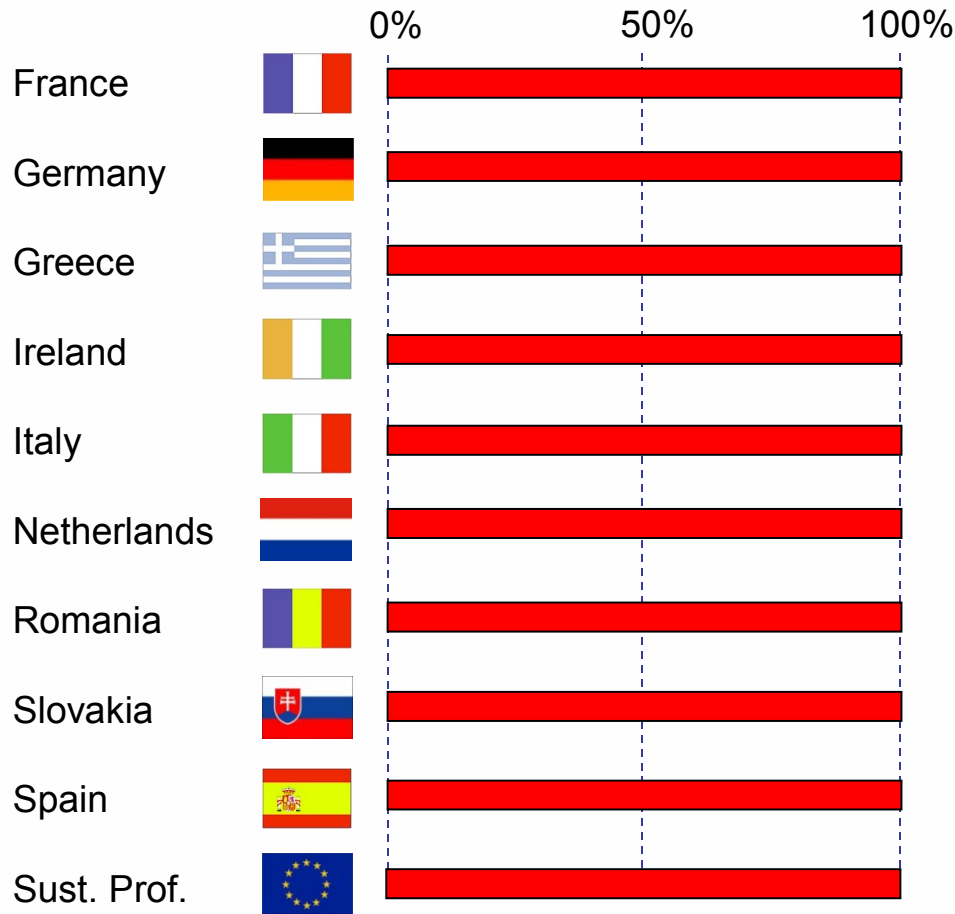
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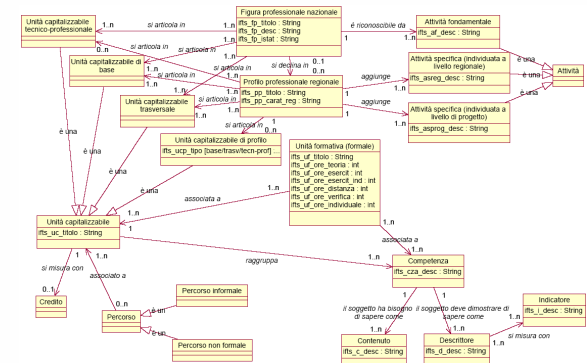
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Key Activity 1

National models formalization: per country project status



Formal representation of national VET systems (mainly Qualification)



100%

UML class-diagram based model available (with template)



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Key Activity 1

National models: Unified Modeling Language (UML)



- UML has been used for giving a graphical and easy-to-share representation of the model
- UML is a visual language for representing a system's model, that is, an abstraction of an underlying problem from a specific domain
- The domain is the actual world from which the problem comes, in our case educational profiles specifications
- H.E.LE.N. used UML Class diagrams which give a static overview of a system by showing its **concepts** and **relationships** among them



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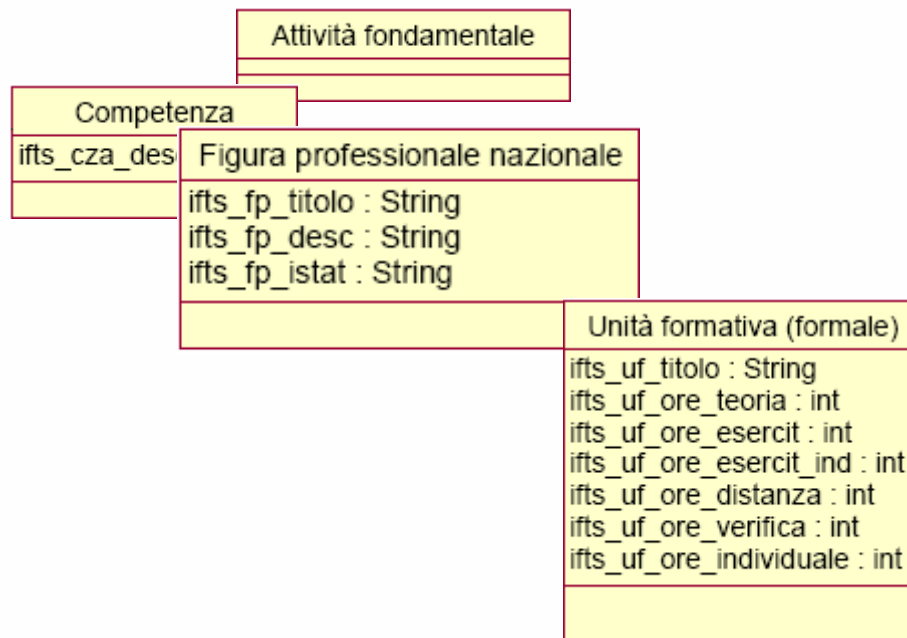
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Methodology

Concepts and UML classes

- In UML the concepts are called classes and have characteristics that differentiate them, called attributes.

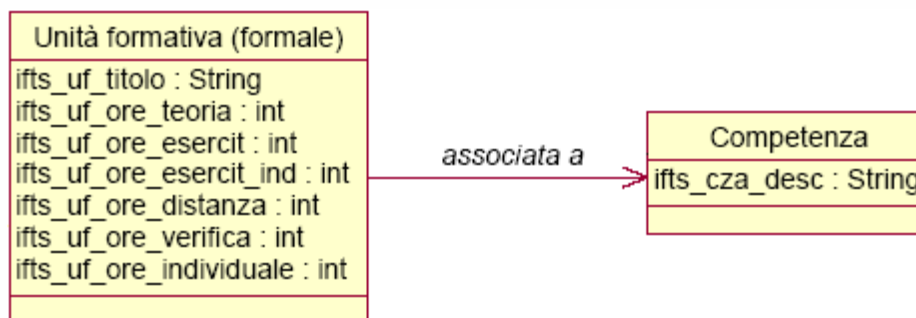




Methodology

Relationships: association

- There are three basic kinds of relationships
- **Association**: a relationship between instances of the two classes. In a diagram, an association is a link connecting two classes.

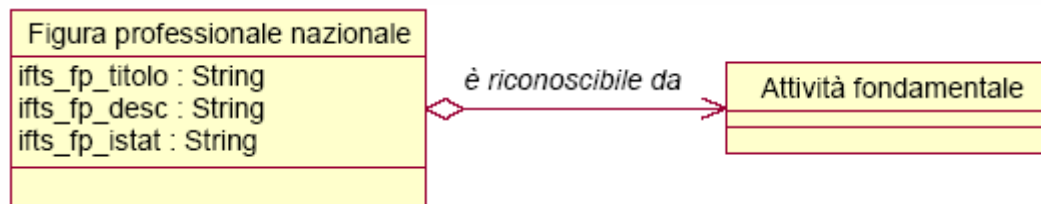


Methodology

Relationships: aggregation



- **Aggregation**: an association in which one class belongs to a collection. An aggregation has a diamond end pointing to the part containing the whole.

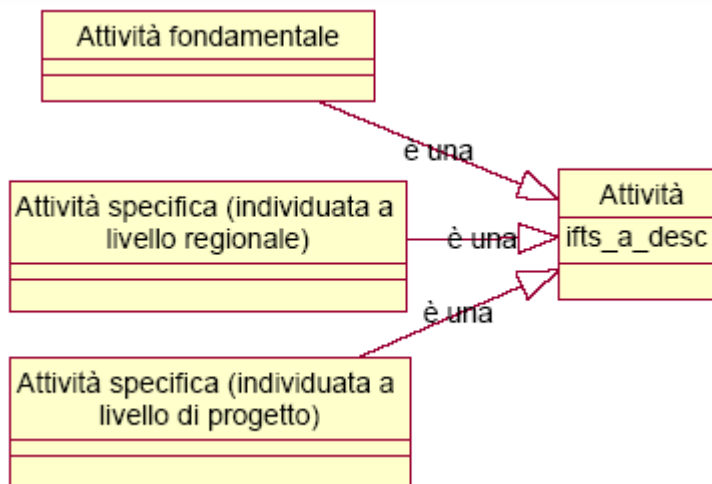




Methodology

Relationships: generalization

- **Generalization**: an inheritance link indicating one class is a superclass of the other. A generalization has a triangle pointing to the superclass.

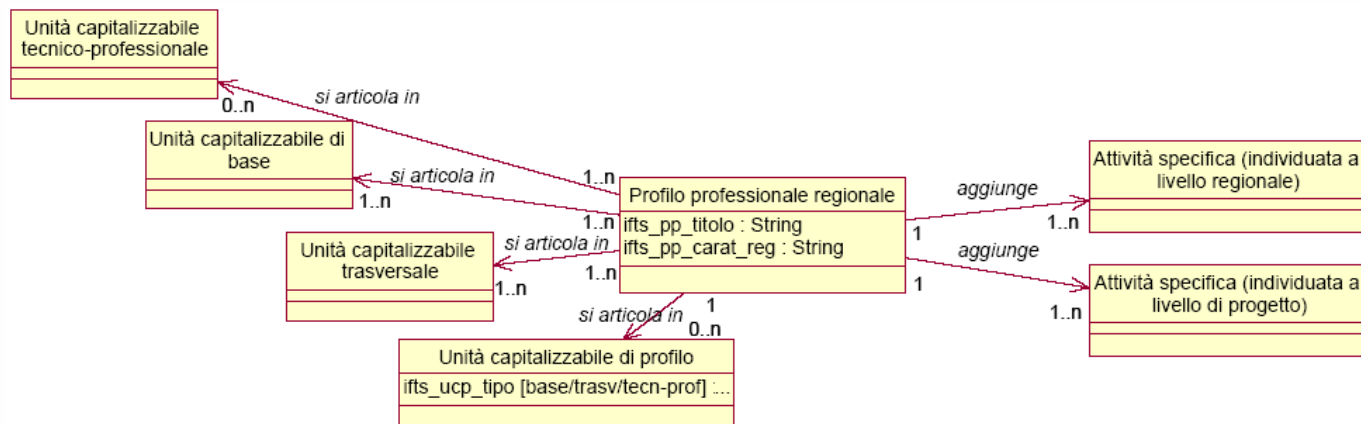


Methodology

Multiplicities or cardinalities



- The **multiplicity** (or **cardinality**) of an association end is the number of possible instances of the class associated with a single instance of the other end.



Methodology

Multiplicities or cardinalities



- In general, multiplicities are single numbers or ranges of numbers

Multiplicities	Meaning
0..1	zero or one instance.
0..* or * or n	no limit on the number of instances (including none).
1	exactly one instance.
1..* or 1..n	at least one instance.
n . . m	n to m instances.



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Methodology

IFTS: Introduction



- The system of Technical Higher Education (IFTS) was born to answer the request for **specialized professional figures/jobs** coming from the sectors characterized by a high technological and organizational transformation, which are necessary to support the country in the changes affecting a complex society.



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Methodology: IFTS

Figura professionale and Attività fondamentali



- For each professional figure (or *figura professionale nazionale*, in Italian) is given a description of the fundamental professional activities (or *attività professionali fondamentali*, in Italian) that characterize it.
- The fundamental professional activities are the essential ones, that is, those without which the figure cannot be recognized



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Methodology: IFTS

Competenze di base, trasversali, tecnico-professionali



- The professional features expressed by a professional figure and acquired through a Technical Higher Education (IFTS) course, combine specific **technical-sectorial competences** (**tecnico-professionali**, in Italian) with solid **basic** and **cross competences** (**di base and trasversali** in Italian, respectively).



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Methodology: IFTS

Competenze di base, trasversali, tecnico-professionali



- Standards of lowest competences: characterize the minimal common basis of competences that the person (the learner) must demonstrate to possess in outcome to the formative course.
- The minimal standards comprise the specification of basic, cross and technical-sectorial competences.
- At national level, the professional figures of reference and the system of minimal standards of competences are defined.



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Methodology: IFTS

Profilo professionale regionale



- At regional level minimal standards are implemented, that is, additional competences are characterized in order to answer to the local requirements.
- In this way the national professional figures are contextualized, giving place to specific **regional professional profiles** (**profili professionali regionali**, in Italian).



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Methodology: IFTS

Attività specifiche individuate a livello regionale/progetto



- Such profiles are characterized from both specific professional activities individuated at a regional level as well as from specific professional activities individuated at a project level, that is attività professionali specifiche (individuate a livello regionale) and attività professionali specifiche (individuate a livello di progetto), respectively, in Italian.



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Methodology: IFTS

Competenze and Unità capitalizzabili



- The **competences** (**competenze**, in Italian) for each areas are articulated in **Units** (**Unità capitalizzabili**, in Italian) which have been built around fundamental conceptual nuclei, functional to the kind of qualification that distinguishes Technical Higher Education.
- In fact they are expressed in terms of “the learner knows how to”, though this is connected to the principles, notions, methods from which the “knows how to” derives.



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Methodology: IFTS

Competenze and Unità capitalizzabili



- Each Unit is:
 - a unitary and compact training segment, aimed at the achievement of precise competences which must be made explicit and assessed;
 - a point of reference for the certification of competences acquired by each person - in his/her life experience, and the base for the acknowledgement of credits;
 - the lowest standard in the sense that it can be tailored and enriched in contents.



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EXPERO

I/05/B/F/PP-154171

EX.PER.O. Ljubljana 23-24-25/01/2006

Consolidated System: European Scenario

Methodology: IFTS

Contenuti, Descrittori and Indicatori



- Besides the “the learner needs to know how” section which characterizes the **contents** (or **contenuti**, in Italian) of the Unit, within a particular Units, competences express the concept of “the learner is able to”.
- To identify Units contents we can count on assessment criteria based on a “the learner should demonstrate to” concept, that is a **descriptor** (or **descrittore**, in Italian) according to a defined level of difficulty, that is an **indicator** (or **indicatore**, in Italian).



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Consolidated System: European Scenario

Methodology: IFTS

Unità capitalizzabili



- In conclusion, Units are accepted as functional elements for the determination of the competences that each person should possess. Thus, **basic Units** and **cross Units** (that is **Unità capitalizzabile di base** and **Unità Capitalizzabili trasversali**, in Italian) can be identified as aggregation of basic and cross competences.
- These Units (with their associated competences) complement the specific **technical-sectorial** (in Italian, **tecnico-professionali**) Units/competences associated to a particular vocational figure.



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Methodology: IFTS

Unità formative



- The F.U. (**Formative Units** or **Unità Formative** in Italian) instead can refer to one or more Units, covering completely or partly them, and they represent the manner in which competences are acquired, variously intermixing with the other professionalizing Units, both lowest (national) and specific (made explicit at a regional level). It is indeed thanks to a standardization of the descriptive methods that they can be confronted in other areas and are therefore made “*capitalizable*”.



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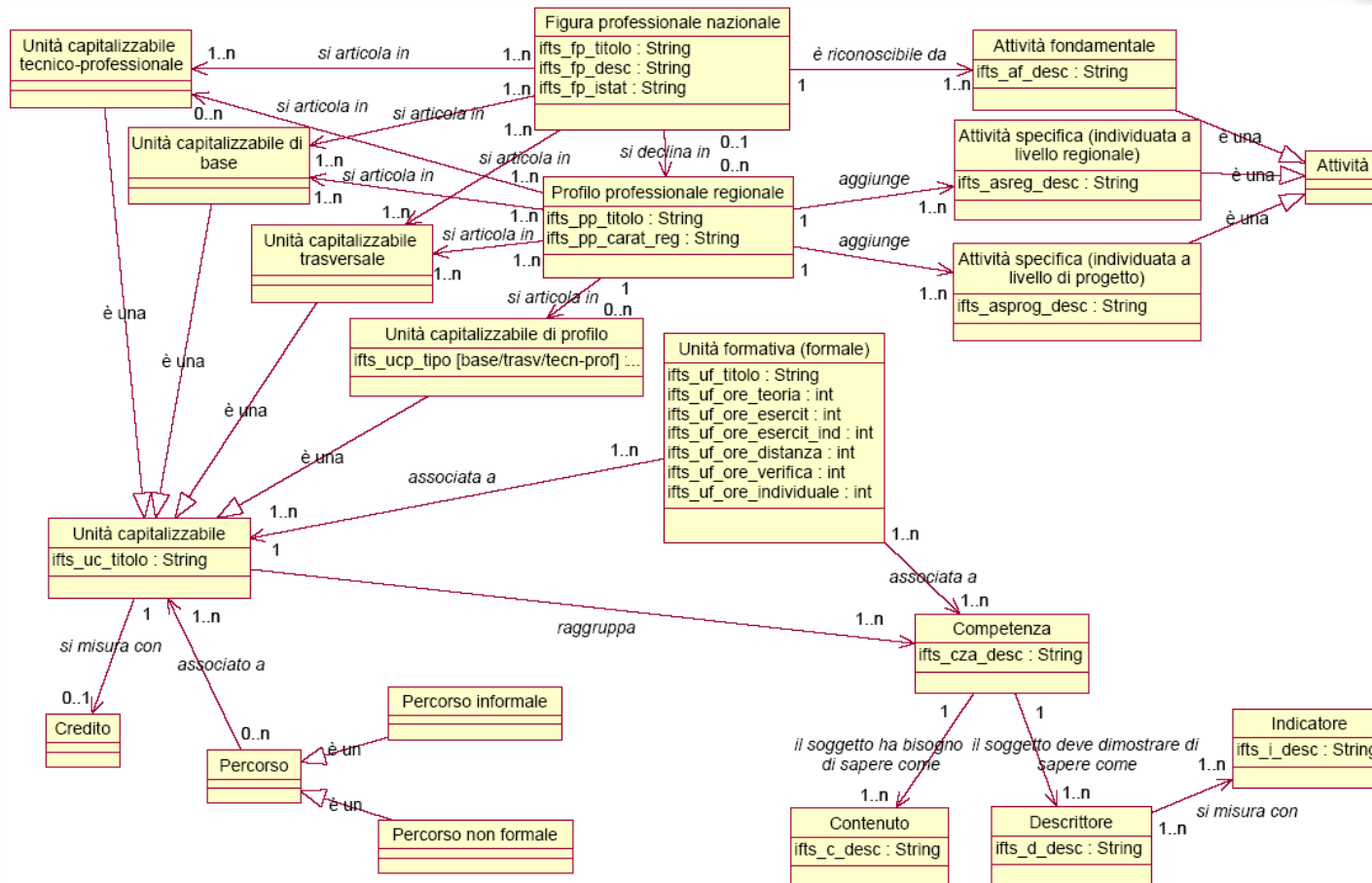
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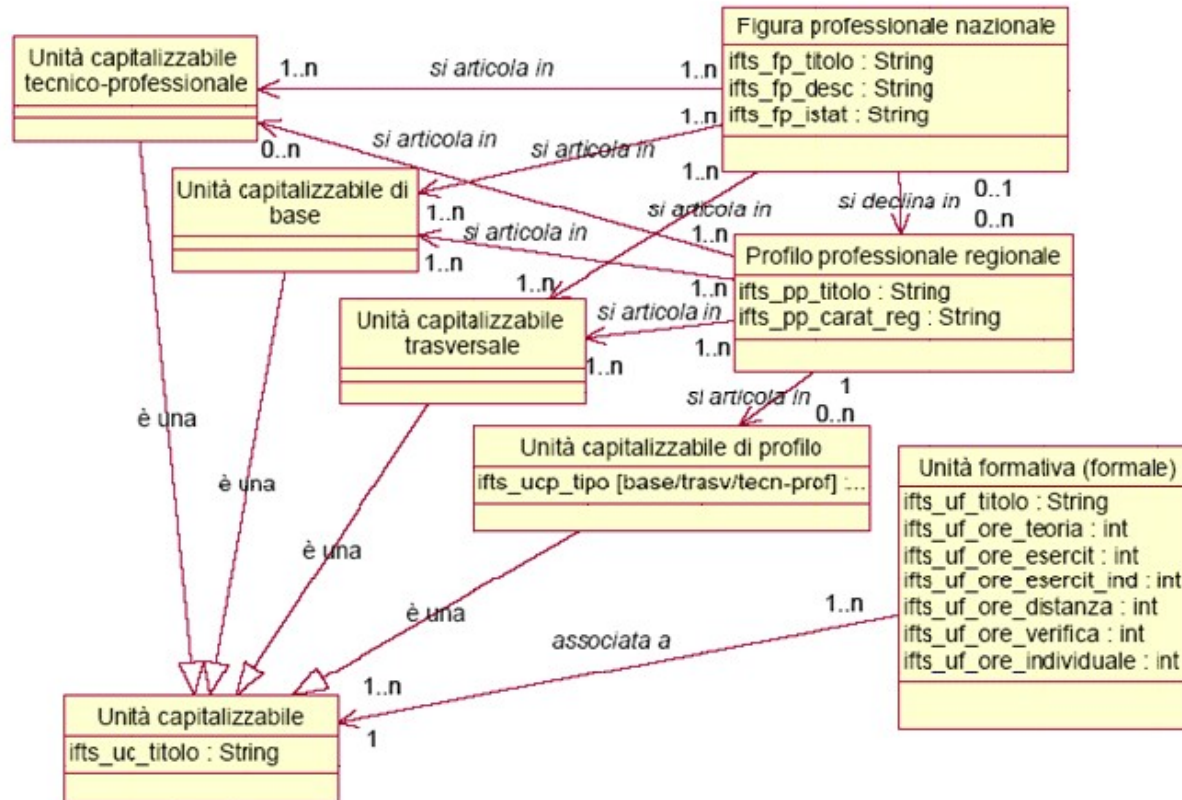
Key Activity 1

UML model for IFTS system (Italy): overall view



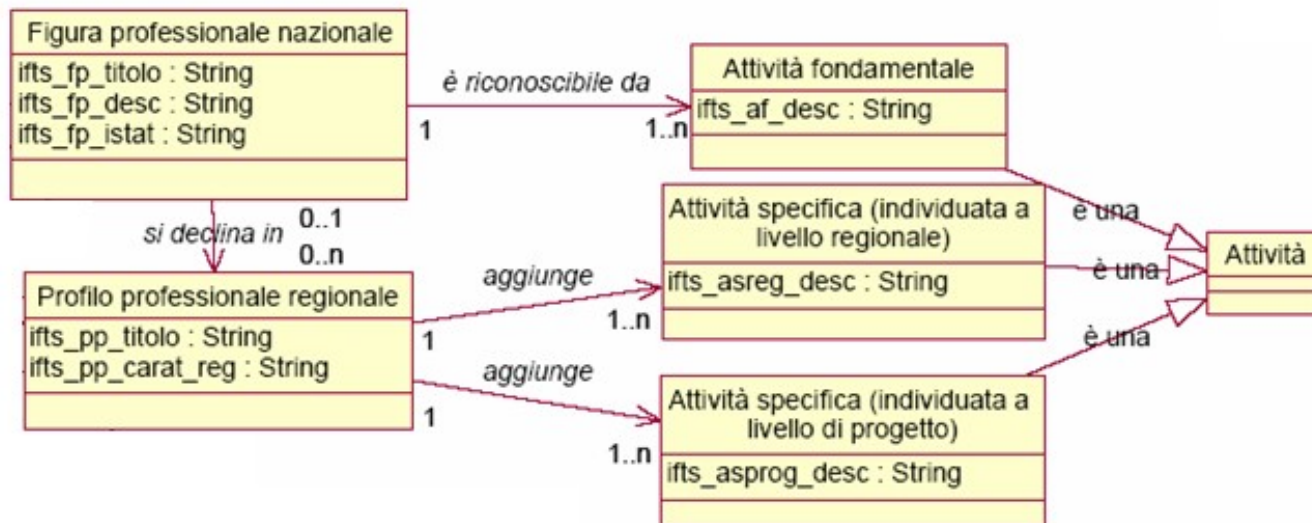
Key Activity 1

UML model for IFTS system (Italy): particular



Key Activity 1

UML model for IFTS system (Italy): particular



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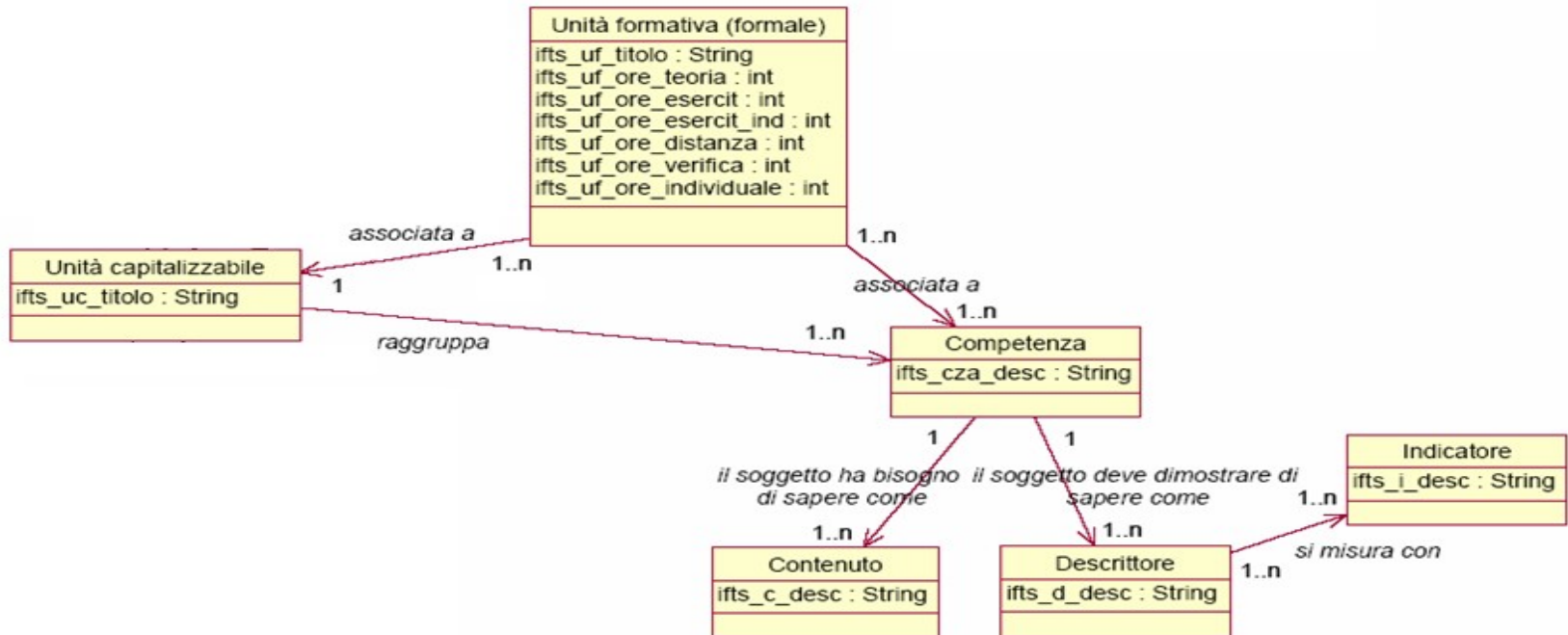
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Key Activity 1

UML model for IFTS system (Italy): particular



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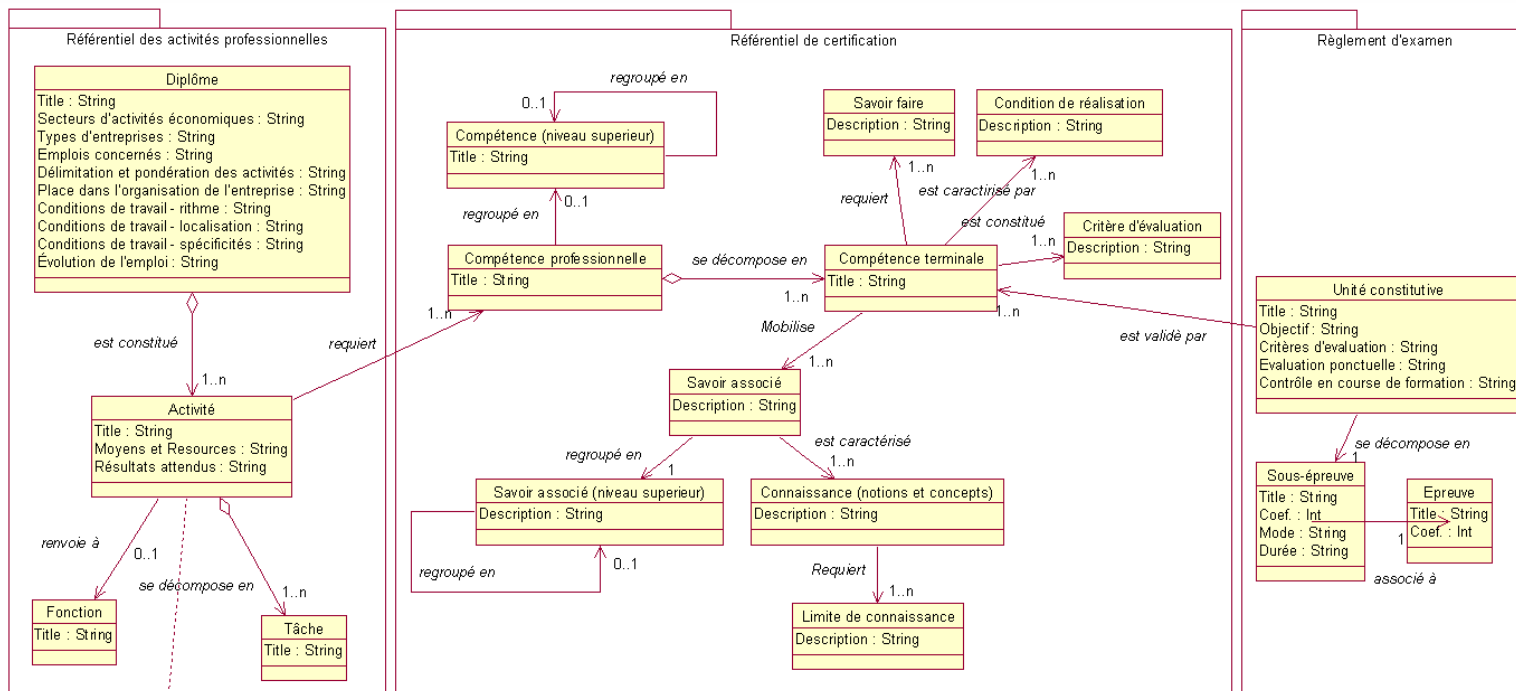
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Key Activity 1

UML model for DESCO/CPC system (France)

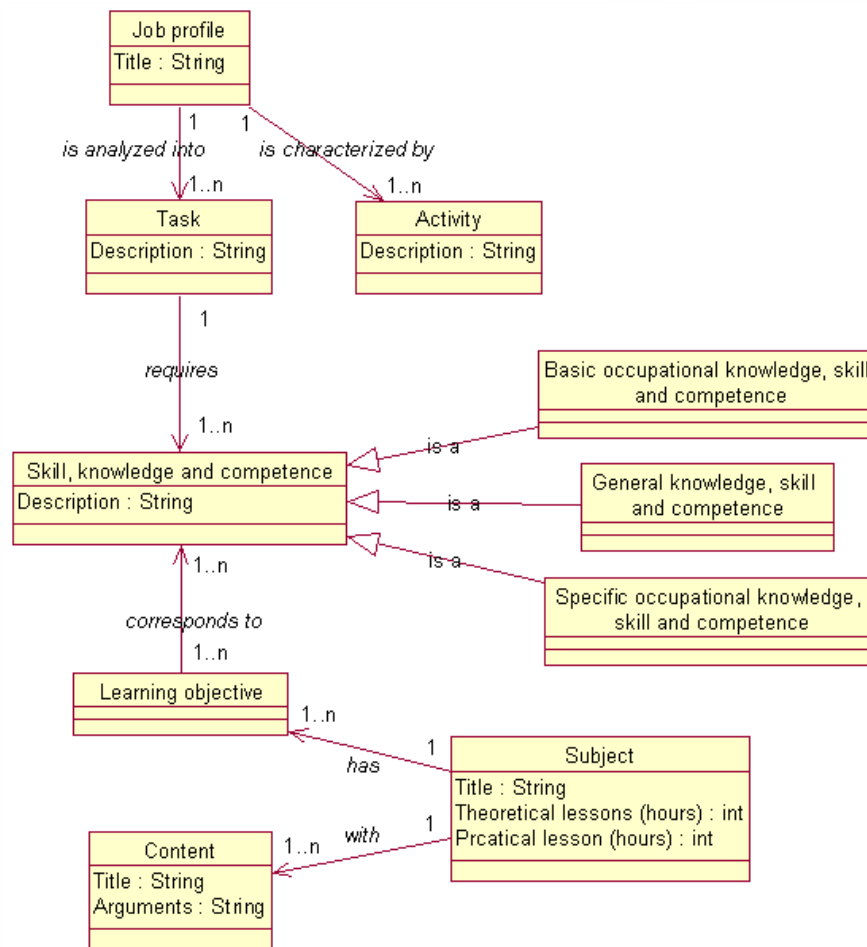


Dans certains cas - diplôme tertiaire par exemple - l'attribut "moyens et ressources" risque d'être répétitive: il est alors préférable de la faire apparaître une seule fois, comme attribut de le diplôme.



Key Activity 1

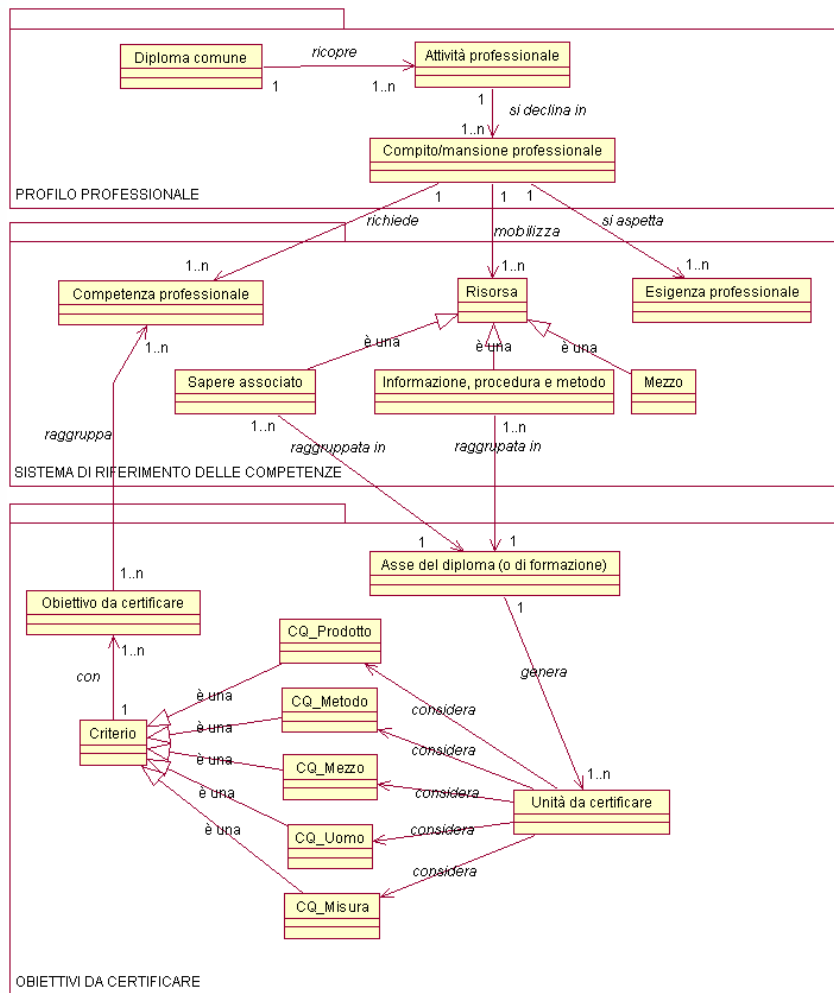
UML model for the Greek traditional system





Key Activity 1

UML model for Sustainable Professionalization

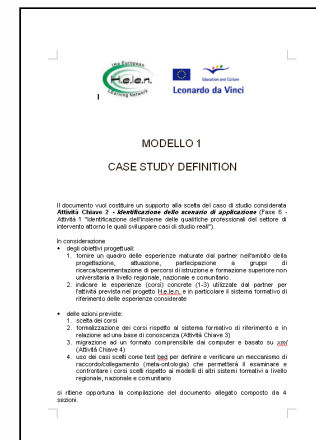


Key Activity 2

Case study definition



- The definition of the cases of study on the topic of Qualification & Standards and Certificates for every strategic partner: this correspond to the identification of the application scenario (field/course or profile).
 - This is done through a MS Word document (template)
 - Partner experiences (IFTTS, LdV, or other projects) which can become a case study are explicated



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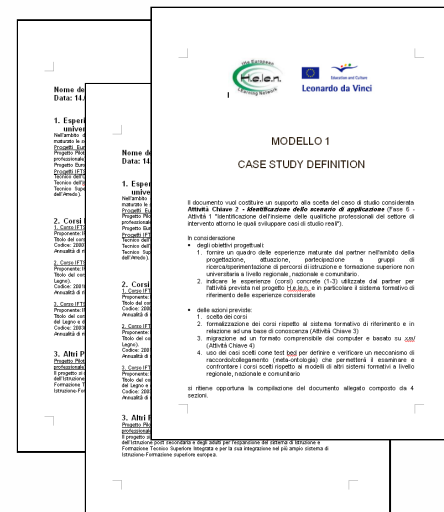
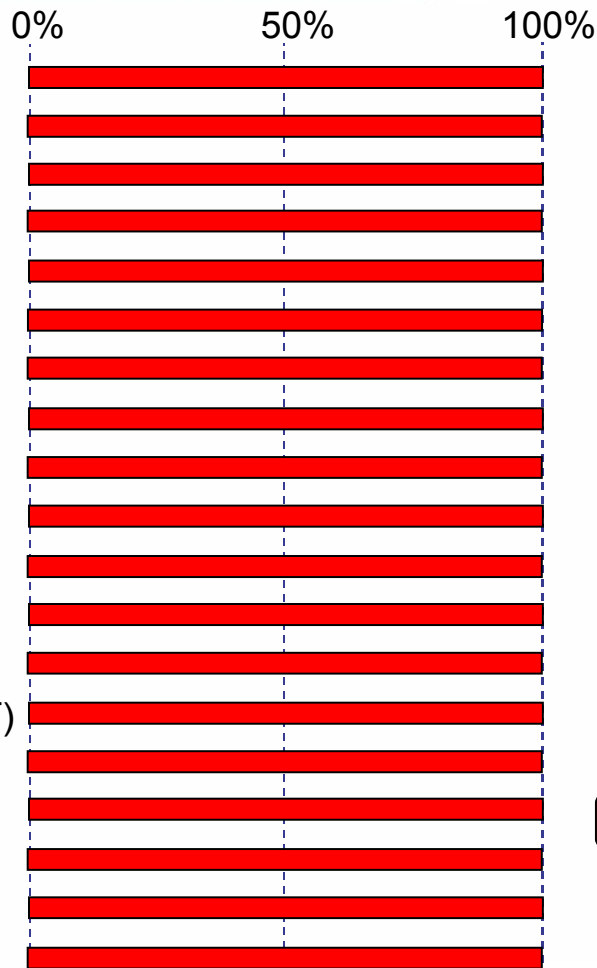
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Key Activity 2

Case study definition: per partner project status



- “Camillo Olivetti” ITIS (IT)
- CIEP - CR2i (FR)
- Kenniscentrum Handel (NL)
- OEEK (GR)
- University of Zilina (SK)
- WBS Training AG
- Univ. Tehnica Cluj-Napoca (RO)
- Elfa s.r.o. (SK)
- PGP (ES)
- Tourism College Killybegs (IE)
- “P. Artusi” IPPSSAR (IT)
- “A. Avogadro” ITIS (IT)
- “A. Canova” Liceo Ginn. Statale (IT)
- C. Prod. Veneto - Fond. G.Rumor (IT)
- “G. Galilei” Liceo Scientifico (IT)
- “A. Mattioni” IPSIA (IT)
- “J.C. Maxwell” ITIS (IT)
- “B. Pascal” ITSG (IT)
- “E.U. Ruzza-T. Pendola” IIS (IT)



100%

Case Study Definition Form properly filled available

Key Activity 2

Case study definition: selected profiles/courses



- "Camillo Olivetti" ITIS (IT) Tecnico Specialista in Tecnologie Wireless
- CIEP - CR2i (FR) BAC Professionnel Commerce
- Kenniscentrum Handel (NL) Retail Entrepreneur
- OEEK (GR) Computerized Accounting Operations Assistant
- University of Zilina (SK) Computer Systems
- WBS Training AG IT specialists Working in System Integration
- Univ. Tehnica Cluj-Napoca (RO) Analyst Programmer
- Elfa s.r.o. (SK) Training of school multimedia comp. classroom adm.
- PGP (ES) Operation of Computing Systems
- Tourism College Killybegs (IE) Professional Cookery
- "P. Artusi" IPPSSAR (IT) Tecn. Sup. per la Ristorazione e la Valorizzazione dei Prodotti Territoriali e delle Produzioni Tipiche
- "A. Avogadro" ITIS (IT) Tecn. Sup. per i Sistemi e le Tecnologie Informatiche (per reti fisse e wireless)
- "A. Canova" Liceo Ginn. Statale (IT) Mediatore Linguistico per la Piccola e Media Impresa
- C. Prod. Veneto - Fond. G.Rumor (IT) Tecn. Sup. per la Programmazione della Produzione e la Logistica
- "G. Galilei" Liceo Scientifico (IT) Esperto per la Promozione del Territorio nell'Impresa di Viaggi e Turismo
- "A. Mattioni" IPSIA (IT) Tecn. Sup. di Industrializzazione del Prodotto e del Processo
- "J.C. Maxwell" ITIS (IT) Tecn. Sup. per i Sistemi e le Tecnologie Informatiche (per reti fisse e wireless)
- "B. Pascal" ITSG (IT) Tecn. Sup. per la Comunicazione ed il Multimedia (Webmaster)
- "E.U. Ruzza-T. Pendola" IIS (IT) Tecn. Sup. Marketing-Vendite



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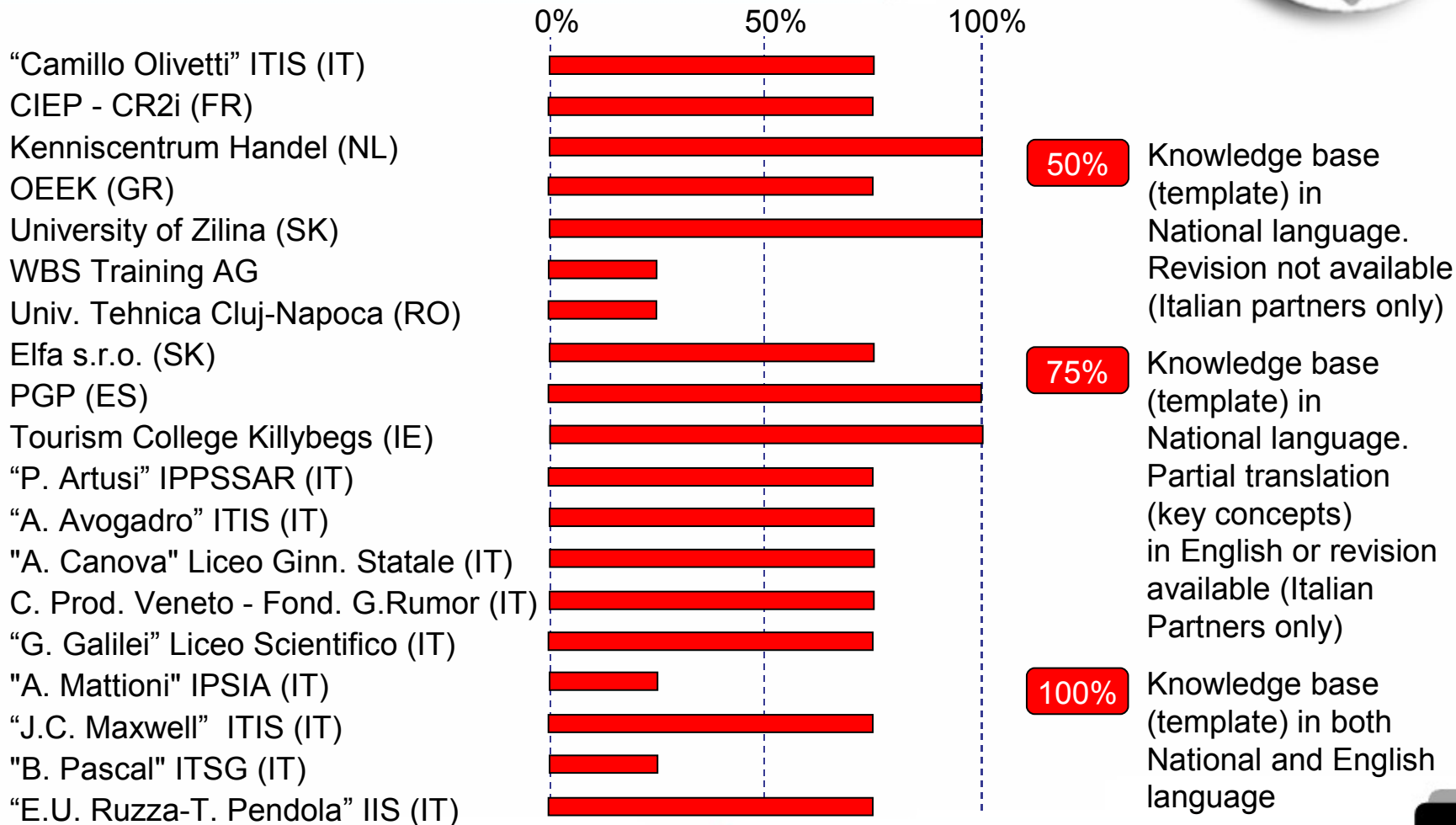


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Key Activity 3

Knowledge base (template: per partner project status)



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Key Activity 4

Model construction: ontology



- In the informatics literature, ontology means the systematic representation of conceptual elements, that is, **a formal model (knowledge base) directly usable by software programs**. Such a model has the purpose of giving a univocal representation of the information in an easily understandable format for both **men and computer programs or processes**.
- Ontology means therefore a definition/description made through concepts and their relationships in a specific domain.



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Key Activity 4

Model construction: ontology

- The term is generally used to refer to a **shared understanding** of some domain of interest, that is, a **model**,
- stored in such a way (format) that can be machine interpretable and understandable (main difference with a normal model).
- ontology will be specified using a logic-based formal language, usually called *ontology language*.



Model

+

Machine
understandable
format

= **Ontology**

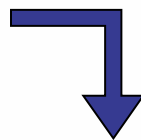
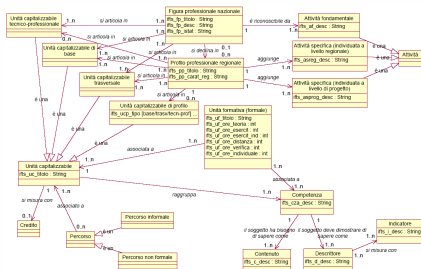




Key Activity 4

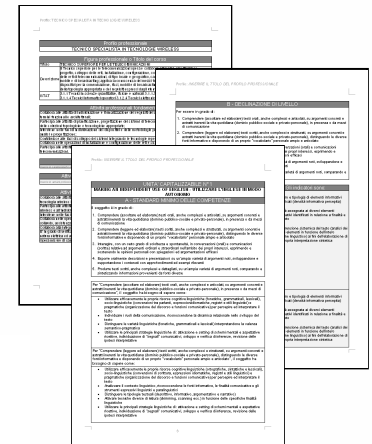
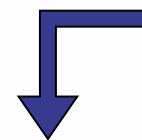
Model construction: the OWL ontology language

- The DC's translate the models containing the study cases from a human understandable format into a machine underst. one (OWL Ontology Language).
 - 1st part. Model translation (Schema)
 - 2nd part. Study Case translation (Instances)



```
<owl:InverseFunctionalProperty rdf:about="#FiguraProfessionaleNazionaleIsCharacterizedBy">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#ObjectProperty"/>
  <owl:inverseOf rdf:resource="#AttivitaFondamentaleCharacterizes"/>
  <rdfs:subPropertyOf rdf:resource="#has"/>
  <rdfs:domain rdf:resource="#FiguraProfessionaleNazionale"/>
  <rdfs:range rdf:resource="#AttivitaFondamentale"/>
</owl:InverseFunctionalProperty>

<owl:ObjectProperty rdf:about="#AttivitaFondamentaleCharacterizes">
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  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#InverseFunctionalProperty"/>
  <rdfs:domain rdf:resource="#AttivitaFondamentale"/>
  <rdfs:subPropertyOf rdf:resource="#isPartOf"/>
  <owl:inverseOf>
    <owl:InverseFunctionalProperty rdf:about="#FiguraProfessionaleNazionaleIsCharacterizedBy"/>
  </owl:inverseOf>
</owl:ObjectProperty>
```



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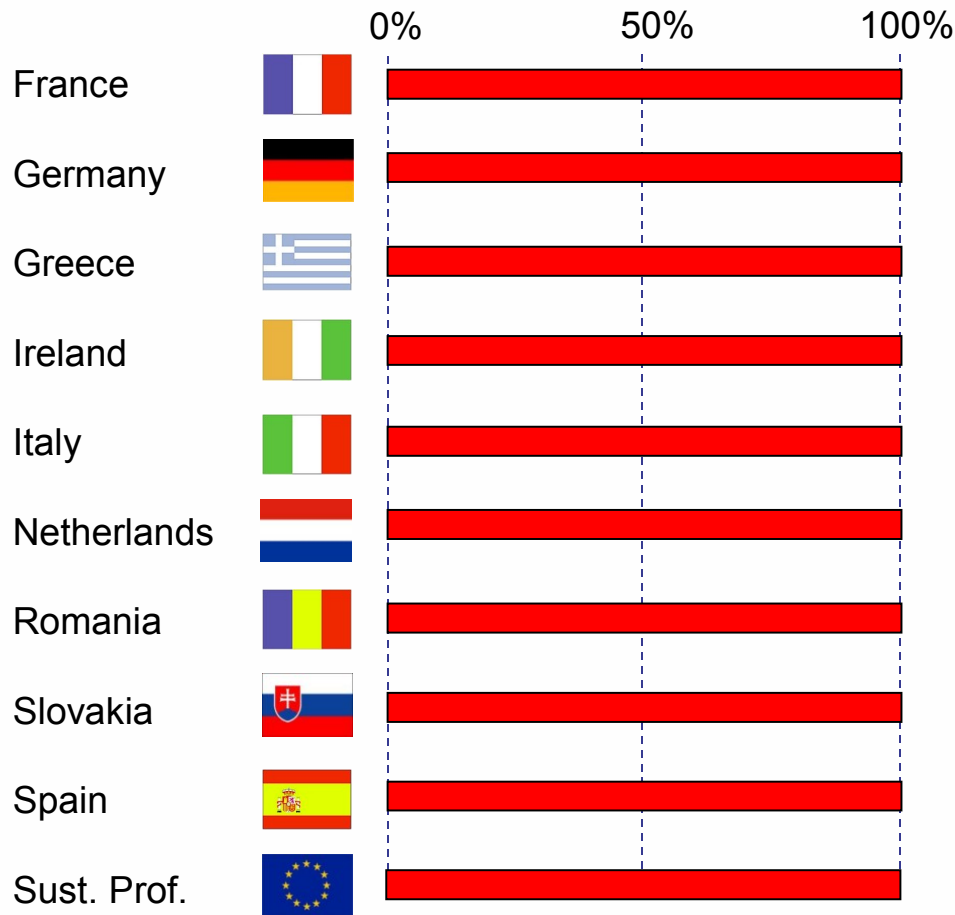
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Key Activity 4

Model construction – 1st Part: schema



OWL based ontology definition for national VET system models

```
<owl:InverseFunctionalProperty rdf:about="#FiguraProfessionaleNazionaleIsCharacterizedBy">
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl:ObjectProperty"/>
  <owl:inverseOf rdf:resource="#AttivitaFondamentaleCharacterizes"/>
  <rdf:subPropertyOf rdf:resource="#has"/>
  <rdf:domain rdf:resource="#FiguraProfessionaleNazionale"/>
  <rdf:range rdf:resource="#AttivitaFondamentale"/>
</owl:InverseFunctionalProperty>

<owl:ObjectProperty rdf:about="#AttivitaFondamentaleCharacterizes">
  <rdf:range rdf:resource="#FiguraProfessionaleNazionale"/>
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl:FunctionalProperty"/>
  <rdf:domain rdf:resource="#AttivitaFondamentale"/>
  <rdf:subPropertyOf rdf:resource="#IsPartOf"/>
  <owl:inverseOf>
    <owl:InverseFunctionalProperty rdf:about="#FiguraProfessionaleNazionaleIsCharacterizedBy"/>
  </owl:inverseOf>
</owl:ObjectProperty>
```

100%

Ontology description in OWL available



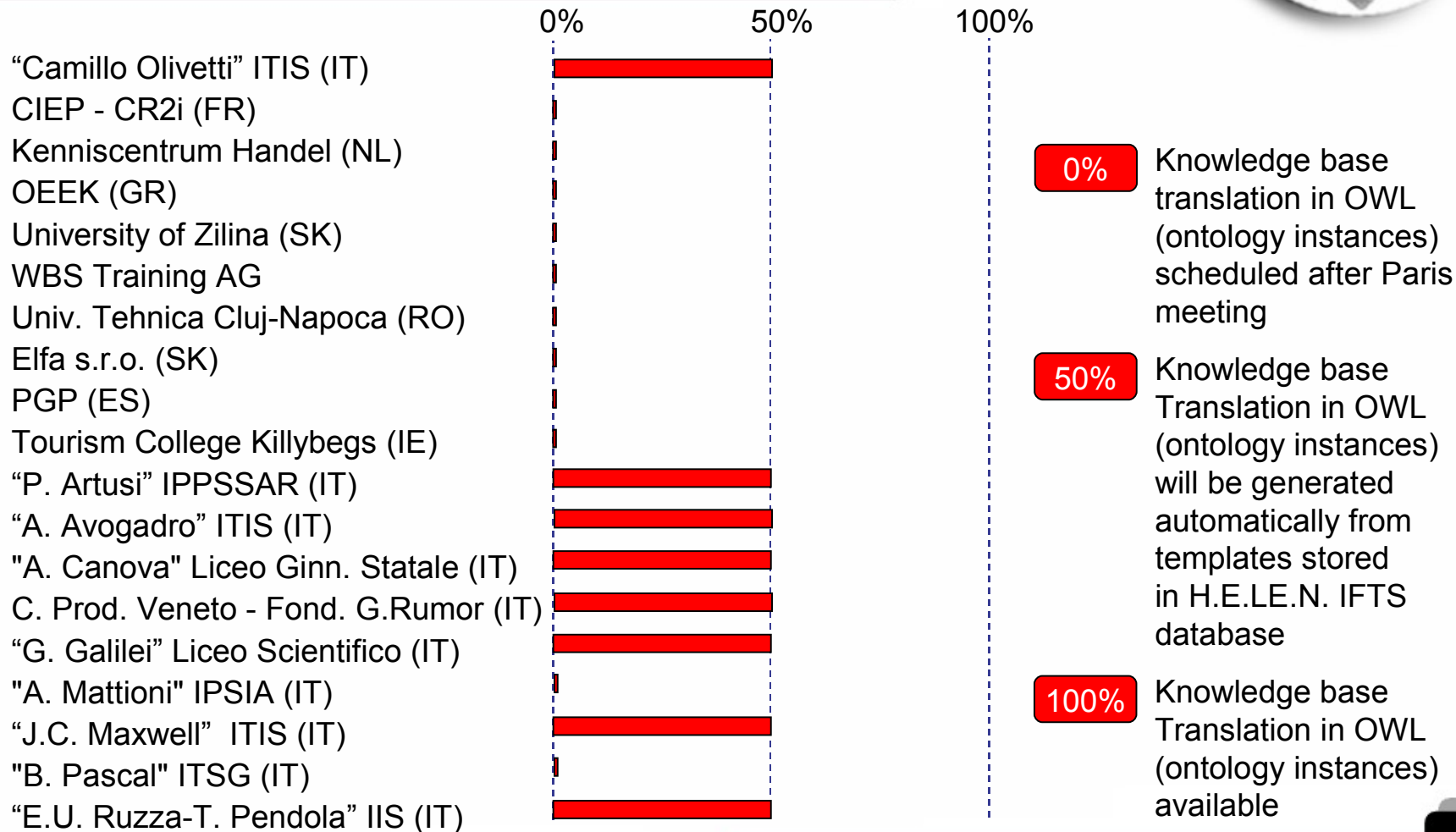
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Key Activity 4

Model construction – 2nd Part: instances



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Key Activity 4

Model construction – 1st Part: instances (IFTS KB)



H.e.l.e.n. :: The European Learning Network - Microsoft Internet Explorer

File Modifica Visualizza Preferiti Strumenti ?

Indirizzo http://www.helen.polito.it/modules.php?op=modload&name=ifts&file=index&req=figura_professionale_create&modalita=create2&fts_fp_id=6

17 Ott 2005 - 06:08 PM

H.e.l.e.n. The European Learning Network

Benvenuto

IFTS

- Fig. Prof.

Menu Principale

- Home
- Circa H.e.l.e.n.
- Siti di Dominio
- Il Mio Account
- Amministrazione
- Logout

Sezioni

- Notizie
- Links Web
- FAQ
- Statistiche
- Cercare
- Contattarci

Area Partners

- Forums
- Aggiungere Notizie
- Downloads
- Elenco Membri

In Linea

Abbiamo 0 ospiti e 1 iscritto in linea.

Sei in linea come iftsadmin.

Lingue

[Torna alla selezione della FIGURA PROFESSIONALE]

Imposta i dettagli relativi alla FIGURA PROFESSIONALE

Dettagli relativi alla FIGURA PROFESSIONALE [Modifica]

TITOLO: TECNICO SUPERIORE COMMERCIALE/MARKETING/ ORGANIZZAZIONE VENDITE

Descrizione: Il tecnico superiore commerciale, per il marketing e per l'organizzazione delle vendite, in quanto figura professionale "a banda larga", cura l'attuazione delle strategie relative ai prodotti ed ai mercati, nonché l'attuazione delle politiche commerciali e promozionali. Collabora nell'organizzazione e nel coordinamento delle vendite e della distribuzione.

ISTAT: 3.3.3 Professioni intermedie nei rapporti con i mercati

ATTIVITA' FONDAMENTALI associate alla FIGURA PROFESSIONALE

organizzare le attività inerenti alla distribuzione dei prodotti/servizi aziendali;	
coordinare ed integrare le competenze e le risorse presenti in azienda negli ambiti:commerciale, marketing, comunicazione e distribuzione;	
operare e collaborare nel campo della comunicazione aziendale, in alcuni casi organizzando in prima persona, sia eventi e manifestazioni volte a dare visibilità all'immagine ed ai prodotti/ e/o servizi aziendali, sia la predisposizione di materiale pubblicitario (cataloghi e campionari), a supporto delle attività aziendali;	
operare e collaborare nel campo del marketing e del commercio, nell'implementazione del sistema informativo di marketing, svolgendo ricerche mirate, e/o nella gestione dei processi di customer satisfaction e di mercato, in una data area geografica, intrattenendo rapporti con la clientela, rilevando le loro esigenze, collaborando per individuare i prodotti e i servizi più adeguati;	

UNITA' CAPITALIZZABILI di base

MAKING AN INDEPENDENT USE OF ENGLISH - UTILIZZARE L'INGLESE IN MODO AUTONOMO	Di base	Competenze
USING ENGLISH AS A TECHNICAL LANGUAGE - UTILIZZARE L'INGLESE COME LINGUAGGIO TECNICO	Di base	Competenze



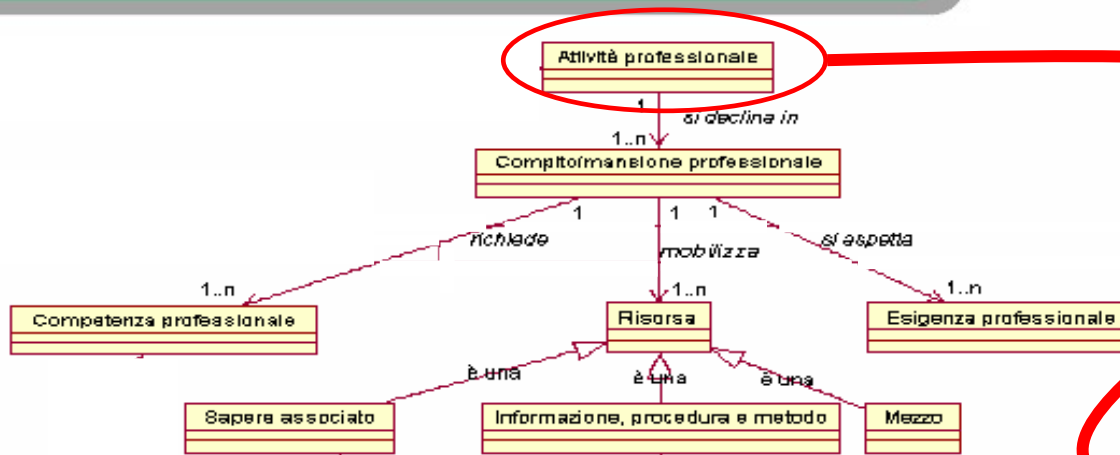
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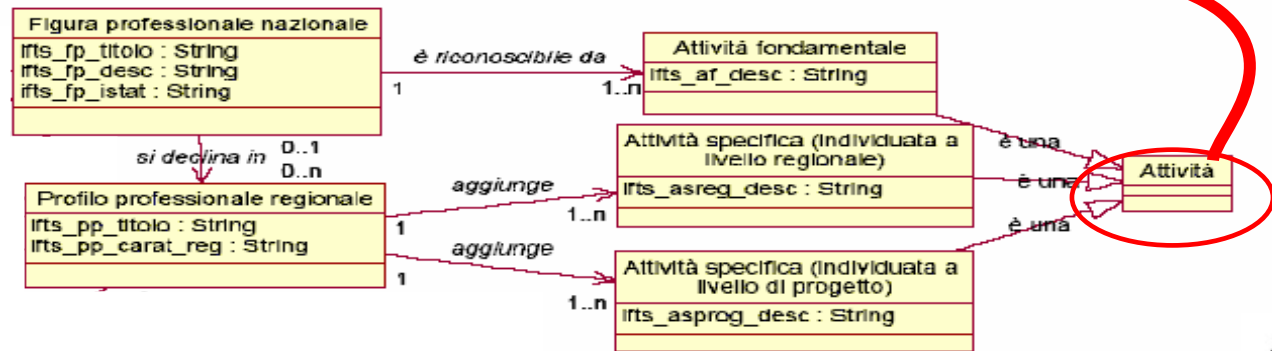
Key Activity 5

Linking mechanism definition



That's the question !?

This concepts can be mapped directly, or by adding new entities??

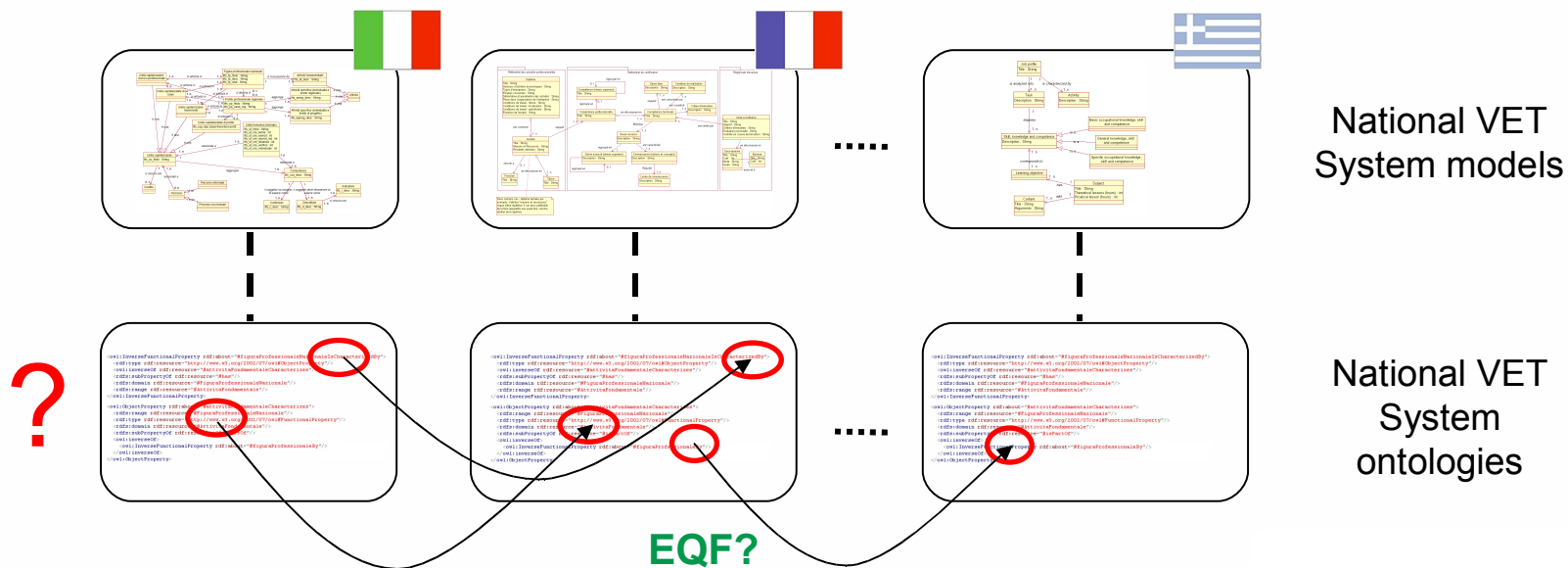




Key Activity 5

Linking mechanism definition

- This will allow the mobility and transparency of the qualifications by establishing mechanisms for passage from one system to another at an abstract level, that is, at a level of the models (ontologies)



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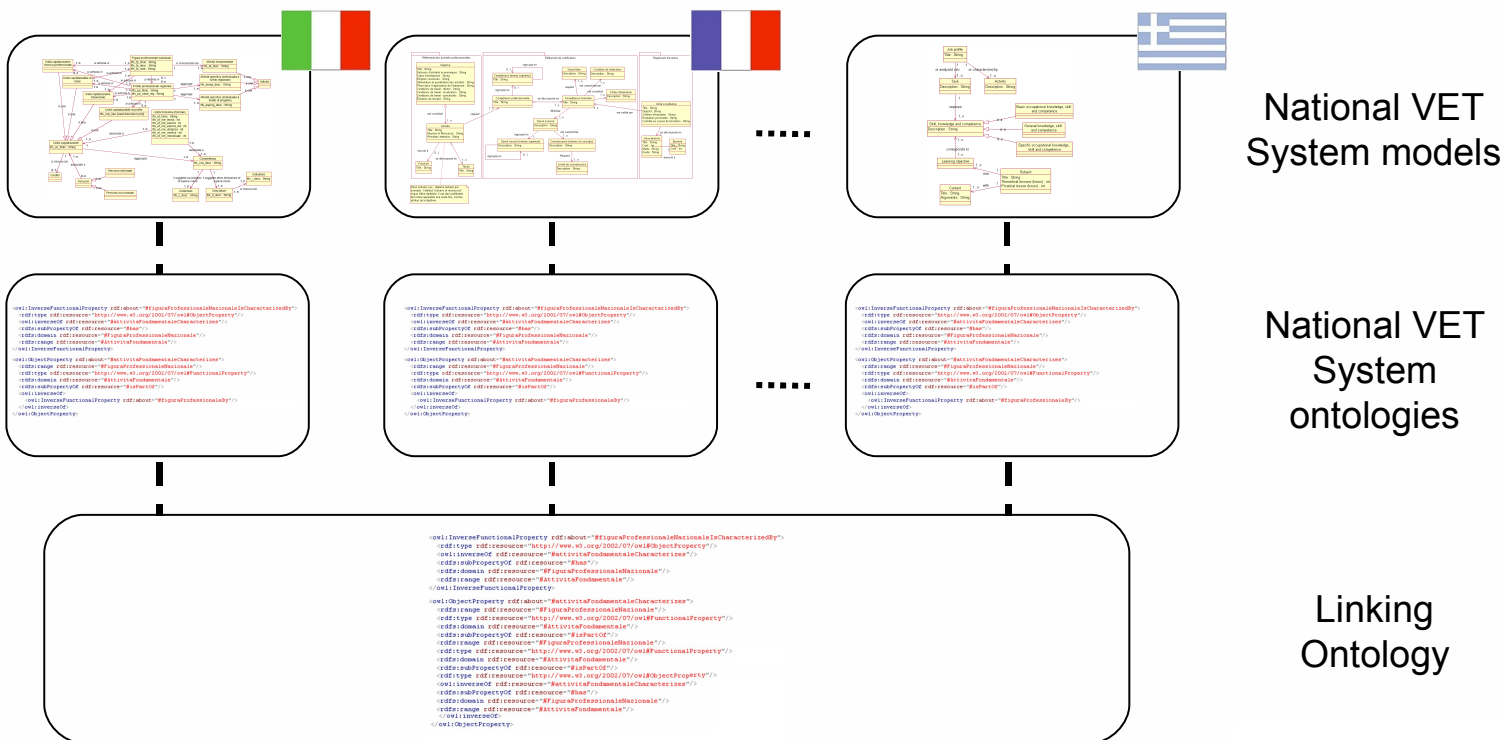
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Key Activity 6

Linking mechanism formalization and testing

- The linking ontology defined before is applied to the considered case studies



National VET System models

National VET System ontologies

Linking Ontology



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QUOVADIS & Semantic Web



- Basic idea: application of the Semantic Web philosophy/strategy to the VET system ontologies developed within H.E.LE.N. The Semantic Web is the next step in the Internet's evolution.
- The Semantic Web has become well defined in the last few years. Framework and tools are beginning to become widely commercially available.
- Among other things, the Semantic Web involves the addition of semantics to the current Internet framework by assigning meaning clarifiers (semantic tags) to web data.
- These tags must be either mined or manually inserted (anyway, they come from an ontology)



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Why Semantic Web ?

Traditional Web vision



- At its birth, the Internet was designed to disseminate human readable information across varying distances with relative ease.
- Thus, today's Web content is almost suitable for human consumption.
- Typical uses of the Web today involve people's seeking and making use of information, searching for and getting in touch with other people, reviewing catalogs of online stores and ordering products by filling out forms



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Why Semantic Web ?

The importance of search engines (and their limits)



- Apart from the existence of links that establish connections between documents, the main valuable, indeed indispensable, tools are search engines.
- The current version of the Internet has little underlying structural help to easily extract information from all of those web pages.
- Computers have a difficult time parsing web pages and automatically extracting usable, correct, and valid data from them. It has become increasingly clear that semantics must be added to web pages in order for computers to know how to handle them.



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Why Semantic Web ?

Traditional search engines



- The actual search Engines are not able to understand the meanings of the terms and the expressions used in the Web pages
- The Web page contents cannot be analyzed from a computer that automatically extract and use its informations
- A traditional web search based on the matching of the keywords produces a lot of useless entries making difficult the human selection



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Why Semantic Web ?

Semantic search engines



- The Semantic search engines are able to understand the meaning of the content on the web pages
- An automatic analysis and extraction of the web pages contents can be performed
- A Semantic Web search generate a smaller set of entries reducing the time needed for the manual filtering process
- A Semantic Web search is based, as already said, on a ontology



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Why Semantic Web ?

Ontology: definition



- An ontology is essential for sharing data and for interoperability between web.
- An ontology is an annotated taxonomy of a specific “slice” of the real world.
- For example, an ontology is the definition of the professional education models and their standards in terms of professional competences.



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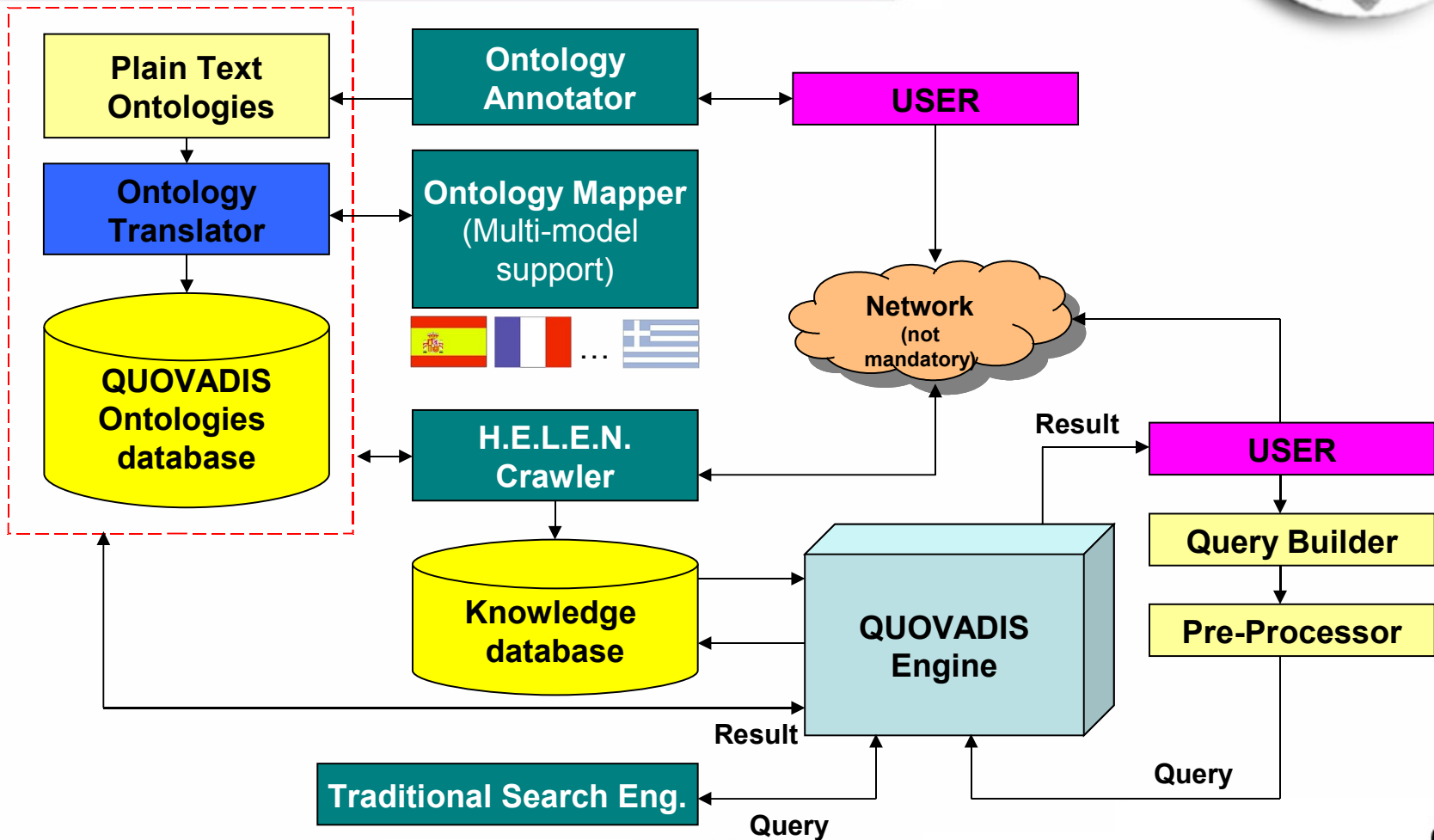
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QUOVADIS

Proposed architecture



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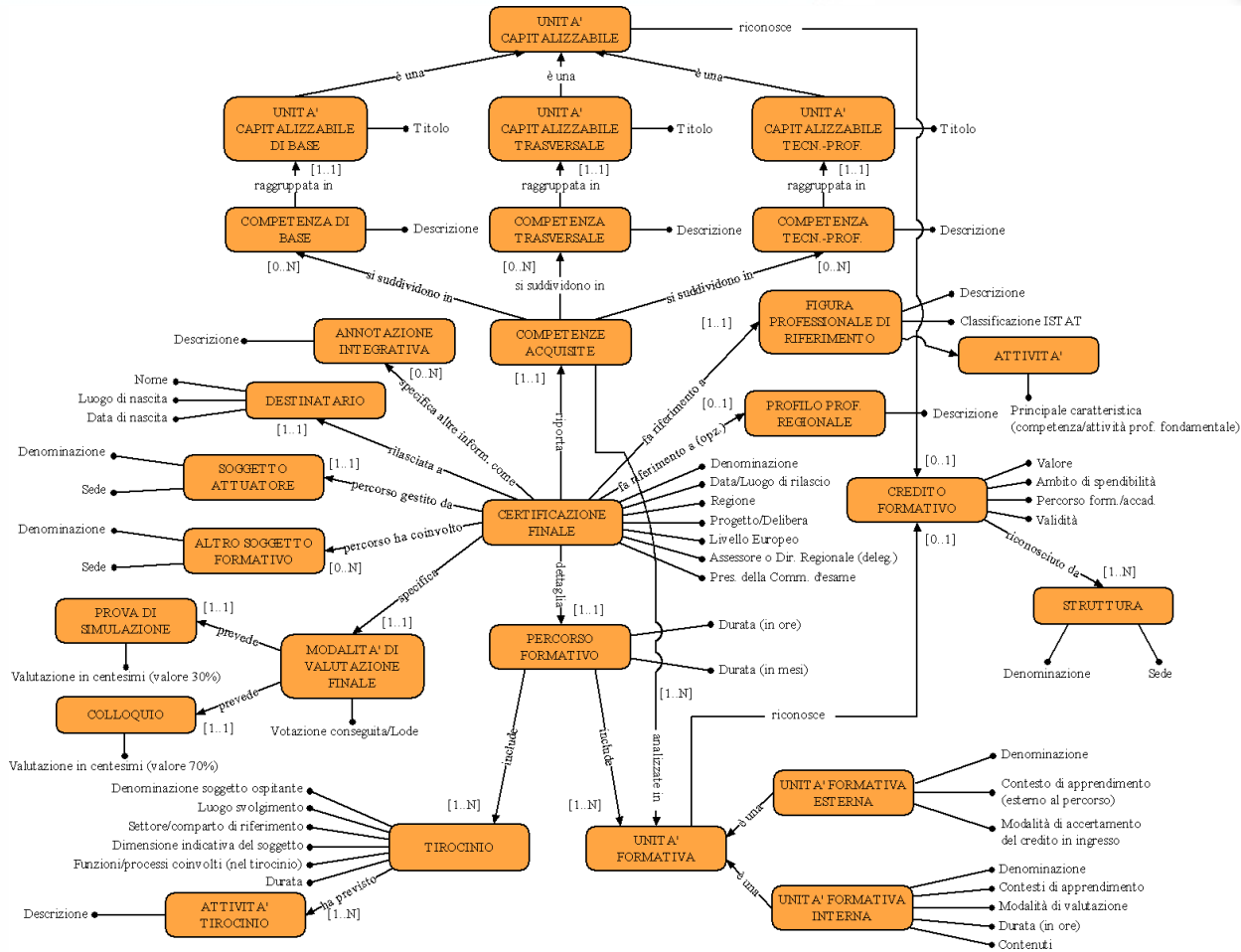
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Other formalization experiences

BEATRIC semantic network: IFTS Certificate



Other formalization experiences



BEATRIC semantic network: Certificate Supplement

