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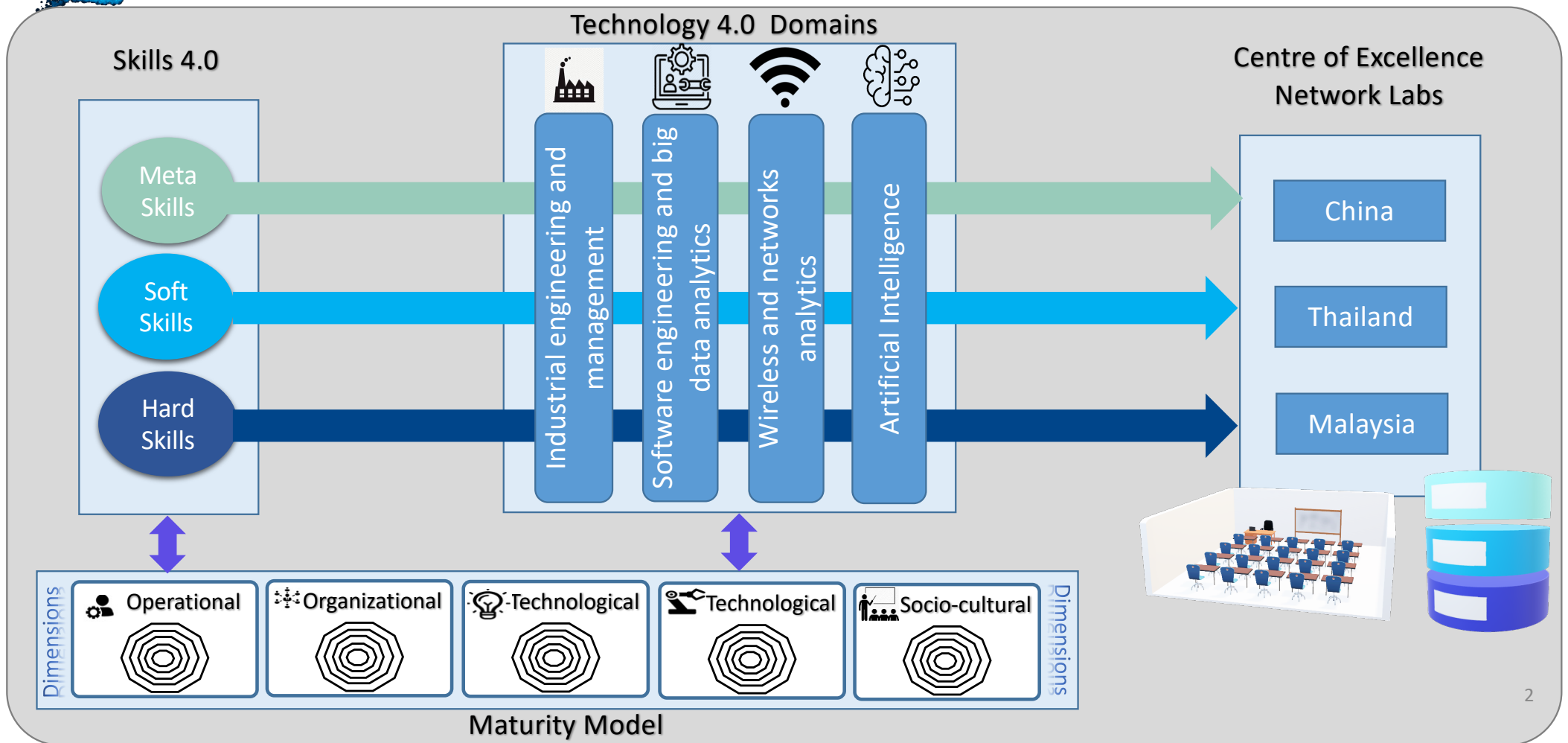
SHYFTE 4.0

Building Skills 4.0 through University and Enterprise Collaboration

THE SHYFTE Center of Excellence

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The Center of Excellence User Stories



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- Stakeholders:

- SHYFTE



- SME



- Students/trainees



- Universities



I want to know what are the demands of the enterprises about industry 4.0

I want to have the best prepared workers for industry 4.0

I want to learn the skills for industry 4.0

I would like to have the best advanced training programmes about industry 4.0



The Center of Excellence Engines / Services



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- Stakeholders:

- SHYFTE



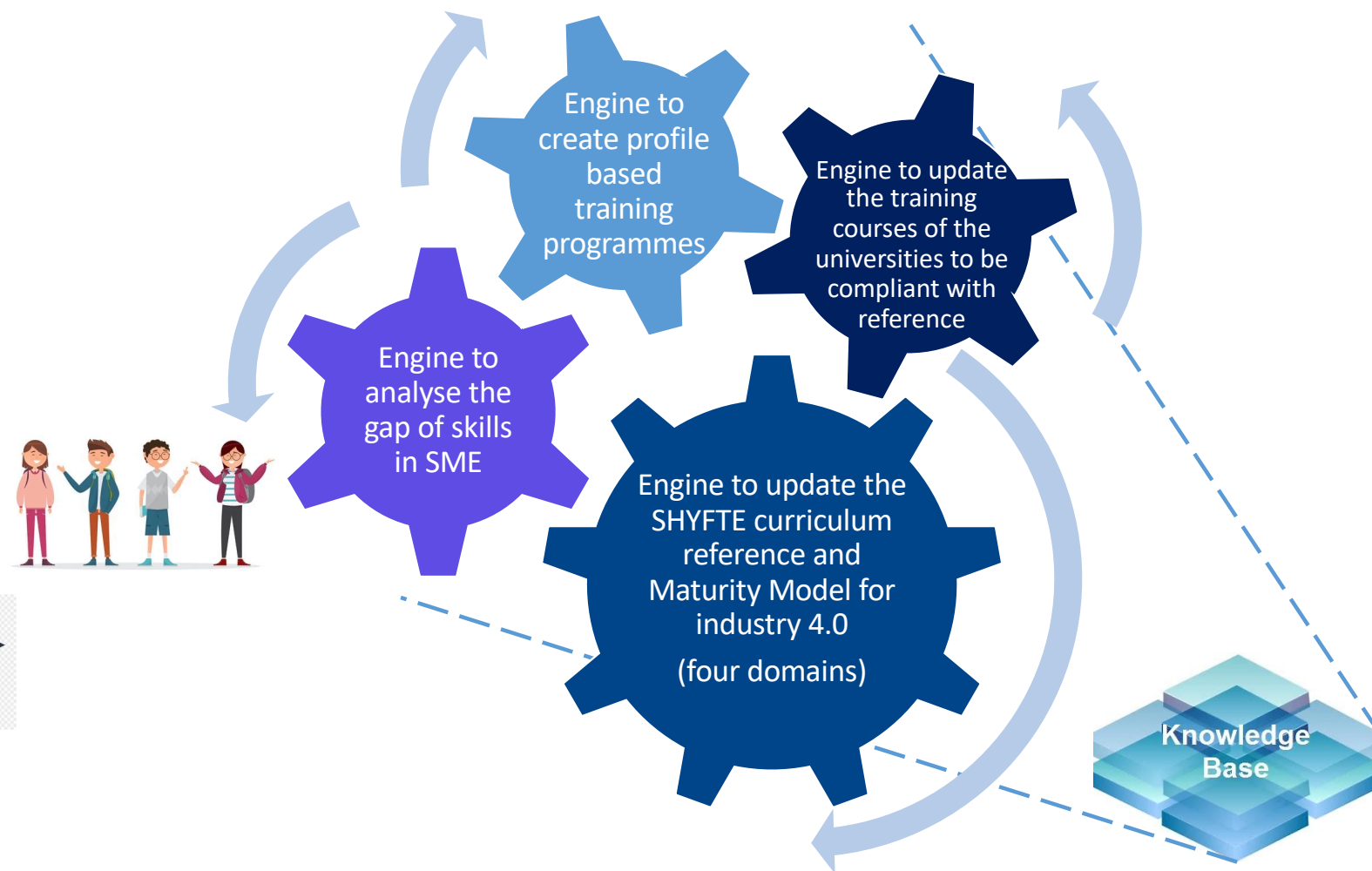
- SME



- Students/trainees



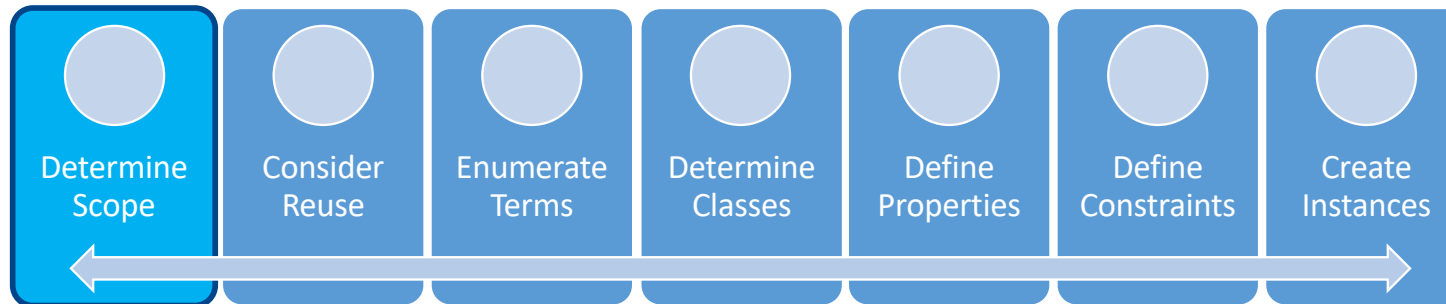
- Universities



- Ontology Development 101



Noy, F. N., McGuinness, L. (2001). Ontology development 101: A guide to creating your first ontology



- What is the domain that the ontology will cover?
 - Education: online training skills 4.0 with existing skills in HEIs in 4 SHYFTE domains (industrial engineering and management; software engineering and big data analytics; wireless and networks analytics)
- For what we are going to use the ontology?
 - Analysing the GAP by overlapping the Emergent skills 4.0 with existing skills in HEIs in 4 SHYFTE domains (industrial engineering and management; software engineering and big data analytics; wireless and networks analytics)
 - Industry 4.0 online training skills 4.0 with existing skills in HEIs in 4 SHYFTE domains (industrial engineering and management; software engineering and big data analytics; wireless and networks analytics)
 - Others accordingly to slide 4 engines...
- Who will use and maintain the ontology?
 - Center of Excellence Manager -> member of Universities for each country

Maturity Model Defined (SEE NEXT SLIDE as well)



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	SOFT SKILLS	HARD SKILLS	META SKILLS
Beginners	What need <u>to know</u> (soft) to be at beginner level	Equal as bellow for beginners ...	Equal as bellow for beginners ...
Intermediate	“ for intermediate ...	What need to be able <u>to do</u> to be at intermediate level	Equal as bellow for intermediate ...
Expert	“ for expert ...	“ for expert ...	What I <u>be</u> able to solve as an expert

Maturity Model Defined



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1. By domain: identify the skills based on the maturity level (by Skill sets/concepts)

	Soft Skills	Hard Skills	Meta Skills
Beginner		Topic 1 (how: theoretical) Topic2 (how: practical)	
Intermediate			
Expert			

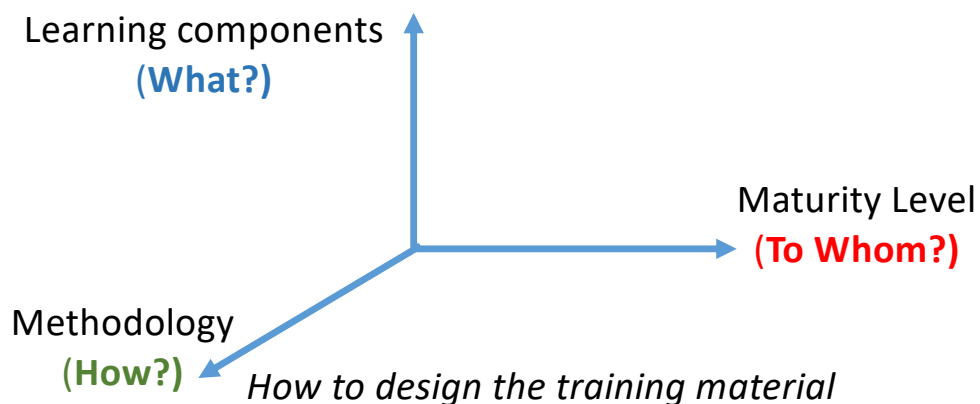
2. By domain: make the link between the Skills maturity level and the “services” provided by the learning center (Pilot)

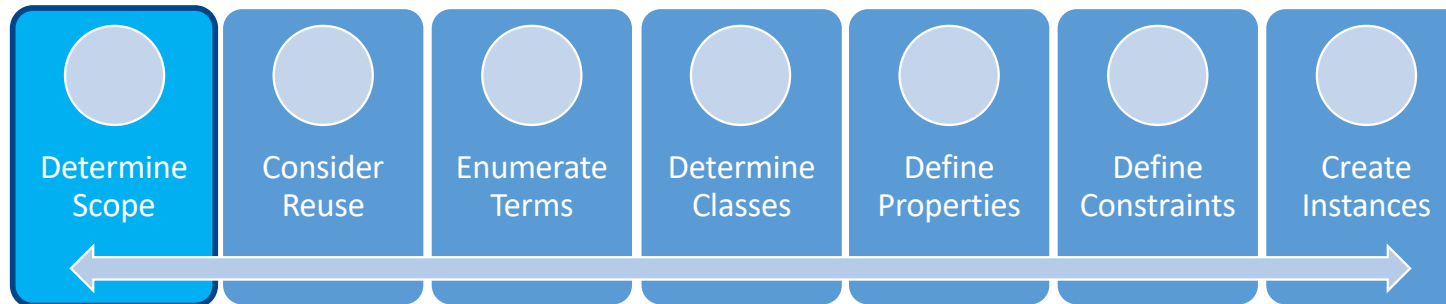
	Beg	Int	Exp
Courses definition	Content	Content	Content
	Method.	Method.	Method.
Learning component 2			
...			

To whom

What

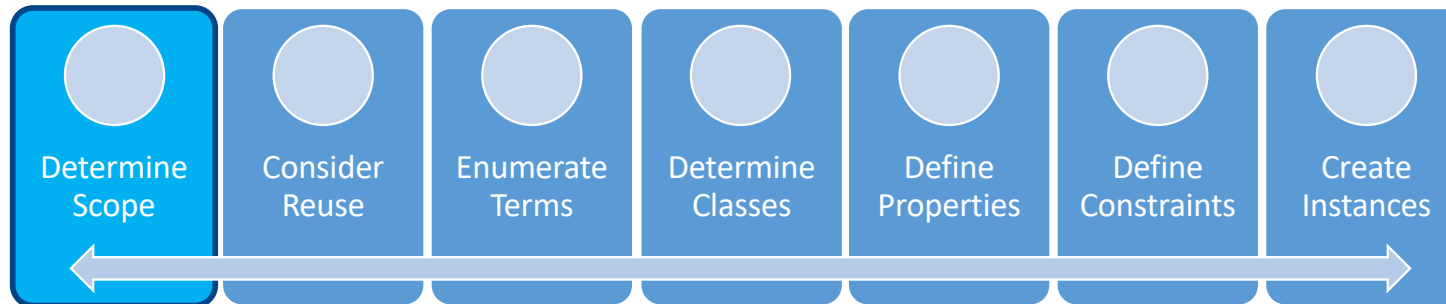
How



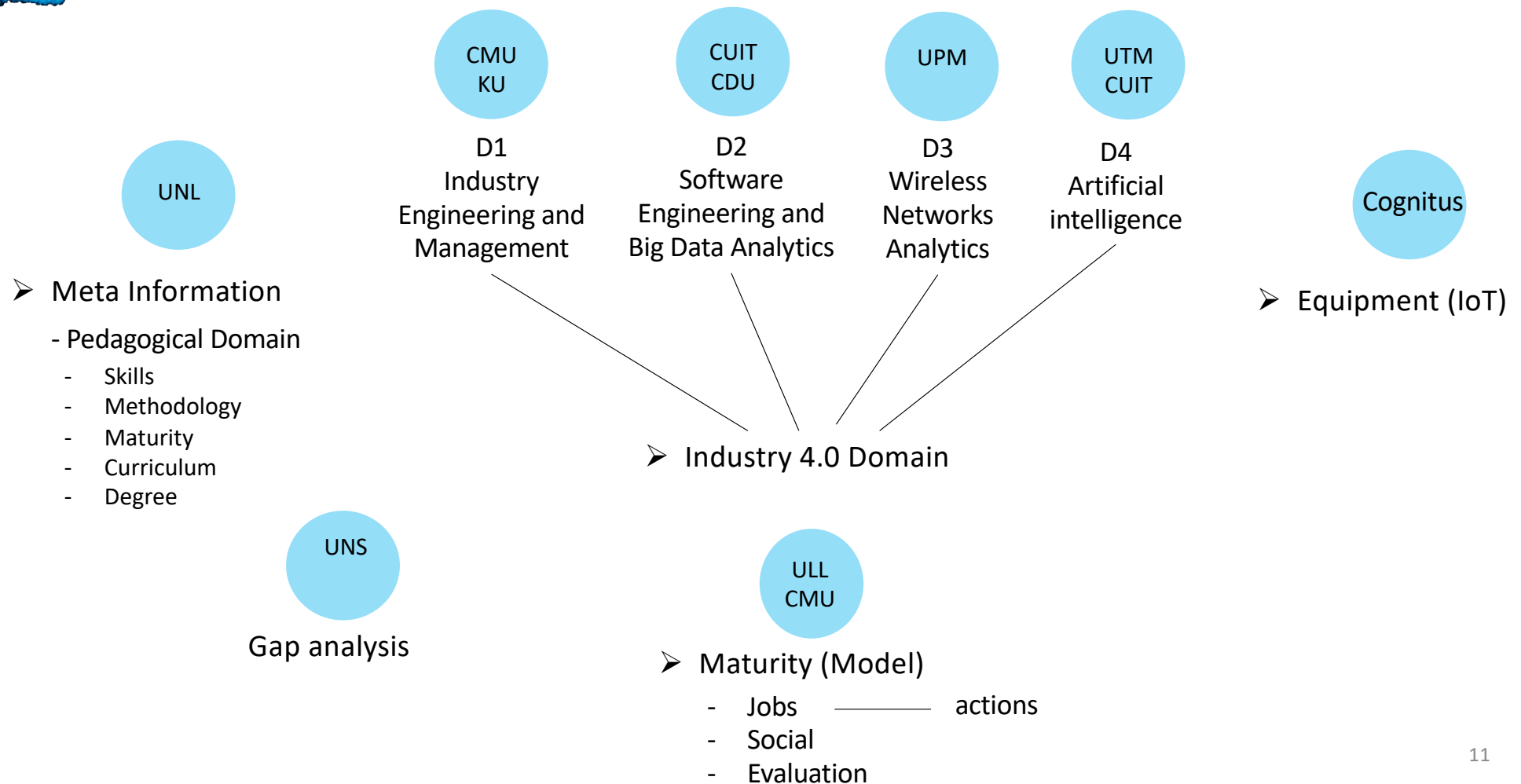


- Competency questions?

- Which properties of the competency should be considered for modelling?
 - How to do something
 - Use Maturity levels and associate it to competences
 - As an example the necessary competences to become an expert about Software Engineering and Big Data

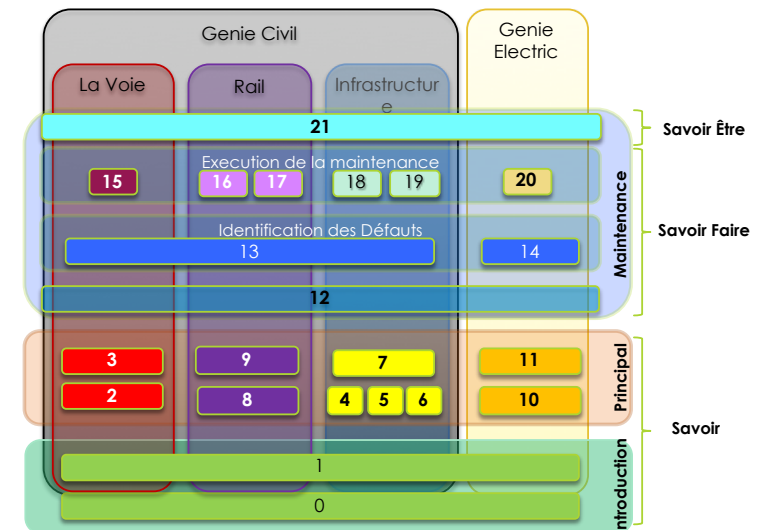


- Competency questions? – it was decided to have the ontology ready to answer these questions
 - Is “Artificial Intelligence Wireless Networks” course a *wireless and network analytics* domain or *artificial intelligence* domain?
 - Does “Industrial Simulation” course goes well with a arts student profile?
 - What is the best course for a student?
 - What is the best course for a job?
 - We should then be able to answer: what are the necessary training to perform a specific job?





- Inserted UNL developed E-learning ontology for training system
- It is able to define a training curriculum, which will be instantiated per domain and per country





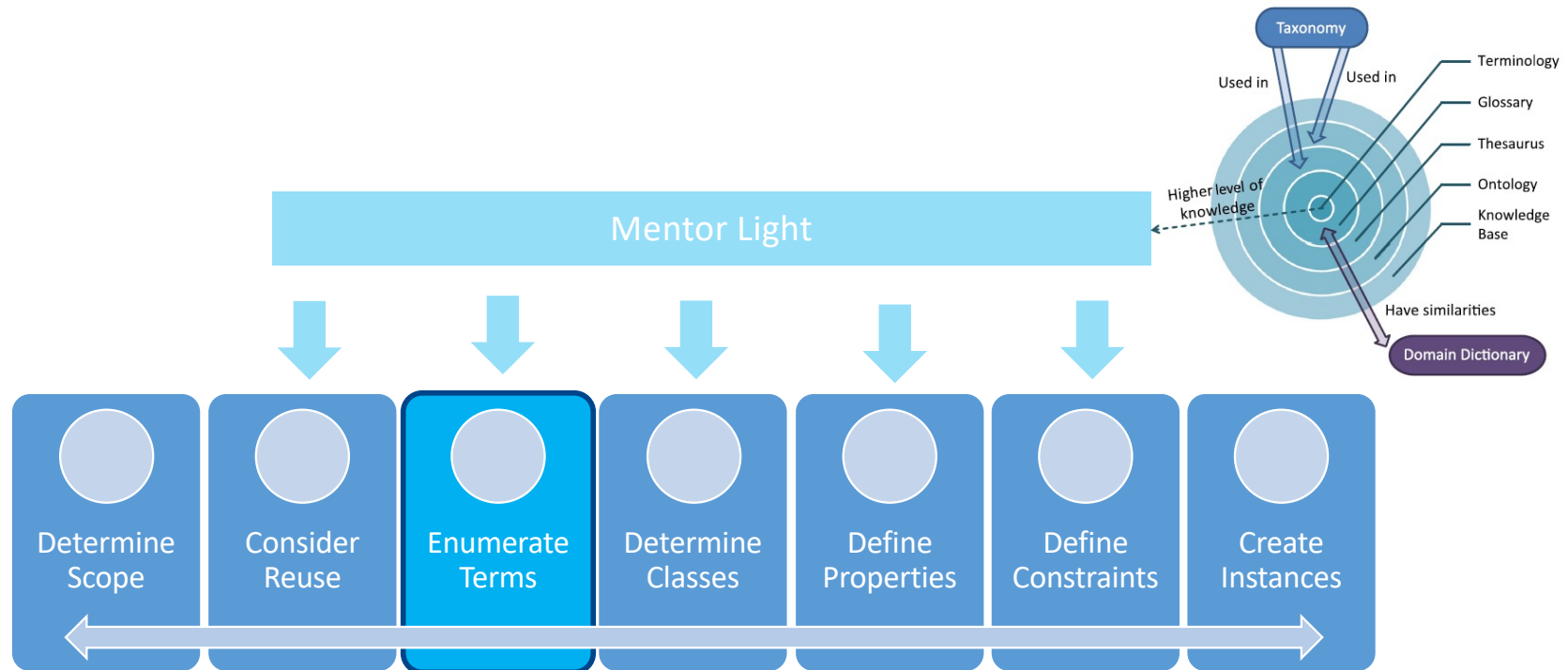
Training Course definition against maturity model

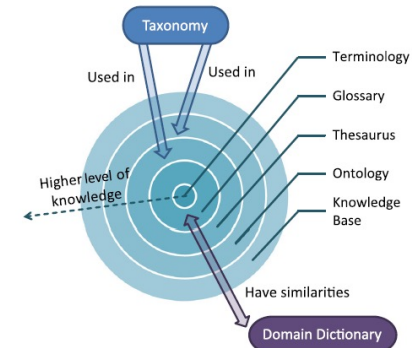
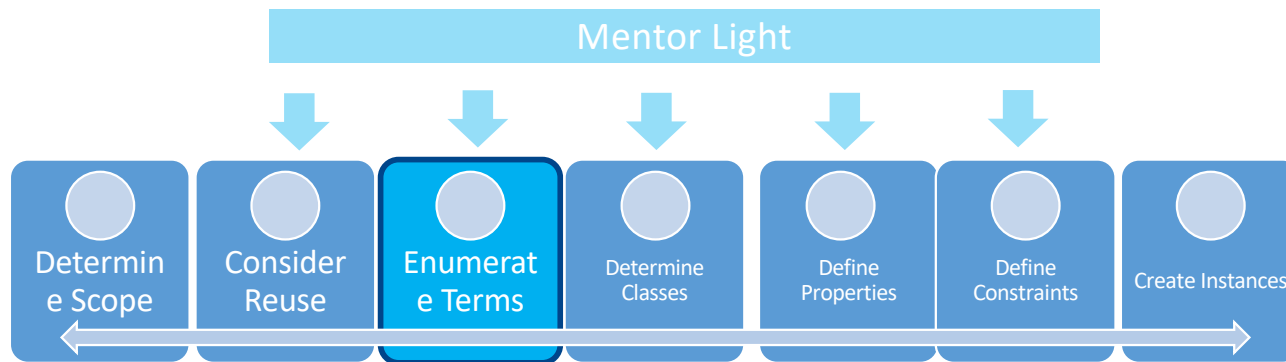


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Look to slide 7 and 8

- Course title
- Course Shyfte domain
- Concepts/terms/ to characterize the course
- Duration
- Define which level belongs to: beginner; intermediate; expert (only one)
- Define the course soft skills; hard skills; meta skills (it can have any or multiple of them).
- Modules (they should be more than one
 - Concepts/terms to characterize the module (they are a subset of the course ones)
 - The level is the same as the course.
 - Define the module soft skills; hard skills; meta skills (they are a subset of the course ones)
 - Define the module method
- ... there will be necessary other info but I think these are enough to start
- ... remember that a course is composed by a set of modules



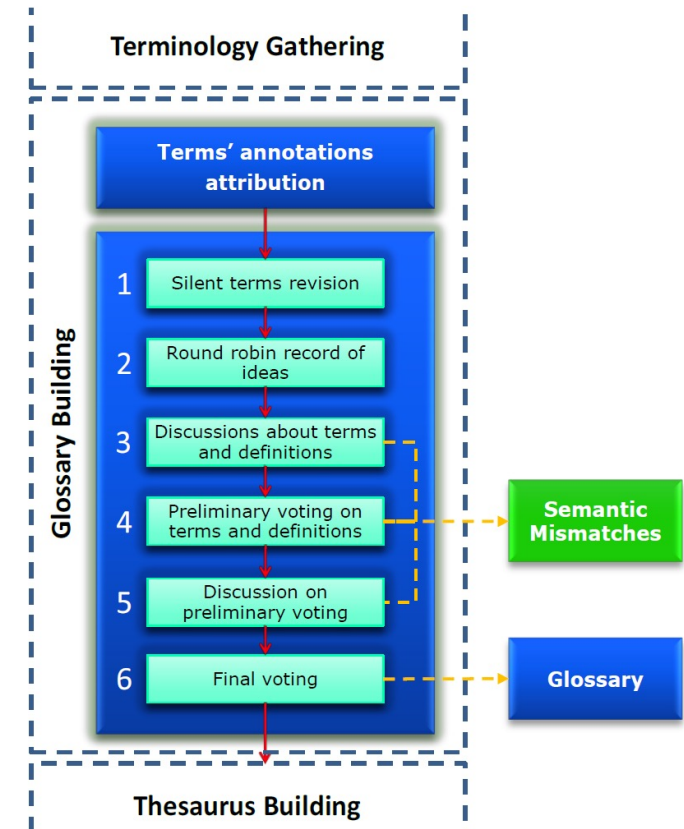


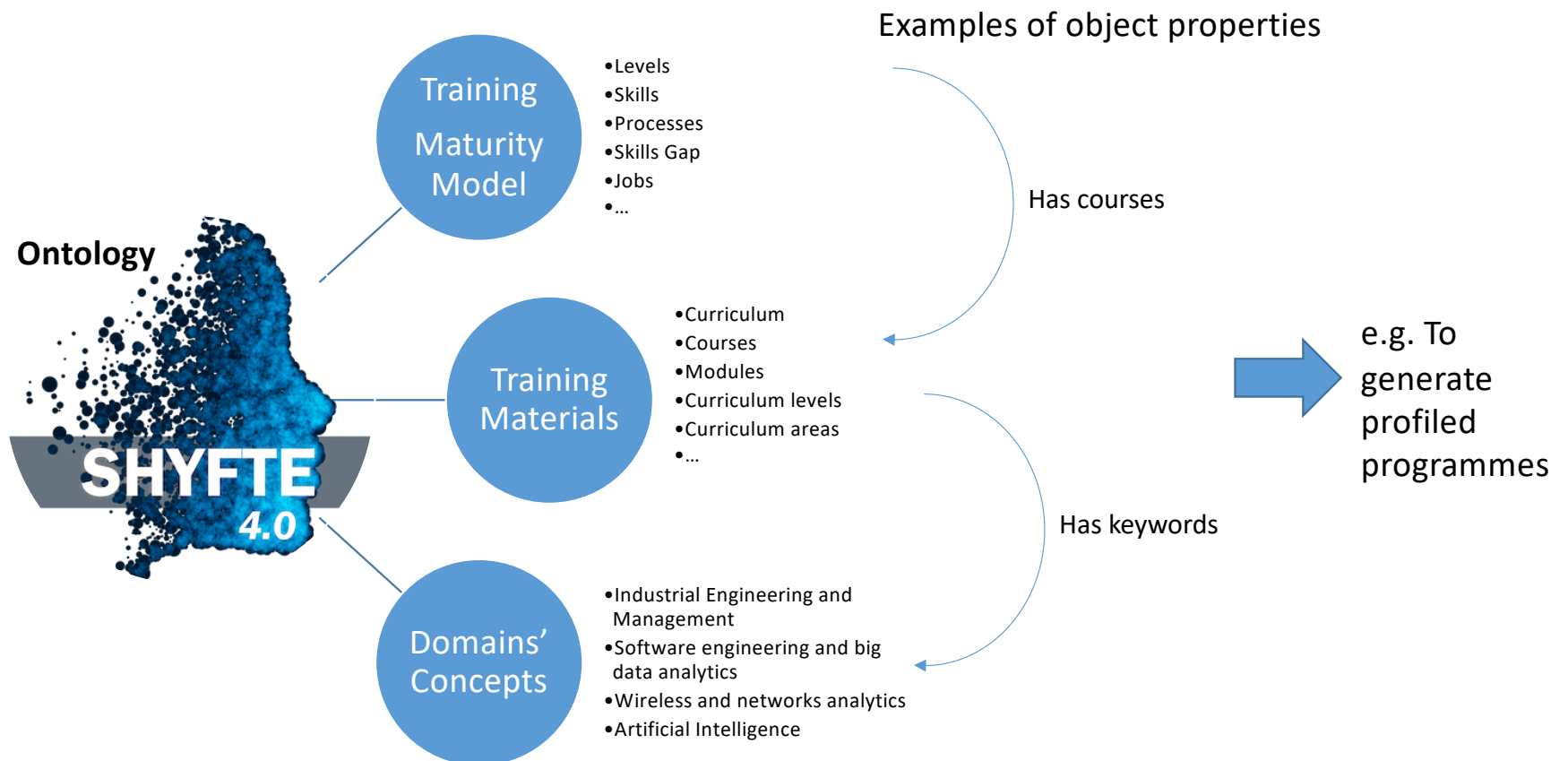
By Domain

- 1) Fill the online list
- 2) Add new concepts
- 3) Organizing it

- Artificial Intelligence
 - https://docs.google.com/spreadsheets/d/1ntiCAJu7dtEXoIR-Hm_WyLVec8fjdjacA3vKmiYyq4/edit#gid=0
- Software Engineering and Big Data Analytics
 - https://docs.google.com/spreadsheets/d/1Vah0vgRakjDq8Pb_pgKmN0lw3ByATePEj2Poxs9yvxxw/edit#gid=0
- Wireless Networks Analytics
 - https://docs.google.com/spreadsheets/d/1wY2k_1v44VgriW2YyRdbtFAulo9RMFY0QeoZYdi49IM/edit#gid=0
- Industry Engineering Management
 - https://docs.google.com/spreadsheets/d/1JFhFdpQ18vW0y7K7gr92Vxxpd1sYh_MthUU-J49t4H0/edit#gid=0

1. Annotations attribution to the terms
2. Terms revision
 - Step 1 - individual revision overall the list of terms, rating and commenting it.
 - Step 2 – participants write ideas concerning each term and definition
 - Step 3 – the system manager starts a discussion concerning the terms and its definitions. The goal is to decide which terms should be included in the glossary (term + definition)
 - Step 4 – preliminary voting process to verify if there is an agreement among participants
 - Step 5 – discussion to clarify doubts concerning terms or definitions
 - Step 6 – final voting in order to define the Glossary, with is the glossary.







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SHYFTE 4.0

Thank you !

University Nova of Lisbon